5th Asian Conference on Endometriosis
(ACE 2016)

Date: 22 (Thurs) – 24 (Sat) September, 2016

Venue: Osaka International Convention Center

Program & Abstracts

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Welcome Message

It is my great privilege and pleasure to welcome you on the 5th Asian Conference on Endometriosis (ACE) that is going to be held from September 22 to 24, 2016 in Osaka International Convention Center, Osaka, Japan.

The Asian Society of Endometriosis and Adenomyosis (ASEA) will provide a venue for exchange of research discoveries and ideas, sharing experience, insights and data for exploring enigma of endometriosis and better patient care. ACE will also give us an invaluable opportunity to discuss broad range of issues from basic research to clinical patient management of endometriosis with our participants and guests from around the world. ACE will show the proficiencies and activities of Asian scientists and clinicians in the field of endometriosis research toward the world.

ASEA has been continuously growing to meet and overcome challenges of endometriosis disease in Asian countries since 2010. The ASEA was founded by researchers from China, Taiwan, Korea, Turkey and Japan. The ACE meetings were successfully held in Shanghai (2010), Istanbul (2012), Seoul (2014) and Jordan (2015). We have welcomed new member countries including Jordan, Iran, Thailand, Sri Lanka, Phillipines, Indonesia, Singapore and Russia. Biennial meeting was changed to annual meeting with alternating meeting locations to promote research and to enhance clinical care for patients in Asia.

With the great support of Japanese organizing committee, we have 19 symposiums regarding basic and clinical issues of cutting edge of recent progress. I would like to express great thanks to all researchers who sent 182 abstracts for oral and poster presentations. I hope that you can enjoy debating hot issues and getting new information and idea for your future research and clinical practice. We also hope you have an enjoyable and exciting stay in Osaka, Japan.

Tasuku Harada MD, PhD
Congress President, 5th Asian Conference on Endometriosis
President of Asian Society of Endometriosis and Adenomyosis
Professor and Chair of Department of Obstetrics and Gynecology
Tottori University Faculty of Medicine
Vice director of Tottori University Hospital

Organization

Congress President	Tasuku Harada	
Honorary President	Naoki Terakawa	
ASEA Faculty Members	Amphan Chalermchokcharoenkit	Thailand
	Kutay Omer Biberoglu	Turkey
	Moamar Al-Jefout	Jordan
	Saeed Alborzi	Iran
	Shaw-Jenq Tsai	Taiwan
	Sun-Wei Guo	China
	Young Min Choi	Korea
Organizing Committee	Shigeo Akira	Masaaki Ando
	Kenichi Furuya	Akira Iwase
	Hidetaka Katabuchi	Jo Kitawaki
	Ryo Konno	Nagamasa Maeda
	Mikio Momoeda	Takashi Murakami
	Mikiya Nakatsuka	Hisashi Narahara
	Kaei Nasu	Hidetaka Okada
	Yutaka Osuga	Mitsuru Shiota
	Makio Shozu	Norihiro Sugino
	Atsushi Fukui	Khaleque Khan
	Kaori Koga	Tetsuo Maruyama
	Osamu Yoshino	Ritsuo Honda
	Yasuhiko Kamada	Michio Kitajima
	Hirotaka Masuda	Fuminori Taniguchi
	Yoshiaki Ota	Hiroshi Ishikawa

Meeting Information

Date and Venue

Date: September 22 (Thurs) - 24 (Sat), 2016
Venue: Osaka International Convention Center
5-3-51 Nakanoshima, Kita-ku, Osaka City, 530-0005, Japan
Tel: +81-6-4803-5585
URL: http://www.gco.co.jp/en/

Contact

Organizing Secretariat

5th Asian Conference on Endometriosis (ACE 2016)
c/o MA Convention Consulting, Inc.
Kojimachi Parkside Building 402, 4-7 Kojimachi, Chiyoda-ku, Tokyo 102-0083, Japan
TEL: 81-(0)3-5275-1191/FAX: 81-(0)3-5275-1192
E-mail: info@macc.jp

Official Website

http://ace2016osaka.umin.jp/index.html

Registration

Early-bird Registration 25,000 JPY (on/before September 14, 2016)
On-site Registration 30,000 JPY
Registration includes admission to all the scientific program/exhibition and meeting publications.
All registrants are invited to Banquet which takes place on September 23 (Fri), 2016.

Registration Desk: Foyer, 12F

Opening Hours
11 : 00 - 17 : 30, September 22 (Thurs)
8 : 00 - 18 : 30, September 23 (Fri)
8 : 00 - 13 : 00, September 24 (Sat)

On-site Registration

For on-site registration, payment must be made in Japanese yen by either credit card or cash.

Lunch

Lunch boxes will be provided free of charge at all luncheon seminars.
Lunch boxes will be provided at the entrance of each luncheon seminar's room on a first-come, first-served basis.

Social Event

Banquet

Date and Time: 19 : 00 - 21 : 00, September 23 (Fri)
Venue: *Sanraku*, 2F, Rihga Royal Hotel Osaka (located next to the congress venue)
Dress Code: Casual (buffet-style dinner will be served.)

Instructions Regarding Scientific Program

Instructions for Speakers of Oral Presentations

Presentation Length

Presentation length allotted for each speaker of each lecture/session is shown below.

Symposium	25 minutes (20-minute talk & 5-minute discussion)
Oral Session/Video Session	12 minutes (10-minute talk & 2-minute discussion)

All the oral presentations are guided by moderators.
Speakers are requested to strictly keep the allotted time.

Official Language

All the oral sessions (but Chinese Session) shall be offered in English.

PC Preview

All the speakers are requested to bring their presentation data on USB Flash Drive, CD-R or their own computer to PC Preview Desk and to upload their presentation data at least 30-min before their session.

PC Preview Desk : Foyer, 12F

Opening Hours
11 : 00 - 17 : 30, September 22 (Thurs)
8 : 00 - 18 : 30, September 23 (Fri)
8 : 00 - 13 : 00, September 24 (Sat)

[Notes]

1) Accepted application format is Windows Power Point 2003/2007/2010/2013.
2) Recommended typefaces are Century, Century Gothic, Arial, and Times New Roman. Please avoid special characters.
3) Please include the presentation number and presenter's name in the file name.
4) If you create your presentation using a Macintosh and/or moving images, please bring your own computer.
5) If you use your own computer, please bring your power adaptor.
6) Presenter Tool displaying your manuscript on PC monitor at the podium is not available.

Instructions for Moderators

All the moderators are requested to be seated at the next moderator's seat placed in the front row of the room 30-minutes before their session starts.

Instructions for Poster Presenters

All posters shall be set up during the following time:

11 : 00 - 11 : 50, September 22 (Thurs)

Poster Discussion

All posters are displayed throughout the period of the Meeting.
Poster Discussion shall take place on:

17 : 50 -18 : 30*, September 23 (Fri)

*During the Poster Discussion time, poster presenters are asked to stand by their own poster for free discussion.

All posters shall be removed during the following time:

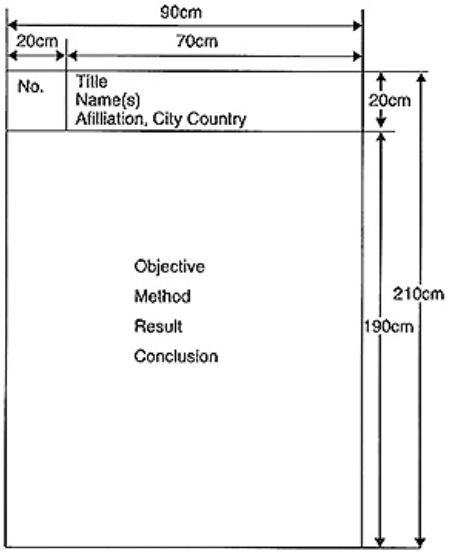
13 : 30 - 14 : 00, September 24 (Sat)

[Notes]

Posters not removed as of **14: 00, September 24** shall be **DISCARDED** by the Organizing Secretariat.

Guidelines for Poster Preparation

- All posters shall be prepared entirely in English.
- Each author is requested to indicate "title", "authors' names" and "authors' affiliations" on the top right of the poster board within an area of 70 cm wide × 20 cm high.
- A presentation number board to be put on the top left of each poster shall be prepared and attached by the Organizing Secretariat.
- Poster contents should be arranged to describe the "objective", "methods", "results" and "conclusion".
- Usable area of the contents 90 cm wide × 210 cm high in size. Layout of poster contents shall be decided at authors' discretion.
- The typeface used on posters should be at least 18 mm high so that the content can be read from a distance.
- Tables and figures should likewise be of an appropriate scale, with text large enough to be easily read.
- Posters shall be attached to poster boards using thumbtacks, which will be provided by the Organizing Secretariat. No paste, glue, staples and/or nails are permitted to use.
- There will be no reception for poster tour.



Instructions for Japanese participants/日本人参加者の皆さまへ

日本専門医機構　単位付与講習について

第 5 回アジア子宮内膜症会議では，下記のセッションにおいて日本専門医機構の単位を付与いたします.

9 月 22 日（木）15 : 45 - 17 : 30　産婦人科領域講習　1 単位
Sponsored Symposium I: *Current medical treatment of endometriosis*
9 月 23 日（金）16 : 00 - 17 : 40　産婦人科領域講習　1 単位
Sponsored Symposium II: *What is the optimal management of women with endometriosis?*
9 月 24 日（土）　8 : 40 - 10 : 20　産婦人科領域講習　1 単位
Symposium 3-1: *Novel approach to pathogenesis and carcinogenesis of endometriosis II*

機構専門医の認定講習は，各講習会場で対象セッション開始の 10 分前から講習参加受付を開始します．開始時間 10 分を過ぎた場合，聴講は可能ですが，機構専門医単位付与はされません．ご了承ください.

【産婦人科領域講習について】

・e 医学会カード（日本産科婦人科学会発行）で参加登録を行います.
・ご出席の先生はご自身の責任で e 医学会カードで参加登録を行ってください．各講習会場で e 医学会カードのバーコードを読み取ることで参加登録を行います.
※日本産科婦人科学会会員で e 医学会カードを紛失等でお持ちでない方
　運転免許証等でご本人確認の上，登録確認を行います.

生殖医療専門医ポイントについて

生殖医療専門医ポイントが学会参加で付与されます.
日本生殖医学会ポイント付与窓口で，専門医 IC カードを係にご提示ください.

※IC カードをお忘れになりますと，別途本人確認の手続きが必要となりますので，IC カードはお忘れなくお持ちください.

General Information About JAPAN

Passport & Visa

To visit Japan, visitors must have a valid passport. A visa is required for citizens of countries that do not have visa exemption agreements with Japan. Please contact your nearest Japanese Embassy or Consulate for visa requirements.

Duty Free Imports

Personal effects and professional equipment can be brought into Japan duty free as long as the items and quantities are deemed reasonable by the customs officer. Visitors can also bring in 400 cigarettes, 500g of tobacco or 100 cigars; 3 bottles of alcoholic beverages; 2oz of perfume; and gifts and souvenirs with a total market price of less than 200,000 yen or equivalent.
There is no allowance for tobacco or alcoholic beverages for persons aged 19 years or younger.
Firearms and other types of weapons and narcotics are strictly prohibited.

Insurance

The organizer accepts no responsibility for accidents that might occur. Delegates are encouraged to purchase travel insurance before leaving their home countries. Insurance plans typically cover accidental loss of belongings, medical costs in case of injury or illness, and other risks of international travel.

Climate

The temperature in Osaka during the period of the Meeting could range between 22℃ - 30℃.

Currency Exchange

Only Japanese yen (¥) is acceptable at regular stores and restaurants. Certain foreign currencies may be accepted at a limited number of hotels, restaurants and souvenir shops. You can buy yen at foreign exchange banks on presentation of your passport.

Traveler's Checks & Credit Cards

Traveler's checks are accepted only by leading banks and major hotels in principal cities, and the use of traveler's checks in Japan is not as popular as in some other countries. VISA, MasterCard, Diners Club, and American Express are widely accepted at hotels, department stores, shops, restaurants and nightclubs.

Tipping

In Japan, tips are not necessary anywhere, even at hotels and restaurants.

Electricity

Electric current is uniformly 100 volts AC throughout Japan. However, electricity is provided at either 50 or 60 cycles, depending on location: 50 cycles in eastern Japan (including Tokyo); and 60 cycles in western Japan. Leading hotels in major cities often provide two types of electrical outlets (100 volts and 220 volts), but their sockets usually accept only two pronged plugs.

Shopping

Shops and other sales outlets in Japan are generally open on Saturdays, Sundays and national holidays as well as weekdays from 10: 00 to 19: 00. Department stores, however, are closed on one weekday a week differing by store. Certain specialty shops may not open on Sundays and national holidays.

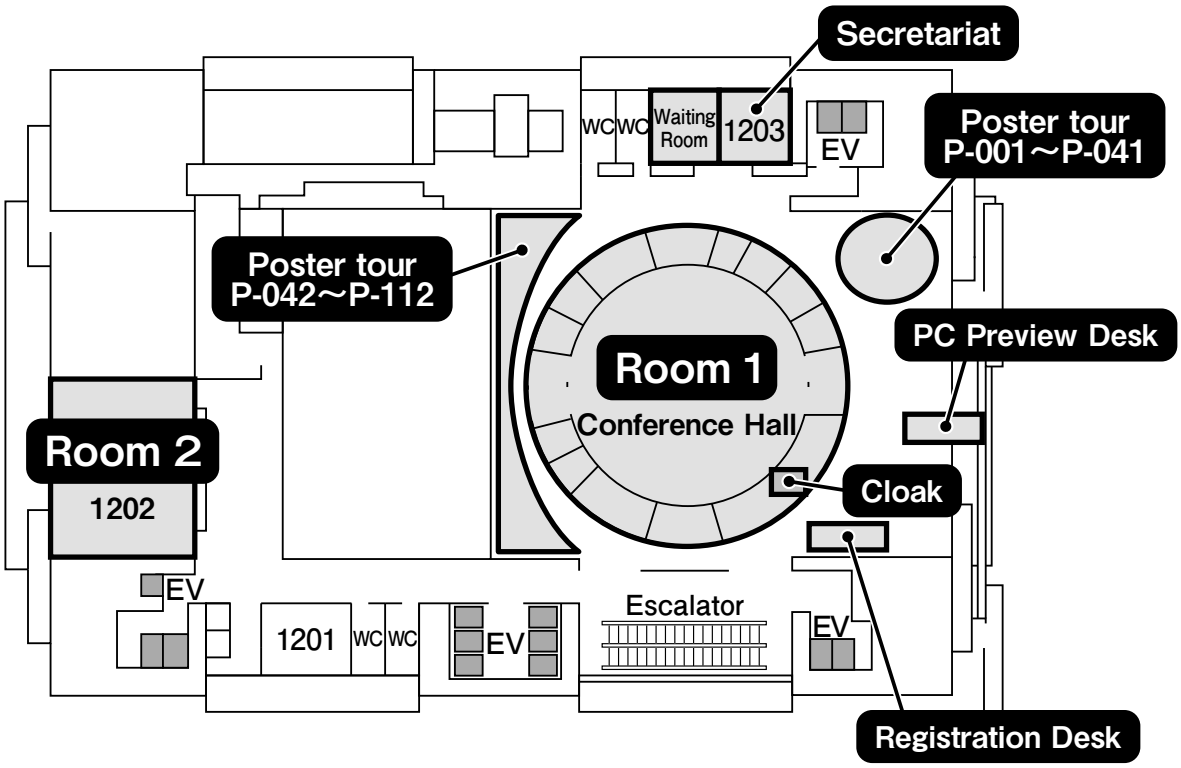
Access to Venues

Nearest stations guide

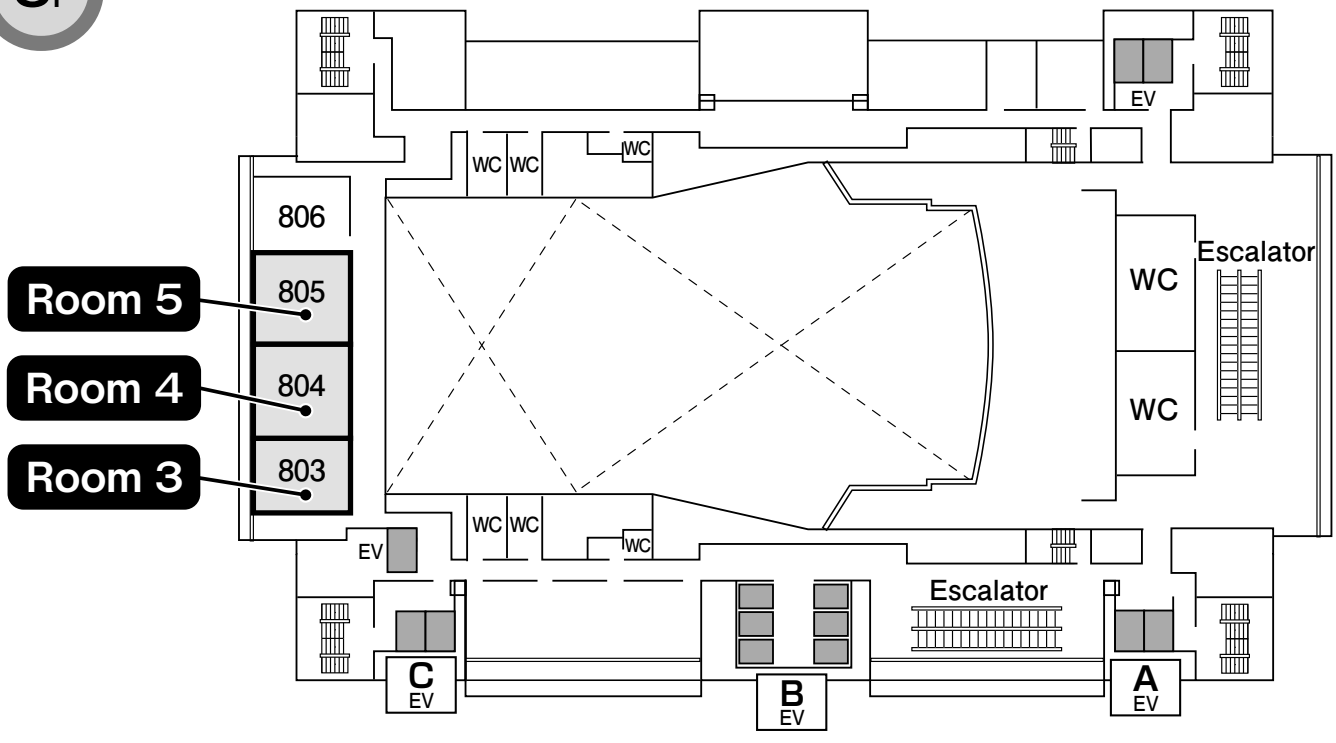
- **Keihan Nakanoshima Line**
  Next to Exit No.2 of Keihan Nakanoshima (Osaka International Convention Center) Station.
- **JR Loop Line**
  15-minute walk from Fukushima Station.
- **Hanshin Railway**
  10-minute walk from Exit No.3 of Fukushima Station.

Floor Map

12F



8F



[Day 1] September 22 (Thursday)

	Room 1 (Conference Hall)	Room 2 (1202)	Room 3 (803)	Room 4 (804)	Room 5 (805)	Poster Tour (Foyer)
8:30						
9:00						
10:00			10:00~11:00 **ASEA meeting (@12F 1201)**			
11:00						
12:00	11:50~12:00 **Opening Ceremony** 12:00~13:00 **Luncheon Seminar 1** New concept on pathogenesis of endometriosis Moderators : Sun-Wei Guo Yutaka Osuga LS1-1 Tasuku Harada LS1-2 Khaleque Khan Fuji Pharma Co., Ltd.					**Poster**
13:00						
14:00	14:00~15:15 **Symposium 1-1** Epigenetics and stem cell research in pathogenesis of endometriosis Moderators : Shaw-Jenq Sean Tsai Tetsuo Maruyama SY1-1-1 Hirotaka Masuda SY1-1-2 Ryo Maekawa SY1-1-3 Asgi T. Fazleabas	14:00~15:15 **Symposium 1-2** Adolescent endometriosis Moderators : Osamu Yoshino Moamar Al-Jefout SY1-2-1 Angela G. Sison-Aguilar SY1-2-2 Lone Hummelshoj SY1-2-3 Kutay Biberoglu				
15:00						
16:00	15:45~17:30 **Sponsored Symposium I** Current medical treatment of endometriosis Moderators : Young Min Choi Norihiro Sugino SS1-1 Mikio Momoeda SS1-2 Felice Petraglia SS1-3 Jo Kitawaki Takeda Pharmaceutical Co., Ltd.	15:45~17:30 **Symposium 1-3** Novel approach to pathogenesis and carcinogenesis of endometriosis I Moderators : Chii-Ruey Tzeng Kaei Nasu SY1-3-1 Kaei Nasu SY1-3-2 Meng-Hsing Wu SY1-3-3 Ken Yamaguchi SY1-3-4 Hirohiko Tani				
17:00						
18:00						
19:00						

[Day 2] September 23 (Friday)

Room 1 (Conference Hall)

8:40～10:20
Symposium 2-1
Key mediators in pathogenesis of adenomyosis
Moderators :
Makio Shozu
Sachiko Matsuzaki
SY2-1-1 Sun-Wei Guo
SY2-1-2 Felice Petraglia
SY2-1-3 Khaleque Khan
SY2-1-4 Yasushi Hirota

10:40～12:20
Symposium 2-2
Clinical management of adenomyosis
Moderators :
Takashi Murakami
Saeed Alborzi
SY2-2-1 Hong-Yuan Huang
SY2-2-2 Charles Chapron
SY2-2-3 Yohei Kishi
SY2-2-4 Masato Nishida

12:40～14:00
Luncheon Seminar 2-1
Advanced surgery for endometriosis (Joint session with APAGE)
Moderators : Ryo Konno
Mitsuru Shiota
LS2-1-1 Shigeo Akira
LS2-1-2 Masaaki Andou
LS2-1-3 Chyi-Long Lee
LS2-1-4 Chih-Feng Yen
Johnson & Johnson K. K.

14:20～15:35
Symposium 2-3
Aspects of immune and inflammatory reaction
Moderators :
Aydin Arici
Yutaka Osuga
SY2-3-1 Tetsuya Hirata
SY2-3-2 Nagamasa Maeda
SY2-3-3 Asgi T. Fazleabas

16:00～17:40
Sponsored Symposium II
What is the optimal management of women with endometriosis?
Moderators :
Tasuku Harada
Mikio Momoeda
SS2-1 Charles Chapron
SS2-2 Felice Petraglia
SS2-3 Yoshiaki Ota
Bayer Yakuhin Ltd.

Room 2 (1202)

8:40～10:20
Symposium 2-4
Infertility and ovarian reserve
Moderators :
Mikiya Nakatsuka
Ovrang Djahanbakhch
SY2-4-1 Michio Kitajima
SY2-4-2 Akira Iwase
SY2-4-3 Saeed Alborzi
SY2-4-4 Chii-Ruey Tzeng

10:40～12:20
Symposium 2-5
Controversies in surgery for endometriosis
Moderators :
Kaori Koga
Amphan Chalermchokcharoenkit
SY2-5-1 Anton Fedorov
SY2-5-2 Xinmei Zhang
SY2-5-3 Atsushi Fukui
SY2-5-4 Amphan Chalermchokcharoenkit

12:40～13:40
Luncheon Seminar 2-2
Estrogen and endometriosis
Moderators: Shaw-Jenq Sean Tsai
Kiyoshi Takamatsu
LS2-2-1 Makio Shozu
LS2-2-2 Fuminori Taniguchi
Nobelpharma Co., Ltd./
Nippon Shinyaku Co., Ltd.

14:00～15:15
Symposium 2-6
Diagnostic challenges in endometriosis
Moderators :
Xinmei Zhang
Hidetaka Okada
SY2-6-1 Kyu Sup Lee
SY2-6-2 Hiroshi Kobayashi
SY2-6-3 Yoke-Fai Fong

15:40～16:40
Selected Oral 1
Moderators :
Ken-ichi Furuya
Sun-Wei Guo
(Clin-S1～Clin-S5)

16:40～17:40
Selected Oral 2
Moderators :
Hisashi Narahara
Shaw-Jenq Sean Tsai
(Basic-S1～Basic-S5)

Room 3 (803)

9:00～10:00
Oral 2-1
Moderators :
Jinghua Leng
Hiroshi Ishikawa
(O-01～O-04)

10:00～11:00
Oral 2-2
Moderators :
Yong Taik Lim
Yasuhiko Kamada
(O-05～O-09)

14:00～15:00
Video Session
Moderators :
Xishi Liu
Imari Deura
(VS1～VS5)

Room 4 (804)

9:00～10:00
Oral 2-3
Moderators :
Guoyun Wang
Hidetaka Okada
(O-10～O-13)

10:00～11:00
Oral 2-4
Moderators :
Hermawan Wibisono
Ritsuo Honda
(O-14～O-17)

14:00～15:00
Oral 2-5
Moderators :
Shih-Chieh Lin
Atsushi Fukui
(O-18～O-21)

15:00～16:00
Oral 2-6
Moderators :
Pei-Chin Chuang
Masao Izawa
(O-22～O-25)

Room 5 (805)

9:00～10:00
Oral 2-7
Moderators :
Hua Duan
Yoshiaki Ota
(O-26～O-29)

10:00～11:00
Oral 2-8
Moderators :
Taek Hoo Lee
Michio Kitajima
(O-30～O-34)

14:00～15:00
Oral 2-9
Moderators :
Sung Hoon Kim
Miyuki Harada
(O-35～O-38)

15:00～16:00
Oral 2-10
Moderators :
Hemantha Senanayake
Masato Nishida
(O-39～O-43)

Poster Tour (Foyer)

Poster

17:50～18:30
Poster Discussion

19:00～20:30
Banquet @Chamber "Sanraku", Rihga Royal Hotel Osaka

[Day 3] September 24 (Saturday)

Room 1 (Conference Hall)

8:40～10:20
Symposium 3-1
Novel approach to pathogenesis and carcinogenesis of endometriosis II
Moderators :
Hisashi Narahara
Yoke-Fai Fong
SY3-1-1 Shaw-Jenq Sean Tsai
SY3-1-2 Sung Hoon Kim
SY3-1-3 Shun-ichiro Tsuji
SY3-1-4 Masanori Ono

10:35～11:50
Symposium 3-2
Development of future medical treatment
Moderators :
Jo Kitawaki
Kutay Omer Biberoglu
SY3-2-1 SiHyun Cho
SY3-2-2 Toshiaki Shibata
SY3-2-3 Sachiko Matsuzaki

12:20～13:20
Luncheon Seminar 3
Recurrence of endometrioma and its prevention
Moderators:Hiroshi Kobayashi
Takashi Murakami
LS3-1 Charles Chapron
LS3-2 Kaori Koga
Mochida Pharmaceutical Co., Ltd.

13:20～13:30 **Closing Ceremony**

Room 2 (1202)

8:40～11:10
Special Symposium 3-3
Moderators :
Angela S. Aguilar
Anton Fedorov
SSY3-3-1 Raden Muharam
SSY3-3-2 Aydin Arici
SSY3-3-3 Jinhua Leng
SSY3-3-4 Yi-Jen Chen
SSY3-3-5 Moamar Al-Jefout
SSY3-3-6 Hemantha Senanayake

11:20～12:20
Osaka IVF Session
Moderator : Hidetaka Okada
IVF-1 Hidetaka Okada
IVF-2 Yoshiharu Nakaoka
IVF-3 Mamoru Ida

Room 3 (803)

Room 4 (804)

9:00～10:00
Oral 3-1
Moderators :
Danbo Wang
Hirotaka Masuda
(O-44～O-47)

10:00～11:00
Oral 3-2
Moderators :
Kyu Sup Lee
Akira Iwase
(O-48～O-51)

Room 5 (805)

9:00～10:00
Oral 3-3
Moderators :
Meng-Hsing Wu
Yasushi Hirota
(O-52～O-55)

10:00～11:00
China Session (in English/ Chinese)
Moderators: Mingqing Li
Guoyun Wang
CS-1 Guoyun Wang
CS-2 Dingmin Yan
CS-3 Danbo Wang

Poster Tour (Foyer)

Poster

8:30
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00

Program

[Day 1] September 22 (Thursday)
Room 1 (Conference Hall)

Opening Ceremony

Date and Time: September 22 (Thursday) 11:50~12:00
Session Room: Room 1 (Conference Hall)

Luncheon Seminar 1
New concept on pathogenesis of endometriosis

Co-sponsored by Fuji Pharma Co., Ltd.

Date and Time: September 22 (Thursday) 12:00~13:00
Session Room: Room 1 (Conference Hall)
Moderators: Sun-Wei Guo
(Fudan University, China)
Yutaka Osuga
(The University of Tokyo, Japan)

LS1-1 **Sampson's theory: Past-present-future**
Tasuku Harada
(Tottori University, Japan)

LS1-2 **Role of bacterial contamination in endometriosis**
Khaleque Khan
(Kyoto Prefectural University of Medicine, Japan)

Symposium 1-1
Epigenetics and stem cell research in pathogenesis of endometriosis

Date and Time: September 22 (Thursday) 14:00~15:15
Session Room: Room 1 (Conference Hall)
Moderators: Shaw-Jenq Sean Tsai
(National Cheng Kung University, Taiwan)
Tetsuo Maruyama
(Keio University, Japan)

SY1-1-1 **Endometrial stem/progenitor cells and endometriosis**
Hirotaka Masuda
(Keio University, Japan)

SY1-1-2 Epigenetic regulation of endometriosis
Ryo Maekawa
(Yamaguchi University, Japan)

SY1-1-3 Epigenetic regulation of steroid hormone responsiveness in endometriosis
Asgi T. Fazleabas
(Michigan State University, USA)

Sponsored Symposium I
Current medical treatment of endometriosis

Co-sponsored by Takeda Pharmaceutical Co., Ltd.

Date and Time: September 22 (Thursday) 15:45~17:30
Session Room: Room 1 (Conference Hall)
Moderators: Young Min Choi
(Seoul National University, Korea)
Norihiro Sugino
(Yamaguchi University, Japan)

SS1-1 Overview on current drug therapy for endometriosis
Mikio Momoeda
(St. Luke's International Hospital, Japan)

SS1-2 Vaginal progestins for the endometriosis related pain
Felice Petraglia
(University of Siena, Italy)

SS1-3 Long-term management of endometriosis-associated pelvic pain
Jo Kitawaki
(Kyoto Prefectural University of Medicine, Japan)

Room 2 (Conference Room [1202])

Symposium 1-2
Adolescent endometriosis

Date and Time: September 22 (Thursday) 14:00~15:15
Session Room: Room 2 (Conference Room [1202])
Moderators: Osamu Yoshino
(University of Toyama, Japan)
Moamar Al-Jefout
(UAE University, UAE)

SY1-2-1 Endometriosis among adolescents and young adults: incidence and management
Angela G. Sison-Aguilar
(University of the Phillippines College of Medicine, Phillippines)

SY1-2-2 Endometriosis in the adolescent
Lone Hummelshoj
(World Endometriosis Society, UK)

SY1-2-3 The management of endometriosis in adolescent
Kutay Biberoglu
(Gazi University Medical School, Turkey)

Symposium 1-3
Novel approach to pathogenesis and carcinogenesis of endometriosis I

Date and Time: September 22 (Thursday) 15:45~17:30
Session Room: Room 2 (Conference Room [1202])
Moderators: Chii-Ruey Tzeng
(Taipei Medical University, Taiwan)
Kaei Nasu
(Oita University, Japan)

SY1-3-1 Roles of microRNAs in the pathogenesis of endometriosis
Kaei Nasu
(Oita University, Japan)

SY1-3-2 The role of angiogenesis in the pathogenesis of endometriosis
Meng-Hsing Wu
(National Cheng Kung University, Taiwan)

SY1-3-3 Carcinogenesis and stress resistance of ovarian clear cell carcinoma associated with endometriosis
Ken Yamaguchi
(Kyoto University, Japan)

SY1-3-4 Role of versican in the pathogenesis of peritoneal endometriosis
Hirohiko Tani
(Kyoto University, Japan)

[Day 2] September 23 (Friday)
Room 1 (Conference Hall)

Symposium 2-1
Key mediators in pathogenesis of adenomyosis

Date and Time: September 23 (Friday) 8:40~10:20
Session Room: Room 1 (Conference Hall)
Moderators: Makio Shozu
(Chiba University, Japan)
Sachiko Matsuzaki
(CHU Clemont-Ferrand/University of Auvergne, France)

SY2-1-1 **Is endometriosis a procoagulant disease?**
Sun-Wei Guo
(Fudan University, China)

SY2-1-2 **Inflammatory and neurogenic mediators in adenomyosis**
Felice Petraglia
(University of Siena, Italy)

SY2-1-3 **Role of epithelial-mesenchymal transition in human adenomyosis**
Khaleque Khan
(Kyoto Prefectural University of Medicine, Japan)

SY2-1-4 **IL-6/STAT3 signaling in adenomyosis**
Yasushi Hirota
(The University of Tokyo, Japan)

Symposium 2-2
Clinical management of adenomyosis

Date and Time: September 23 (Friday) 10:40~12:20
Session Room: Room 1 (Conference Hall)
Moderators: Takashi Murakami
(Shiga University of Medical Science, Japan)
Saeed Alborzi
(Shiraz University of Medical Science, Iran)

SY2-2-1 **Molecular features of the endometrial-myometrial interface in adenomyosis**
Hong-Yuan Huang
(Chang Gung Memorial Hospital, Taiwan)

SY2-2-2 **Relationship between endometriosis and adenomyosis: clinical implications**
Charles Chapron
(Paris Descartes University / Cochin University, France)

SY2-2-3 Subtypes of adenomyosis assessed by MRI and their specification
Yohei Kishi
(Nara Medical University, Takanohara Central Hospital, Japan)

SY2-2-4 Conservative surgical treatment of adenomyosis
Masato Nishida
(Kasumigaura Medical Center, Japan)

Luncheon Seminar 2-1
Advanced surgery for endometriosis (Joint session with APAGE)

Co-sponsored by Johnson & Johnson K. K.

Date and Time: September 23 (Friday) 12:40~14:00
Session Room: Room 1 (Conference Hall)
Moderators: Ryo Konno
(Jichi Medical University Saitama Medical Center, Japan)
Mitsuru Shiota
(Kawasaki Medical School, Japan)

LS2-1-1 Systematic laparoscopic surgery for deep infiltrating endometriosis
Shigeo Akira
(Nippon Medical School, Japan)

LS2-1-2 Challenge for extragenital endometriosis
Masaaki Andou
(Kurashiki Medical Center, Japan)

LS2-1-3 Urinary tract endometriosis (UTE)
Chyi-Long Lee
(Chang Gung Memorial Hospital, Taiwan)

LS2-1-4 Conservative surgery for uterine adenomyosis
Chih-Feng Yen
(Linkou Chang Gung Memorial Hospital, Taiwan)

Symposium 2-3
Aspects of immune and inflammatory reaction

Date and Time: September 23 (Friday) 14:20~15:35
Session Room: Room 1 (Conference Hall)
Moderators: Aydin Arici
(Yale University, USA)
Yutaka Osuga
(The University of Tokyo, Japan)

SY2-3-1 The role of Th17 cytokines in endometriosis
Tetsuya Hirata
(The University of Tokyo, Japan)

SY2-3-2 Peritoneal NK cell suppression in endometriosis

Nagamasa Maeda

(Kochi Medical School, Japan)

SY2-3-3 Inflammatory pathways that contribute to the development of endometriosis

Asgi T. Fazleabas

(Michigan State University, USA)

Sponsored Symposium II
What is the optimal management of women with endometriosis?

Co-sponsored by Bayer Yakuhin, Ltd.

Date and Time: September 23 (Friday) 16:00~17:40
Session Room: Room 1 (Conference Hall)
Moderators: Tasuku Harada
(Tottori University, Japan)
Mikio Momoeda
(St. Luke's International Hospital, Japan)

SS2-1 Overview of endometriosis

Charles Chapron

(Paris Descartes University / Cochin University Hospital, France)

SS2-2 Management of endometriosis

Felice Petraglia

(University of Siena, Itary)

SS2-3 Management of endometriosis in Japan

Yoshiaki Ota

(Kurashiki Medical Center, Japan)

Room 2 (Conference Room [1202])

Symposium 2-4
Infertility and ovarian reserve

Date and Time: September 23 (Friday) 8:40~10:20
Session Room: Room 2 (Conference Room [1202])
Moderators: Mikiya Nakatsuka
(Okayama University, Japan)
Ovrang Djahanbakhch
(St. Bartholomew's Hospital, UK)

SY2-4-1 The mechanism of reduced ovarian reserve in women with ovarian endometriomas

Michio Kitajima

(Nagasaki University, Japan)

SY2-4-2 Ovarian Reserve: How much emphasis should we put on surgery for endometriosis?
Akira Iwase
(Nagoya University, Japan)

SY2-4-3 Laparoscopic cystectomy and ovarian reserve
Saeed Alborzi
(Shiraz University of Medical Science, Iran)

SY2-4-4 Biomarkers of endometriosis
Chii-Ruey Tzeng
(Taipei Medical University, Taiwan)

Symposium 2-5
Controversies in surgery for endometriosis

Date and Time: September 23 (Friday) 10:40~12:20
Session Room: Room 2 (Conference Room [1202])
Moderators: Kaori Koga
(The University of Tokyo, Japan)
Amphan Chalermchokcharoenkit
(Mahidol University, Thailand)

SY2-5-1 Robotic surgery for DIE treatment: pro and con
Anton Fedorov
(Moscow Regional Institute, Russia)

SY2-5-2 Evaluation on the efficacy of laparoscopic conservative surgery combined with drug therapy for advanced endometriosis
Xinmei Zhang
(Zhejiang University, China)

SY2-5-3 Laparoscopically assisted transvaginal sclerotherapy for infertile women with ovarian endometrioma
Atsushi Fukui
(Hirosaki University, Japan)

SY2-5-4 En bloc-TLH in severe pelvic endometriosis
Amphan Chalermchokcharoenkit
(Mahidol University, Thailand)

Luncheon Seminar 2-2
Estrogen and endometriosis

Co-sponsored by Nobelpharma Co., Ltd. / Nippon Shinyaku Co., Ltd.

Date and Time: September 23 (Friday) 12:40~13:40
Session Room: Room 2 (Conference Room [1202])
Moderators: Shaw-Jenq Sean Tsai
(National Cheng Kung University, Taiwan)
Kiyoshi Takamatsu
(Tokyo Dental College Ichikawa General Hospital, Japan)

LS2-2-1 **Evolution of estrogen synthase (aromatase)**
Makio Shozu
(Chiba University, Japan)

LS2-2-2 **Role of estrogen receptor beta in endometriosis**
Fuminori Taniguchi
(Tottori University, Japan)

Symposium 2-6
Diagnostic challenges in endometriosis

Date and Time: September 23 (Friday) 14:00~15:15
Session Room: Room 2 (Conference Room [1202])
Moderators: Xinmei Zhang
(Zhejang University, China)
Hidetaka Okada
(Kansai Medical University, Japan)

SY2-6-1 **Proteomics research in endometriosis**
Kyu Sup Lee
(Pusan National University, Korea)

SY2-6-2 **Non-invasive diagnosis for malignant transformation of endometrioma**
Hiroshi Kobayashi
(Nara Medical University, Japan)

SY2-6-3 **Narrow band imaging for detection of subtle endometriosis**
Yoke-Fai Fong
(National University of Singapore, Singapore)

Selected Oral 1

Date and Time: September 23 (Friday) 15:40~16:40
Session Room: Room 2 (Conference Room [1202])
Moderators: Ken-ichi Furuya
(National Defense Medical College, Japan)
Sun-Wei Guo
(Fudan University, China)

Clin-S1 **A new compass in the surgical treatment of deep infiltrating endometriosis: a numerical multi-scoring system for endometriosis**
Masao Ichikawa
(Nippon Medical School, Japan)

Clin-S2 **Evaluation of factors predicting diminished ovarian reserve before and after laparoscopic cystectomy for ovarian endometriomas: a prospective cohort study**
Rie Ozaki
(Juntendo University, Japan)

Clin-S3 **Analysis of characteristics and reasons of delayed diagnosis of endometriosis**
Xiaotong Han
(Peking University Third Hospital, China)

Clin-S4 **Vitamin K3 acupuncture point injection treatment of dysmenorrhoea**
Li Wang
(Fudan University, China)

Clin-S5 **Further evidence that endometriosis is a hypercoagulable disease**
Ding Ding
(Fudan University, China)

Selected Oral 2

Date and Time: September 23 (Friday) 16:40~17:40
Session Room: Room 2 (Conference Room [1202])
Moderators: Hisashi Narahara
(Oita University, Japan)
Shaw-Jenq Sean Tsai
(National Cheng Kung University, Taiwan)

Basic-S1 **Ninjurin-1 in endometriosis and adenomyosis: its expression and regulator**
Mariko Miyashita
(The University of Tokyo, Japan)

Basic-S2 **Is LAST1 the last hope for endometriosis?**
Shih-Chieh Lin
(National Cheng Kung University, Taiwan)

Basic-S3 Decreased endometrial expression of leukemia inhibitory factor receptor disrupts the STAT3 signaling in adenomyosis during the implantation window
Chih-Feng Yen
(Chang Gung Memorial Hospital, Taiwan)

Basic-S4 Activated platelets induce increased estrogen production in endometriotic stromal cells
Qiuming Qi
(Fudan University, China)

Basic-S5 Cytotoxic and immunosuppressive factors in cynomolgus monkeys with endometriosis
Shinichiro Nakamura
(Shiga University, Japan)

Room 3 (Conference Room [803])

Oral 2-1

Date and Time: September 23 (Friday) 9:00~10:00
Session Room: Room 3 (Conference Room [803])
Moderators: Jinghua Leng
(China)
Hiroshi Ishikawa
(Chiba University, Japan)

O-01 Malnutrition as a risk factor sepsis in infected endometrioma
Ilham Utama Surya
(University of Indonesia Cipto Mangunkusumo Hospital, Indonesia)

O-02 A five-year experience with bowel endometriosis
Saeed Alborzi
(Shiraz University of Medical Science, Iran)

O-03 Incision of the uterosacral ligaments in the early step.～safe and effective surgical method for rectovaginal endometriosis～
Yohei Kishi
(Takanohara Central Hospital, Japan)

O-04 Association between recurrence after laparoscopic cystectomy for ovarian endometriomas and ovarian reserve
Ayako Masuda
(Juntendo University, Japan)

Oral 2-2

Date and Time: September 23 (Friday) 10:00~11:00
Session Room: Room 3 (Conference Room [803])
Moderators: Yong Taik Lim
(Catholic University, Korea)
Yasuhiko Kamada
(Okayama University, Japan)

O-05 **Role of oral contraceptives in preventing progression of endometriosis symptoms**
Xiaotong Han
(Peking University Third Hospital, China)

O-06 **The analysis of the learning curve in laparoscopic surgery for ovarian endometrioma**
Biyun Zhang
(Cixi Maternal and Child Care Hospital, China)

O-07 **Local administration of 3-ethylpyridine, an inhibiter of CD44 and Tenascin, to ovarian endometriomas**
Toshio Igarashi
(Teikyo University Chiba Medical Center, Japan)

O-08 **The research about the effect and mechanism of guiXiong xiaoyi wan in endometriosis**
Zhixing Jin
(Fudan University, China)

O-09 **Long non-coding RNA TC0101441 predicts poor prognosis and promotes cell metastasis by upregulating KISS-1 to induce EMT in epithelial ovarian cancer**
Junjun Qiu
(Fudan University, China)

Video Session

Date and Time: September 23 (Friday) 14:00~15:00
Session Room: Room 3 (Conference Room [803])
Moderators: Xishi Liu
(Fudan University, China)
Imari Deura
(Tottori University, Japan)

VS1 **Effect of dienogest on pain and ovarian endometrioma recurrence after laparoscopic resection of uterosacral ligaments with deep infiltrating endometriosis**
Akiyoshi Yamanaka
(Kurashiki Medical Center / Shiga University, Japan)

VS2 **Hysteroscopic resection of uterine adenomyosis**
Jian Zhang
(Shanghai Jiaotong University, China)

VS3 Neck scarf of ureter and bulldog of uterine vessel in Da Vinci Robotic deep infiltrative endometriosis excision.

Yichen Chuang

(Far Eastern Memorial Hospital, Taiwan)

VS4 Techniques of laparoscopic DIE (deep infiltrating endometriosis) nerve-sparing excision

Chung-hsien Sun

(Lucina Women & Children Hospital, Taiwan)

VS5 Bowel Resection for deep infiltrating endometriosis

Hong Xu

(Shanghai Jiaotong University, China)

Room 4 (Conference Room [804])

Oral 2-3

Date and Time: September 23 (Friday) 9:00~10:00
Session Room: Room 4 (Conference Room [804])
Moderators: Guoyun Wang

(Qilu Hospital of Shandong University, China)

Hidetaka Okada

(Kansai Medical University, Japan)

O-10 Evaluation of the pathological significance of aberrant endometrium-like tissue

Takashi Uehara

(Chiba University / National Cancer Center Hospital, Japan)

O-11 Molecular background of estrogen receptor-dependent gene expression in endometriotic cells

Masao Izawa

(Tottori University, Japan)

O-12 Combination of retrograde menstruation and stem cell theory based on comparative genomic hybridization

Kiumars Khodabakhshi Pirkalani

(Mehr Medical Group, Iran)

O-13 Decreased expression of progesterone receptor in endometriosis

Asmarinah Asmarinah

(Universitas Indonesia, Indonesia)

Oral 2-4

Date and Time: September 23 (Friday) 10:00~11:00
Session Room: Room 4 (Conference Room [804])
Moderators: Hermawan Wibisono
(Tottori University, Japan)
Ritsuo Honda
(Kumamoto University, Japan)

O-14 **Employing selective fibroblast growth factor receptor tyrosine kinase inhibitor ameliorates endometriosis**
Pei-Chin Chuang
(Chang Gung Memorial Hospital, Taiwan)

O-15 **Ginsenoside protopanaxadiol induces the autophagy and restricts the growth of endometrial stromal cells in endometriosis by down-regulation of estrogen receptor α**
Ming-Qing Li
(Fudan University, China)

O-16 **Cytokines-mediated COUP-TFII suppression promotes VEGF-C expression in endometriosis**
Wan-Ning Li
(National Cheng Kung University, Taiwan)

O-17 **Is peri-operative intervention feasible to abrogate the promotional effect of surgical stress on endometriosis development?**
Xishi Liu
(Fudan University, China)

Oral 2-5

Date and Time: September 23 (Friday) 14:00~15:00
Session Room: Room 4 (Conference Room [804])
Moderators: Shih-Chieh Lin
(National Cheng Kung University, Taiwan)
Atsushi Fukui
(Hirosaki University, Japan)

O-18 **A study of relationship between endometriotic lesions and dysmenorrhea**
Dongli Kong
(Peking University Third Hospital, China)

O-19 **Multicentre retrospective study to assess diagnostic accuracy of ultrasound for superficial endometriosis Are we any closer?**
Prathima Chowdary
(Mercy Hospital for Women, Australia)

O-20 Risk factor score of symptoms in patient with endometriosis

Yi-An Chen

(Taipei Medical University, Taiwan)

O-21 Correlation between Cyr61 expression and clinicopathologic parameters in adenomyosis

Duo Zhang

(Shanghai Jiaotong University, China)

Oral 2-6

Date and Time: September 23 (Friday) 15:00~16:00

Session Room: Room 4 (Conference Room [804])

Moderators: Pei-Chin Chuang

(Chang Gung Memorial Hospital, Taiwan)

Masao Izawa

(Tottori University, Japan)

O-22 Hypoxia-mediated histone modification via downregulation of EZH2 in endometriosis

Ning Chang

(National Cheng Kung University, Taiwan)

O-23 Induction of pyruvate dehydrogenase 1 by hypoxia alters glucose metabolism in endometriotic stromal cells

Hsiu-Chi Lee

(National Cheng Kung University, Taiwan)

O-24 Eukaryotic translation initiation factor 3 subunit e is involved in the epithelial-mesenchymal transition in endometriosis

Xianjun Cai

(The 7th People's Hospital, China)

O-25 Is eIF3e involved in epithelial-mesenchymal transition in adenomyosis?

Minhong Shen

(Fudan University, China)

Room 5 (Conference Room [805])

Oral 2-7

Date and Time: September 23 (Friday) 9:00~10:00
Session Room: Room 5 (Conference Room [805])
Moderators: Hua Duan
(China)
Yoshiaki Ota
(Kurashiki Medical Center, Japan)

O-26 **The relationship between uterine volume and treatment failure with levonorgestrel-releasing intrauterine devices in patients with adenomyosis**
Youjin Kim
(Chungnam National Univeristy Hospital, Korea)

O-27 **Evaluation of effect of Dienogest and LNG-IUS over 5 years on adenomyosis**
Ikuko Ota
(Kurashiki Heisei Hospital, Japan)

O-28 **The minera is alternative treatment on adenomyosis—two years experience in one medical center of China**
Huang Xiufeng
(Zhejiang University, China)

O-29 **Drug therapy in adenomyosis: a prospective, non-randomized, parallel controlled study**
Qing Li
(Fudan University, China)

Oral 2-8

Date and Time: September 23 (Friday) 10:00~11:00
Session Room: Room 5 (Conference Room [805])
Moderators: Taek Hoo Lee
(Kyungpook National University, Korea)
Michio Kitajima
(Nagasaki University, Japan)

O-30 **Conservative surgical treatment for adenomyosis**
Masato Nishida
(Kasumigaura Medical Center, Japan)

O-31 **Will the uterus volume change after adenomyomectomy?～Examine the facts through the comparison between the normal group and the post adenomyomectomy group～**
Maki Yabuta
(Takanohara Chuo Hospital, Japan)

O-32 Hysteroscopic resection of myometrial adenomyosis: A two-year follow-up study

Jian Zhang

(Shanghai Jiaotong University, China)

O-33 Conservative surgical management for young women with large diffuse adenomyosis

Bing Xu

(Tongji University, China)

O-34 Clinical outcome of severe adenomyosis with or without endometriosis

Zheng Y. Chen

(Zhejiang University, China)

Oral 2-9

Date and Time: September 23 (Friday) 14:00~15:00
Session Room: Room 5 (Conference Room [805])
Moderators: Sung Hoon Kim
(Ulsan University, Korea)
Miyuki Harada
(The University of Tokyo, Japan)

O-35 Altered expression of NGF, PGP9.5, S100 and VEGF at the endometrial-myometrial interface of uterus in women with adenomyosis

Xuan Che

(Jiaxing Maternity and Child Health Care Hospital, China)

O-36 Clinical features and mechanism of pain in patients with adenomyosis

Qing Li

(Fudan University, China)

O-37 Reproductive outcome in postoperative deep infiltrating endometriosis

Ning Zhang

(Fudan University, China)

O-38 ElncRNA1, a long noncoding RNA induced by estrogen transcriptional regulation, promoting ovarian cancer cell proliferation and metastasis

Junjun Qiu

(Fudan University, China)

Oral 2-10

Date and Time: September 23 (Friday) 15:00~16:00
Session Room: Room 5 (Conference Room [805])
Moderators: Hemantha Senanayake
(University of Colombo, Sri Lanka)
Masato Nishida
(Kasumigaura Medical Center, Japan)

O-39 **Dienogest down-regulates glandular progesterone receptors in ovarian endometriomas and vaginal polypoid endometriosis.**
Toshio Igarashi
(Teikyo University Chiba Medical Center, Japan)

O-40 **Medication beyond hormone**
Ryo Konno
(Jichi Medical University Saitama Medical Center, Japan)

O-41 **Role of oral contraceptives in preventing progression of endometriotic lesions**
Xiaotong Han
(Peking University Third Hospital, China)

O-42 **Evaluation of the therapeutic effects of ultrasound intervention with injection of methotrexate on the recurrent endometriosis**
Libo Zhu
(Zhejiang University, China)

O-43 **Control of pain with endometriosis using Tranilast**
Ritsuo Honda
(Kumamoto University, Japan)

[Day 3] September 24 (Saturday)
Room 1 (Conference Hall)

Symposium 3-1
Novel approach to pathogenesis and carcinogenesis of endometriosis II

Date and Time: September 24 (Saturday) 8:40~10:20
Session Room: Room 1 (Conference Hall)
Moderators: Hisashi Narahara
(Oita University, Japan)
Yoke-Fai Fong
(National University of Singapore, Singapore)

SY3-1-1 **New way to target endometriosis**
Shaw-Jenq Sean Tsai
(National Cheng Kung University, Taiwan)

SY3-1-2 **Role of phthalate in the pathogenesis of endometriosis: in vitro, animal, and human data**
Sung Hoon Kim
(University of Ulsan College of Medicine, Korea)

SY3-1-3 **TGF-β and LAP in endometriosis**
Shun-ichiro Tsuji
(Shiga University of Medical Science, Japan)

SY3-1-4 **Role of stem cells in pathophysiology of uterine leiomyoma**
Masanori Ono
(Saitama City Hospital / Keio University, Japan)

Symposium 3-2
Development of future medical treatment

Date and Time: September 24 (Saturday) 10:35~11:50
Session Room: Room 1 (Conference Hall)
Moderators: Jo Kitawaki
(Kyoto Prefectural University of Medicine, Japan)
Kutay Omer Biberoglu
(Gazi University, Turkey)

SY3-2-1 **Diagnostic and therapeutic potentials of microRNA in endometriosis**
SiHyun Cho
(Yonsei University, Korea)

SY3-2-2 **Pro-apoptotic peptides as potential treatment for endometriosis**
Toshiaki Shibata
(Hamamatsu University School of Medicine, Japan)

SY3-2-3 **Interrupting the mechanical interactions between endometriotic fibroblasts and aberrant extracellular matrix may be a novel strategy for treatment of endometriosis**

Sachiko Matsuzaki

(CHU Clemont-Ferrand / University of Auvergne, France)

Luncheon Seminar 3
Recurrence of endometrioma and its prevention

Co-sponsored by Mochida Pharmaceutical Co., Ltd.

Date and Time: September 24 (Saturday) 12:20~13:20
Session Room: Room 1 (Conference Hall)
Moderators: Hiroshi Kobayashi
(Nara Medical University, Japan)
Takashi Murakami
(Shiga University of Medical Science, Japan)

LS3-1 **Why OMA is the key endometriotic lesion?**

Charles Chapron

(Paris Descartes University / Cochin University Hospital, France)

LS3-2 **The recurrence of endometrioma after conservative surgeries: prevalence, impact on QOL, and prevention**

Kaori Koga

(The University of Tokyo, Japan)

Closing Ceremony

Date and Time: September 24 (Saturday) 13:20~13:30
Session Room: Room 1 (Conference Hall)

Room 2 (Conference Room [1202])

Special Symposium 3-3

Date and Time: September 24 (Saturday) 8:40~11:10
Session Room: Room 2 (Conference Room [1202])
Moderators: Angela S. Aguilar
(University of the Phillipines College of Medicine, Philippines)
Anton Fedorov
(Moscow Regional Institute, Russia)

SSY3-3-1 **Future in endometriosis: immunotherapy as an option**
Raden Muharam
(Cipto Mangunkusumo National Hospital, Indonesia)

SSY3-3-2 **Management of endometriomas in infertility**
Aydin Arici
(Yale University School of Medicine, USA)

SSY3-3-3 **Surgery on ovarian endometriomas and the preservation of ovarian function**
Jinhua Leng
(China)

SSY3-3-4 **The role of levonorgestrel-releasing intrauterine system in endometriosis and adenomyosis.**
Yi-Jen Chen
(National Yang-Ming University / Taipei Veterans General Hospital, Taiwan)

SSY3-3-5 **Endometriosis in the middle east: past, present and future**
Moamar Al-Jefout
(UAE University, UAE)

SSY3-3-6 **Heavy metals and endometriosis: Is there a connection?**
Hemantha Senanayake
(University of Colombo, Sri Lanka)

Osaka IVF Session

Date and Time: September 24 (Saturday) 11:20~12:20
Session Room: Room 2 (Conference Room [1202])
Moderator: Hidetaka Okada
(Kansai Medical University, Japan)

IVF-1 **Endometrium and embryo crosstalk and implantation window**
Hidetaka Okada
(Kansai Medical University, Japan)

IVF-2 **Preimplantation genetic screening**
Yoshiharu Nakaoka
(IVF Namba Clinic, Japan)

IVF-3 Effect of laser therapy as an integrative medicine on assisted reproduction

Mamoru Ida

(IVF Osaka Clinic, Japan)

Room 4 (Conference Room [804])

Oral 3-1

Date and Time: September 24 (Saturday) 9:00~10:00
Session Room: Room 4 (Conference Room [804])
Moderators: Danbo Wang
(Cancer Hospital of China Medical University, China)
Hirotaka Masuda
(Keio University, Japan)

O-44 The effects of GnRH-agonist treatment at the neovascularization of endometriosis

Apostolos Kaponis

(Patras University, Greece)

O-45 Endometriosis-derived thromboxane A2 Is a neurotrophic factor in endometriosis

Dingmin Yan

(Fudan University, China)

O-46 Prorenin/renin-angiotensin system in local endometriosis lesions

Takahiro Nakajima

(Nihon University, Japan)

O-47 FGL2 is involved in the pathogenesis of endometriosis by promoting proliferation and invasion of endometrial stromal cells and inducing Th2/M2 macrophage polarization

Xiao-Qiu Wang

(Fudan University, China)

Oral 3-2

Date and Time: September 24 (Saturday) 10:00~11:00
Session Room: Room 4 (Conference Room [804])
Moderators: Kyu Sup Lee
(Pusan National University School of Medicine, Korea)
Akira Iwase
(Nagoya University, Japan)

O-48 Adolescent dysmenorrhoea and outcomes at 10-15 years followup

Sonia R Grover

(University Of Melbourne, Australia)

O-49 Reproductive outcome is favorable after laparoscopic resection of bladder endometriosis
Jérome Bouaziz
(Chaim Sheba Medical Center / Tel Aviv University, Israel)

O-50 The role of ears and hearing in reproduction: facts and fiction
Borka Ceranic
(St. George's Hospital, London, UK)

O-51 Juvenile cystic adenomyosis: Should this be known as "Accessory uterine cavity" as evidence suggests it is a Müllerian anomaly?
Sonia Grover
(University of Melbourne, Australia)

Room 5 (Conference Room [805])

Oral 3-3

Date and Time: September 24 (Saturday) 9:00~10:00
Session Room: Room 5 (Conference Room [805])
Moderators: Meng-Hsing Wu
(National Cheng Kung University, Taiwan)
Yasushi Hirota
(The University of Tokyo, Japan)

O-52 A comparative study between ovarian carcinomas arising from and coexisiting with endometriosis
Yuan Lu
(Fudan University, China)

O-53 Metabolic or molecular biological pathway interruption to eradicate endometriosis; win the battle but lose the war
Kiumars Khodabakhshi Pirkalani
(Mehr Medical Group, Iran)

O-54 Study on periodic extension of GnRHa
Xiaoyong Li
(Zhejiang University, China)

O-55 Transcriptome analysis of adenomyosis eutopic endometrium: a new insight into its pathophysiology
Hong Xu
(Shanghai Jiao Tong University, China)

China Session (in English/ Chinese)

Date and Time: September 24 (Saturday) 10:00~11:00
Session Room: Room 5 (Conference Room [805])
Moderators: Mingqing Li
(China)
Guoyun Wang
(Qilu Hospital of Shandong University, China)

CS-1

Guoyun Wang
(Qilu Hospital of Shandong University, China)

CS-2 **Nerve fibers and endometriotic lesions: Partners in crimes in inflicting pains in women with endometriosis**

Dingmin Yan
(Fudan University, China)

CS-3 **Determinant of eutopic endometrium in the tumorigenesis of endometriosis-associated ovarian cancer**

Danbo Wang
(Cancer Hospital of China Medical University, China)

Poster Tour

Poster Discussion
Date and Time: September 23 (Friday) 17:50~18:30
Session Room: Poster (Conference Hall [foyer])

Poster Tour
Endometriosis - Diagnosis

P-001 **Prevalence of autoimmune diseases and cancers among families with endometriosis history**
Ashraf Moini
(Royan Institute for Reproductive Biomedicine, Iran)

P-002 **Identification and validation of novel serum markers for diagnosis of endometriosis: SOD1, CD34, E-cadherin, VCAM1 and GSTM4**
Yu-Wen Chen
(Taipei Medical University, Taiwan)

P-003 **Increased ipsilateral uterine artery vascular resistance in women with ovarian endometrioma**
Miyoko Waratani
(Kyoto Prefectural University of Medicine, Japan)

P-004 **Enlarged uterine corpus volume in women with endometriosis: assessment using three-dimensional reconstruction of pelvic magnetic resonance images**
Akemi Koshiba
(Kyoto Prefectural University of Medicine, Japan)

P-005 **Assessment of serum chemokines and cytokines as novel clinical markers of endometriosis**
Ya-Ching Chou
(Taipei Medical University Hospital, Taiwan)

P-006 **The incidence of left sided ovarian endometrioma**
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(Inje University, Korea)

P-007 **Secondary dysmenorrhea causes, symptoms and other factors exerting influence on its occurance**
Patricija Kasilovska
(Medical Center Maxmeda, Lithuania)

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Byoung Ick Lee
(Inha University Hospital, Korea)

P-009 **Evaluation of deep endometriosis lesions by preoperative MRI in patients with adenomyosis**
Kanako Yoshida
(Tokushima University, Japan)

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Fuminori Ito
(Nara Medical University, Japan)

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Chiaki Kashino
(Okayama University Hospital, Japan)

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YongTaik Lim
(The Catholic University of Korea, Korea)

P-013 Decreased zinc and increased lead blood levels are associated with endometriosis in Asian women: a hospital-based cross-sectional study
Guan-Lin Lai
(Taipei Medical University, Taiwan)

P-014 Contrast-enhanced ultrasonography in sclerotherapy for ovarian endometrial cyst
Xiao-qiu Dong
(The Fourth Hospital of Harbin Medical University, China)

P-015 The incidence rate of ovarian endometrioma after cervical conization
Nozomi Takahashi
(The University of Tokyo, Japan)

P-016 Improved clinical outcomes of patients with ovarian carcinoma arising in endometriosis
Jia Qi Lu
(Fudan University, China)

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Lu Han
(Maternal and Child Health Care Hospital of Dalian, China)

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Xiaohong Zhang
(Fourth Military Medical University, China)

P-019 The efficacy of the levonorgestrel—releasing intrauterine system in perimenopausal women
Heon Jong Yoo
(Chungnam National University Hospital, Korea)

P-020 Dienogest is effective for suppressing recurrence of ovarian endometrioma and relieving pain after laparoscopic surgery
Aska Toda
(Minoh City Hospital, Japan)

P-021 The success rate of GnRH agonist for small recurrent endometrioma (3cm)
Sung-Tack Oh
(Chonnam University Medical School, Korea)

P-022 Effects of low dose oral contraceptive pill containing drospirenone/ethinylestradiol in endometriosis patients with dysmenorrhea

Khine Yin Mon

(Tottori Universiity, Japan)

P-023 Adverse effects and tolerability of dienogest over 60 weeks after conservative surgery for endometriosis

Hwi Gon Kim

(Pusan National University School of Medicine, Korea)

P-024 Ethinylestradiol 20μg/drospirenone 3mg in a flexible extended regimen for the management of endometriosis-associated pain: a randomized, controlled trial

Tasuku Harada

(Tottori University, Japan)

P-025 Neuraltherapy for treatment of endometriosis

Pinar Yalçn Bahat

(Istanbul Kanuni Sultan Siileyman Training and Research Hospital, Turkey)

P-026 Study of Dienogest versus oral contraceptives in the treatment of endometriosis-associated pelvic pain

Soo Ah Kim

(Chosun University, Korea)

P-027 Cost-effectiveness of recommended medical intervention for treatment of dysmenorrhea and endometriosis in Japan setting

Mikio Momoeda

(St. Luke's International Hospital / Japan Enlightenment Committee in Endometriosis (JECIE), Japan)

P-028 Chinese herbal medicine to prevent the recurrence of pelvic endometriosis after conservative surgery: a multi-center prospective, parallel controlled, randomized clinical trial of efficacy and safety

Ruihua Zhao

(China Academy of Chinese Medicial Sciences, China)

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Akiyo Taneichi

(Jichi Medical University, Japan)

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Yukiko Sugiyama

(Hyogo College of Medicine, Japan)

P-031 Impact of endometriosis to pregnancy outcome of ART

Hirofumi Kashiwagi

(Tokai University School of Medicine, Japan)

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Byungkyoo Park
(Pusan National University School of Medicine / Kyungpook National University Hospital, Korea)

P-033 The impact of different down-regulation protocols on the IVF/ICSI-ET outcome of endometrioma: a retrospective study
Zexuan Wu
(Sun Yat-sen University / Peking University Shenzhen Hospital, China)

P-034 The impact of endometriosis fertility index on the IVF/ICSI-ET outcome: A retrospective analysis
Zexuan Wu
(Sun Yat-sen University / Peking University Shenzhen Hospital, China)

P-035 Analysis of pregnancy outcome and decline of anti-Mullerian hormone after laparoscopic cystectomy for ovarian endometriomas
Kei Nagira
(Tottori University, Japan)

P-036 Laparoscopic excision of ovarian endometrioma does not exert a qualitative effect on ovarian function
Miyuki Harada
(The University of Tokyo, Japan)

P-037 Change of Anti-Müllerian hormone after endometrioma surgery by administration of oral contraception
Hanako Kaseki
(Nippon Medical School, Japan)

P-038 Can serum AMH level and ovarian blood flow be useful to predict the recurrence of endometriotic cyst following laparoscopic vaporization?
Natsuho Nakamura
(Osaka Medical College, Japan)

P-039 Effect of laparoscopic electrocoagulation of endometrimas on ovarian reserve in infertile women
Zhu Yunshan
(Zhejiang University, China)

P-040 The Endometriosis fertility index (EFI) and preoperative FSH are effective choices for the postoperative fertility treatment of endometriosis surgery
Suguru Odajima
(The Jikei University School of Medicine, Japan)

P-041 Serum anti-Müllerian hormone levels after laparoscopic ovarian cystectomy
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(Fudan University, China)

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Eun-Ju Lee
(Chung-Ang University School of Medicine, Korea)

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Chiharu Ishida
(Nagoya University, Japan)

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Kana Kokunai
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Sun Suk Kim
(Pusan National University, Korea)

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Ming-Yang Chang
(Chang Gung Memorial Hospital, Taiwan)

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Jae eun Chung
(National Health Insurance Service Ilsan Hospital, Korea)

P-052 **Case report: Bladder deep infiltrated endometriosis**
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(Chungnam National University Hospital, Korea)

P-053 A report of two cases ileal endometriosis which showed different conditions of pelvic endometriosis.

Futhosi Arakane

(Japanese Red Cross Kumamoto Hospital, Japan)

P-054 Endometriosis cysts of the cervix: a case report and review of the literature

wang qiming

(Ningbo Women and Children's hospital, China)

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Hiroshi Ishikawa

(Chiba University, Japan)

P-057 A case of ovarianendometrioma accompanied by microinvasive endometrioid adenocarcinoma of 4×2mm

Soichiro Suzuki

(Kawasaki Medical School, Japan)

P-058 Ureteral endometriosis: analysis of 47 cases

Chao Peng

(Peking University First Hospital, China)

P-059 The Impact of Japan enlightenment committee in endometriosis (JECIE) activities

Kaori Koga

(The University of Tokyo, Japan)

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P-060 miR-503 regulates the extracellular matrix contractility of endometrioic cyst stromal cells

Tomoko Hirakawa

(Oita University, Japan)

P-061 Effects of the hypoxia-inducible factor-1 inhibitor echinomycin on vascular endothelial growth factor production in human ectopic endometriotic stromal cells

Tomoko Tsuzuki

(Kansai Medical University, Japan)

P-062 Decidualization differentially regulate microRNA expression in eutopic and ectopic endometrial stromal cells

Yoko Aoyagi

(Oita University, Japan)

P-063 Differences of C-type lectin receptors in the peritoneal fluid of patients with endometriosis and gynecologic cancers

Dong Choon Park

(The Catholic University of Korea / Kyung Hee University, Korea)

P-064 Effect of prolactin on human endometriosis-derived endometrial storomal cells

Ai Sakamoto

(Okayama University, Japan)

P-065 Estrogen regulates pain through ERK/MAPK pathway in vitro and vivo

Jing Zhang

(Ningbo University / Zhejiang University, China)

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Yen-Ping Lei

(Taipei Medical University, Taiwan)

P-067 Copy number variation in pelvic endometriosis

Jae Yen Song

(The Catholic University of Korea, Korea)

P-068 Lower expression of latency-associated peptide on the surface of peritoneal fluid macrophages and lymphocytes in patients with endometriosis

Tetsuro Hanada

(Shiga University, Japan)

P-069 Demethylation of CpG island promoter is associated with 14-3-3 ζ gene higher expression in stromal cells of endometriosis

Bi-cheng Yang

(Jiangxi Provincial Maternal and Child Health Hospital, China)

P-070 Decreased expression of ESR1 in endometriosis is caused by aberrant DNA methylation of T-DMRs (Tissue-dependent and differentially methylated regions)

Ryo Maekawa

(Yamaguchi University, Japan)

P-071 Network analysis revealed the possible upstream regulator genes involved in pathogenesis and development of ovarian chocolate cyst

Yumiko Mihara

(Yamaguchi University, Japan)

P-072 Association of ovarian cancer and recurrence of endometriosis patient using targeted next generation sequencing: a pilot study.

Tae-Hee Kim

(Soonchunhyang University Bucheon Hospital / Soonchunhyang University / Korea University / The Catholic University of Korea, Korea)

P-073 Harmful effect of endometriotic cyst on granulosa cell function in in-vitro study.

Yasushi Kawano

(Oita University, Japan)

P-074 DNA methylation status of progesterone receptor promoter regions in ovarian endometriosis

Ririn, R Febri

(University Indonesia, Indonesia)

P-075 Relationship between secretion of monocyte chemoattractant protein-1 and cell-extracellular matrix adhesion in endometriotic stroma cells.

Takashi Nagai

(Nagoya University, Japan)

P-076 Androgen receptor gene CAG trinucleotide repeat polymorphism in patients with endometriosis

Kyuri Hwang

(Seoul National University Boramae Hospital, Korea)

P-077 Hormonal treatment for women with endometriosis affects expression of natural cytotoxicity receptors on NK cells

Ayano Funamizu

(Hirosaki University, Japan)

P-078 The expression of vascular endothelial growth factor C and anti-angiogenesis therapy in endometriosis

Rong Zhang

(Shanghai Fengxian District Central Hospital, China)

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Masao Izawa

(Tottori University, Japan)

P-080 Therapeutic potential of activation of SIRT1 for endometriosis

Ayumi Taguchi

(The University of Tokyo, Japan)

P-081 The effects of connective tissue growth factor on the phagocytic activity of pelvic peritoneal macrophages in patients with endometriosis

Tsung-Hsuan Lai

(Cathay General Hospital / Fu Jen Catholic University / National Central University, Taiwan)

P-082 Immunotoxicity of 2,3,7,8-tetrachlorodibenzop-dioxin (TCDD) in mice with endometriosis

Hai-Li Wang

(Medical school of Southeast University, China)

P-083 Targeting inhibitor of NF-κB kinase beta (IKKβ) may represent a possible novel treatment for endometriosis.

Ikuko Sawada

(Osaka University, Japan)

P-084 G protein-coupled estrogen receptor 1 agonist G-1 induces cell cycle arrest in the mitotic phase, leading to apoptosis in endometriosis

Taisuke Mori

(Kyoto Prefectural University of Medicine, Japan)

P-085 The expression and significance of BCAR1 gene in endometriosis

Danbo Wang

(Cancer Hospital of China Medical University, China)

P-086 BCAR3 overexpression promotes endometrial stromal cell and endometrial epithelial cell invasion through different mechanisms in endometriosis

Danbo Wang

(Cancer Hospital of China Medical University / Liaoning Cancer Hospital & Institute, China)

P-087 Relationship between angiotensin receptors and mPGES-1 gene expression in local lesions of endometriosis patients

Takehiro Nakao

(Nihon University, Japan)

P-088 Long non-coding RNA aHIF predicts poor prognosis in epithelial ovarian cancer and affects cell proliferation through the regulation of cell cycle, apoptosis and senescence

Junjun Qiu

(Fudan University, China)

P-089 Vascular endothelial growth factor is upregulated by leukemia inhibitory factor and interleukin-6 in human endometriotic stromal cells

Yan Huang

(Peking University First Hospital, China)

P-090 Role of prostaglandin E2 receptors in the development of endometriosis

Tomoko Makabe

(The University of Tokyo, Japan)

P-091 Mannose receptors are highly expressed by peritoneal dendritic cells in endometriosis

Gentaro Izumi

(The University of Tokyo, Japan)

P-092 Genome-wide DNA methylation analysis predicts a pathogenesis in endometriosis

AiLi Aixingzi

(TongJi University Shanghai, China)

P-093 The role of ureaplasma infection of mesothelial cells in pelvic endometriosis

Ae Ra Han

(Konyang University School of Medicine, Korea)

Poster Tour
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P-094 Adenosine triphosphate regresses endometrial explants in a rat model of endometriosis

Chen Zhang

(Peking University People's Hospital, China)

P-095 Mechanism research of ginsenside Rg3 on Anti-angiogenesis through VEGFR-2-mediated PI3K/Akt/mTOR signaling pathway in a rat model of endometriosis

Yang Cao

(Shanghai University of Traditional Chinese Medicine, China)

P-096 Lipopolysaccaride promotes the development of murine endometriosis-like lesions via nuclear factor-kappa B pathway

Takashi Uegaki

(Tottori University, Japan)

P-097 Mouse model for investigating the invasion of endometrial epithelial cells in endometriosis

Jhih-Chuan Lee

(Taipei Medical University, Taiwan)

P-098 Revisiting peritoneal macrophages in murine endometriosis model

Ming Yuan

(Qilu Hospital of Shandong University, China)

P-099 Molecular mechanism of TCDD on development of ectopic endometrium in mouse
Yang Shen
(Southeast University, China)

P-100 Intraperitoneal inflammation progress the development of endometriosis in mouse model
Kana Kasai
(Tokushima University, Japan)

P-101 Hydrogen sulfide suppresses lesion growth and adhesion in mouse with induced endometriosis
Ye Xia
(Fudan University, China)

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Xue Qing Wu
(The First Affiliated Hospital of Wenzhou Medical University, China)

P-103 New strategy for treatment of adenomyosis using dienogest combined with aromatase inhibitor
Kohzo Aisaka
(Hamada Hospital, Japan)

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P-105 LASP1 plays crucial roles in the development of adenomyosis
Yang Zou
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P-106 Interaction of macrophages and endometrial cells induced epithelial-mesenchymal transition-like processes in adenomyosis
Min An
(Qilu Hospital of Shandong University, China)

P-107 Could comparable ART outcome be achieved in patients with adenomyosis to those without by frozen embryo transfer after controlling disease activity with Leuplin depot?
Ming-Jer Chen
(Taichung Veterans General Hospital, Taiwan)

P-108 Dienogest reduces proliferation, NGF expression and density of nerve fibers in human adenomyosis
Arisa Taekuchi
(The University of Tokyo, Japan)

P-109 The impact of adenomyosis on the IVF/ICSI-ET outcome: A retrospective analysis
Zexuan Wu
(Memorial Hospital of Sun Yat-sen University / Reproductive medicine department of Peking University Shenzhen Hospital, China)

P-110 Compound chinese medicine (Qiling for treating pain) to treat 43 cases of adenomyosis dysmenorrhea

Fei Hang

(Tingting Zhang, China)

P-111 A comparative study of human oviductal ciliary morphology and beat frequency between patients with adenomyosis and leiomyoma

Mingxing Yan

(Shanghai Jiaotong University, China)

P-112 Using biofeedback electrical stimulation for the primipara with decreased pelvic floor muscle strength comparing with Kegel excise and vaginal cones

Xiaodan Zhang

(Fudan University, China)

Abstracts

LS1-1 Sampson's theory: Past-present-future

Tasuku Harada

Professor and Chairman, Department of Obstetrics and Gynecology
Tottori University Faculty of Medicine, Japan

An estimated 2.6 million Japanese women have endometriosis, extrapolating a prevalence rate of 10 % among reproductive age women. An increase in the incidence of endometriosis has been suggested by the data of Japan Society of Obstetrics and Gynecology in 2014. The increasing incidence may be results of life-style changes of women in the modern era, such as later marriage, fewer children, early menarche and late menopause. Several well-designed epidemiological studies indicated increased number of menstruation and retrograde reflux may increase the risk of disease.

Sampson published his pioneer article in 1927, theorizing that retrograde menstruation may cause peritoneal endometriosis. During development of his implantation theory, he firstly thought that rupture of chocolate cysts might cause peritoneal lesion of endometriosis. Since then, he speculated the origin of the lesions using histological samples from Novak and fighting with metaplasia theory follower including Cullen and Novak.

In this lecture, the great contribution of Sampson for the understanding this enigmatic disease is reviewed and current evaluation of his theory together with subsequent important papers are presented. Future perspective of pathogenesis of endometriosis will also be discussed.

【Curriculum Vitae】

Professor Harada graduated from Tottori University in 1983 and he learned IVF-ET in Leeds University in England in 1985. He has been Professor since 2008.

Professor Harada has (co)authored over 140 articles in peer-review international journals. Among his publication, most cited paper is "Role of cytokines in endometriosis" published in Fertility Sterility in 2001. He has been one of chief investigators of drug development on low dose OC and dienogest for endometriosis in Japan. Phase III RCTs of both drugs were published in Fertility Sterility in 2008, 2009 and 2011. His main research interest includes endometriosis (both basic and clinical research), laparoscopic and robotic surgery.
Societies: President: Asian Society of Endometriosis and Adenomyosis (2015-2016); Ambassador: World Endometriosis Society; Vice President: Japan Society of Gynecologic and Obstetric Endoscopy; Managing director: Japan Society of Reproductive Medicine; Director: Japan Society of Obstetrics and Gynecology, Japan Society of Endometriosis

LS1-2 Role of bacterial contamination in endometriosis

Khaleque Khan[1,2], A Fujishita[3], M Kitajima[2], K Hiraki[2], H Masuzaki[2],
M Nakashima[4], J Kitawaki[1]

Kyoto Prefectural University of Medicine[1], Nagasaki University, Japan[2], Saiseikai Nagasaki Hospital, Nagasaki[3], Department of Tumor and Diagnostic Pathology, Atomic Bomb Disease Institute, Nagasaki, Japan.[4]

Objectives: Endometriosis is a multifactorial disease mainly affecting women of reproductive age. The exact pathogenesis of this disease is still debatable. Information on the role of macrophages and Toll-like receptors (TLRs) in endometriosis is lacking. We investigated role of bacterial endotoxin (LPS) and TLR4 in endometriosis and examined the possible source of endotoxin in pelvic environment.

Materials and Methods: TLR4 was expressed at gene and protein level in macrophages and endometrial cells by qRT-PCR and immunohistochemistry. Limulus amoebocyte lysate test was used to measure endotoxin levels in the peritoneal fluid (PF) of 58 women with endometriosis and 28 control women and investigated its potential role in the growth of endometriosis. With informed consent and strict aseptic measure, menstrual blood was collected from 20 women with endometriosis and 15 control women. As a possible source of endotoxin, menstrual blood, collected from these women, was cultured for the presence of *Escherichia coli* (*E.coli*).

Results: Menstrual blood was contaminated with *E.coli* and colony formation of *E.coli* was significantly higher in women with endometriosis than in control women. *E.coli*-derived endotoxin levels in menstrual fluid and PF was significantly higher in women with endometriosis than in control women. TLR4 was expressed in both macrophages and endometrial cells. Pre-treatment of cells with anti-TLR4 antibody abrogated LPS-stimulated secretion of macromolecules as well as LPS-promoted growth of eutopic and ectopic endometrial cells. Role of prostaglandin E2 and antimicrobial peptides supporting mechanistic basis of bacterial contamination of menstrual blood will be discussed.

Conclusions: We proposed for the first time a new concept "bacterial contamination hypothesis" in endometriosis. Our findings of intrauterine microbial colonization in women with endometriosis may hold new therapeutic potential in addition to conventional estrogen suppressing agent.

【Curriculum Vitae】

Education/Professional Experience:

1) Obtained MD, 1984: Dhaka University, Bangladesh
2) Clinical training, 1986-88: from King's Hospital, London for 2 years
3) Worked on public health and infectious diseases, 1989-90: as a member of WHO medical team in some South East Asian countries for 2 years.
4) Worked as Clinical Lecturer, 1991-92: Dhaka University Medical Hospital
5) Obtained DPH in 1993: Institute of Tropical Medicine, Nagasaki, Japan

6) Obtained PhD in 1996: Nagasaki University School of Medicine, Japan
7) Advanced clinical training on laparoscopic surgery, 1997-98: under the medical license of Ministry of Health and Welfare, Japan.
8) Research fellow, 1998-2000: Department of OBGY, Nagasaki University, Japan
9) April, 2000-August, 2015: Assistant Professor and Research Chief, Department of Obstetrics and Gynecology, Nagasaki University School of Medicine, Nagasaki
10) September, 2015-until now: Associate Professor and Project Coordinator, Department of Obstetrics and Gynecology, Center for Quality Research and Development, Kyoto Prefectural University of Medicine, Kyoto
11) June-August, 2016: Visiting Professor, Mahidol University, Bangkok,Thailand

SY1-1-1 Endometrial stem/progenitor cells and endometriosis

Hirotaka Masuda

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We have proposed that human endometrial stem/progenitor cells (eSPC) contribute to the pathogenesis of endometriosis. However, it still remains unclear whether eSPC play a role in the establishment and development of endometriosis. Recently, we have investigated the existence of eSPC in endometriosis women using newly identified markers for human endometrial mesenchymal stem cells (eMSC) and epithelial progenitor cells and demonstrated that there may be preferential retrograde shedding of eMSC into the pelvic cavity during menstruation in endometriosis women. The eMSC may possess greater ability to survive in the peritoneal fluid of endometriosis women, enabling them to initiate endometriosis lesions. Also, we have been trying to make an adequate animal model of endometriosis to investigate stem cells contribution in endometriosis. I will present our recent works on eSPC and endometriosis.

【Curriculum Vitae】

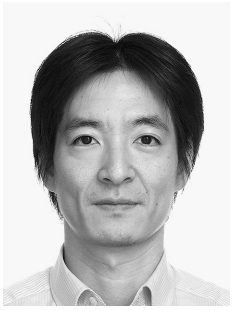
Education:

1997 M.D.	Keio University School of Medicine, Tokyo, Japan
2007 Ph.D.	(Doctorate of Medical Science), Department of Obstetrics and Gynecology, Keio University School of Medicine, Tokyo, Japan

Professional Training and Employment:

2015-Present	Senior Lecturer, Department of Obstetrics and Gynecology, Keio University School of Medicine, Tokyo, Japan
2012-2015	Assistant Professor, Department of Obstetrics and Gynecology, Keio University School of Medicine, Tokyo, Japan
2009-2012	Postdoctoral Fellow, Department of Obstetrics and Gynecology, Monash University, Melbourne, Australia
2006-2009	Medical staff in Obstetrics and Gynecology, Nippon Koukan Hospital, Kawasaki, Japan
2002-2006	Graduate School (Obstetrics and Gynecology), Keio University School of Medicine, Tokyo, Japan
1997-2002	Resident Program, Department of Obstetrics and Gynecology, Keio University School of Medicine, Tokyo, Japan

SY1-1-2 Epigenetic regulation of endometriosis



Ryo Maekawa

Department of Obstetrics and Gynecology, Yamaguchi University Graduate School of Medicine, Japan

The present study investigated how epigenetic abnormality is involved in pathogenesis and development of endometriosis by genome-wide approach.

This study was approved by the Institutional Review Board of Yamaguchi University. Genome-wide DNA methylation and mRNA expression analyses revealed that 75 genes has both aberrant DNA methylation and mRNA expression in chocolate cyst compared with normal endometrium. Gene ontology analysis showed aberrant expression of steroidogenesis-related genes in chocolate cyst. Increased expression of *NR5 A1 (SF-1)* and *STAR* by DNA hypomethylation of their promoters and decreased expression of *HSD17B2* and *STRA6* by DNA methylation contributed to the increase in local estradiol synthesis in chocolate cyst.

Expression of *ESR1* is low in endometriosis compared with normal endometrium. *ESR1* has tissue-dependent and differentially methylated regions (T-DMRs) at upper region of the promoter, and DNA methylation of the region regulates tissue-specific expression of *ESR1*. We found aberrant DNA methylation of T-DMRs decreased expression of *ESR1* in endometriosis.

A long-standing question is what is the origin of endometriosis. Since profiling by DNA methylation is better at defining cell identity than profiling by mRNA, we compared genome-wide DNA methylation profiles in tissues of endometrium, chocolate cyst, peritoneum, blueberry spot and ovarian epithelium. A hierarchical clustering analysis suggested that chocolate cyst and blueberry spot derived from ovarian epithelium and peritoneum, respectively.

In conclusion, aberrant DNA methylation is involved in the pathogenesis and development of endometriosis.

Epigenetic modifications are recognized as key players in transcriptional regulation, and numerous reports indicate that aberrant modifications may be associated with human diseases. Accumulating data suggests that aberrant DNA methylation status may be associated with the molecular features of endometriosis. Using the genome-wide approach, here we investigated how epigenetic abnormality is involved in pathogenesis and development of endometriosis.

【Curriculum Vitae】

Education:

2013-2014 Post-graduate,
Center for Epigenomics
Department of Genetics
Albert Einstein College of Medicine, USA

2006-2010 Post-graduate,
Department of Obstetrics and Gynecology, Yamaguchi University School of Medicine, Japan

Post-graduate,
Laboratory of Cellular Biochemistry, Department of Animal Resource Science/ Veterinary Medical Sciences, The University of Tokyo, Japan

2001 M.D., Yamaguchi University School of Medicine, Japan

Professional Training and Employment:

2010-present Assistant professor, Department of Obstetrics and Gynecology, Yamaguchi University Graduate School of Medicine

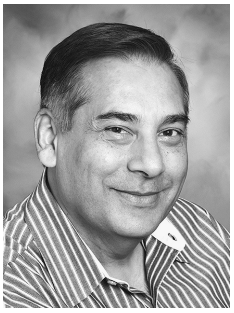
2005-2006 Medical Doctor of Obstetrics and Gynecology, Hamada Medical Center

2004-2005 Medical Doctor of Obstetrics and Gynecology, Saiseikai Simonoseki General Hospital

2003-2004 Medical Doctor, Department of Obstetrics and Gynecology, Yamaguchi University Graduate School of Medicine

2001-2003 Resident, Department of Obstetrics and Gynecology, Yamaguchi University School of Medicine

SY1-1-3 Epigenetic regulation of steroid hormone responsiveness in endometriosis



Asgi T. Fazleabas

Department of Obstetrics, Gynecology and Reproductive Biology, Michigan State University, USA

Endometriosis is an estrogen-dependent inflammatory disease which is associated with epigenetic disorders. Epigenetics is defined as mitotically heritable changes in gene expression that occur without alterations in the DNA sequence as has been associated with a number of disease pathology including endometriosis. Our studies have focused on determining if global changes in methylation in the eutopic endometrium of women with endometriosis contribute to disease associated infertility and the mechanisms by which the overexpression of Notch1 in the ectopic endometrium regulates the methylation of the progesterone receptor. To determine if global epigenetic changes also contribute to endometriosis associated infertility, mid-secretory EUE from control (C), fertile (IE) and infertile (NOI: n=5/grp) women with endometriosis, were analyzed for genome-wide changes in promoter methylation patterns and compared with global gene expression profiles in the same samples to identify the effects of methylation on gene expression. The initial methylation analysis resulted in substantial changes in global methylation patterns associated with endometriosis and infertility. When correlated with the expression array, the NOI and C groups clustered separately and 140 differentially expressed transcripts ($p<0.01$: 89 up and 51 down) were identified which showed opposite changes in promoter methylation status. Analysis of the dioxin receptor (AHR) which was hypomethylated in the array in mid secretory endometrium demonstrated an increase of AHR mRNA and proteins along with significantly elevated transcript levels of its down-stream targets (CYP1A1 and CYP1B 1) in women with endometriosis compared to controls. In vitro studies using Ishikawa cells that expressed AHR or had AHR ablated by Crisper-CAS9 techniques, demonstrated that AHR expression was stimulated by dioxin (TCDD) through AHR. Together these data demonstrate that epigenetic changes in the EUE of subset of women with endometriosis contribute to their infertility and the increase in AHR in endometriosis, suggests a role for environmental toxins which maybe mediated by epigenetic changes in the pathophysiology of this disease. Progesterone signaling is primarily mediated by two isoforms of nuclear PGR-PR-A and PR-B and PR-B expression is significantly lower in endometriotic tissues and endometriotic stromal cells and data suggests that PRB is hypermethylated. Notch signaling is critical for maternal-fetal communication during implantation and placentation and Notch1 expression is associated with the pathophysiology of endometriosis. Constitutively activated Notch signaling compromises uterine receptivity and contributes to endometriotic lesion development. Our data show that the inhibition of progesterone signaling is due to hyper-methylation of its receptor Pgr by Notch 1 overexpression via the transcription factor PU.1 and DNA methyltransferase Dnmt3b.

【Curriculum Vitae】

Dr. Asgi Fazleabas is Professor and Associate Chair for Research and Director of the Center for Women's Health Research at Michigan State University. His laboratory has two main focus areas; implantation biology and endometriosis. The first focuses on the cellular and molecular dialog between the early embryo and uterine endometrium that is required for the establishment of pregnancy. His laboratory was the first to demonstrate that chorionic gonadotropin, the embryonic signal in the primate acts directly on the uterus in vivo. These studies have led to the more recent studies which focus specifically on the role of Notch 1 during decidualization. Data from the laboratory also suggests that altered Notch signaling is evident as a consequence of endometriosis. The altered Notch signaling has a significant impact on an aberrant decidualization response in the eutopic endometrium and promotes lesion development at ectopic sites. In conjunction with these studies, his laboratory has also identified specific microRNA's that are altered in both the ectopic and eutopic tissues of baboons and women with endometriosis. These studies have specifically focused on target genes that are regulated by microRNA's 451, 29c and 21 which contribute to endometriosis related pathologies. He has received numerous prestigious awards and has over 200 peer reviewed publications, multiple book chapters and reviews.

SS1-1 Overview on current drug therapy for endometriosis

Mikio Momoeda

St. Luke's International Hospital, Japan

Endometriosis can be treated both surgically and medically. But ASRM statement, "Endometriosis should be viewed as a chronic disease that requires a life-long pain management plan with the goal of maximizing the use of medical treatment and avoiding repeated surgical procedures", raises awareness of the importance on drug therapy. It is based on the risks of reduced ovarian function after surgery and the possible loss of the ovary.

For such purpose of pain control, several hormonal therapies are available, such as combined oral contraceptives (COCs), progestin, and GnRH agonists. These therapies work on the principle that endometriosis is lessened during pregnancy or by menopause. So the aim of drug therapy is to put patients into a hormonal state of pseudo-pregnancy or pseudo-menopause, in which ovarian function is suppressed. On the other hand, "In infertile women with endometriosis", ESHRE recommends, "Clinicians should not prescribe hormonal treatment for suppression of ovarian function to improve fertility."

Therefore, it is necessary to consider the strategy according to the purpose and the age of patients. In this lecture, I will give the overview on the drug therapy for endometriosis according to the three women's life stages; younger stage desiring childbearing just in the future, middle stage needing infertility treatment, and older stage after childbearing.

【Curriculum Vitae】

Education

1984 Graduated from Medicine and Faculty of Medicine, the University of Tokyo

Work Experience

1984 Resident, Department of Obstetrics and Gynecology, the University of Tokyo Hospital.
1989 Research Associate, Department of Obstetrics and Gynecology, the University of Tokyo Hospital.
1992-94 Research Associate, National Institute of Health, USA.
2004 Assistant Professor, Department of Obstetrics and Gynecology, the University of Tokyo Hospital.
2010 Director of Department of Integrated Women's Health, St Luke's International Hospital.
2012 Vice president of St Luke's International Hospital.

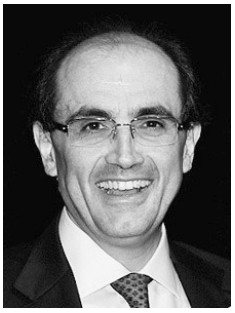
Qualification

Ph.D. (the University of Tokyo)
Board certified Specialist, Japan Society of Obstetrics and Gynecology
Board certified by Japan Society for Reproductive Medicine
Endoscopic surgical skill qualified gynecologist, Japan Society of Gynecologic and Obstetric Endoscopy and Minimally Invasive Therapy
daVinci certified surgeon

Academic Society

Representative member, Japan Society of Obstetrics and Gynecology
Councilor, Japan Society for Reproductive Medicine
Councilor, Japan Society of Gynecologic and Obstetric Endoscopy and Minimally Invasive Therapy
Representative secretariat, Japan Society of Endometriosis
Chairman of executive committee, Japan Enlightenment Committee in Endometriosis

SS1-2 Vaginal progestins for the endometriosis related pain



Felice Petraglia, Claudia Tosti, Silvia Vannuccini, D'Agostino Marianna, Gabriele Centini, Lucia Lazzeri, Stefano Luisi

Department of Molecular and Developmental Medicine, Obstetrics and Gynecology, University of Siena, Siena, Italy

The three most commonly suggested mechanisms for pain production in endometriosis are: 1) production of growth factors and cytokines; 2) the effects of active bleeding from endometriotic implants 3) direct invasion of pelvic floor nerves by infiltrating endometriotic implants. These mechanisms are more pronounced in deep infiltrating endometriosis (DIE) than endometrioma (OMA).

Progestins are a recommended treatment for the pain associated with endometriosis, since the induction of a pseudopregnancy state allows to interrupt the growth and activity of endometriotic lesions. The pharmacological uses of progestins include the suppression of ovulation and hypoestrogenism, decidualization, and atrophy of eutopic and ectopic endometrium. Danazol is a potent progestin with high androgenic activity and prevents implantation and growth of endometrial tissue through inhibiting angiogenesis and the expression of matrix metalloproteinases, which mediate the tissue response to estrogen. Danazol has also anti-inflammatory effects in vitro and in vivo, which reduce the inflammatory state generated by the metabolic activity of ectopic endometrium and the consequent immune response. Danazol administration showed a significant decrease of painful symptoms during the 12 months of treatment with few side effects significantly decrease dysmenorrhea, dyspareunia, and chronic pelvic pain in women with deeply infiltrating and rectovaginal endometriosis nodules are reduced. New study is revealing that continuous vaginal danazol treatment for 6 months followed by a cyclic 3 months for further 12 months or continuous vaginal treatment for 18 months may be considered both valid protocols treatment to keep under control pain and abnormal uterine bleeding (AUB) in patients with previous DIE-surgery and concomitant adenomyosis.

【Curriculum Vitae】

Professor Felice Petraglia is Professor and Chairperson of Obstetrics and Gynecology at the University of Siena, Italy. He is also Adjunct Professor of the Department of Obstetrics and Gynecology at the University of Toronto, Canada.

He is Fellow ad Eundem of the Royal College of Obstetricians and Gynaecologists (RCOG), Member of Steering Committee WHO Sexual and Reproductive Health Guideline Development Group (GDG) and Correspondent Member of the Pontificial Academy for Life (PAL). Prof Petraglia has served as President of the Society for Gynecologic Investigation (2008-2009), having previously been a member of its council (2003-2006). He was also member of the Board and Committees of FIGO, ISGE, ESHRE and EBCOG and served as consultant of Ministry of Health and Ministry of University of Italy. Recipient of Awards from the Endocrine Society, SGI, SIGO, SIE and Academy of Lincei.

He is Editor-in-Chief of Human Reproductive Update, and Section Head of Reproductive Endocrinology and Infertility of Faculty 1000 Medicine. He is Member of the Editorial Board of Reproductive Sciences, Journal of Endometriosis and Pelvic Pain Disorders, Gynecological Endocrinology. Prof Petraglia has also co-edited 27 scientific volumes and authored more than 600 peer-reviewed papers in International Scientific Journals.

SS1-3 Long-term management of endometriosis-associated pelvic pain

Jo Kitawaki

Department of Obstetrics and Gynecology, Kyoto Prefectural University of Medicine, Graduate School of Medical Science, Kyoto, Japan

Endometriosis is a chronic disorder characterized by the presence of endometrial-like tissue outside the uterus, primarily in the pelvic peritoneum and in the ovaries. It is an estrogen-dependent disease that occurs in 10% of women of reproductive age and regresses after menopause. The main symptoms include dysmenorrhea, chronic pelvic pain, deep dyspareunia, and infertility. Sufficient suppression of pelvic pain together with its long-term maintenance is one of the major goals of medical therapies for endometriosis. Gonadotropin-releasing hormone agonist (GnRH-a) is the most potent medications, but their therapeutic use is limited to a maximum of 6 months because of hypo-estrogenic side effects. Pelvic pain often recurs after the completion of GnRH-a treatment. We have shown that the long-term administration of a tapering dose of danazol, moderate- to low-doses of oral contraceptives, or dienogest after the end of GnRH agonist therapy maintains the pelvic pain relief that was achieved by GnRH agonist therapy. Deep infiltrating endometriosis (DIE) is a specific entity defined by the presence of an endometriotic lesion that extends more than 5 mm below the peritoneum and includes infiltrative forms that involve the rectovaginal septum, vaginal fornix, ureter, bladder, and rectosigmoid. DIE is associated with chronic pelvic pain, dyspareunia, bladder and bowel symptoms, and even infertility and recurrence. Because DIE responds poorly to hormone therapy, laparoscopic resection should be considered.

【Curriculum Vitae】

Professor and Chairman, Department of Obstetrics and Gynecology, Kyoto Prefectural University of Medicine (KPUM), Graduate School of Medical Science, Kyoto, Japan

Executive Board Members: Japan Society of Obstetrics and Gynecology, Japan Society of Gynecologic and Obstetric Endoscopy and Minimally Invasive Therapy, Japan Society for Menopause and Women's Health, and Japan Society of Reproductive Endocrinology.

Qualifications and Certificates: Certified Physician, Japan Society of Obstetrics and Gynecology, Technically Certified Physician, Japan Society of Gynecologic and Obstetric Endoscopy and Minimally Invasive Therapy, Board certified by Japan Society for Reproductive Medicine, Certified Physician, Japan Society for Menopause and Women's Health, etc.

Education and Professional Experience:

1981 B.S. and M.D., KPUM
1981 Resident, Department of Obstetrics and Gynecology, KPUM
1986 Research Fellow, Endocrine Biochemistry Department, Medical Foundation of Buffalo, NY, U.S.A.
2008 Professor and Chairman, Department of Obstetrics and Gynecology, KPUM
2013 Dean, Resident Center, KPUM hospital
2015 Director, Student Affairs, KPUM

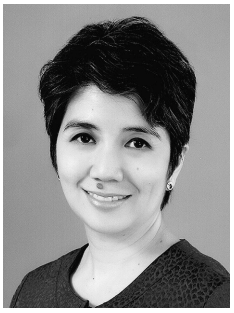
Bibliography:

13 Book chapters and 125 original papers in English

Current Research Interests

Reproductive endocrinology, Infertility, Endometriosis, Laparoscopic surgery, Women's Health Care

SY1-2-1 Endometriosis among adolescents and young adults: incidence and management



Angela G. Sison-Aguilar

Department of Obstetrics and Gynecology, University of the Philippines-Philippine General Hospital, Philippines

Endometriosis is a common cause of menstrual morbidity among adolescents. It has a significant effect in their quality of life, education and future fertility. Early recognition and intervention is imperative if the lifelong adverse impact of this condition is to be minimized. The first dilemna in the management of endometriosis in adolescents is the difficulty in establishing a diagnosis. Diagnostics such as laparoscopy have to be be weighed against risk and cost compared with empiric medical treatment. It may even be difficult to obtain consent for a simple transvaginal or a transrectal ultrasound for the legal minor. Moreover, cultural taboos and anxieties, expecially in the Asian region, limit the access of these young women to medical care.

Surgery has limited benefit to adolescents and early adults. For one, malignancy is unlikely hence histologic confirmation and extirpation of lesions is not urgent. Since completion surgery is not appropriate, endometrioma recurrence is high [i] among the younger cohort, exposing patients to the risk of repeat surgery. Worse, resolution of pain is not complete and relapse of symptoms may be observed around 12 months after the surgery. Therefore, long term medical management should be considered with acceptable side effects so control of symptoms and fertility preservation can be accomplished. For the young, medical management is first line treatment and usually effective [ii]. Empiric treatment is encouraged and response to pharmacologic intervention may confirm the diagnosis of endometriosis

[i] Coccia ME, Rizzello F, Palagiano A, Scarselli G. Long-term follow-up after laparoscopic treatment for endometriosis: multivariate analysis of predictive factors for recurrence of endometriotic lesions and pain. Eur J Obstet Gynecol Reprod Biol. 2011 Jul; 157(1):78-83. Epub 2011 Apr 9.
[ii] Janssen EB, Rijkers AC, Hoppenbrouwers K, Meuleman C, D'Hooghe TM. Hum Reprod Update. 2013 Sep-Oct; 19(5):570-82. Epub 2013 May 31.

【Curriculum Vitae】

Dr. Angela Aguilar is currently the President of the Philippine Society for Gynecologic Endoscopy and the Public Relations Officer of the Philippine Society for Reproductive Medicine. She is an associate professor of the Section of Reproductive Endocrinology and Infertility at the Department of Obstetrics and Gynecology, University of the Philippines-Philippine General Hospital. She is a member of the Board of the Asia-Pacific Association for Gynecologic Endoscopy and Minimally Invasive Therapy (APAGE).

She was recently granted the Howard and Conchita Redmon Professorial Chair by the University of the Philippines Manila and is a recipient of numerous awards, among such was the Asia & Oceania Federation of Obstetrics and Gynecology Shan S. Ratnam-Young Gynaecologist Award in 2007.

She was awarded a Master of Science (MSc) degree in Reproduction and Development *with merit* from the University of Bristol in the United Kingdom and also holds a Master's Degree in Business Administration specializing in Health from the Ateneo Graduate School of Business.. She received her medical degree from the University of the Philippines and had her training in obstetrics and gynecology and fellowship in reproductive endocrinology and infertility from the University of the Philippines-Philippine General Hospital.

SY1-2-2 Endometriosis in the adolescent

Lone Hummelshoj
World Endometriosis Society, UK

【Curriculum Vitae】

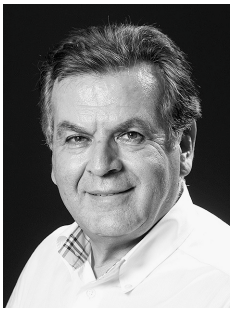
Lone Hummelshøj is well known as an advocate in the field of endometriosis, in particular for her work in getting the condition recognised in the European Parliament and European Commission, and for being instrumental in the implementation of the first (and only) national legislation, which provides referral guidelines to specialist centres for the treatment of endometriosis in Denmark.

Eleven years ago she created Endometriosis.org, which is the largest global online resource for news and information in endometriosis.

Lone was appointed Secretary General of the World Endometriosis Society (WES) in 2005, and became Chief Executive of the World Endometriosis Research Foundation (WERF) in 2006. So far, she has raised almost a million euros for research into endometriosis.

She is active in the ESHRE, ASRM, and AAGL Special Interest Groups on Endometriosis; on the faculty of F1000 for Medicine; a co-author of the first global consensus on the management of endometriosis (published in 2013); an author of >35 papers and chapters on the impact and cost of endometriosis; and is utilised as a speaker, chair, and facilitator across six continents when it comes to highlighting the impact and needs of women with endometriosis, and calling for worldwide collaboration in disease discovery and management.

SY1-2-3 The management of endometriosis in adolescent



Kutay Biberoglu
Gazi University Medical School, Turkey

Adolescent endometriosis may be a seperate entity with a different pathophysiology. Early disease with subtle, atypical lesions is mostly seen in adolescents which may clear following surgery for mullerian anomalies. The endometriotic foci seen at laparoscopy could even represent a temporary phase resulting in cytolysis of recently implanted cells, therefore could be dynamic, emerge and vanish again. Visual inspection may not be accurate unless confirmed histologically.

The relationship between pelvic pain and endometriosis is complex. Complexity of involved mechanisms explains the extreme clinical variability of symptoms in adolescents with similar visceral chronic pelvic pain conditions. Besides other comorbidities like irritable bowel syndrome, painful bladder syndrome or myofascial pain, migraine and mood disorders are also more common in adolescents with endometriosis.

Early diagnosis and treatment of endometriosis in adolescents is critical, yet literature does not confirm that this prevents the progression of the disease or long-term sequelae. Early surgical diagnosis of teenage endometriosis simply increases number of interventions during the rest of the reproductive life. More importantly, early diagnosis and diagnostic laparoscopy are not synonymous. There is inadequate evidence to support that surgery should be the first line approach in adolescents. Also decisions to operate ovarian endometriomas should be balanced against the potential damage upon the ovarian reserve. Performing surgery in adolescents and young girls increases the recurrence risk in adulthood. Not the endometriotic lesions but the symptomatic patients should be treated and medical treatment should be the first-line management of pelvic pain.

The optimal management of adolescent endometriosis is controversial. Combined oral estrogen-progestin pill (COC) use is considered as a first choice treatment for endometriosis-associated pain, yet estrogen component of the pill may stimulate the progression of endometriosis. While current COC use reduces the clinical symptoms, past use increases the probability of developing advanced endometriosis, even deep infiltrative endometriosis. Progestin only treatment, on the other hand, might be a better choice since progestins do not activate the estrogen receptors, furthermore achieves antiinflammatory and apoptotic effects in stromal and epithelial cells.

【Curriculum Vitae】

Dr. Biberoğlu graduated from Hacettepe University Medical School, Ankara, Turkey and completed his residency in Obstetrics & Gynecology at Hacettepe University Medical School. He is the past Chair of the

Department of Obstetrics and Gynecology, Gazi University Medical School (1987-1991). He also served as Vice Dean at the Gazi University Medical School and he is the past Founder and Director of the Gazi University, Assisted Reproductive Technologies and Family Planning Center. He worked as a consultant at the Reproductive Endocrinology, Infertility and Assisted Reproductive Technologies Unit, Sevgi Hospital, Ankara and currently at Ankara Private In vitro Fertilization and Women's Health Center.

Between 1977-1981, he served as a consultant and lecturer in Obstetrics and Gynecology at the Wayne State University Medical School, Michigan, USA; Consultant in the Family Planning Clinic and in the Community Mental Health Clinic in Oakland County, Michigan, USA.

His certificates and fellowships include ECFMG "Educational Commission for Foreign Medical graduates"; Board of Medicine and Surgery Certificate, Michigan, USA; Clinical fellowship in Reproductive Endocrinology and Infertility, University of Texas, Houston, Texas, USA; Clinical fellowship in Reproductive Endocrinology, Infertility, Andrology and Microsurgery in Michigan, USA; Certificates of Ministry of Health of Turkey in "Gynecological Microsurgery", "Gynecological Laparoscopy" and "In vitro Fertilization".

Dr. Biberoğlu won many honors, award and achievements including the best research award, 1980-"William Beaumont Hospital"-Royal oak, Michigan, USA and the "Ephraim McDowell" research award, 1979-Chicago, Illinois, USA

Dr. Biberoğlu is a member of various national and international societies and organizations including the National Board of Experts, Ministry of Health of Turkey; The National commission for "Test tube baby" Ministry of Health of Turkey; Board member of Turkish Society of private Test Tube Baby Centers; The Society of Reproductive Medicine and Turkish Society of Geriatrics; member of the Turkish Society of Obstetrics and Gynecology; the Turkish Society of Reproductive Health and Infertility. He has nearly 300 published national and international articles as well as congress presentations.

SY1-3-1 Roles of microRNAs in the pathogenesis of endometriosis

Kaei Nasu

Division of Obstetrics and Gynecology, Support System for Community Medicine, Faculty of Medicine, Oita University, Oita, Japan

MicroRNA (miRNA), a recently defined class of epigenetic mechanism, is characterized as endogenous, small size, single stranded, non-coding RNA. The purpose of this study is to identify the panel of miRNAs that were aberrantly expressed in cultured human endometriotic cyst stromal cells (ECSCs) in comparison with cultured normal endometrial stromal cells (NESCs), and evaluate the roles of aberrantly expressed miRNAs in the pathogenesis of endometriosis.

ECSCs and NESCs were isolated from ovarian endometriotic tissues and the eutopic endometrial tissues, respectively. Aberrantly expressed miRNAs in ECSCs were identified by a global miRNA microarray analysis. Thereafter, the roles of aberrantly expressed miRNAs regarding the pathogenesis of endometriosis were evaluated by compulsory miRNA expression techniques.

miRNA microarray analysis identified 8 downregulated miRNAs (miR-29b, miR-196b, miR-199a-3p, miR-199b-5p, miR-214, miR-424, miR-455-3p, and miR-503) and 4 upregulated miRNAs (miR-100, miR-132*, miR-181 a, and miR-210) in ECSCs. Compulsory expression of miR-196b directed the inhibition of proliferation and the induction of apoptosis in ECSCs. miR-196b was found to suppress the mRNA expression of c-myc and Bcl-2 in ECSCs. miR-196b expression was attenuated in ECSCs by the hypermethylation of its gene. Whereas, the compulsory expression of miR-210 resulted in the induction of cell proliferation, the production of VEGF, and the inhibition of apoptosis through STAT3 activation in NESCs.

The present findings suggested that aberrant miRNA expressions play important roles in the pathogenesis of endometriosis as a part of epigenetic mechanisms. Further studies on the functions of dysregulated miRNAs may provide useful information on the pathogenesis and novel treatments of endometriosis.

【Curriculum Vitae】

Present Position

Professor
Division of Obstetrics and Gynecology, Support System for Community Medicine, Faculty of Medicine, Oita University

Education

1990	MD, Oita Medical University
1995	PhD in Pathology, Oita Medical University

Position Held

1997-1998	Postdoctoral Fellow, Department of Stomatology, School of Dentistry, University of California, San Francisco
2003-2008	Assistant Professor, Department of Obstetrics and Gynecology, Faculty of Medicine, Oita University
2008-2012	Associate Professor, Department of Obstetrics and Gynecology, Faculty of Medicine, Oita University
2012-present	Professor, Division of Obstetrics and Gynecology, Support System for Community Medicine, Faculty of Medicine, Oita University

SY1-3-2 The role of angiogenesis in the pathogenesis of endometriosis

Meng-Hsing Wu[1,2], Shaw-Jenq Tsai[2]

Department of Obstetrics and Gynecology[1], Department of Physiology, College of Medicine and Hospital, National Cheng Kung University, Tainan, Taiwan[2]

Angiogenesis plays an important role in the development and progression of endometriosis. This angiogenic potential may provide new blood supply in local hypoxic peritoneal microenvironment to support the growth of endometriotic implants. However, how ectopic endometriotic lesions acquires angiogenic ability remains to be defined. We have previously demonstrated that the level of hypoxia-inducible factor-1α (HIF-1 α), the master transcription factor in response to hypoxia, is elevated in ectopic endometriotic tissue. The elevated level of HIF-1α plays a critical role in facilitating the development of endometriosis, including angiogenesis. For example, the elevated HIF-1α protein reduced the expression of dual specificity phosphatase-2 (DUSP2) resulting in prolonged phosphorylation of extracellular signal-regulated protein kinase (ERK) and overexpression of cyclooxygenase-2 (COX-2), two mediators that have been linked to angiogenesis. Downregulation of DUSP2 leads to overexpression of several angiogenic genes such as related gene expression during, such as vascular endothelial growth factor (VEGF), leptin, early growth response protein-1 (EGR-1), osteopontin, cysteine-rich angiogenic inducer 61 (CYR61), and IL-8. Overexpression of COX-2 contributes to the aberrant production of prostaglandin E2 (PGE_2), which could further combine with hypoxic conditions and contribute to angiogenesis. Moreover, HIF-1α induced the expression of estrogen receptor beta and inhibited ER alpha in ectopic endometriotic stromal cells. The imbalance of the ERβ/ERα ratio leads to progesterone resistance and inflammation that may further influence angiogenesis in the pathogenesis of endometriosis. It is important to understand the exact role of angiogenesis in complex pathogenesis of endometriosis with heterogeneity. Antiangiogenic drugs as a new therapeutic option may represent a distinct perspective in endometriosis treatment.

【Curriculum Vitae】

POSITIONS:

1988-1989	Internship at Kaohsiung Medical College Hospital
1989-1991	Medical Officer, Republic of China Marine Corps, Taiwan
1991-1995	Resident, Department of Obstetrics and Gynecology, National Cheng-Kung University Hospital, Tainan, Taiwan
1995-1996	Fellow, Division of Reprodcutvie Endocrinology, Department of Obstetrics and Gynecology, National Cheng Kung University Hospital, Tainan, Taiwan
1996-present	Attending Physician, and Chief of Division of Reprodcutvie Endocrinology, Department of Obstetrics and Gynecology, National Cheng Kung University Hospital, Tainan, Taiwan
1999-2003	Lecturer, Department of Obstetrics and Gynecology, College of Medicine, National Cheng Kung University, Tainan, Taiwan
2002-2003	Baylor College of Medicine Postdoctoral fellow, Houston, Texas, USA
2003-2007	Assistant Professor, Department of Obstetrics and Gynecology, College of Medicine, National Cheng Kung University, Tainan, Taiwan
2007-2014	Associate Professor, Department of Obstetrics and Gynecology, College of Medicine, National Cheng Kung University, Tainan, Taiwan
2013-present	Head of Department of Obstetrics and Gynecology, College of Medicine and Hospital, National Cheng Kung University, Tainan, Taiwan
2014-present	Professor, Department of Obstetrics and Gynecology, College of Medicine, National Cheng Kung University, Tainan, Taiwan

SY1-3-3 Carcinogenesis and stress resistance of ovarian clear cell carcinoma associated with endometriosis

Ken Yamaguchi[1], Yasuaki Amano[1], Ryusuka Murakami[1], Kaoru Abiko[1], Tsukasa Baba[1], Junzo Hamanishi[1], Masaki Mandai[2], Ikuo Konishi[3], Noriomi Matsumura[1]

Department of Gynecology and Obstetrics, Kyoto University[1], Department of Obstetrics and Gynecology, Kindai University[2], National Hospital Organization Kyoto Medical Center, Japan[3]

Background and Aims: Ovarian clear cell carcinoma (CCC) is a histologic subtype of epithelial ovarian cancer (EOC) with unique characteristics including chemoresistance and development in endometriotic cysts. We previously reported that a high concentration of free iron in endometriotic cysts causes oxidative stress, and that HNF1B pathway genes are activated exclusively in CCC relative to the other EOCs. The aim of this study was to clarify how HNF1B contributes to stress resistance in CCC.
Methods and Results: Comprehensive DNA methylation analysis identified that CCC exhibited distinct DNA methylation profiles from the other EOCs. HNF1B pathway genes were activated through synchronous hypomethylation in CCC. In comprehensive metabolomic analyses, knockdown of HNF1B was associated with decreased intracellular lactic acid ($p<0.05$), increased pyruvic acid ($p<0.01$) and increased citric acid ($p<0.01$), indicating that HNF1B increases anaerobic glycolysis. Glutathione, a major antioxidant molecule, was significantly decreased in the HFN1B knockdown cells ($p<0.0005$). Western blots showed that expression of a cysteine transporter SLC3A1 was downregulated by HNF1B knockdown. shRNA-mediated SLC3A1 knockdown in CCC cells decreased intracellular glutathione ($p<0.05$). shRNA-mediated HNF1B knockdown in CCC cell lines was associated with reduced IC50 to ferric nitrilotriacetate (a Fe-mediated inducer of oxidative stress) and cisplatin, and increased intracellular ROS ($p<0.05$ for all).
Conclusion: Stress resistance of CCC is induced by metabolic alteration regulated epigenetically. This may be mechanistically driven by decreased TCA cycle activity combined with increased intracellular glutathione through increased expression of SLC3A1. Further investigation of this mechanism may lead to development of new therapeutic modalities against CCC.

【Curriculum Vitae】

MEDICAL EDUCATION

1993-1999: M.D., Osaka City University, Japan
2005-2009: Ph.D., Division of Gynecologic Oncology, Department of Gynecology and Obstetrics, Graduate School of Medicine, Kyoto University, Japan

WORK HISTORY

1999-2000: Resident in Gynecology and Obstetrics, Kyoto University Hospital, Kyoto, Japan
2000-2002: Fellow in Gynecology and Obstetrics, Japanese Red Cross Otsu Hospital, Shiga, Japan
2002-2003: Clinical Staff, Nagahama City Hospital, Shiga, Japan
2004: Clinical Staff, Kyoto University Hospital, Kyoto, Japan
2009-2011: Visiting scholar, Division of Gynecologic Oncology, Department of Obstetrics and Gynecology, Duke University Medical Center, NC, USA
2011: Assistant Professor, Kyoto University Hospital, Kyoto, Japan
2011-2013: Chief of Obstetrics and Gynecology, Japan Baptist Hospital, Kyoto, Japan
2013-: Assistant Professor, Kyoto University Hospital, Kyoto, Japan

SY1-3-4 Role of versican in the pathogenesis of peritoneal endometriosis

Hirohiko Tani

Kyoto University Graduate School of Medicine, Japan

Sampson's theory cannot account for why only some cycling women develop peritoneal endometriosis. Few studies have focused on the pelvic peritoneum, which receives regurgitated endometrial tissues. We hypothesized that molecular alterations in the peritoneum are involved in the development of peritoneal endometriosis and conducted a microarray analysis to compare macroscopically normal peritoneums sampled from women with peritoneal endometriosis (endometriotic peritoneums) and those without (non-endometriotic peritoneums). Versican, a major proteoglycan component of the extracellular matrix, is one of the molecules up-regulated in endometriotic peritoneums.

In order to investigate possible roles for versican in the development of peritoneal endometriosis, we initially examined the protein and mRNA expression of versican in endometriotic and non-endometriotic peritoneums. The versican V1 isoform (versican V1) was then stably transfected into Chinese hamster ovary cells (CHO-V1) and the effects of CHO-V1-derived conditioned medium (V1-CM) on the behavior of primary human endometrial stromal cells (ESCs) were investigated. We also examined the effects of peritoneal fluid collected from endometriotic women (endometriotic PF) or a co-culture with ESCs on versican expression in a human peritoneal cell line (HMrSV5).

Versican V1 expression was significantly stronger in endometriotic peritoneums than in non-endometriotic peritoneums. *In vitro*, V1-CM promoted attachment to the HMrSV5 cell monolayer as well as the Matrigel invasion of ESCs. The co-culture with ESCs, but not the treatment with endometriotic PF, enhanced versican V1 expression in HMrSV5 cells. These results support a role for versican in the pathogenesis of peritoneal endometriosis.

【Curriculum Vitae】

Experience

July 2016-present　Kyoto University Hospital: Assistant Professor

April 2016-June 2016　Kyoto University Hospital: Clinical Fellow

July 2010-March 2012　Division of Reproductive Medicine National Center for Child Health and Development: Fellow

May 2005-June 2010　Shizuoka General Hospital: Fellow

May 2003-April 2005　Kyoto University Hospital: Resident

Education

Kyoto University Graduate School of Medicine Department of Obstetrics and Gynecology, March 2016

Hokkaido University School of Medicine, March 2003

SY2-1-1 Is endometriosis a procoagulant disease?

Sun-Wei Guo

Shanghai OB/GYN Hospital, Fudan University, Shanghai, China

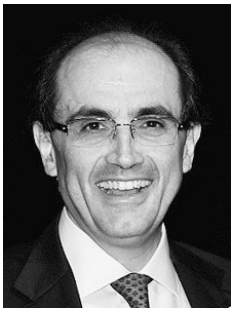
Endometriosis has been traditionally viewed, first and foremost, as a hormonal disease, featuring increased local production of estrogens due to molecular aberrations in steroidogenesis. It is also conceptualized as pelvic inflammatory conditions, characterized by increased production of pro-inflammatory cytokines and chemokines. It turns out that inflammation and coagulation—long regarded as two separate entities---are two major host-defense systems that interact with each other. In fact, the two entities are intricately entwined: inflammation activates the coagulation cascade and coagulation modulates the inflammatory. Taking cues from the cyclic bleeding of ectopic endometrium and the finding that activated platelets play a critical role in initiating inflammation, it was reasoned that platelets must be involved in endometriosis. In this talk, I shall provide data that demonstrate platelets play critical roles in the development of endometriosis. In addition, women with endometriosis appear to be in a hypercoagulable state. Not only platelets drive smooth muscle metaplasia and ultimately fibrosis in endometriosis, ectopic endometrium also secrete coagulant factors. Hence, lesions of ectopic endometrium and platelets engage active cross-talks, promoting the development of endometriosis. Anti-coagulation therapy appears to be efficacious in treating endometriosis in mouse, and many promising drugs tested pre-clinically turned out to be either anti-platelet or anti-thrombotic. The view of platelet-driven epithelial-mesenchymal transition and fibroblast-to-myhofibroblast transdifferentiation can help to illuminate the natural history of endometriosis, which so far has been elusive. This view also has important and immediate implications in the identification of novel biomarkers for endometriosis and in devising novel therapeutics.

【Curriculum Vitae】

Professor Guo received his Master of Medicine degree from Fudan University, and his M.Sc. and Ph.D. from the University of Washington. He was Assistant and then Associate Research Scientist at University of Michigan, Associate Professor at University of Minnesota, and tenured full Professor at Medical College of Wisconsin. He also served a three-year term directorship at the Institute of Obstetric and Gynecologic Research, Shanghai Jiao Tong University. Since 2010, he has been Professor at Shanghai OB/GYN Hospital, Fudan University Shanghai College of Medicine. He also is an Adjunct professor at the Dept. of OB/GYN and Reproductive Sciences of Michigan State University College of Human Medicine, USA.

Professor Guo is a member of *Faculty 1000 in Medicine* since 2007 and has published over 150 research papers in international journals. He has given lectures at numerous research institutions worldwide and at professional meetings. He is credited as being the first to propose and provide evidence that endometriosis is an epigenetic disease. He served as Associate Editor for *Human Reproduction* for two terms, and now is an Associate Editor for *Reproductive Sciences, Gynecologic and Obstetric Investigation, Journal of Endometriosis and Pelvic Pain Disorders,* and *Gynecology and Minimally Invasive Therapy*. He is a member of the Board of Trustees of the World Endometriosis Society, the Society of Endometriosis and Uterine Disorders (SEUD), and the Asian Society of Endometriosis and Adenomyosis, and a member of the WHO Expert Working Groups (EWG3A). He is recently ranked as one of 10 top specialists in endometriosis by ExpertScape (http://www.expertscape.com/leaders/endometriosis). He is the co-founder and now the President-Elect of Asian Society of Endometriosis and Adenomyosis.

SY2-1-2 Inflammatory and neurogenic mediators in adenomyosis



Felice Petraglia, Claudia Tosti, Silvia Vannuccini, Sara Balzonella, Paolo Arcuri, Alice Luddi, Paola Piomboni

Department of Molecular and Developmental Medicine, Obstetrics and Gynecology, University of Siena, Siena, Italy

Adenomyosis is a common benign gynecological disorder characterized by presence of endometrial glands and stroma within myometrium.

The pathogenetic theories for adenomyosis proposed that a traumatization of the endometrial-myometrial interface, like surgery or pregnancy, might predispose to the endometrial invasion of myometrium, local hyperestrogenism and hyper- or dysperistalsis facilitating the process. The most current hypothesis support that the ectopic endometrium has inflammatory dysfunction, alterations of adhesion molecules, cell proliferation, hormonal response and apoptosis. Aside from the increased estrogen receptors in ectopic endometrial tissue, a correlation has been made between adenomyosis and inflammatory genes. Overexpression of cyclooxygenase-2 (PLAG2) may have a role in the pathogenesis and it could be a potential target for the treatment or prevention of adenomyosis.

Adenomyotic tissues express high levels of myostatin, follistatin, and activin A (growth factors involved in proliferation, apoptosis, and angiogenesis). Increased expression of their receptors supports the hypothesis of a possible local effect of these growth factors in adenomyosis. The main symptoms of adenomyosis are menometrorrhagia, dysmenorrhoea, and pelvic pain. Diffuse adenomyosis is commonly expressed as abnormal uterine bleeding, while the nodular form involves more severe pain, disabling menometrorrhagia, or even dyspareunia.

Adenomyotic nodules are novel site of expression of inflammatory (IL-1β and CRH) and neurogenic factors as nerve growth factor (NGF), synaptophysin (SYN) and microtubule-associated protein 2 (MAP2) mRNA expression levels compared to control endometrium and myometrium, probably involved in the pathogenesis of adenomyosis, thus contributing to explain the painful and abnormal uterine bleeding symptoms, whereas the increased expression of inflammatory factors in eutopic endometrium may be related to associated infertility.

【Curriculum Vitae】

Please refer to page 61.

SY2-1-3 Role of epithelial-mesenchymal transition in human adenomyosis

Khaleque Khan[1,2], Akira Fujishita[3], Michio Kitajima[2], Koichi Hiraki[2], Hideaki Masuzaki[2], Masahiro Nakashima[4], Jo Kitawaki[1]

Department of Obstetrics and Gynecology, Kyoto Prefectural University of Medicine, Kyoto[1], Department of Obstetrics and Gynecology, Graduate School of Biomedical Sciences, Nagasaki University, Nagasaki[2], Department of Gynecology, Saiseikai Nagasaki Hospital, Nagasaki[3], Department of Tumor and Diagnostic Pathology, Atomic Bomb Disease Institute, Nagasaki University, Nagasaki, Japan[4]

Objectives: Adenomyosis is commonly believed to arise from the basalis endometrium. As an estromedin growth factor, hepatocyte growth factor (HGF) exhibits multiple functions in endometriosis, a disease arising from the functionalis endometrium. Here, we investigated the role of HGF and estrogen in the occurrence of epithelial-mesenchymal transition (EMT) in human adenomyosis.

Study Design: Full-thickness-biopsy specimens from endometrium to myometrium were collected after hysterectomy from women with (n=15) and without (n=12) adenomyosis. The relationship between HGF and E-cadherin (epithelial cell marker) and N-cadherin (mesenchymal cell marker) was examined at the gene and protein levels using endometrial epithelial cells (EECs) in culture and tissues by quantitative RT-PCR and immunohistochemistry. The gene and protein expressions of two transcriptional repressors of E-cadherin, SLUG and SNAIL, were examined using Ishikawa cells and in response to HGF and estrogen (E_2).

Results: HGF down-regulated *E-cadherin* and up-regulated *N-cadherin* mRNA expression in EECs and an inverse relationship in protein expression between HGF and E-cadherin was observed in basalis endometria derived from women with diffuse and focal adenomyosis. HGF induced morphological changes of EECs from cobblestone appearance to spindle-shaped cells and promoted migration of EECs. Ishikawa cells exhibited up-regulation of *SLUG/SNAIL* gene expression in response to both HGF and E_2 with an additive effect between them. HGF- and E_2-promoted *SLUG/SNAIL* gene expression was significantly abrogated after pre-treatment of cells with anti-HGF antibody or ICI 182720, an estrogen receptor antagonist.

Conclusion: HGF either alone or in combination with estrogen may be involved in gland invagination deep into myometrium by inducing EMT at the endo-myometrial junction in women with adenomyosis.

【Curriculum Vitae】

Please refer to page 54.

SY2-1-4 IL-6/STAT3 signaling in adenomyosis

Yasushi Hirota

Department of Obstetrics and Gynecology, Graduate School of Medicine, The University of Tokyo, Japan

Although progestins have been widely used against symptoms of endometriosis and adenomyosis, there still remains a population who exhibits poor clinical response. We first assessed the effect of progesterone (P4) on the expression of a pro-inflammatory cytokine IL-6 in adenomyosis-derived stromal cells (AdSCs) and endometrial stromal cells (ESCs) using primary cell culture system. Expression levels of IL-6 in both AdSCs and ESCs were decreased by P4 treatment, which reflecting the positive clinical outcome of progestin treatment. Importantly, IL-6 levels in ESCs without P4 treatment were lower than those in AdSCs with and without P4 treatment, indicating that high IL-6 levels in adenomyosis is a possible mechanism of progestin inefficiency in some adenomyosis patients. We then assessed activation of a transcriptional factor STAT3, which is a downstream signaling of IL-6, in adenomyosis lesions by immunostaining of phosphorylated STAT3 (pSTAT3), and found heightened levels of pSTAT3 in adenomyosis lesions regardless of menstrual phase and progestin therapy. These findings suggest that IL-6/STAT3 signaling may be involved in the pathophysiology of adenomyosis, and pro-inflammatory environment may be associated with failure of progestin treatment in some adenomyosis patients.

【Curriculum Vitae】

Professional Experience:

1992-	Medical Student, The University of Tokyo, Japan.
1998-	Resident, Department of Ob/Gyn, The University of Tokyo, Japan.
2001-	Graduate Student, The University of Tokyo, Japan.
2005-	Assistant Professor, Department of Ob/Gyn, The University of Tokyo, Japan.
2006-	Research Fellow, Department of Ob/Gyn, The University of Tokyo, Japan.
2007-	Research Fellow, Department of Pediatrics, Vanderbilt University, TN, USA.
2008-	Research Fellow, Cincinnati Children's Hospital, OH, USA.
2010-	Chief Physician, Yaizu City Hospital, Shizuoka, Japan.
2011-	Research Investigator, PRESTO, Japan Science and Technology Agency, Japan.
April 2014-	Assistant Professor, Department of Ob/Gyn, The University of Tokyo, Japan.
August 2014-present	Lecturer, Department of Ob/Gyn, The University of Tokyo, Japan.

Honors:

Research Award, Japan Society of Obstetrics and Gynecology, 2009.

Research Award, Japan Society of Reproductive Medicine, 2007&2011.

Research Award, Japanese Society of Inflammation and Regeneration, 2013.

Editorial Board Member: Molecular Human Reproduction, Associate Editor, 2012-2015.

SY2-2-1 Molecular features of the endometrial-myometrial interface in adenomyosis

Hong-Yuan Huang

Department of Obstetrics and Gynecology, Chang Gung Memorial Hospital, Tao-Yuan, Taiwan

Adenomyosis is a disease characterized by deep invasion of the inner myometrium by endometrial glands and stroma thereby disrupting the EMI. These areas cause hyperplasia and hypertrophy of the surrounding myometrium and clinically result in an enlarged uterus. Adenomyosis is also complicated with prominent clinical manifestation including pelvic pain and infertility, especially for women in reproductive age. The pathophysiological theory of adenomyosis included direct invasion of the endometrium into the myometrium, embryologic-misplaced pluripotent Müllerian remnants, invagination of the basalis along the intramyometrial lymphatic system and from bone marrow stem cells.
In addition, there is much evidence of activation of peritoneal macrophages with increased cytokine production in women with adenomyosis, although there is decreased phagocyte activity. The occurrence and tissue remodeling of adenomyosis in uterus is at least regulated in part by metalloproteinases, a multigene family of endopeptidases capable of degrading components of the extracellular matrix with major importance in many physiological and pathological processes. Angiogenesis is the formation of new blood vessels from preexisting vasculature and is a process fundamental to the human EMI disorder, which was regulated mainly by vascular endothelial growth factor system.
Cytokine network included interleukin-1 (IL-1) and IL-18 system expression in human endometrium in the level of EMI in adenomyosis. Understanding of the ontogeny and diversity of adenomyosis is clearly important for the development of new alternatives to hysterectomy, both with regards to pathology and symptomatology, will lead to targeted therapies in the short term and provide evidence to guide individualized treatment including surgery and novel therapies based on research insights in the future.

【Curriculum Vitae】

Education:

Sep. 1980-Jun. 1987	Bachelor of medicine, Chung Shan Medical University, Taichung, Taiwan, R.O.C.

Post-graduate Education and Employment:

Mar. 1996～Aug. 1997	Postdoctoral research fellow Reproductive Immunology Laboratory Department of Gynecology and Obstetrics Stanford University Medical Center and School of Medicine, Stanford, USA.
July 1991～present	Attending physician, Department of Obstetrics and Gynecology, Lin-Kou Medical Center, Chang Gung Memorial Hospital.
July 1997～June 2003	Assistant Professor, Department of Obstetrics and Gynecology, Lin-Kou Medical Center, Chang Gung Memorial Hospital
July 1997～present	Director, Reproductive Center, Department of Obstetrics and Gynecology, Lin-Kou Medical Center, Chang Gung Memorial Hospital
July 2002～June 2014	Division Chief, Division of Gynecology and Reproductive Endocrinology, Department of Obstetrics and Gynecology, Lin-Kou Medical Center, Chang Gung Memorial Hospital
July 2003～present	Associate Professor, Department of Obstetrics and Gynecology, Lin-Kou Medical Center, Chang Gung Memorial Hospital
July 2013～present	Executive director, Center for Quality Management, Chang Gung Memorial Hospital
July 2015～present	Professor, Department of Obstetrics and Gynecology, Lin-Kou Medical Center, Chang Gung Memorial Hospital

SY2-2-2 Relationship between endometriosis and adenomyosis: clinical implications

Charles Chapron

SEUD President/Université Paris Descartes, Sorbone Paris Cité, Faculté de Médecine, Assistance Publique-Hôpitaux de Paris (AP-HP), Groupe Hospitalier Universitaire (GHU) Ouest, Centre Hospitalier Universitaire (CHU) Cochin, Department of Gynecology Obstetrics II and Reproductive Medicine (Professor Chapron), Paris, France

Endometriosis, histologically defined as functional endometrial glands and stroma developing outside of the uterine cavity is a common gynecologic disorder. Pathogenesis of endometriosis is enigmatic and remains controversial, even if retrograde menstruation seems the most probable mechanism for the development of the disease. Concerning the endometriotic lesions clinical appearance, there are three phenotypes: peritoneal superficial endometriosis (SUP), ovarian endometriosis (OMA) and deep infiltrating endometriosis (DIE).

Adenomyosis is also a common benign uterine pathology that is defined by the presence of islands of ectopic endometrial tissue within the myometrium, with adjacent smooth muscle hyperplasia. There are two types of adenomyosis depending on the extend of myometrial invasion: the diffuse adenomyosis (defined as the expansion of the junctional zone (JZ) along the length of the uterine cavity) and the focal adenomyosis (also called adenomyoma defined as a localized circumscribed nodular aggregates of endometrial gland and stroma), sometimes associated together.

The objective of the presentation is to precise the relationship between endometriosis and adenomyosis taking into account the different endometriosis phenotypes (SUP, OMA and DIE) and the two forms of adenomyosis (focal and/or diffuse).

【Curriculum Vitae】

Charles Chapron is full Professor of Obstetrics and Gynecology at the University Paris Descartes, Faculty of Medicine, since 1999. He was named Head of the department of Obstetrics and Gynecology II and Reproductive Medicine at Cochin University Hospital (Paris, France) in 2005. Since 2013, Professeur Chapron was nominated Head and Chair of the Department "Perinatologie-Periconceptologie-Gynecologie" to coordinate the activities of the three Departments of Obstetrics, Neonatalogy, Gynecology and Reproductive Medicine. In September 2014 Professor Chapron was named Vice Dean of the Faculty of Medicine at the Paris Descartes University, in charge of strategy and medical project. In 2015, Professor Chapron was nominated Visiting Professor at the Siena Univertsity (italy).

In addition, he is the Chairman of two university diplomas and director of 20 medical theses. Professor

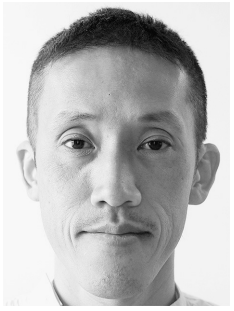
Chapron has authored and co-authored about 350 peer-reviewed papers in international (246 publications) and in national (108 publications) scientific journals concerning surgical laparoscopy in gynecology, reproductive medicine and endometriosis. Publications were cited more than 15071 times and his H-factor is 66. Professor Chapron has performed over 855 scientific presentations in international (542) and in national (313) meetings. He is the coordinator of 11 scientific books and the author of more than 80 chapters in other scientific books.

Professor Charles Chapron is Member of several national and international Societies and is reviewer for a number of journals.

In the past, he has held the positions of Secretary General of the French Society of Endoscopy in Gynecology (SFEG), the Associate Secretary General of the Francophonic International Society of Pelvic Surgery (SIFCP), Coordinator of the Special Interest Group (SIG) of Reproductive Surgery of the European Society of Human Reproduction and Embryology (ESHRE), Secretary General of the French society of gynaecological surgery, Société de Chirurgie Gynécologique et pelvienne (SCGP), President of the Special Interest Group (SIG) on "Reproductive surgery and endometriosis" of the American Association for Gynecologists Laparoscopists (AAGL) (2013) and President of the European Endometriosis League (EEL) (2013). Professor Chapron was elected President of the French Society of Gynaecologic Surgery (SCGP) in 2011 and was nominated as Member of the Pontifical Academy for Life (PAL) in 2012. In 2015, Profesor Chapron was the President of the 1st Congress of the Society of Endometriosis and uterine disorders (SEUD). In 2016, Professor Chapron was elected SEUD President.

During the last twenty years, Professor Chapron has worked intensively in Port-Royal University Clinic, Cochin University Hospital, together with a highly specialized team in endoscopic surgery. The two main research activities were the following: 1) Research (clinical and science) on pathogenesis, assessment and management (medical and/or surgical) of endometriosis; 2) Clinical research on gynecologic operative laparoscopy (ectopic pregnancy, hysterectomy, myomectomy, complications of gynecologic surgery, …)

SY2-2-3 Subtypes of adenomyosis assessed by MRI and their specification



Yohei Kishi[1,2], Maki Yabuta[2]

Department of Obstetrics and Gynecology, Nara Medical University School of Medicine, Nara, Japan[1], Department of Obstetrics and Gynecology, Takanohara Central Hospital, Nara, Japan[2]

Background/Objective

Although uterine adenomyosis has been considered to have originated from the inner myometrium, a recent development in MRI has revealed a diversity of localized subtypes of adenomyosis. The aim of the present study was to differentiate and specify the subtypes of adenomyosis.

Method

Surgically treated adenomyosis (n=152) was subcategorized retrospectively into 4 subtypes on the basis of MRI. Subtype I (n=59) consisted of adenomyosis that occurs in the uterine inner layer without affecting the outer structures. Subtype II (n=51) consisted of adenomyosis that occurs in the uterine outer layer without affecting the inner structures. Subtype III (n=22) consisted of adenomyosis surrounded by intact myometrium without affecting the JZ or serosa. Adenomyosis that did not satisfy these three criteria composed subtype IV (n=20). Stepwise logistic regression analysis was used for specification of the subtypes.

Results

Subtype I had the highest age at operation (38.7 ± 5.6y), and had a history of curettage with a high percentage. Coexisting pelvic endometriosis was observed seldom in Subtype I (25.4%). Subtype II had a strong relationship with pelvic endometriosis (96.1%). Subtype III had a characteristic of younger age (34.3 ± 4.7y). Subtype IV was thought to be a heterogeneous mixture of far advanced cases.

Conclusion

Adenomyosis appears to consist of 3 distinct subtypes of different causes, and an additional subtype of indeterminate cause.

【Curriculum Vitae】

Yohei Kishi, M.D, medical director of department of OBGY, Takanohara central hospital, Nara, Japan.

●2001: Obtained MD, Asahikawa medical university, Hokkaido, Japan.
●2008-until now: Takanohara central hospital, Nara, Japan.
●2014-until now: Under postgraduate course at Nara medical university, Japan.
●Laparoscopic surgeon and researcher.
●Main research field: endometriosis, adenomyosis.

PUBLICATIONS:

(1) Four subtypes of adenomyosis assessed by magnetic resonance imaging and their specification. Am J Obstet Gynecol. 2012 Aug; 207(2): 114.e1-7.
(2) Who will benefit from uterus sparing surgery in adenomyosis-associated subfertility? Fertil. Steril. 2014 Sep; 102(3):802-807.

SY2-2-4 Conservative surgical treatment of adenomyosis

Masato Nishida

National Hospital Organization, Kasumigaura Medical Center, Japan

Since March 20, 2002, we have performed conservative surgical treatment for 1444 women with uterine adenomyosis (focal, n=1083; diffuse, n=361) who were diagnosed based on MRI findings. Our surgical procedures consist of 2 different methods. For focal type adenomyosis, excision of the lesion including surface serosa using a high-frequency cutter equipped with a round type of loop electrode, after which the muscle layer is reconstructed by suturing (Type I method). For diffuse type, after longitudinal and asymmetrical dissection of the uterus with a high-frequency electrical surgical knife, and preservation of the uterine cavity, and the adenomyosis lesion is excised from the incision area site using loop electrode of a high-frequency cutter, after which the uterus is rejoined (Type II method).
Median operative time was 141 minutes (43-651 minutes), median blood loss was 313 g (1-5596 g), and median resected lesion weight was 108 g (2.8-1595 g). Thirty patients received a blood transfusion. No major complications or sequelae were observed. After surgery, mean visual analogue score for dysmenorrhea decreased from 9.1 to 1.8 and heavy menstrual bleeding was improved in all patients. Two hundred and fifty-five pregnancies occurred in 206 patients after the operation (focal type, n=167; diffuse type, n=39). More than 100 healthy babies were successfully delivered. Of 1141 patients who underwent surgery more than 2 years prior, recurrence was seen in 110 (9.6%).
Conservative surgery for uterine adenomyosis using a high-frequency resection device may be effective for both focal and diffuse types.

【Curriculum Vitae】

Education:

1972	Graduated from School of Medicine, Keio University, Tokyo, Japan

Qualification:

1972	M.D.
1982	Ph.D. on Tissue Culture of Ovarian Clear Cell Carcinoma.

Appointment:

2014-Present	Honorary Director, National Hospital Organization, Kasumigaura Medical Center, 2-7-14, Tsuchiura, Ibaraki, Japan
2002-2014:	Director, National Hospital Organization, Kasumigaura Medical Center, 2-7-14, Tsuchiura, Ibaraki, Japan
2001-2002:	Sub-Director, National Hospital Organization, Kasumigaura Medical Center, 2-7-14, Tsuchiura, Ibaraki, Japan
1997-2001:	Associate Professor Department of Obstetrics and Gynecology, Institute of Clinical Medicine, Tsukuba University, Ibaraki, Japan
1979-1997:	Assistant Professor Department of Obstetrics and Gynecology, Institute of Clinical Medicine, Tsukuba University, Ibaraki, Japan
1977-1979	Clinical Fellow in Medicine, School of Medicine, Kitasato University, Kanagawa, Japan
1972-1977	Resident, Department of Obstetrics and Gynecology, Kitasato University Hospital, Kanagawa, Japan

LS2-1-1 Systematic laparoscopic surgery for deep infiltrating endometriosis

Shigeo Akira

Department of Obstetrics and Gynecology, Nippon Medical School, Tokyo, Japan

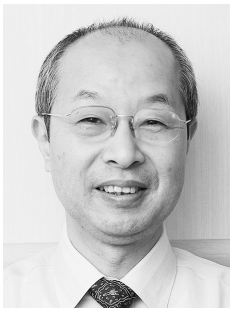
Background:
Deep infiltrating endometriosis (DIE) lesions often spread around the utero-sacral ligaments and cause chronic pelvic pain, dyschezia, and dyspareunia. Therefore, the extensive excision of those affected ligaments is necessary to resolve these symptoms. However, the anatomical structures around the utero-sacral ligaments are often distorted due to adhesion, and extensive excision of the utero-sacral ligaments sometimes causes the injury of adjacent organs such as the ureter, rectum, and pelvic nerve plexus. Therefore, a systematic and safe surgical method for DIE is necessary to avoid surgical complications, especially in teaching hospitals.
Surgical method:
Step 1: Adhesiolysis, drainage and stripping of endometriomas, and excision of peritoneal endometriosis.
Step 2: Identification of the ureteral course and dissection of the ureter.
Step 3: Dissection of the external space of the utero-sacral ligament and development of the pararectal space, with identification and isolation of the inferior hypogastric and splanchnic nerves.
Step 4: Dissection of the internal space of the utero-sacral ligament and separation of the rectum.
Step 5: Excision of the utero-sacral ligament affected by DIE, with the removal of vaginal and rectovaginal septum lesions, if necessary.
Results:
A total of 42 patients underwent surgery according to this method. No intra- or postoperative complications were observed.
Conclusion:
Our systematic laparoscopic surgery for DIE is safe and feasible.

【Curriculum Vitae】
Past positions:

1987-1988	Instructor, Dept. of OB/GYN, Nippon Medical School
1988-1990	Postdoctoral Fellow, Dept. of Vet. Physiol./Pharmacol., and Dept. of OB/GYN, The Ohio State University, USA
1990-1992	Instructor, Dept. of OB/GYN, Nippon Medical School
1992-1995	Director, Dept. of Gynecology, Tobu Chiiki Hospital
1995-1996	Instructor, Dept. of OB/GYN, Nippon Medical School
1996-2003	Assistant Professor, Dept. of OB/GYN, Nippon Medical School
2003-2011	Associate Professor, Dept. of OB/GYN, Nippon Medical School
2011-present	Professor, Dept. of OB/GYN, Nippon Medical School

Board Certification:
Japan Society of Obstetrics and Gynecology
Japan Society for Reproductive Medicine
Women's Health Care Specialist of the Japan Society for Menopause and Women's Health
Endoscopic Surgical Skill Qualification System of Japan Society of Gynecologic and Obstetric Endoscopy

LS2-1-2 Challenge for extragenital endometriosis



Masaaki Andou

Kurashiki Medical Center, Japan

Objective: Introducing reconstructive techniques makes it possible extensively resect extragenital endometriosis laparoscopically. For thorough removal of endometriosis tissue requires skills in incorporeal suturing and stapling. Extragenital endometriosis like bowel or urinary tract can potentially lead to serious situations such as bowel obstruction or malignant transformation or hydronephrosis or permanent renal dysfunction.
Methods: For bowel disease, like rectal endometriosis or we use high or low anterior resection with a double stapling technique. For small bowel endometriosis, we use segmental resection and functional end to end anastomosis.
For urinary tract reconstruction, we apply one of four different techniques depending on the size of the defect. One is simple ureteroneocystostomy, Boari flap method with or without psoas hitch techniques.
Results: We have experienced all of the techniques described when operating rectal, ureteral and ileal endometriosis. There was no need for the conversion of the urinary tract or the bowel, such as a covering colostomy, during surgery. 22 cases underwent urinary tract reconstruction. No case suffered from stenosis but 6 patients experienced mild VUR. One case suffered from urinary leak that required reoperation. This case also had bowel endometriosis and was one of two LAR cases (n=63) which required a temporary colostomy because of a leak and peritonitis. Three bowel endometriosis cases proved to be unexpected cancer.
Conclusion: Precise and extensive dissection requires knowledge of advanced intracorporeal suturing skills as well as training. These skills allow for extension of the radicality of surgery for cases with extensive endometriosis to achieve clearance of the disease.

【Curriculum Vitae】

Dr. Masaaki Andou graduated from Jichi Medical School, trained in pelvic surgery at Fukuyama National Hospital, and in Obstetrics and Gynecology at Okayama University. He received his medical license in 1980 and a Doctorate in Medicine in 1997.
Dr. Andou began his career as a pelvic surgeon in 1986 and has performed over 7000 vaginal hysterectomies, 5000 TLH cases and over 1000 laparoscopic retroperitoneal (paraaortic or pelvic) lymphadenectomies for cervical, endometrial, and ovarian cancer, and developed a total radical trachelectomy and nerve sparing radical hysterectomy surgery. In total, he has performed over 10,000 laparoscopic procedures. He currently holds positions of Director at Kurashiki Medical Center, Clinical Professor of Kyoto University, Mie University, Keio University and the Thai-German Multidisciplinary Endoscopic Training Center. He is also Visiting Professor of Obstetrics and Gynecology at Beijing Capital University, Xi`an Jiaotong University and Fudan University.
Dr. Andou has published extensively and is the recipient of 17 awards at annual meeting of AAGL, ISGE, ESGE and SLS.
His current interests lie in radical surgery for endometriosis, reconstruction and function preserving oncologic surgery. Recently he has shifted his focus to develop some ultra-minimally invasive techniques such as mini-laparoscopy and NOTES. as well as robotic oncologic surgery.

LS2-1-3 Urinary tract endometriosis (UTE)

Chyi-Long Lee

Vice Superintendence, Chang Gung Memorial Hospital, Keelung Branch, Taiwan

Endometriosis is defined as the presence of endometrial glands and stromal tissue outside the endometrial lining. Intestine and urinary tract are the most common sites of extra-genital endometriosis. [1] The incidence of urinary tract endometriosis ranges from 0.3 to 12% of all women with endometriosis. [2] The most frequently involved sites of UTE are the bladder (85%), followed by the ureter (10%). [3] The severity of endometriosis is usually classified by the depth of invasion and anatomic location into three categories: superficial endometriosis, ovarian endometrioma, and deeply infiltrating endometriosis (DIE). [4] DIE involving ureter is usually asymptomatic and might lead to a silent loss of renal function.

Evidences of the treatment of UTE are based on small case series and surgeon's experiences. [5] Surgical management is usually mandatory. Generally, the principle aims at relieving symptoms such as dysmenorrhea, dysuria, dyspareunia and preserving renal function. Surgery focuses not just on UTE but pelvic endometriosis. Traditionally, hysterectomy with bilateral salpingo-oophrectomy is the treatment of choice to eliminate the source of estrogen.

For bladder endometriosis, laparoscopic partial cystectomy has been proved as safe and effective in the hands of a skilled laparoscopist. [6-9]

For ureteral endometriosis, hormone therapy, including danazol, gonadotropin releasing hormone agonist or estrogen-progesterone products can be offered as first line therapy. However, a high recurrence rate after cessation of treatment is documented and medical treatment is considered as palliative choice. [10-11] Early-stage disease requires only ureterolysis but DIE indicates segmental resection with primary uretero-uretero-stomy or ureteral reimplantation into the bladder. [12] Laparoscopic treatment of UTE is demonstrated safely and effectively in several series. [6,8,13-14]

In our data, 10345 cases of laparoscopic gynecologic surgeries at Chung Gang Memorial Hospital during February 2004 and November 2008 were reviewed. [15] Twelve cases of ureter transections were diagnosed and repaired laparoscopically. Of these, 11 were repaired via laparoscopic ureteroureterostomy and1 had undergone a laparoscopic ureteroneocystostomy. The median duration of double J stenting was 73 days. Three patients had development of strictures (between 42 and 79 days after surgery). One patient had development of leakage of the anastomotic site but recovered with a change of the double J stent. Only 1 case required another laparotomy for ureteroneocystostomy. Laparoscopic primary repair of ureteral injury was successful for 11 of 12 patients.

【Curriculum Vitae】

EDUCATION:

2004-2007 PhD degree, Kyorin University, Tokyo, Japan.

1976-1983 Bachelor of Medicine, (equivalent of M.D. in the U. S.) Taipei Medical University, Taipei, Taiwan

EMPLOYMENT:

2015-present Vice Superintendent, Keelung Chang Gung Memorial Hospital

2007-present Consultant, Xiamen Chang Gung Hospital

2007-present Visiting Professor, Zhejiang University School of Medicine

2004-2015 Professor, Chang Gung Memorial Hospital, University

2007-2013 Chief of the OB/GYN Department of Chang Gung Memorial Hospital, Linkou

HONOUR:

1. Founder, Taiwanese Association of Menopause (TAM) 2002.

2. Chairman of Board of Trustees, Asia-Pacific Association of Gynecologic Endoscopy and Minimally Invasive Therapy. (APAGE), 2003-Present

3. Editor, The Journal of the American Association of Gynecologic Laparoscopists, 2006

4. Board of Trustee, AAGL, 2007-2009

5. Editor, Journal of International Obstetrics and Gynecology, since 2009

6. Editor, Journal of Women's Medicine (Korean Society of Obstetrics and Gynecology), since 2009

PROFESSIONAL ACTIVITIES:

1998-2004 President, Taiwan Association of Obstetric and Gynecologic Endoscopists (TAOGE)

2002-2010 President, Taiwan Association of Menopause (TAM)

2003-2005 President, The Asia-Pacific Association of Gynecologic Endoscopists and Minimally Invasive Therapy.

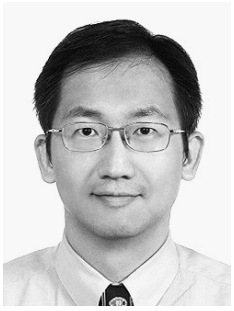
2003-2007 Board Member, The International Society For Gynecologic Endoscopy (ISGE)

2003- Chairman of Board of Trustees, The Asia-Pacific Association of Gynecologic Endoscopy and Minimally Invasive Therapy. (APAGE)

2002-2010 President, Taiwan Association of Menopause (TAM)

2010- Chief Executive Officer, Taiwan Association of Menopause (TAM)

LS2-1-4 Conservative surgery for uterine adenomyosis



Chih-Feng Yen

Linkou Chang Gung Memorial Hospital, Taiwan

Adenomyosis is an endometriosis-like benign uterine disorder, manifested by the diffuse or aggregated presence of endometrial tissue within the myometrium. Although the association of adenomyosis and subfertility was controversial, recent studies using GnRH antagonist IVF protocol has found a negative impact of adenomyosis on embryo implantation. Positive correlation between adenomyosis and abnormal uterotubal contractility was also noted. Statistically, women with adenomyosis displayed a 28% reduction in pregnancy rate at IVF/ICSI clinics, with a remarkable increased miscarriage rate in comparison with women without adenomyosis.

Though many modalities of conservative treatment have been proposed, the conservative surgical treatment is not possible to excise the adenomyotic tissue adequately. Data supporting the conservative uterine-sparing surgery are limited, suggesting that the benefit may be moderate. Though conservative surgery seems to provide a significant (up to 80%) and longer duration of symptom relieve; however, recurrent or relapse of the symptoms seems inevitable.

Laparoscopic adenomyomectomy is much more technical demanding than myomectomy, as usually a large block of myometrium associated with adenomyotic lesions was excised in adenomyomectomy which makes a satisfactory reconstruction very challenging. The completeness of reapproximation of the myometrium directly affect the recovery of uterine wall. Postoperative complications included wound site hematoma, which could result in wound infection, and inadequate repair of the myometrium. Prevention of postoperative pelvic adhesion should be an important issue. The risk of uterine wall indentation or defect and uterine rupture are the major concerns for subsequent pregnancy.

【Curriculum Vitae】

Dr. Chih-Feng Yen is currently an Associate Professor of the Chang Gung Memorial Hospital and also the chief of the Superintendent's Office of International Affairs, and the deputy chief of the Operating Room of Chang Gung Memorial Hospital. He also serves as the Secretary General of the Asia-Pacific Association for Gynecologic Endoscopy and Minimally Invasive Therapy (APAGE), and was the past President of Taiwan Association for Minimally Invasive Gynecology (TAMIG).

Dr. Yen is a frequently invited speaker for the gynecologic endoscopic surgery internationally. His expertise focuses on the current advanced techniques of endoscopic surgery, including laparoendoscopic single-site (LESS) surgery and natural orifice transluminal endoscopic surgery (NOTES). He has published more than 100 peer-reviewed papers, primarily in the field of gynecologic endoscopy and reproductive sciences. He is the ad hoc reviewer for several international journals for quite some time, and he's also on the Editorial Board of the AAGL official Journal-the *Journal of Minimally Invasive Gynecology (JMIG)* and the Managing Editor of APAGE official journal-*Gynecology and Minimally Invasive Therapy (GMIT)*.

SY2-3-1 The role of Th17 cytokines in endometriosis

Tetsuya Hirata

The University of Tokyo, Japan

Endometriosis, defined by the presence of viable endometriotic tissue outside the uterus, is an enigmatic disease. Multiple lines of evidence suggest that inflammation and immune responses play a pivotal role in the pathogenesis of endometriosis. Recent expeditious understanding of Th17 cells substantially revised the conventional Th1/Th2 hypothesis of T cell immunology. Therefore, we investigated the role of Th17 and Th 17 cytokines in endometriosis.

Firstly, we demonstrated the existence and localization of Th17 and Th17 cytokines in endometriotic lesion and peritoneal fluid of women with endometriosis.

Secondly, we demonstrated that IL-17A and F stimulated IL-8 production through IL-17RA or IL-17RC. Especially, TNFα synergistically enhanced IL-17A or F-induced IL-8 secretion. We demonstrated that Th17 cytokines may be an accelerator of endometriosis during chronic pelvic inflammation accompanied by increased TNFα production.

Thirdly, we have demonstrated that almost all of Th17 cells express CCR6 in endometriotic tissues. Expression of CCL20, a ligand for CCR6, was detected in endometriotic lesion. IL-1β, TNF-α, and IL-17A increased secretion of CCL20 from cultured ESCs. Furthermore, TNF-α and IL-17A synergistically induced secretion of CCL20 from ESCs.

Finally, we established immortalized endometriotic epithelial cells to understand CCL20 regulation in the epithelia of the endometrioma. The production of CCL20 was enhanced by IL-1β and TNFα in established immortalized endometriotic epithelial cell as well as ESCs.

In summary, CCL20-CCR6-Th17-Th17cytokines-IL-17 receptor axis is present in the development of endometriosis. Th17 cytokines are well placed as a candidate target molecule for novel treatment strategies of endometriosis.

【Curriculum Vitae】

Research and/or Professional Experience

1999-2002	Obstetrics and Gynecology Resident, The University of Tokyo
2002-2006	Postgraduate course, The University of Tokyo
2006-2009	Assistant Professor in Department of Obstetrics and Gynecology, Faculty of Medicine, The University of Tokyo, Japan
2009-2011	Visiting Fellow in National Insutitute on Aging, NIH, Baltimore, USA
2011-present	Assistant Professor in Department of Obstetrics and Gynecology, Faculty of Medicine, The University of Tokyo, Japan

Academic Honors and Awards:

2002	Authorized specialist in Obstetrics and Gynecology, endowed by the Japan Society of Obstetrics and Gynecology
2006	Award for research in reproductive medicine from Japan Society for Reproductive Medicine.
2013	Authorized specialist in Reproductive Medicine, endowed by Japan Society for Reproductive Medicine.
2014	Authorized specialist in laparoscopic surgery, endowed by Japan Society of Gynecologic and Obstetric Endoscopy and Minimally Invasive Therapy.

SY2-3-2 Peritoneal NK cell suppression in endometriosis

Nagamasa Maeda[1], Chiaki Izumiya[1], Takashi Ushiwaka[1], Chika Yoshii[1], Kayo Taniguchi[1], Tamami Tuduki[2]

Department of Obstetrics and Gynecology, Kochi Medical School[1], Department of Obstetrics and Gynecology, Hyogo Medical School, Japan[2]

Objectives: In endometriosis, immunosurveyllance system is considered to plays an important role to reject ectopic endometrial implantation. We have been reported the dysfunction of natural killer (NK) cells and macrophages in endometriosis. The immunologic suppression is concerning to the pathogenesis of endometriosis. In this paper, we investigate the behavior of peritoneal NK cells and macrophages from women with endometriosis by time-lapse imaging system. **Materials and methods:** Peritoneal fluids from women with endometriosis were compared to without endometriosis (control). We observed the peritoneal fluid samples containing the endometrial cells and immunocompetent cells obtained beginning of the laparoscopic operation by time-lapse CCD camera. Movement of immunocompetent cells is traced and cell movement speed was calculated. This study was approved by the Institutional Review Board (IRB) at Kochi Medical School. **Results:** During the menstruation, immunocompetent cells from women without endometriosis were cytotoxic to retrograde endometrial cells. However, in women with endometriosis retrograde endometrial cells were not be damaged by surrounding immunocompetent cells. The movement speed of NK cells from women with endometriosis was significantly decreased compared to control. On the other hand, the movement speed of macrophages was not significantly difference between with and without endometriosis. **Conclusion:** In women with endometriosis, peritoneal NK cell has not only decreased cytotoxity but also has decreased movement speed. This immunologic suppression of NK cells in women with endometriosis may be concerning to the pathogenesis of endometriosis.

【Curriculum Vitae】

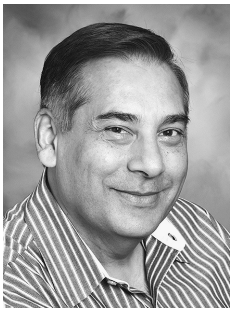
Educational History

1984 Graduated Kochi Medical School
1989 Completed a medical degree at Kochi Medical School (Immunology)
1989 Medical Doctor at Kochi Medical School

Employment History

1989 Research Fellow of the Department of Immunology in Kochi Medical
1990 Medical Staff at Kochi Medical School Hospital
1995 Research Fellow of the Faculty of Science and Engineering in Osaka University
1996 Assistant Professor of Dept. of Obstet. and Gynecol. in Kochi Medical School
1997 Lecturer of Dept. of Obstet. and Gynecol. in Kochi Medical School
2004 Associate Professor of Dept. of Obstet. and Gynecol. in Kochi Medical School
2011 Medical Chief of Umbilical cord blood regenerative medicine at Center of Innovative and Translational Medicine
2014 Professor of Dept. of Obstet. and Gynecol. in Kochi Medical School

SY2-3-3 Inflammatory pathways that contribute to the development of endometriosis



Asgi T. Fazleabas

Department of Obstetrics, Gynecology and Reproductive Biology, Michigan State University, USA

Endometriosis is a chronic, estrogen-dependent gynecological disorder affecting 10-15% of women of reproductive age resulting in pelvic pain and infertility. IL-6 possesses prominent inflammatory and anti-inflammatory functions, which makes it an important cytokine which may play a role in endometriosis. IL-6 is primarily produced by macrophages and it is elevated in the peritoneal fluid of women with endometriosis patients compared to normal women and positively correlated with the size and number of endometriotic lesions. The elevated levels of IL-6 are thought to be produced by the increased number of macrophages that infiltrate the peritoneal cavity in endometriosis. The Notch family of transmembrane receptors (NOTCH1-4) transduces extracellular signals and Notch signaling controls multiple cell fate decisions such as proliferation, survival and immune modulation. NOTCH1, which targets IL-6 and phosphorylates STAT3 is overexpressed in endometriotic lesions in both baboons and women with endometriosis. IL-6 and STAT3 are key targets of NOTCH1 signaling and are up regulated in endometriotic lesions from baboons and women. Additionally overexpression of NOTCH1 (N1ICD) in an endometriotic epithelial cell line (12Z cells) up-regulates IL-6, IL-6R and STAT3 and enhances lesion growth in vivo. IL-6 is increased in peritoneal fluid and serum. IL-6 has been implicated to play a role in endometriosis and as a key target of NOTCH1 may act synergistically to exacerbate disease progression. Our studies suggest that there is a close correlation between the up regulation of Notch1 in endometriotic lesions and macrophage infiltration. Based on preliminary data we propose that macrophage infiltration upregulates NOTCH expression and that the overexpression of NOTCH1 up regulates IL-6 to phosphorylate STAT3 in endometriotic epithelial cells. Although the role of NOTCH1 has been studied extensively in the context of malignant diseases, there is no information on its role in the development of endometriotic lesions and our data suggest that the signaling pathways activated by NOTCH1 in endometriosis which in turn promotes endometriotic lesion development by controlling cell proliferation, invasion and epithelial-mesenchymal transformation (EMT).

【Curriculum Vitae】

Please refer to page 59.

SS2-1 Overview of endometriosis

Charles Chapron

Vice-Dean, University Paris Descartes, Sorbone Paris Cité, Faculté de Médecine, Head of Department, of Gynecology Obstetrics II and Reproductive Medicine (Professor Chapron), CHU Cochin (APHP), Paris, France/Society of Endometriosis and Uterine Disorders (SEUD) President, France

Endometriosis, histologically defined as functional endometrial glands and stroma developing outside of the uterine cavity, is a common gynecologic disorder. Pathogenesis of endometriosis is enigmatic and remains controversial, even if retrograde menstruation seems the most probable mechanism for the development of the disease. There three types of endometriotic lesions: peritoneal superficial endometriosis (SUP); ovarian endometrioma (OMA); deep infiltrating endometriosis. The economic burden of endometriosis is considerable notably because of repeated absenteeism from work, numerous medical (hormonal and non hormonal) treatments, repetitive surgery and long delay in diagnosis. The two main symptoms are pelvic pain and/or infertility.

If endometriosis is usually diagnosed in adults, the disease has its roots in adolescence. Clinical questioning is simple, cost-effective and essential for the diagnosis of endometriosis. A link exists between certain perimenarchial symptoms and the diagnosis of endometriosis, especially DIE. Markers at adolescence associated with the development of endometriosis are the following: family history of endometriosis (especially in first-degree relatives); severe primary dysmenorrhea; absenteeism from school during menses; dysmenorrhea resistant to nonsteroidal anti-inflammatory drug treatment; noncontraceptive use of oral contraceptives to treat severe dysmenorrhea.

Questioning patients about their adolescent history can identify markers associated with endometriosis. A better awareness of these markers could help in singling those youngsters who are more prone to develop endometriosis.

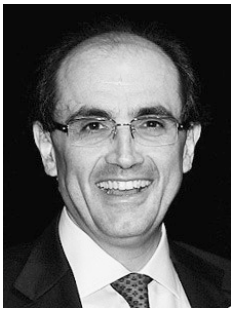
Today it can only be speculated that a prompter and more thorough handling of severe dysmenorrhea could lead to an earlier diagnosis and a better management. Studies are necessary to precise the relationship between endometriosis and oral contraceptive use, to determine whether we will have to reconsider the management of severe pelvic pain in adolescent and to be able to precise exactly when the disease starts.

In this lecture we will: (i) firstly, precise the pathogenic mechanisms of endometriosis related pelvic pain and/or infertility; (ii) secondly, present how to optimize the diagnosis taking into account the three endometriosis phenotypes (SUP, OMA, DIE).

【Curriculum Vitae】

Please refer to page 76.

SS2-2 Management of endometriosis



Felice Petraglia, Claudia Tosti, Silvia Vannuccini, Lucia Lazzeri, Stefano Luisi

Department of Molecular and Developmental Medicine, Obstetrics and Gynecology, University of Siena, Siena, Italy

According to the most update guidelines, the most appropriate management of endometriosis include a correct diagnosis and a personalized treatment. The clinical symptoms and the imaging techniques, as 2D-3D ultrasound and/or MRI, contribute to distinguish between endometrioma (OMA), superficial endometriosis (SUP) or deep infiltrating endometriosis (DIE). The three possible therapeutic options are: infertility clinic, surgical removal of the lesion or a medical treatment. Age, clinical symptoms (pain and infertility), desire of pregnancy, previous surgery, and type of endometriosis are the factors, which influence the choice. The main and first symptoms in young population is the pain and medical treatment is indicated for prevent surgical ovarian damage and progression of disease. Preoperative fertility preserving measures, such as oocyte cryopreservation, may be offered as part of the treatment strategy to young women who require extensive ovarian surgery for severe endometriosis-related pain.

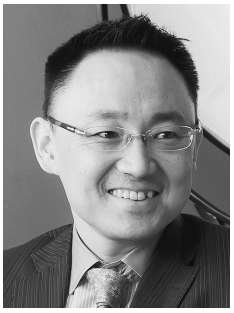
The medical treatments of endometriosis may be suggested either as primary choice or after surgery for preventing recurrence. GnRH agonists, combined oral contraceptive pill (COCP), progestins and non-steroidal antinflammatory drugs represent current medical options for endometriosis. Indeed, the current pathogenetic target includes estrogen sensitivity, progesterone resistance and inflammation. GnRH analogs: they induce a iatrogenic menopause and reduce pain. Since the side effects and costs a long-term treatment may be a limitation. Continuous COCP are considered effective strategy as a postoperative adjuvant therapy to prolong the symptom-free interval. The use of dienogest is the most recent one and it reduces pain in OMA, SUP and DIE either in comparison to placebo as to GnRH analog. Long-term studies (15, 18 and 36 months published in Europe and Japan) revealed an efficacy on pain symptoms. The mechanism of action of dienogest is mainly targeted on progesterone resistance, but an anti-estrogenic, a pro-apoptotic, an antiangiogenic and an anti-inflammatory effect have been described. Side effects are not frequent (10-15%) and are commonly headache, bloating and bleeding (spotting).

Endometriosis is a chronic disease and requires a long-term management plan, which includes surgery and medical treatment as well as infertility clinic, according to the patients requires.

【Curriculum Vitae】

Please refer to page 61.

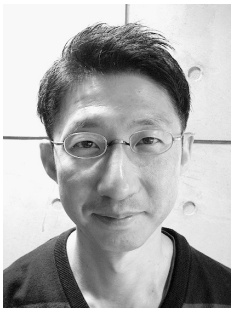
SS2-3 Management of endometriosis in Japan



Yoshiaki Ota
Kurashiki Medical Center, Japan

In Japan, Gn-RH agonist entered the market in 1988 as medical treatment for endometriosis, and endometriosis eradication was expected. However, its administration period was restricted to 6 months due to side effects related to a reduced level of estrogen, making it unsuitable as medication for endometriosis, which requires long-term administration. It took about 20 years to develop medication suitable for long-term administration, when Dienogest entered the market in January 2008. A low-dose first-generation pill became covered by insurance in July 2008, and a low-dose fourth-generation pill, 'YAZ', did so in November 2010, gradually facilitating medication without dose-period restriction for Japanese people. Today, I will talk about the effectiveness of medication to prevent the post-operative recurrence of endometrioma, which is the most problematic factor when treating endometriosis. The recurrence rate of endometrioma in 918 patients who did not wish to get pregnant directly after surgery out of 1,092 patients who underwent laparoscopic surgery in the 7 years from 2008 was evaluated. The cumulative recurrence rates over the 7 years in the no post-operative medication, first-generation pill, and Dienogest groups were 58, 25, and 5%, respectively, with a significant decrease in the recurrence rate in the two medicated groups. The recurrence rate at 4 years post-operatively in those administered YAZ, the low-dose fourth-generation pill, was 5%, showing a significant reduction. Dienogest, which is suitable for long-term administration, and YAZ, a 24-day regimen of drospirenone, which has a long half-life (30 hours), are considered very effective for reducing post-operative recurrence.

SY2-4-1 The mechanism of reduced ovarian reserve in women with ovarian endometriomas



Michio Kitajima[1], Khan Khanleque Newaz[2], Ken Taniguchi[1], Naoko Murakami[1], Ayumi Harada[1], Masanori Kaneuchi[1], Kiyonori Miura[1], Hideaki Masuzaki[1]

Department of Obstetrics and Gynecology, Nagasaki University Graduate School of Biomedical Sciences[1], Department of Obstetrics and Gynecology, Kyoto Prefectural University of Medicine, Japan[2]

The cause of infertility in women with endometriosis is multifactorial. Ovarian endometriomas are one of the main clinical entities of endometriosis, though its pathogenesis still remains enigmatic. Ovarian reserve is currently defined as the number and quality of the follicles left in the ovary at any given time, and determination of ovarian reserve become popular in evaluating infertile women. Diminished ovarian reserve is major concern in women with endometriosis-associated infertility. Surgical intervention for endometriomas could negatively impact on post-operative ovarian reserve. Some women had surgery for endometriomas suffer from poor ovarian response, which is directly linked to treatment results of infertility care. Majority of women who had surgery for ovarian endometriotic lesions may show acute post-surgical decline of serum AMH levels, and these AMH levels may recover gradually at six to 12month post surgery in some cases. On the other hand, endometriomas themselves may be a cause of diminished ovarian reserve. Chronic inflammation in local pelvic environment caused by ovarian endometriomas development may affect dormancy of resting primordial follicles in ovarian cortex. “Burn-out” of primordial follicles may be the cause of diminished ovarian reserve in women with ovarian endometriomas. Therefore, determination of ovarian reserve may serve as an important role in the management of reproductive health of women with endometriosis. The multiple mechanism of reduced ovarian reserve in women with endometriomas may be involved and the results of ovarian reserve testing after surgery in women with endometriomas should be carefully evaluated according to the time-points and selected test.

【Curriculum Vitae】

Born in Isahaya, Nagasaki, Japan

Earned his medical degree from Kumamoto University in 1996

Working as physician in Department of Obstetrics and Gynecology, Nagasaki University School of Medicine from 1996

Earned his PhD degree from Nagasaki University Graduate School of Biomedical Sciences for research on “endometriosis and environmental toxicants” in 2005

Worked as visiting research fellow at Université Catholique de Louvain, Saint Luc Hospital in Brussels from 2009 to 2011

Currently working as assistant professor in Department of Obstetrics and Gynecology, Nagasaki University Hospital.

SY2-4-2 Ovarian Reserve: How much emphasis should we put on surgery for endometriosis?

Akira Iwase

Center for Maternal and Perinatal Care, Nagoya University Hospital, Japan

Negative impacts of cystectomy for endometriomas on the oocyte yield in assisted reproductive cycles have been discussed in the last two decades. However, assessment of ovarian reserve based on oocyte yield may be subject to possible selection bias of patients who needed assisted reproduction. Anti-Müllerian hormone (AMH) and antral follicle count (AFC) have been considered significant and almost equally reliable markers for ovarian reserve. Since it is difficult to precisely count AFC of affected ovaries by endometriomas, researchers began to adopt serum AMH levels to compare pre- and post-surgical ovarian reserve in endometriosis patients. So far, not a few reports confirming the decline of AMH levels have been published and reported risk factors for severe decrease of ovarian reserve after cystectomy for endometriomas. Bipolar coagulation is one of the risk factors and therefore, methods of hemostasis after laparoscopic excision of endometriomas have been evaluated to avoid the decline of ovarian reserve. Serum AMH seems promising as an ovarian reserve marker to be helpful for decision making during treatment planning including surgical methods. However, the significance of maintenance of ovarian reserve should be assessed by pregnancy and live birth rates, and to date, limited data are available to show an association between AMH levels and pregnancy in endometriosis patients.

【Curriculum Vitae】

Education and Career

1995	M.D., Nagoya University School of Medicine
2001	Ph.D., Nagoya University Graduate School of Medicine
2001-2003	Postdoctoral Fellow, Weill Medical College of Cornell University
2003-2012	Assistant Professor, Department of Obstetrics and Gynecology, Nagoya University Graduate School of Medicine
2012-2014	Associate Professor and Vice Director, Center for Maternal-Neonatal Care, Nagoya University Hospital
2015-	Professor and Director, Center for Maternal-Neonatal Care, Nagoya University Hospital

Societies

Japan Society of Obstetrics and Gynecology (Delegate, Board Certified Specialist)
Japan Society of Endometriosis
Japan Society for Reproductive Medicine (Delegate, Board Certified Specialist)
Japan Society of Fertilization and Implantation (Councilor)
Japan Endocrine Society (Board Certified Endocrinologist and Certified Endocrine Educator)
Japan Society of Gynecologic and Obstetric Endoscopy and Minimally Invasive Therapy (Board Certified Specialist)

Editorial Boards

Executive Editor of Reproductive Medicine and Biology
Editor of the Tokai Journal of Obstetrics and Gynecology

Research Fields and Interests

Dr. Iwase specializes in the reproductive medicine and biology and the gynecologic endoscopic surgeries. His research interest includes clinical assessment of ovarian reserve, basic and clinical research for folliculogenesis, polycystic ovary syndrome and endometriosis.

SY2-4-3 Laparoscopic cystectomy and ovarian reserve

Saeed Alborzi

Professor and Head of Gynecologic Endoscopy Ward, Department of Obstetrics and Gynecology, Shiraz University of Medical Sciences, Shiraz, Iran

Background and Aim
Annually, a large number of gynecologic surgeries are carried out worldwide. In such surgeries, the preservation of ovarian function is critical. Although operations such as hysterectomy or myomectomy could cause a decrease in AMH levels later, this decline is even more noticeable even more after cystectomy. For different types of cysts and operation techniques, cystectomy for endometrioma may have the worst effect on the ovarian reserve. The aim is to review the current literature for the effect of laparoscopic cystectomy on ovarian function.

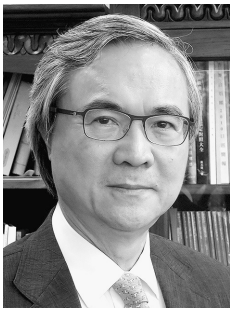
Methods
The databases of Pubmed, MEDLINE, Scopus, and Embase were searched from January 2000 until the present time to identify articles on laparoscopic cystectomy and ovarian reserve.

Results
Laparoscopic cystectomy may lead to a decreased ovarian reserve (DOR). Cystectomy may result in DOR more in endometrioma than nonendometrioma cysts. There was no significant significant difference in DOR whether cystectomy was performed by laparoscopy or laparotomy.

Discussion
With the high rates of laparoscopic surgery worldwide and the key role of the ovaries in women's health, and considering the significant reduction in today's use of HRT, the pretreatment counseling of patients and the right treatment plan for each patient is crucial. Additionally, appropriate surgical techniques should be attempted to reduce the damage to the ovarian tissue and the related blood supply.

【Curriculum Vitae】
Dr. saeed alborzi was born in 1956 in Tehran, Iran, He graduated from Shiraz University (SUMS) in 1987 as a specialist in field of Obstetrics and Gynecology. He started working at the same university as an assistant professor, until 2000 when he was promoted to associate professor in the year 2005 he became full professor of Obstetrics and gynecology and has held the same position ever since at Shiraz Universiy of medical Sciences (SUMS). Dr. Alborzi received his fellowship in the filed of infertility and gynecology endoscopy from Imperoal college of London in the UK.
Amongst the many different positions Dr. Alborzi has held at Shiraz University of Medical Sciences (SUMS) he is currently head of the Gyneclogy Endoscopy division.
Dr.Alborzi's major field of interest is endometriosis and gunecologis laparoscopic. He is winner of the 11th Razi Research Festival (2005) and the 3rd and 9th Royan International Congress awards (2002 and 2008). Dr. Alborzi introduced many innovative laparoscopic and hysteroscopic surgenes for the first time in Iran, Moreover, he was the first to use a graft of the peritoneum for treating cervical aplasia and laparoscopic metroplasty for didelphyc uterus in the world. Dr. Alborzi has published many articles in high ranking related journals and has presented his works in several international conferences. Dr. ALborzi is the representative of Iran in the Fifth Asian Confernce for Endometriosis.

SY2-4-4 Biomarkers of endometriosis



Chii-Ruey Tzeng
Taipei Medical University, Taiwan

Endometriosis occurs when shed endometrium from the female reproductive tract grows outside the uterus, which might cause infertility and dysmenorrhea. The causes and mechanisms of endometriosis remain unclear so far. Moreover, the current diagnosis still needs invasiveness laparoscopy. Our current studies based on cDNA microarray, we have discovered several genes including; integrins/cell adhesion molecules, metalloproteinases (MMP 14), cathepsins, estrogen receptors, VEGFs, Tensin-1, Osteopontin, and cytokines. By the proteomic approach, we have indentified Alpha-1 antitrypsin (a1-AT) as a potential marker which can be down-regulated by long-acting GnRH agonist (GnRHa) treatment. Hence, we aimed to combine functional genomics, microRNA, proteomic analysis and clinical validation to study the gene expression pattern, mechanism and signal transduction of endometriosis and evaluate the efficacy of employing long-acting GnRHa in patients with endometriosis before IUI or IVF treatment. Our final goal is to develop the diagnostic kit or chip for early diagnosis and follow-up the disease.

【Curriculum Vitae】

Professor Tzeng is Chairman of Obstetrics and Gynecology at Taipei Medical University (TMU) since 1992 and he was Dean of the College of Medicine at TMU from 2004 to 2013. After he obtained a masters' degree in public health in Maternal and Child Health from Harvard University (1980-1981), he completed his fellowship training in Reproductive Endocrinology and Fertility from 1981-1983 in the Department of Obstetrics and Gynecology at Brigham and Women's Hospital, Harvard Medical School.

Professor Tzeng has undertaken two pioneering projects in Taiwan: the first test-tube baby in 1985 and the first mitochondria transfer in 2002. He has received the Prize Poster Award at the annual meeting of European Society of Human Reproduction & Embryology (ESHRE) in 2001, 2003 and 2007, respectively. He also received 2009 Gold Medal for the invention of "Diagnosis method of endometriosis by detecting biochemical markers" from Ministry of Economic Affairs, Taiwan. In 2010, 2014 and 2015, he obtained the STAR Award from ASRM, in appreciation of his continuous contribution for 10 more years of presentation at ASRM's Annual Meeting. In 2012, he received the "Lifetime Achievement Award" from The Global Chinese Association for Reproductive Medicine (GCARM).

Professor Tzeng served as President of Pacific Rim Society for Fertility and Sterility (PRSFS), now Pacific Society for Reproductive Medicine (PSRM) from 2008-2014. He is in the board members of International Society for Fertility Preservation (ISFP), and he is the president of the 7th Congress of the Asia Pacific Initiative on Reproduction (ASPIRE) (2016-2018) and the president of Taiwan Endometriosis Society. Professor Tzeng has been invited as a guest speaker in numerous grand conferences around the world for more than 100 times. He has published over 188 peer review papers in the field of reproductive medicine.

SY2-5-1 Robotic surgery for DIE treatment: pro and con

Anton Fedorov, A.A Popov, K.V. Krasnopolskaya, T.N Manannikova, S.I. Zingan

Moscow Regional Institute O/G. Endoscopyc deparment., Russia

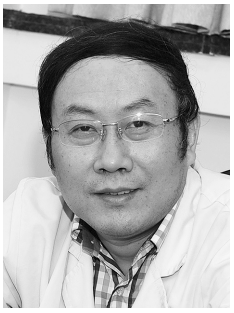
Introduction: The advantages of robotic assisted surgery are precise movements of instruments dangerously close to vital structures, wristed camera position. Those characteristics are very important for surgical treatment of DIE.
In Russia number of RA GYN is on the III place after URO and GI surg (189 of 1342). RA for DIE is in the III place after radical hysterectomy, RA sacrovaginopexy.
Materials and Methods: 153 patients with DIE were operated in our clinic at last 3 years. The average age was 33.8 years. In 119 (77.7%) endometriotic lesions were located in retrocervical area. Infiltration of the bowel wall was detected in 78 patients (50.9%), rectovaginal septum was involved in 37 cases (24.1%), the bladder wall and the wall of the ureter in 10 cases (6.5%) and in 7 cases (4.5%) respectively.
Results: 127 cases we performed by LS access, 11 by laparotomy, 15 by DaVinci SI. Retrocervical lesions resection was performed in 84 (54.9%) cases, the "shaving" method of DIE was done in 41 (26.8%) patients, 12 (8.3%) cases bowel resection, Ureterolisis and bladder resection in 91 (59.4%) and 2 (1.4%) cases. Spontaneous pregnancy was observed in 8 (29.6%), 8 (29.6%) after IVF, childbirths rate was 6 (22.2%) patients. Total PR was 59%
Conclusion: advantages of robot-assisted access for DIE: resection rate decreased in favor of "shaving", ideal access with urogenital endometriosis, the ability to perform a nerve-sparing operations and adequate removing of endometriotic lesions from ovaries with oocyte reserve preservation.

【Curriculum Vitae】
Education at University/Medical School Level:

Field	From (year)	To (year)	Place	Qualification
Pre-med college	1992	1994	Moscow	Nurse
Medicine	1994	2000	Moscow	Doctor
Regional Research	2000	2005	Moscow	Obst. and Gynecologyst

Institute of Obstetrics and Gynecology (post graduated course-residency)
Regional Research 2005 till present Moscow PhD
Institute of Obstetrics and Gynecology-stuff of endoscopic surgery department
Deteils of Medical Licence, certification, etc:
Doctor 2000
PhD 2005
Curerent Position
Scientific stuff of endoscopic surgery department of Regional Research Institute of Obstetrics and Gynecology
Scientific publications: 159 Publications
Specialisation: POP surgery, DV surgery, Laparoscopy in gynecology.
Current research work: incompetent uterine scar, cervical cerclage, fibroid surgery, DIE surgery.

SY2-5-2 Evaluation on the efficacy of laparoscopic conservative surgery combined with drug therapy for advanced endometriosis



Xinmei Zhang

Department of Gynecology Women's Hospital, Zhejiang University School of Medicine, China

Background:

Surgery is the main treatment for endometriosis, but the recurrence rate of conservative surgery for endometriosis is very high. In order to reduce postoperative recurrence and avoid repeated surgery, endometriosis should be treated with drugs for a long period of time after conservative surgery.

Objective

The objective of this study was to compare the recurrence and pregnancy rate of different time drug therapy following laparoscopic conservative surgery for advanced endometriosis.

Methods:

Between January 2011 and January 2015, a total of 328 well-documented patients with advanced endometriosis who underwent laparoscopic conservative surgery were recruited in this study. The study subjects were treated with GnRHa therapy for 3 months (n=117, case group I), 6 months (n=109, case group II) followed by oral contraceptives for 2 years (n=45, case group III) and received expectant treatment (n=57, control group). All patients were followed up after surgery. The rates of recurrence and pregnancy were compared among the case groups and control group.

Results:

The cumulative recurrence rates in 1, 2, 3, 4 and 5 years after surgery were 11.9%, 23.2%, 35.7%, 47.8% and 59.8% in the control group; 5.5%, 11.3%, 23.7%, 38.2% and 47.4% in the case group I; 1.1%, 6.2%, 7.7%, 19.8% and 29.7% in the case group II; 0.0%, 0.0%, 1.9%, 10.5% and 18.9% in the case group III. Compared with the control group, the cumulative recurrence rates in all the case groups at any time point of following up reached significant differences ($P<0.01$). Moreover, the statistical differences of the cumulative recurrence rate among the case groups were found ($P<0.01$). However, the cumulative pregnancy rates showed no significant differences among the case groups and control group ($P>0.05$).

Conclusions

These results suggest that postoperative drug treatment is very useful for delaying recurrence. The longer time the drug is used, the lower the recurrence rate is. It is necessary for patients with advanced endometriosis to be treated with drugs in a long period of time after conservative surgery.

Key words: Endometriosis, Conservative surgery, Drug therapy, Recurrence rate, Pregnancy rate

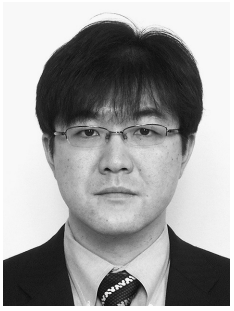
【Curriculum Vitae】

Professor
Department Of Gynecology Women's Hospital, Zhejiang University School of Medicine

Dr. Zhang is a Professor in the Department of Gynecology at Women's Hospital, Zhejiang University School of Medicine, P. R. China. His special research interests lie in the fields of gynecologic surgery and endometriosis. Specifically, his research aims to expand understanding of the cellular and molecular mechanisms underlying the pathogenesis of endometriosis, especially for the mechanisms of endometriosis associated pain, and to better improve gynecological surgical techniques.

In addition, Dr. Zhang seeks to better understand the relationship between abnormal nerves and women's diseases such as adenomyosis, infertility, gynecologic oncology, preeclampsia, etc. His research is supported by grants from the National Nature Science Foundation of China, the Nature Science Foundation of Zhejiang Province, the Science and Technology Fund of Zhejiang Province and the Key Medical Science (Innovation) Project of Zhejiang Province. He was also a recipient of Zhejiang Medicine Health Technology Award. Dr. Zhang is a regular contributor to peer reviewed scientific journals with greater than 100 scientific articles and presentations.

SY2-5-3 Laparoscopically assisted transvaginal sclerotherapy for infertile women with ovarian endometrioma



Atsushi Fukui, Ayano Funamizu, Ayako Taima, Kohei Fuchinoue

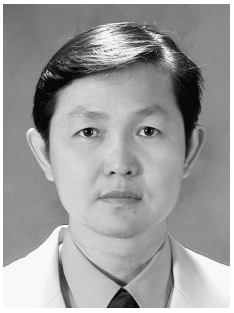
Department of Obstetrics and Gynecology, Hirosaki University Graduate School of Medicine, Japan

Objective: Laparoscopic cystectomy is recommended as a standard treatment for infertile women with ovarian endometrioma. However, the surgery may be associated with a significant reduction in ovarian reserve. Thus, we conducted a prospective study to compare the safety and efficiency of cystectomy with those of ethanol sclerotherapy (EST) in infertile women with ovarian endometrioma.
Methods: Seventy infertile women underwent cystectomy and 47 underwent EST. Following surgery, patients with severe tubal lesions underwent in-vitro fertilization (IVF), whereas those without tubal lesions underwent observational treatment for 6-12 months; thereafter, IVF was performed.
Results: At least 2-year follow-up, there were no differences in age, size of endometrioma, number of cysts and serum CA125 between both groups. Post-operative recurrence of endometrioma was significantly higher in EST group compared with cystectomy group ($p<0.05$). However, there was no difference in the spontaneous pregnancy rate and ART pregnancy rate between both groups. For the patients who performed ART after operation, the total dose of rhFSH was higher in the cystectomy group than in the EST group ($p<0.05$). However, there was no difference in the number of follicles aspirated and that of oocytes retrieved. For the comparison among unilateral and bilateral endometrioma cases, the pregnancy rate was the lowest in the bilateral cystectomy group among unilateral EST, bilateral EST, unilateral cystectomy and bilateral cystectomy ($p<0.01$).
Conclusions: Laparoscopically-assisted transvaginal EST is an effective alternative to conventional laparoscopic cystectomy for managing ovarian endometrioma in infertile women.

【Curriculum Vitae】

Dr. Atsushi Fukui is an associate professor of the Department of Obstetrics and Gynecology at Hirosaki University School of Medicine in Hirosaki, Japan. He received his M.D. degree in 1995 from Hirosaki University School of Medicine and his Ph.D. degree in Obstetrics and Gynecology in 1999 from Hirosaki University Graduate School of Medicine. He finished a postdoctoral fellowship in Reproductive Immunology under Professor Kenneth Beaman at the Clinical Immunology Laboratory of the Department of Microbiology and Immunology and under Professor Joanne Kwak-Kim in the Reproductive Medicine Program, Department of Obstetrics and Gynecology and Chicago Medical School at Rosalind Franklin University of Medicine and Science, North Chicago, IL, USA from 2005 to 2006. His main research interests are in the area of reproductive medicine such as recurrent pregnancy losses, implantation failures, pelvic endometriosis and so on. He has more than one hundred papers published in the national journal and total 28 papers published in the international journals. Dr. Fukui is a Board certified doctor of the Japan society of gynecologic and obstetric endoscopy and minimal invasive therapy since 2003 and is a serving as a secretary and a councilor for Japan Society of Gynecology and Obstetrics Endoscopy.

SY2-5-4 En bloc-TLH in severe pelvic endometriosis



Amphan Chalermchokcharoenkit

Department of Obstetics and Gynecology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Thailand

Introduction

The treatment strategy for endometriosis includes expectation, medication, surgery, and combination therapy. With a high reoperation rate disease, hysterectomy is an option for women with severe endometriosis who do not need to keep their uterus. Although our prior study showed that laparoscopic hysterectomy (LH), compared with abdominal hysterectomy (AH), in women with severe endometriosis had a better result. Heavy blood loss is the most common complication. Since 2009 we developed the en bloc-TLH technique to reduce our major complications. This retrospective study aims to determine the result of our new technique, compared with traditional TLH.

Materials and Methods

Between 2009 and 2014, the medical records of patients with severe pelvic endometriosis and underwent TLH were reviewed and analyzed. Statistical analyses were performed using the Student t test for continuous variables and the $\chi 2$ test for categorical variables.

Results

602 patients were enrolled, 143 patients underwent en bloc TLH and 459 patients underwent traditional TLH. Compare with traditional TLH group, estimated blood loss and length of stay were significantly less in the en bloc-TLH group, whereas significantly more weight of specimen and longer operative time were observed (169.4 ± 44.0 minutes and 151.7 ± 52.8 minutes, respectively; $P<0.001$).

Conclusion

With a significantly less blood loss and length of hospital stay, en bloc TLH should be considered to be a choice in patients with severe pelvic endometriosis who require a TLH. However, a good experience in advanced laparoscopic surgery is needed.

【Curriculum Vitae】

Position

Associate Professor, Department of Obstetics and Gynecology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand.

Summary of Postings and Promotions:

2015-todate	President of Thai Society of Gynecologic Endoscopists
2008-todate	Head of Gynecologic Endoscopy Unit Department of Obstetics and Gynecology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok Thailand.
2008-todate	Director of Thai-German Multidisciplinary Endoscopic Training Center
2001	Sub-Broad in Reproductive Health, Royal Thai College of Obstetricians and Gynecologists
1997-1999	Fellowship in Gynecologic Endoscopy in Germany: Rosenhoehe-Bielefeld Hospital, Department of Obstetrics and Gynecology, Kiel University, Department of Obstetrics and Gynecology, Tuebingen University, Department of Obstetrics and Gynecology, Jena University,

LS2-2-1 Evolution of estrogen synthase (aromatase)

Makio Shozu
Chiba University, Japan

Aromatase is an unique enzyme responsible for estrogen biosynthesis. CYP19, a gene encoding aromatase protein, was derived from a common ancestral gene of P450 superfamily approximately 70 million years ago and achieved steroid metabolizing activity highly specific to C19-androgen. Since then, the aromatase gene evolved primarily in deuterostome, through sequential achievements of different promoters upstream of cording exons. Each promoters gave aromatase gene a new spacio- temporal expression and regulation. These newly achieved regulations added estrogen a new role on target tissues, which includes tissues other than authentic reproductive tissues, such as breast, brain, bone and vessel. In these tissues, estrogen is synthesized in situ and acts directly contacting target cells: i.e. paracrine action of estrogen synthesized in situ. Aberrant expression of aromatase in endometriosis tissues is an example of paracrine action of in situ estrogen.
In this lecture, I will review organization and its function of the aromatase gene briefly from an evolutional point of view. I also review briefly the genetic mutation of aromatase genes in human, as a probable aspect of evolutional events.

【Curriculum Vitae】

1981	Graduated Kanazawa University, residency of Ob/Gyn, Kanazawa University hospital
1982–1986	Postgraduate School of Medicine, Kanazawa University
1986–1990	Obstetrics and Gynecology, Fukui Prefectural Hospital
1990–1995	Lecturer of Nursing, Allied medicine, Kanazawa University
1995–1998	Senior research fellow, Green Center for Reproductive Biology Science, University of Texas Southwestern Medical Center at Dallas
1999-2005	Associate Professor of Obstetrics and Gynecology, Kanazawa University
2006–	Professor of Reproductive Medicine, Postgraduate School, Chiba University

Discovered the first case of loss-of-function mutation of aromatase (aromatase deficiency) in 1990 and the first case of gain-of-function mutation of aromatase (aromatase excess syndrome, AEXS) caused by a small inversion of the promoter sequence in 2003.

LS2-2-2 Role of estrogen receptor beta in endometriosis

Fuminori Taniguchi

Ob/Gyn, Tottori University Faculty of Medicine, Yonago, Japan

Endometriosis is an estrogen-dependent and inflammatory disease. We previously demonstrated that a high-estrogen environment is associated with the capacity of estradiol (E2) secretion and the aberrant expression of aromatase gene in endometriotic cells. To explain the pathophysiology of this disease, the distinct profile of estrogen receptor (ER) expression, a higher ERβ and a lower ERα expression in endometriotic tissues, has been proposed. ERβ has been suggested to antagonize the inflammatory and proliferative actions of ERα. Recently, several splice variants of ERβ showing distinct transcriptional activities have been identified.

We observed the molecular background of ER-dependent gene expression in endometriotic cells. Relative expression of ERα mRNA in endometriotic cells was low, approximately one tenth of that in endometrial cells. The finding that 3 ER isoforms, ERα, ERβ1 (wild-type) and ERβ2 (a splice variant) are expressed at a comparable level in endometriotic cells provides a facet in understanding the estrogen-dependent pathophysiology in endometriosis.

Selective estrogen receptor modulators (SERM) have tissue-selective actions. SR-16234, is a newly developed SERM, which has an ERα pure antagonist and ERβ partial agonist activity. We investigated the efficacy of SR-16234 in the rat endometriosis model. After oral SR-16234 treatment, the size of the endometriosis-like lesions and E2-induced IL-6 mRNA expression were decreased. SR16234 had a regressive effect on the development of rat endometriosis-like lesions. Further study will be needed to clarify the clinical efficacy of this agent. Based on these data, we will re-evaluate the role of ERβ in endometriosis, and show the future perspectives to design therapeutics for this disease.

【Curriculum Vitae】

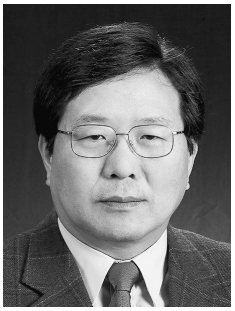
Education:

1993	M.D. Tottori University School of Medicine
1998	Ph.D. Tottori University Graduate School of Medical Sciences

Employment:

1993-1994	Resident, Tottori University Hospital, Japan
1999-2007	Instructor, Tottori University Hospital
2004-2006	Research Fellow, NIEHS/NIH, NC, USA (Dr. Korach lab.)
2007- 2014	Junior Associate Professor, Tottori University Faculty of Medicine
2015-present	Associate Professor, Tottori University Faculty of Medicine

SY2-6-1 Proteomics research in endometriosis



Kyu Sup Lee

Department of Obstetrics & Gynecology, Pusan National University School of Medicine, Busan, Korea

The current diagnostics of endometriosis is problematic because the symptoms are nonspecific and they can be associated with a number of different conditions (e.g., irritable bowel syndrome, pelvic inflammatory disease). At present, the majority of endometriosis cases are diagnosed through direct inspection of the abdominal cavity by laparoscopy or laparotomy. However, these diagnostic approaches are invasive and may not always be feasible. As a result, a number of non-invasive diagnostic tools have emerged with high sensitivity and clinically accurate specificity. Serum cancer antigen 125 (CA125) has been most widely utilized for the prediction of endometriosis Aside from CA125, five other plasma biomarkers including interleukin-6 (IL-6), IL-8, tumor necrosis factor-α, high-sensitivity C-reactive protein and CA19-9 have also been considered as non-invasive diagnostic biomarkers of endometriosis. Currently, novel approaches, such as microarrays and proteomics, are emerging as preferred techniques in the study of endometriosis.

The array of proteins found within the cell, their interactions and modifications hold the key to understanding biologic systems. This is encapsulated in the term "proteome." It can be defined as the protein population of a cell, characterized in terms of localization, PTM, interactions, and turnover, at any given time. The "proteomics" means large-scale comprehensive study of a specific proteome including information on protein abundances, variations, modifications. The proteome is fundamentally dynamic and has an inherent complexity that surpasses that of the genome or the mRNA complement found within a cell (transcriptome). The development of DNA microarray technology allowed the analysis of gene expression at the mRNA level. Therefore, transcriptomics provides information about the degree of gene activity in individual tissues and the relationship to cell function, developmental stage, response to external stimuli, and disease.

Recent proteome-based comparisons between the eutopic endometrium from normal women and patients with endometriosis have revealed several proteins, of which a few have been validated as potential players in the etiology of endometriosis. After an initial in-flow of information from these proteome studies of eutopic endometrium, focus now needs to be expanded to the changes in the various protein post-translational modifications and their upstream effectors present in these tissues. Early diagnosis of endometriosis through non-invasive means is the need of the hour as well—which would require the use of the presently existing immunoassays, along with the advancing mass spectrometry-based proteomics.

Proteome analysis provides a view of biologic processes at their level of occurrence, thereby offering a better understanding of the physiologic and pathologic states of an organism, and becoming an important step in the development and validation of diagnostics and therapeutics. In the next few years, these technologies will significantly contribute to the discovery of novel blood and urine biomarkers with sufficiently high sensitivity and specificity to be able to recognize different stages and clinical classifications of endometriosis.

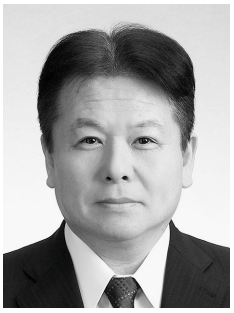
【Curriculum Vitae】

Professor Kyu-Sup Lee, engaging in Pusan National University, served as a Dean for Pusan National University School of Medicine (2011-2012). Before been appointed to this position, he was Chairman in the Department of Obstetrics and Gynecology, Pusan National University School of Medicine (2006-2011).

After completing his medical degree and Ph.D. at Pusan National University School of Medicine, he underwent fellowship training at Kurume University School of Medicine (1990-1991), Japan. He also spent some time in USA as a Postdoctoral Associate at Yale University School of Medicine (1992-1993), USA.

Professor Lee has an extensive publication list in the area of fertility, especially ART and endometriosis. He has received numerous awards such as the Prize Poster Award at the annual meeting of Japan Society of Obstetrics and Gynecology (1997, 1998 & 2000), American Society for Reproductive Medicine (1999), and North American Menopause Society (2004). He also received an academic awards from The Korean Society of Menopause (2002), Korean Society of Obstetrics and Gynecology (2003), and The Korean Society for Reproductive Medicine (2008), and the Best Award for Science and Technology by The Korean Association for Science and Technology in 2011.

SY2-6-2 Non-invasive diagnosis for malignant transformation of endometrioma



Hiroshi Kobayashi

Nara Medical University, Japan

OBJECTIVE: The purpose of this study was to investigate cyst fluid levels of total iron, heme iron and free iron in benign ovarian endometriosis (OE) and endometriosis-associated ovarian cancer (EAOC) and to demonstrate the significance of these biomarkers in differential diagnosis between EAOC and OE. We also evaluate the clinical application of MR relaxometry in a series of OE and EAOC.

METHODS: Cyst fluid samples were obtained from eleven patients with EAOC and thirty-six women with benign OE at the time of surgery. Proton relaxation rate R2 value was determined using a single-voxel, multi-echo MR sequence (HISTO) by a 3T-MR system.

RESULTS: EAOC patients had much lower levels of iron-related compounds compared with OE samples ($p < 0{,}001$). When the total iron results were analyzed using the receiver operating characteristics (ROC) curve method, the optimum diagnostic cut-off point was 64.8 mg/L, sensitivity was 90.9%, specificity was 100%, positive predictive value (PPV) was 100%, and negative predictive value (NPV) was 97.3%. In vivo R2 values were highly correlated with total iron concentrations. Compared to OE, EAOC exhibit decreased in vivo R2 values and total iron levels. The use of in vivo R2 values retained excellent accuracy in distinguishing EAOC versus OE (sensitivity and specificity: 86% and 94%).

CONCLUSIONS: We conclude for the first time that iron-related compounds are important biomarkers that can predict malignant transformation with high sensitivity and specificity for women with endometriosis. MR relaxometry provides a noninvasive predictive tool to discriminate between EAOC and OE.

【Curriculum Vitae】

Positions and Employment

1980 Medical Residency, Obstetrics & Gynecology, Hamamatsu Medical Center, Hamamatsu
1983 Senior Associate, Obstetrics & Gynecology, Hamamatsu Univ. School of Medicine
1986 Chief and Director, Obstetrics & Gynecology, Hamamatsu Kita Hospital
1989 Chief of Department of Gynecology, Hamamatsu University School of Medicine
1996 Assistant Professor, Obstetrics & Gynecology, Hamamatsu Univ. School of Medicine
1996 Director of Gynecologic Oncology Clinical Section, Hamamatsu University School of Medicine
1996 Director of Gynecologic Oncology Laboratory, Hamamatsu University School of Medicine
2003 Associate Professor, Obstetrics & Gynecology, Hamamatsu Univ. School of Medicine
2005 Chairman and Professor, Dept. of Obstetrics & Gynecology, Nara Medical University

Other Experience and Professional Memberships

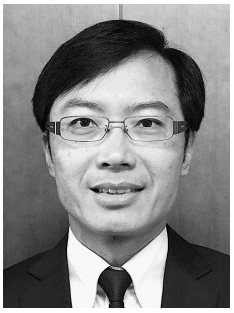
1998- International Journal of Clinical Oncology: Editorial Board

2002- Member, American Society for Biochemistry and Molecular Biology (ASBMB)
2002- Member, American Society for Experimental Biology (FASEB)
2006- A Director, The Japan Society of Obstetrical Gynecological and Neonatal Hematology
2015- A President, The Japanese Society for Proteases in Pathophysiology
2016 International Journal of Clinical Oncology: Associate Editor

Honors

1994 JSOG Advanced Research Scholarship, Japan Society for Obstetrics and Gynecology
2006 Award for Fuji Foundation for Protein Research
2006 Award for Nestle Nutrition Council Japan
2006- Other awards (12)

SY2-6-3 Narrow band imaging for detection of subtle endometriosis



Yoke-Fai Fong

The National University Hospital, Singapore

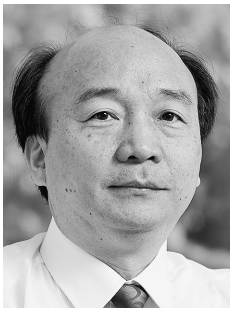
Study Objective

To demonstrate a new technique using narrowband imaging for detection of endometriosis
Design
Step by step illustration of the difference in visualisation of endometriosis using visible light spectrum laparoscope as compared to narrow band imaging light source.
Setting
Radical excision of endometriosis is considered the best treatment to control the disease extent and symptoms of endometriosis. Therefore, it is imperative that all endometriotic lesions are recognised and identified in order to thoroughly remove them.
Narrow band imaging system enhances visualisation of capillary vessels and microstructures containing blood hemoglobin on the mucosal surface. It makes use of 415 and 540 nm filters that are strongly absorbed by blood hemoglobin. In this manner, micro vessels which are not clearly seen by conventional light are enhanced. With the inherent neovascularization seen in endometriosis, endometriotic lesions may be more recognisable. Clear vesicular lesions of endometriosis are glandular excrescences, which are early signs of recurrent inflammation from endometriosis with accompanying angiogenesis. These are more pronounced under narrowband imaging.
Intervention
The use of visible light spectrum contrasted with narrow band imaging that changes the normal color contrasts of the endoscopic image in the different areas of the pelvic cavity.
Main Results
Narrow band imaging is helpful as an additional modality for the identification of endometriosis. In particular, clear vesicular lesions of endometriosis which are not as evident under visible light spectrum are more pronounced under narrow band imaging. However, its utility is decreased if performed after the initiation of surgery due to the bleeding incurred from dissection.
Conclusion
Narrow band imaging can be used as an adjunct to improve the detection of endometriosis.

【Curriculum Vitae】
Assoc Prof Fong is Head and Senior Consultant of Benign Gynaecology at the National University Hospital, Singapore. He obtained his postgraduate qualifications from the UK College (RCOG), Royal Australian and New Zealand College (RANZCOG), together with the MMED (NUS). His current interest is in the treatment of endometriosis, fibroids, pelvic floor reconstruction as well as use of microsurgical techniques for fertility enhancing surgery.

Prof Fong established the Robotic Surgery Program at NUH in 2008 and also the single incision laparoscopic surgery (SILS) for gynaecology in 2009. He is Past President of the Obstetrical and Gynaecological Society of Singapore (OGSS), and is Past Chairman of the AOFOG Minimally Invasive Gynaecologic Surgery Committee. He also initiated the Asia Pacific Endometriosis Consensus and Treatment of uterine disorders (ASPECT) Meeting in 2015.

SY3-1-1 New way to target endometriosis



Shaw-Jenq Sean Tsai[1,2], Shih-Chieh Lin[1], Hsiu-Chi Lee[2], Pei-Chi Hou[2], Meng-Hsing Wu[3]

Department of Physiology, College of Medicine, National Cheng Kung University, Tainan 70101, Taiwan[1], Institute of Basic Medical Scinces, College of Medicine, National Cheng Kung University, Tainan 70101, Taiwan[2], Department of Obstetrics & Gynecology[3], College of Medicine, National Cheng Kung University, Tainan 70101, Taiwan[4]

Endometriosis is a common gynecological disease characterized by the presence of endometrial tissues outside of uterine cavity. It is evidenced that ectopic endometriotic lesion has evolved necessary mechanisms to adapt and grow in the hostile peritoneal microenvironment. Hypoxic stress is one of the first and most critical challenges for ectopic endometriotic cells. Studies have demonstrated that hypoxia regulates, either directly by hypoxia inducible factor or indirectly via epigenetic modification, numerous genes involve in steroidogenesis, angiogenesis, anti-apoptosis, proliferation, migration/invasion, and immune suppression. Therefore, it is important to identify the master regulator downstream of hypoxia that controls the expression of those genes to develop an effective therapeutic regimen. Herein, by using gene set enrichment analysis, we identified Yes-Associated Protein 1 (YAP1) as a potential transcriptional regulator controlling the pathogenesis of endometriosis. Our data reveal that YAP1 regulates numerous genes involve in critical biological processes of endometriosis such as steroidogenesis, angiogenesis, inflammation, migration, innervation, and cell proliferation. More importantly, treatment with YAP1 inhibitor caused the regression of endometriotic lesions without affecting fertility in the mouse model of endometriosis. Taken together, YAP1 might be a critical master regulator contributes to the pathogenesis of endometriosis and targeting YAP1 might be an alternative way to treat endometriosis.

【Curriculum Vitae】

Education:

B.S.: 06/1986	National Cheng Kung University, Taiwan, Biology
M.S.: 04/1992	Eastern Michigan University, Molecular and Cellular Biology (Advisor: Dr. James L. VandenBosch)
Ph.D.: 05/1997	University of Wisconsin-Madison, Endocrinology-Reproductive Physiology (Advisor: Dr. Milo C. Wiltbank)
Postdoc: 06/1997-02/1998	University of Wisconsin-Madison, Department of Dairy Science (Advisor: Dr. Milo C. Wiltbank)

Current position:

1. Director General: Department of Life Sciences, Ministry of Science and Technology, Executive Yuan, Taiwan, Republic of China

2. Distinguished Professor: Department of Physiology, College of Medicine, National Cheng Kung University, Tainan, Taiwan (http://phys.med.ncku.edu.tw/bin/home.php)
3. Director: Bioinformatics Research Center, Center of Bioscience and Biotechnology, National Cheng Kung University, Tainan, Taiwan (http://www.binfo.ncku.edu.tw)

Profession:

07/1988-06/1990 Research Specialist, Department of Medical Research, Veterans General Hospital, Taipei, Taiwan.

07/1992-07/1993 Research Specialist, Department of Obstetrics & Gynecology, University of Wisconsin-Madison, Madison, WI, USA

08/1993-04/1997 Research Assistant, Endocrinology-Reproductive Physiology Program, University of Wisconsin-Madison, Madison, WI, USA

05/1997-01/1998 Postdoctoral Research Associate, Dairy Science Department, University of Wisconsin-Madison, Madison, WI, USA

02/1998-07/2002 Assistant Professor, Department of Physiology, National Cheng Kung University Medical College, Tainan, Taiwan

02/1998-present Director, Bioinformatics Research Center, Center of Bioscience and Biotechnology, National Cheng Kung University, Tainan, Taiwan

08/2002-07/2005 Associate Professor, Department of Physiology, National Cheng Kung University Medical College, Tainan, Taiwan

08/2005-07/2008 Professor, Department of Physiology, National Cheng Kung University Medical College, Tainan, Taiwan

08/2008-present Distinguished Professor, Department of Physiology, National Cheng Kung University Medical College, Tainan, Taiwan

07/2014-present Director-General, Department of Life Sciences, Ministry of Science and Technology, Executive Yuan, Taiwan, Republic of China

SY3-1-2 Role of phthalate in the pathogenesis of endometriosis: in vitro, animal, and human data

Sung Hoon Kim

Department of Obstetrics&Gynecology, University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea

Although phthalates were shown to have negative effects on reproductive function in animals, its role in the pathogenesis of endometriosis remains to be elucidated. We aimed to investigate the *in vitro* and *in vivo* effects of di-(2-ethylhexyl)-phthalate (DEHP) in endometrial cell culture and nonobese diabetic/severe combined immunodeficiency (NOD/SCID) mouse models and to evaluate whether there is any difference of urinary levels of several phthalate metabolites between women with and without endometriosis.

The activities of matrix metalloproteinase (MMP)-2 and 9, cellular invasiveness, phosphorylation of extracellular signal-regulated kinase (Erk) and expression of p21-activated kinase 4 (Pak4) were analyzed in endometrial cells treated with DEHP. The implant size was compared between NOD/SCID mice fed with and without DEHP. Urinary concentrations of several phthalate metabolites were compared between women with and without advanced stage endometriosis.

In vitro treatment of endometrial cells with DEHP led to significant increases of MMP-2 and 9 activities. The cellular invasiveness, Erk phosphorylation, and the expression of Pak4 were significantly increased in endometrial cells treated with DEHP. The size of the endometrial implant was significantly larger in the NOD/SCID mice fed with DEHP compared with those fed with vehicle. The urinary concentration of mono (2-ethyl-5-hydroxyhexyl) phthalate (mEHHP), mono (2-ethyl-5-oxohexyl) phthalate (mEOHP), mono (2-ethyl-5-carboxyphentyl) phthalate (mECPP) were significantly higher in women with advanced stage endometriosis compared with controls.

The present *in vitro*, animal, and human data strongly suggest that exposure to phthalate may lead to establishment of endometriosis by enhancing invasive and proliferative activities of endometrial cells.

【Curriculum Vitae】

Education

1992:	M.D., Seoul National University College of Medicine, Seoul, Korea
2004:	Ph.D., Graduate School, Seoul National University College of Medicine, Seoul, Korea

Positions Held & Faculty Appointment

Mar. 2002-Mar. 2013:	Assistant Professor and Associate Professor Department of Obstetrics & Gynecology University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea
July. 2006-June. 2007	Visiting Assistant Professor Department of Obstetrics, Gynecology, and Reproductive Sciences, Yale University School of Medicine, CT 06520, U.S.A.
April. 2013-present	Professor Department of Obstetrics & Gynecology University of Ulsan College of Medicine, Asan Medical Center, Seoul, Korea

SY3-1-3 TGF-β and LAP in endometriosis

Shun-ichiro Tsuji

Department of Obstetrics and Gynecology, Shiga University of Medical Science, Shiga, Japan

Endometriosis is a chronic estrogen-dependent inflammatory disease characterized by presence of endometrial tissue outside the uterus. Transforming growth factor-β (TGF-β) is considered to be related to progression and persistence of the endometriosis. TGF-β can be secreted by various kinds of cells in a form of an inactive latent complex with polypeptides, called the latency-associated peptide (LAP). It is known that TGF-β needs to be released from LAP to wield its biological influence. Since the peritoneal fluid includes macrophages mainly and lymphocytes, we presumed that the main producer of TGF-β and LAP are these cells and they should have relation to endometriosis.

Herein, we report a comparison of LAP-positive macrophage and lymphocyte in the peritoneal fluid of patients with and without endometriosis to elucidate how active TGF-β1 in peritoneal fluid is produced in endometriosis.

We observed a significantly higher level of TGF-β in the peritoneal fluid of patients with endometriosis than non-endometriosis group ($p=0.03$). In the peritoneal fluid of the patients with endometriosis, LAP-positive macrophages and lymphocytes existed significantly less during proliferative and secretory phase than without endometriosis ($p=0.01$ and $p=0.02$, respectively). Interestingly, during menstrual period, there were significantly higher population of LAP-positive macrophages than non-menstrual period in endometriosis group ($P<0.0001$).

These results suggest that TGF-β can be activated by releasing from LAP in the peritoneal cavity of the patients with endometriosis more likely than the patients without endometriosis. We believe that the prevention of LAP releasing should be a potential therapeutic target for endometriosis.

【Curriculum Vitae】

EDUCATION

2004-2008	Graduate school in Shiga University of Medical Science (Shiga Japan)
1997-2002	Shiga University of Medical Science School of Medicine

Residency and Fellowship

2014-current	Lecturer in in Department of Obstetrics and Gynecology, Shiga University of Medical Science, Shiga, Japan
2013	The head physician in Department of Obstetrics and Gynecology, Kohka public hospital, Shiga, Japan
2009-2013	Assistant teacher in Department of Obstetrics and Gynecology, Shiga University of Medical Science, Shiga, Japan
2009-2009	Clinical Fellow in Department of Obstetrics and Gynecology, National Cerebral and Cardiovascular Center Hospital, Oosaka, Japan
2007-2009	Clinical Fellow in Obstetrics and Gynecology, Nagahama city hospital, Shiga, Japan
2002-2004	Resident in Obstetrics and Gynecology, Shiga University of Medical Science, Shiga, Japan

SY3-1-4 Role of stem cells in pathophysiology of uterine leiomyoma

Masanori Ono[1,2], Tetsuo Maruyama[2], Mamoru Tanaka[2], Daisuke Aoki[2], Serdar E. Bulun[3]

Department of Obstetrics and Gynecology, Saitama City Hospital[1], Department of Obstetrics and Gynecology, Keio University School of Medicine, Japan[2], Department of Obstetrics and Gynecology, Feinberg School of Medicine, Northwestern University, USA[3]

Uterine leiomyomas are common estrogen and progesterone-dependent tumors of the myometrium and cause irregular uterine bleeding, severe anemia and recurrent pregnancy loss in 15-30% of reproductive-age women. Each leiomyoma is thought to arise from a single mutated myometrial smooth muscle cell.

Normal tissues contain a small subset of somatic stem cells. By undergoing asymmetric division, these stem cells retain their ability to self-renew, while producing daughter cells that go on to differentiate and play a role in tissue regeneration and repair. The human uterus is an example of how such cell populations support the function of an organ. The expansion of the gravid uterus is achieved mainly through myometrial hyperplasia and hypertrophy, and these processes suggest an important role for stem cell systems.

On the other hand, tumor-initiating cells are a subset of cells within a tumor that retain the ability to retain the tumor, similar to the role of somatic stem cells. Work in recent years has identified, isolated and characterized putative stem- and progenitor cells in the myometrium and in leiomyomas. Tumor expansion of uterine leiomyoma is sustained by cell proliferation together with the production of large amounts of extracellular matrix. Estrogen and progesterone stimulate the growth of leiomyomas.

Here, we review the current studies on myometrial and leiomyomal stem- and progenitor cells. We provide a new paradigm for understanding myometrial physiology and pathology and for understanding how these cells might contribute to uterine remodeling during pregnancy and the formation of leiomyomas.

【Curriculum Vitae】

EDUCATION

2000	M.D., Keio University School of Medicine, Tokyo, Japan
2008	Ph.D., Keio University Graduate School of Medicine, Tokyo, Japan

PROFESSIONAL EXPERIENCE

2000	Resident	Ob/gy, Keio University Hospital, Japan
2004	Fellow	Ob/gy, Keio University Hospital, Japan
2008	Physician	Ob/gy, Saitama National Hospital, Japan
2010	Post Doctoral Fellow	Ob/gy, Northwestern University Feinberg School of Medicine, USA
2014	Physician	Ob/gy, Saitama City Hospital, Japan
2014	Research Associate	Ob/gy, Keio University School of Medicine, Japan

SY3-2-1 Diagnostic and therapeutic potentials of microRNA in endometriosis

SiHyun Cho

Department of Obstetrics & Gynecology Yonsei University College of Medicine
Seoul, Korea

MicroRNAs (miRNAs) are a class of endogenous, small, noncoding single-stranded RNA molecules approximately 22 nucleotides in length and estimated to regulate the translation of mRNAs in 30% of all genes in animals by inhibiting translation. Increased expression of a specific miRNA causes the repression of translation from the targeted mRNA, whereas down-regulation of the miRNA exerts the opposite effect. These modifications in mRNA translation determine distinct protein profile expression, affecting numerous molecular pathways and causing many different cellular and tissue changes. Emerging evidence indicates that miRNAs are expressed within the organs of the female reproductive tract where they function to regulate cellular pathways necessary for proper function of these organs. It is also evident that aberrant miRNA expression is associated with multiple human reproductive tract diseases including preeclampsia, endometrioid endometrial adenocarcinoma, uterine leiomyomata, ovarian carcinoma, endometriosis, and recurrent pregnancy loss. Specifically, several miRNAs are found to be involved in the pathogenesis of endometriosis, and they may hold promise for discovery of non-invasive diagnostic tool and development of new therapeutic approach for endometriosis.

【Curriculum Vitae】

Present Position:

Associate Professor
Department of Obstetrics & Gynecology Yonsei University College of Medicine Seoul, Korea

Education:

1993		College of Liberal Arts and Science, Yonsei University, Seoul, Korea
1997	M.D.	Yonsei University, College of Medicine, Seoul, Korea
2006	M.S.	Medical Science, Yonsei University Graduate School, Seoul, Korea
2011	Ph.D.	Medical Science, Yonsei University Graduate School, Seoul, Korea

Academic/Hospital Appointments:

1997-2000	Director of Public Health Center, Namyang-myun, HwaSung City Kyungki-do, Korea
2008	Attending Physician, Department of Obstetrics & Gynecology, Gangnam Severance Hospital, Yonsei University College of Medicine, Seoul, Korea
2009-2013	Assistant Professor, Department of Obstetrics & Gynecology, Yonsei University College of Medicine, Seoul, Korea

2012-2014	Visiting Assistant Professor in Obstetrics, Gynecology & Reproductive Sciences Yale University School of Medicine
2014-	Associate Professor, Department of Obstetrics & Gynecology, Yonsei University College of Medicine, Seoul, Korea

Professional Honors or Recognition:

Oct 2009	Best Research Paper Award (Reproductive Endocrinology & Infertility) The Korean Society of Obstetrics & Gynecology
Nov 2010	Best Poster Award The Korean Society of Gynecologic Endoscopy and Minimally Invasive Surgery
Oct 2011	Best Poster Award (Reproductive Endocrinology & Infertility) The Korean Association of Obstetrics & Gynecology
Oct 2014	Marquis Who's Who in the World 32nd Edition, 2015
Oct 2015	Best Oral Presentation Award (Reproductive Endocrinology & Infertility) The Korean Society of Obstetrics & Gynecology

SY3-2-2 Pro-apoptotic peptides as potential treatment for endometriosis

Toshiaki Shibata, Kazuhiro Sugihara

Department of Obstetrics and Gynecology, Hamamatsu University School of Medicine, Japan

Current treatments of endometriosis include LEP with NSAIDs or surgery to remove lesions, all of which provide a temporary but not complete cure. As most endometriosis occurs on organ surfaces facing the peritoneum, we subtracted a phage display library with female mouse peritoneum tissue and selected phage clones by binding to human endometrial epithelial cells. We also wanted to identify a peptide internalized by endometrial glandular epithelial cells so that a drug conjugated with that peptide would penetrate target cells. Here we identify an endometriosis-targeting peptide internalized by cells, designated z13. Proteomics analysis revealed the z13 receptor as the cyclic nucleotide gated channel beta 3 or CNGB3, a sorting pathway protein. We then linked z13 with an apoptosis inducing peptide, the pro-apoptotic peptide, KLAKLAKKLAKLAKKLAK, and with an endosome-escaping peptide HLAHLAHHLAHLAHHLAH.
Three female baboons with advanced endometriosis were identified based on clinical symptoms, which include infertility and behavior consistent with the inability to conceive, namely, dysmenorrhea and extended menses. Under general anesthesia, a 5 mm diagnostic laparoscope was used to inspect pelvic organs, which confirmed endometriosis. After washing the peritoneal cavity with PBS, coadministered into the peritoneum of baboons, cells in lesions selectively underwent statistically clear apoptosis with no effect on neighboring organs. By contrast, apoptosis was not detected in endometriosis tissues in untreated baboons. This study reports a potential therapeutic capable of eliminating endometriosis from the human peritoneum[1].

Reference:
1. Development of pro-apoptotic peptides as potential therapy for peritoneal endometriosis.
Sugihara K., et al. *Nature communications.* 5:4478(1-9). doi: 10.1038/ncomms5478.

【Curriculum Vitae】

Education:

1997-2003	The School of Medicine, Hamamatsu University School of Medicine, Sizuoka, Japan
M.D., April, 2003	
2008-2012	Ph.D. Program, Hamamatsu University School of Medicine, Sizuoka, Japan
2010-2012	Sanford-Burnham Medical Research Institute, CA, USA, Research fellow
Ph.D., May, 2012	

Clinical post graduate training:

2003-2005	Residency; Obstetrics and Gynecology training program, Department of Obstetrics and Gynecology, Hamamatsu University School of Medicine and University hospital

Professional employment:

2005-2007	Department of Obstetrics and Gynecology, Fukuroi Municipal Hospital
2007-2008	Department of Obstetrics and Gynecology, Fujieda Municipal General Hospital
2012-present	Assistant professor Department of Obstetrics and Gynecology, Hamamatsu University School of Medicine and University hospital

SY3-2-3 Interrupting the mechanical interactions between endometriotic fibroblasts and aberrant extracellular matrix may be a novel strategy for treatment of endometriosis

Sachiko Matsuzaki[1,2,3], Michel Canis[1,2,3], Jean-Luc Pouly[1], Claude Darcha[4]

CHU Clermont-Ferrand, CHU Estaing, Chirurgie Gynécologique, Clermont-Ferrand, France[1], Clermont Université, Université d'Auvergne, ISIT UMR6284, Clermont-Ferrand, France[2], CNRS, ISIT UMR6284, Clermont-Ferrand, France[3], CHU Clermont-Ferrand, Service d'Anatomie et Cytologie Pathologiques, Clermont-Ferrand, France[4]

Deep infiltrating endometriosis (DIE) is characterized histologically by dense fibrous tissue. Tissue stiffening is a hallmark of fibrosis. We investigated whether tissue stiffening could influence cell behavior in DIE. Previous in vitro studies typically analyzed cells grown on rigid plastic or glass substrates, which is much stiffer than that occurring in vivo. To investigate how changes in extracellular matrix (ECM) stiffness affect the behavior of deep infiltrating endometriotic stromal cells (DES), it is critical to model in vivo tissue compliance conditions in vitro.

Our study observed that increased matrix stiffness promoted cell proliferation and collagen synthesis and induced fibroblast to myofibroblast differentiation of DES in vitro. An increase in matrix stiffness may favor growth of DIE in vivo. Furthermore, our study observed that soft substrates decreased F-actin stress fiber formation, cell proliferation, and collagen synthesis in DES. Soft matrices may inhibit cell proliferation and inactivate the fibrotic phenotype of DES. In contrast, our study showed that endometrial stromal cells of patients with (EES) and without (NE-EES) endometriosis are capable of proliferating on soft substrates in vitro. These in vitro findings suggest that DES may have an impaired growth ability in soft matrices in vivo.

Our study showed that DES can sense changes in ECM stiffness and respond to them in vitro. Interrupting the mechanical interactions between endometriotic fibroblasts and aberrant ECM may be a novel strategy for treatment of DIE.

Study funding: This study was supported in part by Karl Storz Endoscopy & GmbH (Tuttlingen, Germany).

【Curriculum Vitae】

Current Affiliations

1 CHU Clermont-Ferrand, CHU Estaing, Chirurgie Gynécologique, 1, Place Lucie Aubrac, 63003, Clermont-Ferrand, France

2 Clermont Université, Université d'Auvergne, Bâtiment 3C, 28, Place Henri Dunant, 63000 Clermont-Ferrand, France

Degrees

1989: M.D. Chiba University Graduate School of Medicine, Chiba, Japan
2001: Ph.D. Tohoku University, Sendai, Japan. Thesis: Characterization of expression of estrogen receptors alpha and beta in endometriosis
2006: H.D.R. (Habilitation à Diriger des Recherches: Competence to conduct research**)**
University of Auvergne- Clermont-Ferrand I, France

Principal scientific activities

1. Pathophysiology of endometriosis: 1996-present:
2. Pathophysiology of surgical peritoneal environment during laparoscopy: 2005-present

Editorial boards

2012-2016: Associate Editor, Human Reproduction
2015-present: Academic Editor, PLOS ONE

LS3-1 Why OMA is the key endometriotic lesion?

Charles Chapron

SEUD President/Université Paris Descartes, Sorbone Paris Cité, Faculté de Médecine, Assistance Publique-Hôpitaux de Paris (AP-HP), Groupe Hospitalier Universitaire (GHU) Ouest, Centre Hospitalier Universitaire (CHU) Cochin, Department of Gynecology Obstetrics II and Reproductive Medicine (Professor Chapron), Paris, France.

Endometriosis, which is defined as the presence of endometrial-like tissue outside of the uterine cavity, is a public health issue that bears an important economic burden. There are three histological types of endometriosis: peritoneal superficial (SUP), ovarian endometrioma (OMA) and deep infiltrating endometriosis (DIE).

Surgery is efficient, not only for managing pelvic pain and treatment of endometriosis-related infertility, but also for improving quality of life. Nevertheless, the benefits of surgery should not obscure the fact that interventions can be associated with adverse outcomes.

For OMA there are several main points which must be discussed: (i) the relationship between OMA and infertility; (ii) Is OMA a painful endometriotic lesions?; (iii) impact of conservative OMA laparoscopic surgery on ovarian reserve and future fertility; (iv) the potential risk for OMA recurrence after conservative surgery; (v) relationship between OMA and other endometriotic lesions (SUP and DIE) and adenomyosis); (vi) respective indications for assisted reproductive technologies and surgery for patients with endometriosis related infertility.

For all these reasons, in this lecture we will demonstrate why in our opinion OMA is the key lesion for endometriotic patients.

【Curriculum Vitae】

Please refer to page 76.

LS3-2 The recurrence of endometrioma after conservative surgeries: prevalence, impact on QOL, and prevention

Kaori Koga

The University of Tokyo, Japan

Although surgical excision of endometrioma both improves pain and enhances fertility, recurrence can further exacerbate pain and reduce fertility, which in turn impacts quality of life. Our group previously showed that the recurrence rate of endometrioma after laparoscopic conservative surgery is approximately 30% in 2 years and similar results have been reported by many institutes. Once recurrence occurs, the surgery for recurrence definitely damages the ovarian reserve more than the first surgery. On the other hand, our group recently found that the women who experienced recurrence are at risk for developing ovarian malignancy. Therefore, it is crucial to prevent the recurrence after conservative surgery. Over the past 5 years, many new studies conducted and demonstrated that long-term postoperative medication markedly reduces the recurrence. Most of these studies used oral contraceptives (OC), while some used oral or intrauterine progestin. For example, our group demonstrated that 2-year administration of OC significantly reduces the recurrence (2.9% vs 39.8%). The levonorgestrel-releasing intrauterine system (LNG-IUS) is also shown to prevent recurrence of dysmenorrhea and possibly endometriosis lesion. Dienogest, a new progestin, is shown to reduce the recurrence of endometrioma. Regardless of the medication type, patients who discontinued medication experienced recurrence in higher incidence, indicating that the protective effect of these medications seems to vanish rapidly after the discontinuation. Having known these facts, together with the pathogenesis of recurrence (retrograde menstruation and ovulation), regular and prolonged medications until patient wishes to conceive are highly recommended to prevent the postoperative recurrence of endometriosis.

【Curriculum Vitae】

Dr Kaori Koga received M.D. from Chiba University in 1996, and Ph.D. from the University of Tokyo in 2003. She completed her Ob/Gyn residency training and clinical fellowship in Tokyo and Ibaraki. She then undertook post-doctoral fellowships in Prince Henry's Institute, Melbourne, Australia in 2006 and in Yale University in 2007-8. She then completed her clinical training for reproductive endocrinology and infertility including laparoscopic surgery, and obtained board certifications. Dr Koga has been supervised a number of doctorate thesis, and she was appointed as Associate Professor in 2014. Currently, Dr. Koga's group focuses on basic studies regarding the pathophysiology of endometriosis, and clinical studies concerning the impact of endometriosis on infertility and quality of life.

Dr. Koga is a member of the American Societies for Reproductive Immunology, the International and the Japan Society for Immunology of Reproduction and the European Society of Human Reproduction and Embryology. She is currently a member of the Editorial Board of the Journal of Reproductive Immunology, and an ambassador of World Endometriosis Society. Dr. Koga has been an invited speaker or a Chair in several international conferences including Society for Gynecologic Investigation, World Congress on Endometriosis and American Society for Reproductive Immunology.

SSY3-3-1 Future in endometriosis: immunotherapy as an option

Raden Muharam

Cipto Mangunkusumo National Hospital, Indonesia

Endometriosis is an endometrial-like benign disorder which grows outside the uterine cavity, and commonly triggers chronic inflammatory reaction. Since first described, various theories have been proposed to explain the pathogenesis of endometriosis, including involvement of immune system. Immune related theory in endometriosis is probably most attractive when by connected with other theories thus might be potential to develop a strategy in endometriosis therapy.

Endometriosis associated immunological defect, particularly in NK cells function and activity, has been widely reported. Decrease in NK cell activity resulted in disruption of endometrial clearance including those in the reversed flow into the peritoneal cavity. Impairment of NK cells function could be repaired by stimulating peripheral blood mononuclear cells (PBMC) from endometriosis patients with interleukin-2 (IL-2) to activate them into lymphokine-activate killer (LAK) cells.

Number of studies had described the potential role of IL-2 toward endometriosis. Activation of PBMC into LAK cells after IL-2 stimulation in endometriosis group resulted in increased cellular cytotoxicity towards endometriosis cell cultures. There was significant increase of T-helper cells and NK cells after IL-2 stimulation. Other study also showed that women with endometrial cyst who got intracystic injection of recombinant IL-2 had reduced complaints of endometriosis compared to control group.

Thus concluded that immunotherapy may have some value for endometriosis treatment including improving clinical manifestations and avoiding some surgical therapies.

【Curriculum Vitae】

SUMMARY

Dr. R. Muharam is a consultant of reproductive immuno-endocrinology and infertility in Cipto Mangunkusumo National Hospital, Jakarta, Indonesia. He had his PhD in 2010 and he is also a lecturer in Reproductive Immuno-endocrinology and Infertility for graduate students, residents in OG and postgraduate students/fellow in Reproductive Endocrinology in Faculty of Medicine Universitas Indonesia. He is now the head of IVF laboratory of Yasmin Clinic, in Cipto Mangunkusumo Hospital and the head of Indonesian Fertility Association for branch of Jakarta Area. He was the former head of Menopause Society for Indonesia, periode of 2009-2012.

EDUCATIONAL BACKGROUND

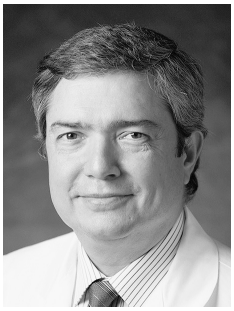
High School Graduated from SMAN 1 Jakarta, 1986
MD. from Faculty of Medicine Universitas Indonesia, 1993
OG. from Faculty of Medicine Universitas Indonesia, 2001

REI. Consultant from Faculty of Medicine Universitas Indonesia, 2005
PhD. from Faculty of Medicine Universitas Indonesia, 2010

POSITIONS

1. Head of IVF laboratory of Yasmin Clinic, in Cipto Mangunkusumo Hospital
2. Head of Indonesian Fertility Association for branch of Jakarta Area
3. Vice director of Indonesian Reproductive Genetic and Immunlogy
4. Head of Medical Services in Cipto Mangunkusumo National Hospital
5. Former Head of CaseMIX team in Cipto Mangunkusumo National Hospital
6. Former Head of Menopause Society for Indonesia, periode of 2009-2012
7. Consultant of reproductive immuno-endocrinology and infertility in Cipto Mangunkusumo National Hospital
8. Lecturer in Reproductive Immuno-endocrinology and Infertility for graduate students, residents in OG and postgraduate students/fellow in Reproductive Endocrinology in Faculty of Medicine Universitas Indonesia

SSY3-3-2 Management of endometriomas in infertility



Aydin Arici

Department of Obstetrics, Gynecology & Reproductive Sciences, Yale University School of Medicine, New Haven, CT, USA

It is estimated that 10-25% of all patients undergoing ART are diagnosed with endometriosis, and nearly half of those also have ovarian endometriomas. Several investigators have reported on significantly decreased IVF pregnancy rates among patients suffering from endometriosis. Endometriosis embodies a spectrum of effects, where there appears to be a correlation with outcome and disease burden; more advanced disease (Stage III/IV) with the presence of endometriomas worsens IVF prognosis.

Current literature is still far from introducing a precise mechanism for the physiopathology of endometriosis and the relation of this disease to infertility. There is evidence for the altered oocyte number and quality in the presence of endometriomas. On the other hand, whether these changes predate the disease, are coincidental to it, or result from it, remains to be determined. Despite the fact that conservative surgery by laparoscopy remains the most effective treatment for ovarian endometriomas, there is no strong data on the effectiveness of surgery for endometriomas on the IVF success rate. One needs to be cautious since several retrospective studies have reported reduced responses to gonadotropins after cystectomy for ovarian endometriomas. Recent prospective studies reveal that, while laparoscopic cystectomy for ovarian endometriosis performed by experienced surgeons does not compromise the number or quality of oocytes obtained with controlled ovarian hyperstimulation, it does not offer any additional benefit in terms of fertility outcomes. Surgery may be necessary in asymptomatic but large endometriomas to ease the access to the follicles and to decrease the risk of pelvic infection at the time of oocytes retrieval. Therefore, proceeding directly to ART in asymptomatic women with ovarian endometriomas 3 cm or smaller may reduce the time to pregnancy, would diminish patient costs, and might avoid the potential complications of surgery. Alternatively, symptomatic women with ovarian endometriomas or endometriomas larger than 4 cm in diameter might be advised that conservative ovarian surgery performed by experienced surgeons does not impair IVF success rates.

Some studies reported that long-term (minimum of 3 consecutive months) treatment with GnRH agonists before IVF may increase fertility rates in advanced-stage disease. Although these studies did not specifically investigate only women with endometriomas, participants were of advanced-stage endometriosis, which the majority should have endometriomas. Therefore, prolonged GnRH agonist treatment prior to IVF should also be considered in moderate-severe endometriosis, especially in women with history of previous failed IVF cycles, as it has been associated with increased pregnancy rates.

In conclusion, endometriomas are clearly associated with infertility. All the therapeutic options, including medical and surgical options, and their advantages and risks should be discussed with the patient. The best approach would be the one individualized for each patient's specific findings, history, symptoms, and expectations.

【Curriculum Vitae】

Dr. Arici is currently a Professor of Obstetrics, Gynecology and Reproductive Sciences at Yale University School of Medicine in New Haven, Connecticut, and the Director of Women's Health Department at Anadolu Foundation Health Care System in Turkey, affiliated with Johns Hopkins Medicine. He served as the Chief of the Section of Reproductive Endocrinology and Infertility at Yale University School of Medicine in New Haven, Connecticut for 8 years till 2007. He received his medical degree from Istanbul Medical School in Turkey, and completed a residency in Obstetrics and Gynecology at Columbia University, College of Physicians and Surgeons, in New York City. His postgraduate training also included a fellowship in Reproductive Endocrinology and Infertility at the University of Texas Southwestern Medical Center in Dallas.

Dr. Arici is the recipient of many National Institutes of Health and pharmaceutical industry-sponsored research grants and has trained more than 80 postdoctoral fellows. His clinical research focuses on the pathogenesis of endometriosis, and in particular the investigation of cellular and molecular mechanisms in endometrial physiology and pathology. He was the Editor of the Fertility Section of *Current Opinion in Obstetrics and Gynecology*, Associate Editor of *Gynecologic and Obstetric Investigation,* and a member of the Editorial Board of 12 professional journal and Guest Editor of *Obstetrics and Gynecology Clinics of North America* and *Seminars in Reproductive Medicine,* and serves as a reviewer for more than 30 scientific journals, including the *New England Journal of Medicine, Science, The Lancet, Human Reproduction, Fertility and Sterility, American Journal of Obstetrics and Gynecology, Molecular and Cellular Endocrinology, Biology of Reproduction,* and *Journal of Clinical Investigation.* More than 300 articles by Dr. Arici have been published in these and other leading journals and his book chapters have appeared in such texts as *Textbook of Reproductive Medicine* and *Reproductive Endocrinology*. He is the senior editor of the book titled *Non-Invasive Management of Gynecologic Disorders,* and he is the Series Editor of the *Gynecology in Practice* series. He is a frequent invited speaker and has presented at numerous national and international medical and scientific symposia.

Dr. Arici is a Fellow of the American College of Obstetricians and Gynecologists and served as a Clinical Director of the Society for Assisted Reproductive Technology. He has served as an *ad hoc* grant reviewer for the National Institutes of Health. Dr. Arici is a member of 15 professional societies, including the American Society for Reproductive Medicine, the Society of Reproductive Endocrinology and Infertility, the Endocrine Society, Society for Gynecologic Investigation, and the European Society of Human Reproduction and Embryology. He is one of founding members of the Asian Society of Endometriosis and Adenomyosis.

SSY3-3-3 Surgery on ovarian endometriomas and the preservation of ovarian function

Jinhua Leng

Professor of Obstetrics and Gynecology, Peking Union Medical College Hospital, China

SSY3-3-4 The role of levonorgestrel-releasing intrauterine system in endometriosis and adenomyosis.

Yi-Jen Chen[1,2]

Associate Professor Institute of Clinical Medicine, National Yang-Ming University[1], Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taiwan[2]

More than 120 countries have approved levonorgestrel-releasing intrauterine system (LNG-IUS) for use. The approved Taiwan applications include contraception, treatment of heavy menstrual bleeding, and endometrial protection during estrogen replacement therapy in postmenopausal women. LNG-IUS is a T-shaped device that releases 20 μg/day of LNG into the uterine cavity over a 5-year period. LNG-IUS provides, by contrast with the relatively low serum levels, locally high concentrations of LNG in the endometrium and adjacent tissues. This leads to decidualization of the stroma, mucosal thinning, and eventually, by suppression of endometrial growth, an inactive endometrium. It has been demonstrated that LNG-IUS benefits women also in the treatment of gynecologic diseases related to heavy menstrual bleeding and dysmenorrheal, which include endometriosis, leiomyoma, adenomyosis. Endometriosis is a chronic disease that has a recurrence rate of approximately 10% to 15% one year after conservative surgical treatment alone, and fully 40% to 50% at 5 years' follow-up. Re-operation rate as high as 51% for a 10-year period. In order to prolong symptom-free interval and prevent recurrence, postoperative adjunctive hormonal therapy usually is prescribed. Although effective, the hypoestrogenism induced by the GnRH agonist is associated with systemic side effects, which can affect patient' compliance and preclude long-term use. Thus, new therapeutic options, including the continuous use of LNG-IUS, are being explored. I will share my experience of postoperative adjunctive LNG-IUS therapy to prevent the recurrence of endometriosis. Adenomyosis is an estrogen-dependent disease that affects 8-62% of women of reproductive age. Adenomyosis is histologically defined as presence of endometrial glandular tissue extension below the dndometrial-myometrial interface of greater than 2.5mm. The definitive treatment is hysterectomy. In this lecture, I summarize the current clinical applications status of LNG-IUS as relates to endometriosis and adenomyosis.

【Curriculum Vitae】

EDUCATION

Medical

National Yang-Ming University, Taipei, Taiwan

Doctor of Medicine, 1988-1995

Postgraduate

Institute of Clinical Medicine, National Yang-Ming University, Taipei, Taiwan, PhD of Clinical Medicine, to be conferred in 2010

ACADEMIC APPOINTMENTS

Associate Professor, National Yang-Ming University
Taipei, Taiwan, (2014-present)

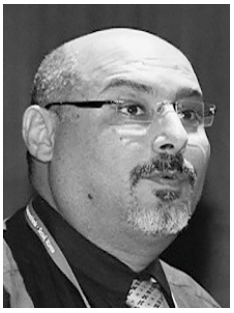
EXPERIENCE

Attending Physician at Department of Obstetrics and Gynecology,
Taipei Veterans General Hospital.
University-affiliated tertiary referral center. (2004-present)

LICENSURE AND CERTIFICATION:

Board Certification in Medicine, Taiwan, ROC. 1996
Board Certification in Obstetrics and Gynecology, Taiwan, ROC. 2001
Board Endoscopic Surgery, Taiwan, ROC. 2002
Board Certification in Gynecologic Oncology, Taiwan, ROC. 2004

SSY3-3-5 Endometriosis in the middle east: past, present and future



Moamar Al-Jefout

UAE University College of Medicine and Health Sciences, UAE

Endometriosis is a neglected subject of investigation in our region as there is a difference in the prevalence of endometriosis among different races and socioeconomic status. Although the prevalence of endometriosis is well documented in women living in the developed world, studies on the prevalence of this disease among middle eastern women are still scarce. The current belief is that endometriosis rarely affects women in our region. Huge challenges in conducting international clinical and basic research in our regions. In order to speed up the clinical research in endometriosis, it is critical to carry out clinical studies outside what is considered traditional countries/regions (United States and Western Europe). Middle East region should play a very important role in global clinical trials. Accessing these populations requires an understanding of how to approach cultural differences, language barriers, and their unique regulatory environments. Trends in life style and changes in reproductive behavior of population in these regions is becoming more similar to that of Europe and America as there some good evidence that we have trends toward late age of marriage and late age of first pregnancy. This kind of lifestyle is exposing them to long duration of uninterrupted menstrual flow with retrograde menstruation and can be considered to increase the risk of developing endometriosis. Research in our region still limited and there are no specific guidelines for endometriosis diagnosis and treatment, very few basic sciences research. lack of labs, lack of experts! Brains migrations! No animal labs for endometriosis. Pharmaceutical industry role is limited to conferences and workshops and does not support for clinical and basic sciences research. There is a need for a multidisciplinary approach to research in all aspects of endometriosis. Supporting basic scientific and clinical research in these our regions by affiliating them to research Centers in the Europe and USA. Moreover, we need more flexible access to MIT and training. We should appeal to Governments to and policy decision makers to support endometriosis research and encouragement of pharmaceutical companies to support the efforts of research and creating of a registry of endometriosis. Finally, we need to develop centers of excellence in endometriosis management and research. Centers/networks of excellence are the only way forward to ensure that women with endometriosis receive consistent, evidence-based care, ensuring excellence, continuity of care, multidisciplinary, research, training and cost-effectiveness. Also, increased collaboration between Arab countries and their neighbors will offer a considerable benefit to those involved.

【Curriculum Vitae】

Dr Al-Jefout is an Associate Professor and Consultant in Obstetrics and Gynecology, Mutah University, Jordan. He obtained his OBGYN training in Jordan after 5 years residency program (1994-1999) and then obtained his Masters Degree in Medicine in Reproductive Health Sciences and Human Genetics from Sydney University in 2006. His PhD was conducted under the supervision of Professor Ian Fraser from

Sydney University (2006-2009). During that time he did clinical training in laparoscopy and hysteroscopy at the Royal Prince Alfred Hospital and other Hospitals in Sydney and undertook joint clinics with Professor Fraser.

Dr Al-Jefout is currently involved in studying endometriosis and other gynecological diseases in his local community and is heavily involved in promoting awareness of reproductive diseases and related symptoms, especially among health professionals and families within the Middle East. He believes that it is of high importance to identify early symptoms suggestive of endometriosis in teenagers, especially in those young girls with a family history and severe dysmenorrhea that negatively affects quality of life.

His major clinical and research interest is in endometriosis pathophysiology, diagnosis and treatment-both surgically and medically. During his work with Fraser's team he have explored for the first time the possible use of endometrial biopsy for the detection of nerve fibres in the functional layer of the endometrium as a diagnostic tool for endometriosis. Their results indicated the possibility of utilising this test as a minimally invasive and specific test. He also studied the presence of nerve fibres, neurotrophins and their receptors in different gynecological diseases, as well as novel modalities for medical treatment of endometriosis by combining different types of progestogens and their long-acting delivery systems. He has published several articles and two chapters in books addressing endometriosis. Dr Moamar is a member in Editors Board and peer reviewer for several OBGYN international journals. He was awarded the Society of Gynecological Investigations (SGI, USA) President's Award in 2008 for his work on endometrial nerve fibers as a diagnostic test for endometriosis. He is one of World Endometriosis Society Ambassadors and Jordan representative of the Asian Endometriosis and Adenomyosis Society.

SSY3-3-6 Heavy metals and endometriosis: Is there a connection?

Hemantha Senanayake

Professor of Obstetrics & Gynaecology, Department of Obstetrics and Gynaecology, Faculty of Medicine, University of Colombo, Sri Lanka

Endometriosis is an oestrogen dependent gynaecological disease characterized by the presence of endometrial tissue in ectopic sites. It is estimated to affect 6-10% of females in the reproductive age, amounting to approximately 176 million women globally. The exact aetiology of endometriosis remains largely unknown in spite of extensive research. In recent times, the impact of environmental pollution on the pathophysiology of endometriosis has come to the fore corroborated by the high incidence of endometriosis in the industrialized countries. Among the environmental pollutants implicated with the aetiopathology of endometriosis are heavy metals, defined as elements with a density greater than 5g/dL. These include Cadmium (Cd), Chromium (Cr) iron (Fe), lead (Pb) and mercury (Hg). Heavy metals such as Cd, Ni and Pb are termed metalloestrogens since they have the capacity to bind and activate the oestrogen receptors. Chronic exposure to inhaled heavy metals has been known to induce endometriosis in rats while long-term ingestion of Pb was associated with a higher incidence of endometriosis in a cohort of Rhesus monkeys. Women with endometriosis are known to have higher levels of Cd in their blood and cigarette smoking is associated with accumulation of Cd in the endometrial tissue. A doctoral research conducted in Sri Lanka demonstrated the presence Cd, Ni and Pb in ectopic endometrial tissue and higher levels of Ni in the blood of women with endometriosis compared to healthy controls. In the same study, Cd induced up regulation of the progesterone receptor as well as *in vitro* proliferation of cultured endometrial cells derived from women with endometriosis. However evidence to the contrary has emerged with lack of association between urinary Cd levels and endometriosis in studies conducted in Japan and Belgium. A research group from United States has reported that while blood Cd was associated with reduced odds, urinary Cr reflected increased odds of diagnosis of endometriosis, prompting the researchers to conclude that such varied associations underscore the need for continued research.

【Curriculum Vitae】

Professor Hemantha Senanayake (MS, FRCS Ed FRCOG) is the Chair Professor in Obstetrics & Gynecology at the University of Colombo, Sri Lanka, where he also Chairs the Postgraduate Board of Study in Obstetrics & Gynecology. He is the President of the Endometriosis Society of Sri Lanka.

IVF-1 Endometrium and embryo crosstalk and implantation window

Hidetaka Okada

Department of Obstetrics and Gynecology, Kansai Medical University, Japan

The window of implantation is the period of time during the midsecretory phase which the endometrium become receptive, allowing embryo adhesion and subsequent pregnancy. Embryonic implantation requires synchrony between the endometrium and the embryo. Progesterone is a key factor in synchrony of the endometrium, implantation, and decidualization. Decidualization of the human uterine endometrium involves the dramatic morphological and functional differentiation of the human endometrial stromal cells (ESCs) and is an essential preparative event for the successful establishment of pregnancy. We have recently revealed that heart and neural crest derivatives expressed transcript 2 (HAND2) contributes to decidualization in human ESCs. A transcription factor HAND2 also plays a key role in uterine receptivity and is induced in the mouse uterus during decidualization. During the decidualization of human ESCs, progestins increased HAND2 mRNA levels in a time- and dose-dependent manner, and this stimulatory effect was blocked by a progesterone receptor antagonist. In addition, HAND2 expression is induced after 1 day of culture at an earlier point than prolactin (PRL) of decidual marker. The silencing of HAND2 expression in ESCs during decidualization attenuates both the morphologic differentiation and the levels of the decidualization-specific genes such as PRL, fibulin-1, and interleukin-15. These results suggest that progestin-induced HAND2 plays a key role in the regulation of decidualization in human ESCs. This knowledge regarding HAND2 in the endometrium would provide useful information for our understanding of reproductive processes, such as implantation and decidualization.

【Curriculum Vitae】

POSTGRADUATE TRAINING & PROFESSIONAL APPOINTMENTS

2016-present	Director, Clinical Genetics Center, Kansai Medical University
2015-present	Professor and Chairman, Department of Obstetrics and Gynecology Kansai Medical University
2015-present	Director, Reproductive Medical Center, Kansai Medical University
2015-present	Vice-Director, Perinatal Medical Center, Kansai Medical University
2013-2015	Associate Professor, Department of Obstetrics and Gynecology Kansai Medical University
2005-2013	Senior Lecturer, Department of Obstetrics and Gynecology, Kansai Medical University
2003-2004	Visiting Scientist, Uterine biology group, Prince Henry's Institute of Medical Research Victoria, Australia
2001-2003	Chief of Medical Staff, IVF Osaka Clinic (The Centre for Reproductive Medicine and Infertility)
2000-2005	Assistant Professor, Department of Obstetrics and Gynecology, Kansai Medical University
1996-1998	Visiting Scientist, Department of Molecular Genetics, Institute for Hepatic Research, Kansai Medical University
1995-2000	Medical Staff, Department of Obstetrics and Gynecology, Kansai Medical University
1993-1995	Resident, Department of Obstetrics and Gynecology, Kansai Medical University

IVF-2 Preimplantation genetic screening

Yoshiharu Nakaoka
IVF Namba Clinic, Japan

Aneuploidy is common in human embryos and is a principal cause of implantation failure and miscarriage. Aneuploidy rates increase with maternal age. Preimplantation genetic screening (PGS) is a process by which chromosomal abnormalities in embryos can be diagnosed before transfer. The demand for this screening has increased in recent years because of the rise in maternal age as well as the development of accurate diagnostic technologies.

In PGS by fluorescence in situ hybridization (FISH), randomized controlled trials did not show any benefit of PGS in terms of the accuracy of the technique and chromosomal mosaicism in cleavage-stage embryos. Advanced technologies based on comprehensive chromosomal screening (CCS) methods with whole genome amplification (WGA) can provide accurate and reliable genetic information, where CCS includes array comparative genomic hybridization (CGH), and next-generation sequencing (NGS). Of these technologies, NGS can also detect embryo mosaicism.

Embryo biopsy was carried out at the blastocyst stage rather than at the day-3 embryo stage, since the multicellular blastocyst biopsy reduces misdiagnosis due to mosaicism and improves diagnostic accuracy in WGA.

In contrast with the increased application of PGS worldwide, the Japan Society of Obstetrics and Gynecology does not allow PGS in Japan owing to ethical problems; however, clinical trials on PGS are planned for several IVF facilities in Japan.

Finally, in the context of reproductive medicine, PGS is considered an indispensable technology in obtaining genetic information of selecting viable embryos.

【Curriculum Vitae】

Dr. Yoshiharu Nakaoka is a president of the center of reproductive medicine and infertility, IVF Namba Clinic.
Born in Hyogo Prefecture, Japan, in 1962
Graduated from Hiroshima University School of medicine in 1988
He studied the technique in chromosome analysis of gametes and embryos at Asahikawa medical university department of biology.
His PhD was granted at Hiroshima University in 1998
(Chromosome analysis in human unfertilized oocytes)
He served at IVF Osaka Clinic, Osaka from 2000 to 2009
He transferred at IVF Namba Clinic, Osaka as a vice president since 2009.
He has been a president at IVF Namba Clinic since 2013.
He received ISIVF (World Congress on In Vitro Fertilization) best oral abstract award in 2011.

IVF-3 Effect of laser therapy as an integrative medicine on assisted reproduction

Mamoru Ida

Director, Division of Integrative Medicine Vice-chairman, IVF Osaka Clinic, Japan

Recently women's participation in the workforce continues to rise and late marriage is advancing in Japan. Therefore, mean age of IVF patients is getting older and recurrent IVF failures are increasing. Anti-aging therapy on oocytes is considered to be necessary to improve pregnancy rate of aged patients. Aging of oocyte is defined as aging of both nucleus and cytoplasm. Nuclear aging could be detectable by PGS, but untreatable. However, our target is cytoplasm which is considered to be treatable by presumably activating mitochondria using integrative medicine. Assisted reproductive technology (ART) therapy is accompanied by integrative medicine which consists of complementary and alternative medicine (CAM). We offer the patients several integrative medicine programs such as prescribing supplement, counseling (mental, nutritional or genetic), fertile fitness, Yoga, aroma treatment, acupuncture and low-reactive level laser treatment (LLLT).

The efficacy of supplement (L-carnitine and melatonin) administration, LLLT and other integrative medicine programs for repeated IVF failures were investigated in the present study. Overall embryological improvement were achieved as follows. Embryo development to blastocyst stage was significantly improved (37.0% vs. 60.8%, $P<0.01$) after L-carnitine administration. Melatonin administration also improved good quality embryo rate (45.2% vs. 63.0%, $P<0.01$), blastocyst rate (28.3% vs. 54.4%, $P<0.01$) and good blastocyst rate (29.4% vs 67.7%, $P<0.05$) as well. LLLT improved good embryo rate (64.0% vs. 79.0%, $P<0.01$). Moreover, clinical results were also improved by integrative medicine. LLLT improved pregnancy rate of day 3 embryo transfer (4.0% vs. 19.0%, $P<0.05$) in hormone supplemented frozen-thawed transfer cycles. Other integrative medicine programs improved pregnancy rate (1.8% vs. 16.3%, $P<0.05$) as well. More detail data is presented at the symposium focusing on the efficacy of integrative medicine which has potential power to break the limitation of present regimen in reproductive medicine.

【Curriculum Vitae】

Board certified by Japan Society of Obstetrics and Gynecology
Board certified by Japan Society for Reproductive Medicine

1984	Graduated from Mie University, Department of Medicine
1989	Ph.D. was granted at Mie University
1991～2007	Yamada Red Cross Hospital
2008～	IVF Osaka Clinic
2009～	Director, Division of Integrative Medicine at IVF Osaka Clinic
2013～	Vice-chairman at IVF Osaka Clinic

Clin-S1 A new compass in the surgical treatment of deep infiltrating endometriosis: a numerical multi-scoring system for endometriosis

Masao Ichikawa, Shigeo Akira, Masaki Sekine, Hanako Kaseki, Kenichiro Watanabe, Shuichi Ono, Toshiyuki Takeshita
(Nippon Medical School, Japan)

The numerical multi-scoring system of endometriosis (NMS-E) is the integrated assessment system to interpret the complicated and wide-ranging information about endometriosis and to direct optimal surgery and management. The purpose of this study was to evaluate its efficacy and accuracy.
NMS-E integrates echo-graphic information with an internal examination utilizing a notational system based on a cubic image with numbers and marks, and consisting of four elements: 1) endometrial cyst size, 2) adhesions, 3) pain, and 4) uterine or peri-uterine disease. The NMS-E was used in 96 patients between 2012 and 2015. The following parameters were evaluated: 1) correlation between the NMS-E and r-ASRM) scores, 2) specificity, sensitivity, PPV, NPV, and accuracy of the adhesion score of NMS-E, 3) change in pain score before and after surgery, and 4) incidence of postoperative complications according to the surgical strategy based on the findings of the NMS-E. This study was approved by the ethical committee of Nippon Medical School.
The median age, body mass index, operative time, and blood loss was 35 y, 21.1 kg/m2, 183 min, and 20 mL, respectively. NMS-E score was well correlated with the r-ASRM score (0.622: P value=1.02E-11). The sensitivity, specificity, PPV, NPV, and accuracy of the adhesion score were 77.8%, 85.6%, 77.8%, 85.6%, and 82.6%, respectively. Pain scores at all assessed areas decreased significantly. The only postoperative complication seen was one case of mild ileus that spontaneously resolved.
NMS-E is a highly effective method to predict the extent and activity of endometriosis preoperatively and could become a new compass in the surgical treatment of deep infiltrating endometriosis.

Clin-S2 Evaluation of factors predicting diminished ovarian reserve before and after laparoscopic cystectomy for ovarian endometriomas: a prospective cohort study

Rie Ozaki, Jun Kumakiri, Mari Kitade, Keiji Kuroda, Makoto Jinushi, Yuki Ujihira, Ayako Masuda, Yuko Ikemoto, Satoru Takeda
(Juntendo university, Faculty of Medicine, Japan)

Background and aims: Serum anti-Müllerian hormone (AMH) concentrations as ovarian reserve are known to significantly decrease after cystectomy for ovarian endometriomas. We investigated the risk factors for pre-and postsurgical diminished ovarian reserve (DOR) and evaluated the feasibility of the pre-surgical prediction of DOR based on the Bologna criteria.
Methods: A total of 143 patients with ovarian endometriomas who underwent laparoscopic cystectomy at our hospital were prospectively enrolled. Serum AMH concentrations were measured pre-surgically, and at 3 and 6 months after surgery. In accordance with the Bologna criteria, the patients with the serum AMH concentrations less than 1.1 ng/mL were classified into pre- and post-surgical adverse DOR (aDOR) groups.
Results: Thirty-one (21.7%) patients were classified as pre-surgical aDOR. Patient age and serum follicle-stimulating hormone level were significantly positively correlated with pre-surgical aDOR. Among the remaining 112 patients, 38 patients had post-surgical aDOR at 3 and 6 months after surgery, respectively. Bilateral cystectomy was positively correlated with post-surgical aDOR, and pre-surgical serum AMH concentrations were negatively correlated with post-surgical aDOR at each measurement. The optimal cut-off point of pre-surgical AMH concentrations for predicting aDOR at 6 months after surgery in the patients undergoing unilateral and bilateral cystectomy were 2.1 and 3.5 ng/mL, respectively.
Conclusions: Our data suggest that the pre-surgical serum AMH concentrations and bilateral cystectomy are significant factors for the risk of aDOR following surgery and that predicting post-surgical aDOR according to the Bologna criteria could be feasible using pre-operative measurements of serum AMH concentrations.

Clin-S3 Analysis of characteristics and reasons of delayed diagnosis of endometriosis

Xiaotong Han, Hongyan Guo
(Peking University Third Hospital, China)

Aims: To access the reason of delayed diagnosis of endometriosis, and to improve the diagnostic steps of early diagnosis.
Methods: We designed a *Delayed diagnosis of endometriosis questionnaire* .400 patients who had dysmenorrhea and diagnosed endometriosis by surgery were included. Questionnaires were filled in by telephone follow-up.
Results: Only 9.5% (38/400) patients visited doctor immediately at the onset of dysmenorrhea.78.5% (314/400) patients thought pain as a normal phenomenon and didn't see the doctor.
20.75% (83/400) patients visited doctor because of dysmenorrhea. 20% (80/400) were diagnosed endometriosis because of dysmenorrhea. 54.5% (218/400) were discovered endometriosis by doing physical examination.
After clinical diagnosis of endometriosis, 34.75% (139/400) patients chose observation, 39% (156/400) chose operations, and the others chose non-operative treatment. 59.43% (145/244) patients didn't choose surgery because the cysts were small.21.31% (52/244) patients had operation indications but refused surgery.
Time interval from dysmenorrhea to surgery diagnosis were 13 (0.2~43.0) years. 50% (200/400) patients received operations because of pelvic mass with relatively milder dysmenorrhea and bigger cysts, while 30.5% (122/400) received operations because of severe dysmenorrhea, whose cysts were relatively smaller.
Whether dysmenorrhea occurred at menarche or clinical diagnosis time was the only independent factor affecting delayed diagnosis.
Conclusions: Delayed diagnosis of endometriosis occurred often and the delay time is 13 years, mainly because of less awareness of dysmenorrhea. Whether dysmenorrhea occurred at menarche or clinical diagnosis time and dysmenorrhea degree are the factors affecting delayed diagnosis. Dysmenorrhea progression, combining with DIE, family history of dysmenorrhea or endometriosis and previous surgical history of endometriosis can help making an earlier diagnosis.

Clin-S4 Vitamin K3 acupuncture point injection treatment of dysmenorrhoea

Li Wang[1], WADE Christine[4], WADE Christine[4], ZHAO Wenjie[1], CARDINI Francesco[5], KRONENBERG Fredi[4], GUI Suiqi[1,2,3]
(OB & GYN Hospital, Fudan University, Shanghai, P. R. China[1], Department of Obstetrics and Gynecology of Shanghai Medical College, Fudan University, Shanghai 200032, People's Republic of China[2], Shanghai Key Laboratory of Female Reproductive Endocrine Related Diseases, Shanghai 200011, People's Republic of China[3], Richard & Hinda Rosenthal Center for Complementary and Alternative Medicine Research, College of Physicians and Surgeons, Columbia University, New York, New York, USA[4], Agenzia Sanitaria e Sociale Regionale dell'Emilia Romagna, (Healthcare and Social Agency of Emilia Romagna Region), Viale Aldo Moro, 21, 40127 Bologna, Italy[5])

Objective: To determine if injection of vitamin K3 in an acupuncture point is optimal for the treatment of primary dysmenorrhoea, when compared with 2 other injection treatments.
Method: A double-blind, double-dummy, randomised controlled trial compared vitamin K3 acupuncture point injection to saline acupuncture point injection and vitamin K3 deep muscle injection. Patients in each group received 3 injections at a single treatment visit. Primary and secondary outcome measures: The primary outcome was the difference in subjective perception of pain as measured by an 11 unit Numeric Rating Scale (NRS). Secondary measurements were Cox Pain Intensity and Duration scales and the consumption of analgesic tablets before and after treatment and during 6 following cycles. The study was approved by Columbia University Medical Center IRB and Ob & Gyn Hospital Medical Ethics Board.
Results: Eighty patients with primary dysmenorrhoea, completed the study. Two patients withdrew after randomisation. Patients in all 3 groups experienced pain relief from the injection treatments. Differences in NRS measured mean pain scores between the 2 active control groups were less than 1 unit (-0.71, CI -1.37 to -0.05) and not significant, but the differences in average scores between the treatment hypothesised to be optimal and both active control groups (1.11, CI 0.45 to 1.78) and (1.82, CI 1.45 to 2.49) were statistically significant in adjusted mixed-effects models. Menstrual distress and use of analgesics were diminished for 6 months post-treatment.
Conclusions: Acupuncture point injection of vitamin K3 relieves menstrual pain rapidly and is a useful treatment in an urban outpatient clinic.

Clin-S5 Further evidence that endometriosis is a hypercoagulable disease

Ding Ding, Xishi Liu, Sun-Wei Guo
(Shanghai OB/GYN Hospital, Fudan University, Shanghai 200011, China)

Background: Our previous studies have shown that platelets play a crucial role in the development of endometriosis, and women with appear to be in a state of hypercoagulability.
Objective: To investigate whether platelet activation rate and levels of coagulation factors are elevated in endometriosis and whether their levels are reduced resulting from surgery.
Methods: One hundred women laparoscopically and pathologically diagnosed with endometriosis at Shanghai OB & GYN hospital, Fudan University from April, 2015, to March, 2016, and another 100 women without endometriosis were recruited into this study. The platelet count, platelet activation/aggregation rate, plasma D-dimer, fibrinogen, fibrinogen degradation product (FDP) levels, plasma soluble P-selectin and prothrombin fragment 1+2 (F1+2) levels, prothrombin time (PT), thrombin time (TT) and activated partial thromboplastin time (aPTT) were measured before surgery and 3 months after surgery with no hormonal treatment pre- or postoperatively, and their clinical data were recorded. Meanwhile, these same tests were administrated to all controls.
Results: We found that there was no significant difference in platelet count, PT and aPTT between women with endometriosis and controls. Women with endometriosis had a significantly higher platelet activation/aggregation rate, elevated plasma D-dimer, fibrinogen, and FDP levels, plasma soluble P-selectin and F1+2 levels and shortened TT as compared with controls. Remarkably, TT was prolonged and all the other markers, except fibrinogen, were significantly reduced 3 months after surgical removal of endometriotic lesions.
Conclusions: This study provides another piece of evidence that endometriosis is a hypercoagulable disease, and anticoagulation therapy may hold promises in treating endometriosis.

Basic-S1 Ninjurin-1 in endometriosis and adenomyosis: its expression and regulator

Mariko Miyashita[1], Kaori Koga[1], Arisa Takeuchi[1], Tomoko Makabe[1], Fusako Sue[1], Osamu Yoshino[2], Tomoyuki Fujii[1], Yutaka Osuga[1]
(The University of Tokyo[1], University of Toyama, Japan[2])

Objectives: Endometriosis causes abdominal pain but the mechanism is unknown. Ninjurin-1 (Ninj1) is a protein produced on nerve injury and responsible for the nerve regeneration. The aim of this study was to assess the expression of Ninj1 in tissues of endometrioma, peritoneal endometriosis and adenomyosis, and its regulator in endometriotic stromal cells (ESC).
Methods: endometrioma were gained from patients with or without dysmenorrhea. Peritoneal endometriosis and adenomyosis were gained from patients with dysmenorrhea. Ninj1 protein expression was determined by Immunostaining. Localization of nerves and endometriotic stroma in lesions was assessed by immunostaining of PGP-9.5 and CD-10, respectively. ESC were isolated from endometrioma and cultured with/without IL-1β (5 ng/ml). Ninj1 mRNA expression was measured by RT-PCR.
Results: In endometrioma, positive staining for Ninj1 was observed in both epithelial and stromal area. The stain intensities were similar regardless the presence or absence of dysmenorrhea. Part of Ninj1 positive area was also positive for PGP-9.5 and CD-10. In peritoneal endometriosis and adenomyosis, positive staining for Ninj1 was observed in both epithelium and stroma, and part of them were positive for PGP-9.5. IL-1β induced Ninj1 mRNA expression in ESC, approximately 10 times at 3 hrs ($P<0.05$).
Conclusion: Ninj1 is expressed in endometriosis and adenomyosis, and the expression seemed to be enhanced by inflammation. These findings indicate that inflammation in endometriosis induces Ninj1, and thus causes local nerve regeneration and may contribute to the disease-associated pain.

Basic-S2 Is LAST1 the last hope for endometriosis?

Shih-Chieh Lin[1], Meng-Hsing Wu[2], Shaw-Jenq Tsai[1]
(Department of Physiology, College of Medicine, National Cheng Kung University[1], Departments of Obstetrics & Gynecology, College of Medicine, National Cheng Kung University, Taiwan[2])

Endometriosis is a common and complex gynecological disease which reduces life quality of patient caused by pelvic pain and infertility. Since classical therapies for endometriosis treatment have unfavorable side effects and high recurrence rate, innovation of novel therapy by unravelling the molecular and cellular mechanisms underlying the pathological processes of endometriosis is an urgent issue. Since hypoxia is an inevitable consequence during the development of endometriosis, we aim to investigate whether targeting hypoxia-regulated gene network can ameliorate disease severity. By employing our in-house Bioinformatic analyzing platform, TheBEST, we identified LAST1 as a potential target gene of hypoxia-inducible factor-1α (HIF-1α). Here, we reported that hypoxia downregulated LATS1 expression in a HIF-1a-dependent manner. Hypoxia suppressed LAST1 expression is mediated by transcriptional inhibition of LAST1 promoter activity and by mRNA destabilization via miR-21 upregulation. Concordantly, levels of LAST1 in endometriotic lesions were lower than those in normal endometria. Inhibition of LAST1 by hypoxia leads to nuclear translocation of Yes-Associated Protein 1 (YAP1). Clinical specimen study showed that YAP1 and miR-21 expressions were increased while LATS1 expression was decreased in ectopic endometriotic tissues and primary cultured stromal cells. YAP1 knockdown or treatment with Verteporfin (VP), an inhibitor of YAP1, not only reduced YAP1 downstream target gene expressions but also inhibited their corresponding processes. Most importantly, VP compound markedly decreased the size of endometriotic lesions and downstream target gene expressions in the mouse model of endometriosis. Taken together, our data indicate that targeting hypoxia-regulated gene network may be a feasible alternative for endometriosis therapy.

Basic-S3 Decreased endometrial expression of leukemia inhibitory factor receptor disrupts the STAT3 signaling in adenomyosis during the implantation window

Chih-Feng Yen[1], Chyi-Long Lee[2], Shuen-Kuei Liao[3], Hsin-Shih Wang[1,4], Umit, A. Kayisli[5]
(Chang Gung Memorial Hospital[1], Keelung Chang Gung Memorial Hospital[2], Taipei Medical University[3], bGraduate Institute of Clinical Medical Sciences, Chang Gung University College of Medicine[4], Morsani College of Medicine, University of South Florida, Tampa, FL[5])

Objective: To compare the expression of leukemia inhibitory factor (LIF) and LIF receptor (LIFR) during the window of implantation (WOI) in the eutopic endometrium between patients with and without adenomyosis.
Materials and Methods: Patients (age <42 year-old) with adenomyosis and the menstrual phase-matched controls who underwent hysterectomy during WOI. Endometrium and adenomyotic tissue collection, as well as the primary culture of endometrial stromal cells (ESCs). Immunohistochemistry (IHC) with spatial HSCORE comparisons, and the phosphorylation ratios measured by Western blotting of the signal transducer and activator of transcription (STAT) 3 and extracellular signal-regulated kinase (ERK).
Result(s): In healthy control, the endometrial expression of LIF and LIFR in the outer functional layer was significantly higher than that in the basal layer, and the glands expressed more LIF and LIFR than the stroma. In adenomyosis patients, the LIF and LIFR expression in the eutopic endometrium was shown parallelly with significantly reduction compared to the control. Adenomyotic lesion showed a similarly lower expression of LIF and LIFR as the basal layer of endometrium. The phosphorylation ratio of STAT3 and ERK in eutopic endometrium of adenomyosis patients was also significantly decreased compared with the control.
Conclusion(s): Significant reduction of LIF and LIFR expression and its associated subsequent signaling strongly suggests that these implantation markers and their molecular interaction are impaired in the endometrium of adenomyosis patients. These molecular changes may explain the declined implantation rates in patients of adenomyosis.

Basic-S4 Activated platelets induce increased estrogen production in endometriotic stromal cells

Qiuming Qi[1], Xishi Liu[1,2], Sun-Wei Guo[1,2]
(Shanghai OB/GYN Hospital, Fudan University[1], Shanghai Key Laboratory of Female Reproductive Endocrine-Related Diseases, Fudan University, Shanghai, China[2])

Background and Aims: Endometriosis is known to be an estrogen-dependent disease. It features excessive estrogen production and aberrant expression of estrogen receptors. However, aside from the feed-forward model, it is unclear why endometriotic cells behave in this way. Given our recent reports that platelets play important roles in the development of endometriosis and that activated platelets up-regulate the expression of ERβ in endometriotic stromal cells, the aim of this study was to investigate whether activated platelets can also induce increased estrogen production in endometriotic stromal cells.
Methods: Primary ectopic endometrial stromal cells (EESCs) were derived from patients with ovarian endometriomas and platelets were harvested from healthy donors. After co-culture of EESCs with phosphate buffer saline (PBS), platelets, platelets plus thrombin (activated platelets), and thrombin alone for 48 hours, we performed ELISA to measure the concentrations of 17beta-estradiol (E_2) in the supernatants, and RT-PCR and Western blot analyses to quantify the gene and protein expression of StAR, HSD3B2 and aromatase that are known to be critically involved in estrogen production.
Results: Treatment of EESCs with activated platelets resulted in 4-fold increase in E_2 concentration as compared with controls. It also significantly elevated the gene and protein expression of StAR, HSD3B2 and aromatase.
Conclusion: Activated platelets upregulate the expression of StAR, HSD3B2 and aromatase, leading to increased E_2 production in endometriotic stromal cells. This finding, coupled with other findings, highlights the important role of platelets in endometriosis, suggesting that anti-platelet therapy may hold promises in the treatment of endometriosis.

Basic-S5 Cytotoxic and immunosuppressive factors in cynomolgus monkeys with endometriosis

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Cynomolgus monkeys could be a good animal model for endometriosis, because they possess similar anatomical and physiological features in female genital organs. Thus, we focused on the balance between cytotoxic and immunosuppressive factors in monkeys in which endometriosis had spontaneously occurred.

Natural killer (NK) cell-activities in 20 controls and 17 endometriosis-monkeys were measured by co-culture of PBMCs with K562. The proportion of CD3-CD8+CD16+ (NK) and CD4+Foxp3+ (regulatory T) cells in lymphocytic fraction was measured in PBMCs of 5 controls and 3 endometriosis-monkeys. CD163, a marker for immunosuppressive macrophages, and Foxp3 were stained in tissues collected at autopsy (8 controls and 10 endometriosis-monkeys). Positive cell numbers were counted by x 200 in orthotopic endometrium in controls (C), and in orthotopic (O) and ectopic endometrium (E) in endometriosis-monkeys.

NK cell-activities were 23.53% and 8.29% (P=0.002), the proportion of NK cells were 6.71% and 13.17% (P<0.001), the proportion of regulatory T cells were 3.65% and 3.14% (P=0.037) in controls and endometriosis-monkeys. Positive cell numbers for CD163 and Foxp3 were 52.76 (C), 51.77 (O) and 131.16 (E) (C:E p=0.002, O:E p=0.020), and 9.70 (C), 11.87 (O) and 13.81 (E), respectively.

In conclusion, NK cell-activities were significantly decreased in the peripheral blood of monkeys with endometriosis. The reciprocal increase in the proportion of NK cells indicated a compensatory mechanism. The infiltration of immunosuppressive macrophages to ectopic endometrium suggested an immunosuppressive environment in the peritoneal cavity. Taken together, the balance between cytotoxic and immunosuppressive factors would play a role for the development of endometriosis.

O-01 Malnutrition as a risk factor sepsis in infected endometrioma

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Objective: Endometriosis in ovary could developed into infected endometrioma. The risk factors were sexual behavior, increased age, diabetes and immunocompromised status. Thus, If the infected was untreated it could increase morbidity and mortality of the patient. In this case, presented one case how to diagnosis and manage sepsis in infected endometrioma
Method: A case report and literature review of infected endometrioma
Case Illustration: Patient, Ms. 35 years old P0, administered to the emergency department with chief complain abdominal pain since 2 weeks. Patient had fever, tachycardia, tachypnea leukocytosis and increasing procalcitonin level indicating sepsis. On physical examination UAC 18 cm indicating malnutrition, abdominal enlargement until 4 fingers above navel. Ultrasound examination assessed bilateral endometrioma. The source infection was thought from the infected cyst. The comorbid of this patient were DVT and hydronephrosis. Then, patient was decided performing laparotomy exploration due to source control of infection. Preventing emboli throbus and ureter injury, patient was inserted vena cava filter and ureter catheter bilateral preoperatively. Intraoperatively there was bilateral endometriosis cyst with pus correlate to infection, then decided left cystectomy and right salphyngooophorectomy.
Conclusion: The risk factor infection in this patient was malnutrition. The mechanism of infection was due endometriosis increased risk infected endometrioma by following mechanism impaired immunity in the pelvic cavity of women with endometriosis makes them vulnerable. Second, the cystic wall of endometrioma was weak thus prone to bacterial invasion. Third, blood content may serve as a culture and facilitate the spread of infection. By removing source of infection stable hemodynamic was achived.

O-02 A five-year experience with bowel endometriosis

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Background and Aim:
One the most common anatomical sites of endometriosis involvement is the bowels and especially the recto-sigmoid area. There are many challenges with choosing the best diagnostic imaging modalities and the appropriate treatment methods. We aim to study five years of experience with patients with bowel endometriosis at our centre.
Methods:
In this retrospective study, the charts of patients who presented signs and symptoms of endometriosis were reviewed with a focus on those who had bowel involvement.
Results:
200 patients with bowel endometriosis were found. 90 percent of which had been diagnosed by imaging modalities such as transvaginal, transrectal ultrasound or MRI before surgery. For all these patients laparoscopic surgery was performed by peeling, disk or segmental resection, or appendectomy, and histopathology confirmed the diagnosis of bowel endometriosis. The most common site was rectum, followed by sigmoid, appendix, and cecum. There were two cases of rectovaginal fistula and two cases of leakage at the sites of anastomoses, which were managed properly.
Conclusion:
Most cases of bowel endometriosis could be diagnosed by ultrasound or MRI before operation. No conversion to laparotomy was needed and symptoms of improvement were detectable in almost all patients, with a low chance of complications.

O-03 Incision of the uterosacral ligaments in the early step.~safe and effective surgical method for rectovaginal endometriosis~

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Background and Aim
The rectovaginal endometriosis (RVE) is the most common form of deep endometriosis, and often affects adjacent pelvic organs. In such surgery, surgeons are required to avoid unnecessary damage to these organs. Through numerous cases of rectovaginal endometriosis, we have developed a safe and effective procedure. In this presentation, we will introduce a procedure with the focus on how to separate the uterosacral ligaments (USLs) safely, and on its effect in the following steps.
Surgical Method
The RVE nodule is located between bilateral USLs, making contact with the anterior rectal, vaginal and uterine walls. Among all the structures surrounding the nodule, we surgically separate the USLs that limit the mobility of the nodule in the early step. By doing this, mobility of the nodule improves dramatically, and the nodule can be moved in any direction to provide enough tension for excision from adjacent structures. The adipose tissue between the rectum and USLs was thought to be the safest and most reliable structure to identify the USL.
Results
Between 2012 and 2016, 156 women with RVE underwent the excision surgery of rectovaginal endometriosis. We experienced one case of postoperative rectal leakage. There was no urinary complication, and pelvic nerve damage.
Conclusion
Incision of the USL in the early step of the surgery was very effective to reduce the risk of damage to the ureter and rectal structures, and to remove the nodule more effectively. Furthermore, this method has the potential to be an established standard procedure in rectovaginal endometriosis surgery.

O-04 Association between recurrence after laparoscopic cystectomy for ovarian endometriomas and ovarian reserve

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Background; Laparoscopic cystectomy (LC) has been generally performed for ovarian endometrioma affected in women of reproductive age; however, risk factors associated with the recurrence after the treatments remains debatable. Previous studies suggested that the age, directly correlated to ovarian reserve, was positively influenced to postoperative recurrence. In this study, we analyzed the association between the recurrence after LC for ovarian endometriomas and serum anti-Müllerian hormone (AMH) concentrations as ovarian reserve.
Method; A total of 139 patients who underwent LC at our hospital between 2009 and 2015, were retrospectively evaluated. All patients were not administrated any medications immediately after surgery. The recurrence was defined as the detection of an ovarian cyst over 2 cm in diameter in ipsilateral and contralateral operated ovary by ultrasonography during follow-up periods. The ovarian reserve was evaluated by the measurements of serum AMH concentrations before and at 3 and 6 months after the surgery.
Result; Among 139 patients the cumulative recurrence rate at 12, 24, and 72 months after surgery was 2.4%, 7.2%, and 13.6%, respectively. The serum AMH concentration before surgery and at 3 and 6months after surgery of patients with and without recurrence were 3.81±3.73 vs 3.27±2.85, 2.92±4.13 vs 1.77±1.58, and 2.43±2.80 vs 1.82±1.89 ng/mL, respectively. The Cox regression model revealed that the serum AMH concentrations at 3 months after surgery was positively associated with postoperative recurrence (Hazard ratio,1.2; p=0.01).
Conclusions; The postoperative serum AMH concentrations as ovarian reserve seems to affect the recurrence after laparoscopic cystectomy for ovarian endometrioma.

O-05 Role of oral contraceptives in preventing progression of endometriosis symptoms

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Aims: To analyze the effect of oral contraceptives on symptoms in patients with endometriosis.
Methods: We designed *Dysmenorrhea and chronic pelvic pain questionnaire*. Patients with endometriosis or dysmenorrhea were included. According to their willingness, patients were divided into research and control group. Research group periodically took oral contraceptives, while the control group received no treatment. They were all followed-up every six months, total follow-up time were one and a half year.
Results: In the research group, dysmenorrhea VAS of both one year and six months after taking OC were significantly lower than baseline. VAS went higher after stopping administration. For those who used oral contraceptives for one year, the VAS after using six months and one year were the same. Dysmenorrhea slowly recurred after stopping treatment. For those who used OC for six months, dysmenorrhea rapidly recurred after stopping treatment. While in the control group, the VAS had no obvious change.
The pain remission rate of the research group was significantly higher than the control group. The pain remission rate of patients with severe dysmenorrhea was significantly higher than those with mild and moderate dysmenorrhea. The pain remission rate of patients who have dysmenorrhea only was higher than those with adenomyosis.
Conclusions: Long-term use of oral contraceptives can relieve dysmenorrhea. Time of taking medicine is not related to dysmenorrhea relief. The longer the patients take medicine, the slower the dysmenorrhea recurred after stopping treatment. Pain remission rate of patients who have dysmenorrhea only was higher than those complicated with adenomyosis.

O-06 The analysis of the learning curve in laparoscopic surgery for ovarian endometrioma

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Objective: To investigate the learning curve of laparoscopic ovarian endometrioma stripping surgery by comparing the surgical results in different learning periods of the same team of surgeons, provide a reference for the junior gynecologists.
Method: A retrospective study was made of 60 cases who underwent laparoscopic ovarian endometrioma stripping surgery by the same team of surgeons from January 2015 to May 2016. The patients were divided into four groups (n=15 for each group) according to the sequential learning stages. The operation time, blood loss, complications, postoperative morbidity and postoperative hospital stay were compared to investigate the surgical technical level of different learning stages. **Results:** There were no significant differences among four groups on age, BMI, rASRM staging, unilateral or bilateral ovarian endometrioma, size of endometrioma, association of adenomyosis, times of previous pelvic surgeries, postoperative hospital stay ($P>0.05$). The postoperative morbidity rate was 33.3% in Group A, which is higher than that of other groups (0%-10%) ($P<0.05$). The operation time, intra-operative blood loss of group A is also higher than that of other groups, which was significantly different ($P<0.05$); and they were similarly statistically significant of group B compared with other groups ($P<0.05$).
Conclusion: Along with the practicing surgical cases increased, the operation time was shortened, intra-operative blood loss and perioperative complications were reduced but the hospital stay time changed little, thus, laparoscopic surgery for ovarian endometrioma stripping surgery can be basically skillful and stable after 30 cases of surgical practicing.

O-07 Local administration of 3-ethylpyridine, an inhibiter of CD44 and Tenascin, to ovarian endometriomas

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Objectives: Recently, even cystectomy of bilateral ovarian endometriomas has been regarded to be destructive for ovaries. The objectives of this study are to evaluate the effects of local administration of 3-ethylpyridine (3EP) to endometriomas. 3EP is safe as a food additive and was reported to act as a CD44 and tenascin inhibitor in an experimental model of endometriosis.
Methods: All the patients with endometriomas in this study rejected any more surgeries and systematic hormonal therapies, and visited our hospital to take the 3EP therapy. Firstly, the effects of 3EP on CD44 and tenascin expressions in the cultured stromal cells from endometriomas were investigated by ELISA. Secondly, nineteen patients with endometriomas were treated with injection of 20mg of 3 EP/4ml of saline into the endometromas following written informed consent and ultrasound-guided aspiration. The part of Dr Zhu's reported data for 77 patients were used as a control, whose paper showed the effectiveness of repeated aspiration for endometriomas.
Results: In vitro, both CD44 and tenascin expressions in the culture medium were inhibited in the presence of 3EP. In vivo, no recurrence was observed in 84.2% (16/19) of the cases for a month without any side effects, while only 10.4% (8/77) of the cases in the control group. We did not observe any adverse effects as for 3EP injection, and all of the patients treated by 3EP had a regular period of menstruation.
Conclusions: Our data suggested the aspiration therapy plus injection therapy of 3EP into endometriomas is more effective than single aspiration.

O-08 The research about the effect and mechanism of guiXiong xiaoyi wan in endometriosis

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GXXYW is a Chinese medicine formula for endometriosis, prescribed by practitioners based on their clinical experience. In our study, we examined the influence of GXXYW on rat endometriosis model and human ESCs, exploring the related mechanism involved.
Related ethical issues are needed and approved. Induced endometriosis in 30 rats and randomly divided them into 3 groups. The rats were separately given GXXYW 4g/200g/d, 8g/200g/d and saline for 30 days. The lesion volumes were calculated, then cell proliferation, apoptosis, percentages of CD3+, CD4+, CD8+ lymphocytes in spleens and the level of IL-2, IL-6 in peritoneal fluid were separately tested by Immunocytochemistry, TUNEL, Flow cytometry and Elisa. We obtained 6 ectopic endometrium samples from women with ovarian endometriosis. Cells was cultured and separately incubated in 10%, 20%, 30% GXXYW-containing and non-GXXYW-containing rat serum for 24, 48 and 72h. Cell proliferation, apoptosis, cell cycle and the expression of Bax, Bcl-2, PCNA and Cyclin D1 were tested by CCK-8, TUNEL, Flow cytometry and Western blot.
The GXXYW-treated rats demonstrated smaller lesions, suppressed proliferation, obvious apoptosis, increased CD4/CD8 and IL-2/IL-6. GXXYW-containing serum induced a dose-dependent decrease in the viability of ESCs, an increase in apoptosis and bax/bcl-2, a decreased expression of PCNA and CyclinD1. The number of cells in G0/G1 phase increased, while those in S and G2/M phases decreased.
These results suggest that GXXYW may be effective in the suppression of endometriosis, possibly through inhibiting cell proliferation, inducing apoptosis, causing arrest in the G0/G1 phase and regulating the immune system.

O-09 Long non-coding RNA TC0101441 predicts poor prognosis and promotes cell metastasis by upregulating KISS-1 to induce EMT in epithelial ovarian cancer

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Background and aims
We previously identified a new long non-coding RNA (lncRNA) TC0101441 in epithelial ovarian cancer (EOC) using microarrays. In this study, we investigated its expression pattern, clinical significance, biological function and underlying mechanisms in EOC.
Methods LncRNA-TC0101441 expression in EOC tissues and its correlation with clinicopathological factors and prognosis were examined. In vitro and in vivo assays were performed to elucidate the function and mechanism of lncRNA-TC0101441 in EOC aggressiveness.
Results LncRNA-TC0101441 levels were overexpressed in EOC tissues compared with controls, and the overexpression was correlated with the International Federation of Gynecologists and Obstetricians stage, histological grade, lymph node metastasis, and reduced overall survival (OS) and disease-free survival (DFS). A multivariate analysis showed that lncRNA-TC0101441 expression is an independent prognostic factor for OS and DFS. LncRNA-TC0101441 knockdown prevented EOC cell invasion in vitro and tumor metastasis in vivo, while lncRNA-TC0101441 overexpression enhanced EOC cell invasiveness in vitro and tumor metastasis in vivo. Mechanically, the pro-metastatic effects of lncRNA-TC0101441 were linked to the induction of epithelial-mesenchymal transition (EMT). Importantly, KISS-1 was identified as a downstream target of lncRNA-TC0101441 in EOC metastasis. Knockdown of KISS-1 eliminated the augmentation of EOC cell invasiveness and EMT by lncRNA-TC0101441 overexpression. LncRNA-TC0101441 overexpression in EOC cells substantially enhanced the enrichment of SP-1 on the promoter of KISS-1, and KISS-1 upregulation by lncRNA-TC0101441 was partly dependent on SP-1.
Conclusion LncRNA-TC0101441 could promote EOC metastasis by upregulating KISS-1 through SP-1 to induce EMT, and could represent a novel prognostic marker and potential therapeutic target for EOC.

VS1 Effect of dienogest on pain and ovarian endometrioma recurrence after laparoscopic resection of uterosacral ligaments with deep infiltrating endometriosis

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Deep infiltrating endometriosis (DIE) is a form of endometriosis in which pathologic tissue can penetrate up to 5 mm under the surface of the affected structure. These lesions are considered very active and are strongly associated with pelvic pain. The incidence of DIE is reportedly 20% in all cases of endometriosis, with uterosacral ligaments (USLs) representing the most frequent location of endometriosis. The present study evaluated the effect of dienogest (DNG) on preventing the recurrence of pain and endometriomas after laparoscopic resection of uterosacral ligaments with deep infiltrating endometriosis. This retrospective analysis included 126 patients who underwent laparoscopic resection of USLs with DIE, followed by either the postoperative administration of DNG or no medication. At every 6 months postoperatively, patients answered questions and underwent ultrasound examination to identify pain and/or endometrioma recurrence. There were 3 (5.0%) endometrioma recurrences in 59 patients of the DNG group and 21 (31.3%) recurrences in 67 patients of the no medication group (p=.0002). Pain recurrence was at the same level as it was preoperatively (8 [11.9%]) in the no medication group. There was no pain recurrence in the DNG group (p=.0061). The administration of DNG after resection of USLs with DIE significantly reduced the recurrence rate of endometriosis-related pain and endometriomas. The study was approved by the ethics committee of the Kurashiki Medical Center and written informed consent was obtained in all cases.

VS2 Hysteroscopic resection of uterine adenomyosis

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Bachgrounds: Hysterectomy was the main treatment for those with adenomyosis who were suffered from severe symptoms in the last decades. However, some patients wish to preserve fertility or uterus, even some of them will soon be menopausal women. Hysteroscopic surgery is considered to be a well-tolerated and effective procedure, and it has many advantages including keeping the outer myometrium complete, avoiding an abdominal scar and reducing pain and the duration of procedures.
Aims: To introduce the detailed procedure of hysteroscopic resection of adenomyosis.
Methods: We applied hysteroscopic resection to treat 51 women with adenomyosis in Gynecological department of International Peace Maternity and Child Health Hospital in Shanghai. We took videos during the surgery after approvals have been obtained from patients.
Results: We have treated 51 cases and got satisfying outcomes. The amount of intraoperative bleeding was 22.2±16.5ml and the operation time was 33.1±25.1 minutes. No intraoperative and postoperative complications occurred. All patients were evaluated by visual analogue scale score of menorrhagia and dysmenorrhea before the surgery and during 24 months postoperative follow-up. The results shown that they all obtained remission of menorrhagia($P<0.001$) and dysmenorrhea ($P=0.001$).
Conlusions: Hysteroscopic surgery is an effective, safe and conservative treatment for women diagnosed with adenomyosis who do not have desire of fertility.

VS3 Neck scarf of ureter and bulldog of uterine vessel in Da Vinci Robotic deep infiltrative endometriosis excision.

Yichen Chuang, HsinFen Lu, Fu-Shiang Peng, Wan Hua Ting
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Deep infiltrative endometriosis is one of the most challenging gynecologic operation due to the distorted anatomy by the fibrosis of endometriosis gland.
In the video we showed the major surgical procedure including the following
1. The bilateral ovarian chocolate cyst decompression and then suspension with suture to abdominal wall as external traction.
2. The ureterolysis by trace the ureter course from pelvic brim to crossing with uterine vessels
3. Dissection of the origin of uterine vessels from the origin of internal iliac artery and block it with bulldog temporally
4. Develop the para-rectal space, and expose the Cul-de sac by using the vaginal and rectal probe
5. Excise the fibrosis mass surrounded by the sacrouterine ligament and posterior vaginal wall and do the rectal surface shaving.
Intervention:
Here we present our technique by using the yellow rubber band to collar the ureter as neck scarf, when using Da Vinci Si robot system with four arms (included robotic laparoscopy),the stable third arm as an assistant of surgeon to traction the neck scarf to prevent ureter injury when dissection. The operative time, console time, docking time and blood loss, were recorded.
All patietns received post-operative Leuplin-DEPOT injection for 6 months
Result:
20 consecutive patients with deep endometriosis were safely operated without fistula, ureter injury, laceration.
Conclusion: We could always check the ureter safety during difficult dissection, especially during the long surgery the surgeon was fatigue and had less concentration while using the energy source.

VS4 Techniques of laparoscopic DIE (deep infiltrating endometriosis) nerve-sparing excision

Chung-hsien Sun
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Laparoscopic (LSC) radical DIE (deep infiltrating endometriosis) excision, especially for those posterior lesions involving deep pelvis or lateral lesions involving pelvic sidewall, if without appropriate appreciation and preservation of the pelvic nerves (autonomic, or somatic), will result in some extent of urinary/bowel dysfunction, or even sensory/motor dysfunction of lower limbs after the surgery.
In this video, we will demonstrate the important pelvic nerve structures that should be identified and preserved as possible during the LSC DIE surgery, including autonomic nerves (hypogastric nerve, inferior hypogastric plexus, pelvic splanchnic nerve) and some important pelvic somatic nerves (including sacral nerve roots S1, S2, S3, S4, obturator nerve, lumbosacral trunk, sciatic nerve, etc.) first. In the second part of the video, we will demonstrate the techniques of laparoscopic nerve-sparing DIE excision, from simple cases to the most difficult case involving sacral nerve roots.

VS5 Bowel Resection for deep infiltrating endometriosis

Hong Xu
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A 30-year old female, G2P1, came to our clinic nearly 3 years ago. She presennted with constipation, defecation and cyclical rectal bleeding.With B ultrasound and MRI examination, we found a 5 cm mass behind the uterus, located at the cul-de-sac. Colonoscopy was also done, but had no pathological evidence for endometriosis. We performed pelvic adhesiolysis and part sigmoid resection laparoscopically. Pathological report was endometriosis. GnRH-a injection was given for three times, every 28 days. The symptoms of cyclical rectal bleeding and pain were releived after operation. No recurrence has been found untill now.

O-10 Evaluation of the pathological significance of aberrant endometrium-like tissue

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Background and Aims:
Aberrant endometrium-like tissue (AET) is a tiny microscopic focus incidentally observed during pathological examinations of the extirpated uterus, and it is considered an embryonic remnant. To clarify the pathological significance of AETs, we examined the frequency and tissue distribution of AETs, and their coexistence with gynecologic lesions, including chocolate cysts and gynecologic cancers.
Methods:
We retrospectively reviewed the pathological reports and medical records of patients who underwent hysterectomy between April 2009 and December 2012 at Chiba University Hospital. Inclusion criterion was the description of AETs in the pathological reports. We reviewed histological slides to determine the location of AETs, which were defined as incidentally found foci with endometrioid-type glands and endometrioid stroma without hemorrhage or inflammatory reaction. This study was approved by the institutional review board of Chiba University.
Results:
AETs were found in 112 of 459 patients (24.4%) who underwent hysterectomy. AETs were often observed in the retroperitoneal serosa covering the lower half of the posterior uterus (50.0%), uterine cervix (25.0%), and parametrium (34.5%). Chocolate cysts were observed in 49.0% (50/102) of AET-positive oophorectomized patients and 6.0% (17/283) of those without AETs. Among 359 patients with cancer, AETs were most frequently associated with ovarian/tubal/peritoneal cancer (41.1% [37/90]), followed by uterine cervical cancer (17.0% [16/94]) and corpus cancer (20.6% [36/175]; P<0.001, chi-square test).
Conclusions:
AETs were most frequently found in the subserosal spaces of the uterine posterior wall, parametrium, and adnexa, and they were associated with ovarian/tubal/peritoneal cancers. Further study is needed to clarify the significance between AETs and carcinogenesis.

O-11 Molecular background of estrogen receptor-dependent gene expression in endometriotic cells

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Background: Endometriosis is an estrogen-dependent, inflammatory disease. To explain the pathophysiology of this disease, the distinct profile of estrogen receptor (ER) expression, a higher ERβ and a lower ERα expression, has been proposed as a major background of estrogen action.
Objective: We evaluated the molecular background of ER-dependent gene expression in endometriotic cells.
Methods: The IRB of our institute approved this project. We obtained the informed consent from all patients. The chocolate cyst lining in ovaries of patients with endometriosis was the source of endometriotic tissue. As the control, the eutopic endometrial tissues were obtained from uteri of premenopausal women who had uterine leiomyoma. Stromal cells were prepared from endometriotic and endometrial tissues. ER gene expression was evaluated using RT-PCR. ER-dependent gene expression was estimated using PCR array.
Results: 1) Relative expression of ERα mRNA in endometriotic cells was estimated to be one tenth of that in endometrial cells. 2) A transcript of wild-type ERα was always expressed in endometriotic and endometrial cells. 3) A wild type ERβ1 mRNA was expressed in endometriotic cells, which is almost at a comparable level of the ERα. 4) A splice variant ERβ2 mRNA was expressed at a comparable level of the ERβ1. 5) In response to ER isoform-specific ligands, a distinct pattern of gene expression was observed.
Conclusion: We demonstrated the molecular background of ER-dependent gene expression in endometriotic cells. The finding that 3 ER isoforms, ERα, ERβ1 and ERβ2, are expressed at a comparable level provides a facet in understanding the estrogen-dependent pathophysiology in endometriosis.

O-12 Combination of retrograde menstruation and stem cell theory based on comparative genomic hybridization

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(Mehr Medical Group, Iran)

Aim: To develop a new theory on endometriosis
Materials and Methods: We have evaluated literature on gene expression of different oncogenes and tumor suppressor genes in addition to epidemiological correlation of endometriosis and different malignancies and compared gene expression of endometriosis tissue with stages of stem cell differentiation.
Results: With a frequency of 15% for endometriosis and 2.5/100000 for ovarian (and other) cancer(s) in the general population a threefold increase in the chance of the latter is practically nil. Endometrial cells mainly in the form of debris during menstruation are full of different growth factors and undergo apoptosis due to vasa recti closure and hormone deprivation. Retrograde menstruation causes pluripotential (and not totipotential) stem cells within the pelvic cavity become exposed to these growth factors and undergo differentiation basically along endometrial tissue due to specific paracrine feedback loops. As this is a normal differentiation pathway it has only superficial similarity to oncogenesis.
These mediators can be found in circulation however at very low concentrations but this could explain far away endometriosis. RAS/RAF/MAPK, PDGF, 17BetaHSD2, HSP90, APOE, CD24 and ERBB3, **CYP2C19**, WNT4, P16ink, **HIC-1** and **OVCA2** are "normal" mediators that facilitate this differentiation pathway.
Conclusions: The ancestor of endometriosis is not normal endometrial tissue but multipotential stem cells dispersed within the pelvis which becomes differentiated by exposure to debris of the endometrial cells during retrograde menstruation. Some genetic predispositions are mandatory. This idea opens novel treatments such as transient tubal closure (after local treatments) to interrupt the loop.

O-13 Decreased expression of progesterone receptor in endometriosis

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Background: Endometriosis is defined as the presence of endometrium-like tissue outside of the uterine cavity, affecting 1 of 10 women in the reproductive group. Progesterone plays an important role in the uterus. It controls endometrial proliferation and differentiation. Dysregulation of progesterone signaling leads to impaired for uterine function. Progesterone resistance has been found in endometriosis and associated with the low levels of progesterone receptor (PGR). Since the data on expression of PGR are also rather controversial, we analyzed mRNA expression of PGR isoform A and B from endometriosis samples and normal endometrium tissue samples.
Methods: The mRNA expression was analyzed with quantitative real-time polymerase chain reaction. Include 20 endometriosis and 20 normal endometrium samples as a control were used. Informed consent was given by each participant. Statistical analyses were t-independent test ($p<0.05$).
Results: We found significant difference between mRNA expression of PGR-A ($p=0,030$) and PGR-B ($p=0,000$) in endometriosis. Relative mRNA expression of PGR-A and PGR-B were down regulated (2,35 and 6,37 fold decreased, respectively) in endometriosis compared with normal endometrium tissues.
Conclusion: This finding suggests that the low levels of PGR-A and PGR-B may contribute to the pathogenesis of endometriosis and due to progesterone resistance.
Keywords: mRNA expression, PGR, endometriosis

O-14 Employing selective fibroblast growth factor receptor tyrosine kinase inhibitor ameliorates endometriosis

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Fibroblast growth factors (FGFs) are multifunctional in several biological processes such as neuroprotection, cell proliferation and migration, tumorigenesis, implantation and endometriosis. FGF9 is highly conserved across species, implies vital roles of FGF9 during embryonic development. FGF9 exerts its function via binding to specific FGF receptors (FGFR) and it is known FGF9 binds to FGFR 2, FGFR3 and FGFR4, but not FGFR1. In endometriosis, expression of high affinity receptor of FGF9, FGFR2 and FGFR3 was identified in ectopic endometriotic lesions. However, surprisingly little information is available on effects of utilizing selective FGFR inhibitors on endometriosis. We have found FGF9 stimulates endometrial cells proliferation and FGF9-drove effects is major via FGFR2 which subsequently activate two parallel but additive pathways involving Ras/MEK/ERK and gamma phospholipase C/mTOR/P70. We also found endothelial cells expressed FGFR2IIIc and FGFR3IIIc by quantitative RT-PCR assay. FGF9 directly increased endothelial cell proliferation, migration, and capillary-like hexagonal loops formation. Most importantly, several small-molecule FGFR kinase inhibitors are currently in clinical development; herein we found mice received intraperitoneal injection of AZD4547, a selective inhibitor of the FGFR1, 2, and 3 tyrosine kinases, dose-dependently and considerably impaired the FGF9-enhanced *in vivo* angiogenesis invasion and resulted in elimination of the endometriotic lesion number and growth weight. Administration of FGFR1 selective inhibitor PD 173074 only showed weak potent attenuation of endometriotic lesion formation. Taken together, our data provide compelling evidence to illustrate a novel therapeutically employing selective FGFR inhibitor to ameliorate endometriosis.

O-15 Ginsenoside protopanaxadiol induces the autophagy and restricts the growth of endometrial stromal cells in endometriosis by down-regulation of estrogen receptor α

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Ginseng and its components exert various biological effects, including antioxidant, anti-carcinogenic, anti-mutagenic, and anti-tumor activity. Ginsenosides are the main biological components of ginseng. Protopanaxadiol (PPD) and protopanaxatriol (PPT) are two metabolites of ginsenosides. The present study aimed to evaluate the effect of PPD, PPT, Ginsenosides-Rg3 (G-Rg3) and G-Rh2 on endometrial stromal cells (ESCs) from endometriotic lesion. This study was approved by the Human Research Ethics Committee of OB/GYN Hospital, Fudan University. Treatment with PPD, PPT, G-Rg3 or G-Rh2 lead to a lower level of the viability and a higher level of the autophagy of ESCs from endometriotic lesion compared with ESCs from healthy control, especially PPD. The half maximal inhibitory concentration (IC50) of PPD was 30.64uM. PPD significantly inhibited the expression of Ki-67, PCNA, Bcl-2 and Bcl-XL in ESCs. The results of human Autophagy RT2 profiler™ PCR array showed that the autophagy formation- and regulation-associated genes, *ESR1* was significantly weakened, *ATGs (i.e., ATG12, ATG3)* and *MAP 1LC3B* were up-regulated in ESCs after treatment with PPD. Estradiol treatment inhibited the autophagy of ESCs, however, PPD and estrogen receptor α (ERα) antagonist-MPP could reversed this effect. PPD treatment could obviously decrease the number and weight of ectopic lesion in mouse endometriosis model. These results indicate that both ginsenosides and two metabolites have anti-endometriosis activity. However, PPT is more powerful for inhibiting the viability and stimulating the autophagy of ESCs possibly by inhibiting ERα. This study provides a scientific basis for potential therapeutic strategies targeted to endometriosis by further structure modification.

O-16 Cytokines-mediated COUP-TFII suppression promotes VEGF-C expression in endometriosis

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Angiogenesis is an important pathological process of endometriosis, which enhances the growth of retrograde tissues outside the uterine cavity by supplying oxygen and nutrients. However, the underlying mechanism responsible for angiogenesis in endometriotic lesion remains largely unknown. Vascular endothelial growth factor C (VEGF-C) is an important factor involving in the process of angiogenesis and lymphangiogenesis. This study was designed to investigate the regulation and function of VEGF-C in endometriosis. The expression of VEGF-C is greater in endometriotic tissues compared to their eutopic counterparts. To investigate how VEGF-C is regulated during the development of endometriosis, we performed bioinformatic analysis to identify potential transcription factor that may bind to VEGF-C promoter. Chicken ovalbumin upstream promoter-transcription factor II (COUP-TFII), a multifunction transcription regulator is identified as a likely candidate. Genome-wide analysis revealed the directly negative relationship between COUP-TFII and VEGF-C expression. Knockdown of COUP-TFII leads to the upregulation of VEGF-C in conditioned medium. Treatment with proinflammatory cytokines stimulate the secretion of VEGF-C in eutopic endometrial stromal cells, suggesting upregulation of VEGF-C may result from inflammation. Indeed, forced expression of COUP-TFII abolishes cytokine-induced VEGF-C upregulation. In vitro assay further demonstrates that treatment with VEGF-C promotes tube formation of human umbilical vein endothelial cells. In summary, we concluded that VEGF-C plays an essential role in the development of endometriosis by enhancing the formation of angiogenic network, and the cytokines-mediated COUP-TFII downregulation may cause the expression of VEGF-C in endometriosis.

O-17 Is peri-operative intervention feasible to abrogate the promotional effect of surgical stress on endometriosis development?

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Background and Aims We have recently shown that surgical stress accelerates the development of pre-existing endometriosis in mouse, and such a facilitory effect of surgery can be completely abrogated by Propranonol (Prop), a non-specific β-blocker. This study was undertaken to investigate whether peri-operative administration of β-blocker and andrographolide (Andro), an NF-κB inhibitor, can abrogate such a facilitory effect.
Methods A prospective and randomized mouse experimentation using 59 female Balb/C mice. Three days after the induction of endometriosis, mice were randomly divided into 4 groups that received saline only (control), Andro, Prop, and Prop and Andro, respectively. One hour after the drug administration, a simulated open abdominal surgery was performed. One day after the surgery, all mice received the second treatment. Two weeks after the surgery, all mice were sacrificed, their lesion size and hotplate latency evaluated and endometriotic tissue samples harvested for immunohistochemistry analysis.
Results Perioperative administration of β-blocker completely abrogated the facilitory effect of surgery on lesion growth and the generalized hyperalgesia. Andro showed some inhibitory effect, but the results did not reach statistical significance. Both Prop and Andro significantly reduced the expression of ADRB2, p-CREB, VEGF, and PCNA and the microvessel density in endometriotic lesions.
Conclusions Our data indicate that perioperative administration of β-blocker, and perhaps Andro as well, can abrogate the surgery-induced acceleration of endometriosis development in mouse. These findings warrant clinical studies of β-blockade in patients undergoing various surgery in order to forestall the development of endometriosis and perhaps also to reduce the recurrence risk.

O-18 A study of relationship between endometriotic lesions and dysmenorrhea

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Objective: To explore the relationship between endometriotic lesions and dysmenorrhea.
Methods: Prospective study. Females diagnosed with endometriosis laparoscopically in Peking University Third Hospital from May 2013 to November 2014 were recruited. Pelvic pain history taken before surgery and endometriotic lesions observed during laparoscopy were recorded in details.
Results: Five hundred and ten patients met the including criteria. Two hundred and seventy-one patients has no dysmenorrhea while the others have mild to severe dysmenorrhea. According to rASRM staging, 145 patients in stage I, 24 patients in stage II, 149 patients in stage III, 192 patients in stage IV. The dysmenorrheal rates of rASRM stage I to IV are 15.9%, 37.5%, 47.0%, 71.4%, respectively; and moderate-to-severe dysmenorrheal rates are 11.0%, 25.0%, 31.5%, 56.3%, respectively. Both rates increase with stages. Dysmenorrheal rates of patients with pure superficial peritoneum endometriosis, pure ovarian endometrioma, DIE, incomplete closure of Douglas Pouch, complete closure of Douglas Pouch are 14.7%, 43.6%, 68.2%, 60.3%, 73.8%, respectively; the moderate-to-severe dysmenorrheal rates are 11.2%, 29.8%, 59.1%, 45.6%, 57.1%, respectively. Ovarian lesions and complete closure of Douglas Pouch are risk factors of dysmenorrheal morbidity. Complete closure of Douglas Pouch was the independent risk factor affecting dysmenorrheal severity.
Conclusion: rASRM scoring system overrates ovarian lesions and underestimates DIE and incomplete closure of Douglas Pouch according to dysmenorrheal morbidity. Complete closure of Douglas Pouch was the independent risk factor of dysmenorrhea.

O-19 Multicentre retrospective study to assess diagnostic accuracy of ultrasound for superficial endometriosis Are we any closer?

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Objective-To establish whether a correlation exists between pre-operative ultrasound assessment and laparoscopic findings in women referred to subspecialist gynaecologists with symptoms suggestive of endometriosis.
Method-Clinical histories of 53 patients who had laparoscopy to investigate pelvic pain were reviewed. Laparoscopies were performed at Mercy Hospital for Women, Epworth Freemasons and Geelong Hospital by surgeons trained in advanced laparoscopy and currently work in a tertiary endometriosis surgical unit. The ultrasound findings were dividing into sub groups as follows-presence of a utero sacral ligament nodule of endometriosis, utero sacral ligament thickness, thickened peri colic fat, ovarian mobility and focal tenderness. This was compared with operative findings of those patients with mild-moderate endometriosis. Sensitivity, specificity and ROC curves are presented.
Results-Seventy nine % (42/53) of the patients had laparoscopic findings consistent with their ultrasound findings (95% CI 68-90%, $p<0.0001$). Of the subgroups that we reviewed utero sacral thickening and thickened peri colic fat were the most associated with mild-moderate endometriosis at the time of laparoscopy. Utero sacral ligament thickening (sensitivity 0.62, specificity 0.73, area under the ROC curve 0.67, $p<0.05$).
Conclusion-There are no specific non-invasive methods of diagnosing superficial forms of endometriosis whilst the ability to reliably detect deep infiltrative endometriosis on ultrasound is well established.
Markers on ultrasound that reliably demonstrated that inflammation (thickened utero sacral ligaments and thickened peri colic fat) were shown to be significantly associated with the disease.
This study has allowed us to identify patients with superficial endometriosis who may with appropriate medical treatment avoid unnecessary laparoscopy.

O-20 Risk factor score of symptoms in patient with endometriosis

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Endometriosis is defined as the presence of normal endometrial mucosa (glands and stroma) abnormally implanted in locations other than the uterine cavity. Endometriosis occurs most often the ovaries, fallopian tubes, and tissue around the uterus and ovaries; however, in rare cases it may also occur in other parts of the body. Moreover, endometriosis was known as a diverse disease, regarding both treatment and pathogenesis. Nearly half of those affected have chronic pelvic pain, while in 70% pain occurs during menstruation. Laparoscopy is considered the primary diagnostic modality for endometriosis with possible referral to an ART program after surgery. However, the lack of analysis and results showed predicted factors for evaluating the risk of endometriosis.
Present study was aimed to identify risk factors and perform a validation of estimating score for the patients who may suffer with endometriosis. Therefore, we analyzed the questionnaire of the patients, 543 women aged 20-45 years old, with endometriosis in TMUH. The sociodemographic and gynecological characteristics of comparison groups were analyzed with student t-test and Chi-test. The statistical difference was defined as $p<0.05$.
The risk factors we integrated in our study included dysmenorrhea, menstruation regularity, low BMI and diarrhea, which p value were lower than 0.001 between case and control groups. The p value of menorrhagia, inter-menstrual spotting and coffee intake were lower than 0.05. The scores were internally validated with endometriosis patients' questionnaires in TMUH. The final goal is to establish a score evaluation form for helping early diagnosis of endometriosis.

O-21 Correlation between Cyr61 expression and clinicopathologic parameters in adenomyosis

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Background(s): Adenomyosis, a benign invasion of endometrium, is closely related to endometriosis. Cysteine-rich 61 (Cyr61), a protein present in all endometrial tissues and menstrual effluents, is known to be associated with endometriosis. However, its relation to adenomyosis has not been determined thus far.
Aims: We aimed to investigate the expression of Cyr61 protein in adenomyosis and determine the correlation between Cyr61 expression and clinicopathologic parameters in patients with adenomyosis.
Methods: One hundred and twenty patients with histologically diagnosed adenomyosis, who underwent hysterectomy for non-endometrial disease were enrolled in this study. Patients were interviewed using a standard questionnaire consisting of sociodemographic characteristics and reproduction history. The severity of dysmenorrhea and menorrhagia was evaluated using the visual analogue scale (VAS) and pictorial blood-loss assessment chart (PBAC). Samples of serum, endometrial tissue, and peritoneal fluid were collected, and Cyr61 levels were determined by RT-PCR, immunohistochemistry and ELISA.
Results: We found that expression of Cyr61 was higher in the ectopic endometrium than in the eutopic endometrium. Cyr61 expression in the endometrium was correlated with age, number of natural labors, PBAC score, VAS score, uterine volume, adenomyosis type, and concurrent endometriosis. The Cyr61 protein level in the peritoneum was higher than that in serum.
Conclusions: Our results suggest that the expression of Cyr61 may be indirectly related to the degree of dysmenorrhea and Cyr61 may be involved in the pathogenesis of adenomyosis. The increased Cyr61 level in ectopic endometrium may be due to the potential invasive, adhesive, migratory and angiogenetic characteristics of ectopic endometrial cell.

O-22 Hypoxia-mediated histone modification via downregulation of EZH2 in endometriosis

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Endometriosis, one of the most common gynecological diseases occurred in women with reproductive age, is characterized by the presence of endometria outside the uterus. A plethora of studies indicates that epigenetic regulations may play an important role in the progression of endometriosis. After shedding and going outside the uterus, endometria encounter an environmental change, hypoxia, which is a critical stress during the establishment of endometriotic lesions. We hypothesized that hypoxia forces the epigenetic change to regulate gene expressions during the progression of endometriosis. Herein, we report that hypoxia, via suppressing the expression of polycomb repressive complex 2 (PRC2), alters histone 3 lysine 27 (H3K27) modification. The components of PRC2, especially the enhancer of zeste homolog 2 (EZH2), was downregulated in ectopic endometriotic cells collected from patients with endometriosis compared to their eutopic counterparts. Treatment of eutopic endometrial stromal cells with hypoxia suppressed the expression EZH2. Since EZH2 catalyze the methylation of H3K27, we further observed that treatment with hypoxia or knockdown of EZH2 decreased tri-methylation of H3K27 levels. Bioinformatic analysis of a group of genes, which were regulated by EZH 2 and also upregulated in endometriotic patients, revealed that they mainly involved in development of blood vessel and anti-apoptosis. As a proof-of-concept, some downstream genes that were potentially regulated by EZH2 and upregulated in endometriotic patients, were chose to confirm the bioinformatics results. Taken together, our results demonstrate that hypoxia represses EZH2 and causes the epigenetic modification leading to distinct gene expression patterns in endometriosis.

O-23 Induction of pyruvate dehydrogenase 1 by hypoxia alters glucose metabolism in endometriotic stromal cells

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Endometriosis is common gynecological disease in reproductive-age women. It is defined as the growth of endometrial tissues outside the uterine cavity. Most ectopic lesions usually locate in pelvis, which associated with dysmenorrhea, dyspareunia, chronic pelvic pain and infertility. Since our previous study reveals that ectopic endometriotic stromal cells experience greater hypoxic stress than eutopic counterparts, we aim to investigate whether the metabolic property is affected. Here, we found the expression of pyruvate dehydrogenase kinase 1 (PDK1), a critical enzyme in regulating glucose metabolism, was increased in ectopic stromal cell. Next, we measured the difference of glucose metabolic properties between eutopic endometrial stromal cells and ectopic endometriotic stromal cells. The glucose uptake and lactate production were increased in ectopic endometriotic stromal cells, suggesting glucose metabolism is switched to glycolysis instead of mitochondrial phosphorylation. Treatment with dichloroacetate (DCA), a PDK inhibitor, decreased the lactate production of ectopic endometriotic stromal cells. Further study indicated that PDK1 is induced by hypoxia through transcriptional regulation in eutopic endometrial stromal cell. In addition, the lactate production of hypoxia-treated eutopic endometrial stromal cell was elevated, which can be repressed by the DCA treatment. These results indicated that hypoxia alters the metabolic properties of endometrial stromal cells likely though upregulation of PDK1 and ectopic stromal cells depend more on glycolysis to generate their energy source.

O-24 Eukaryotic translation initiation factor 3 subunit e is involved in the epithelial-mesenchymal transition in endometriosis

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Background and Aims: Epithelial-mesenchymal transition (EMT) is now well-documented to be involved in the development of endometriosis through the promotion of invasion and of fibrogenesis. So far a few genes or factors have been reported to promote EMT in endometriosis. The eIF 3e protein is a component of the multisubunit eIF3 complex essential for cap-dependent translation initiation. The aim of this study was to investigate whether eIF3e is involved in EMT in endometriosis.
Methods: Forty premenopausal women (34.7±6.8 years) with laparoscopically and histologically diagnosed ovarian endometriomas were recruited and their ectopic endometrial tissue samples were collected after informed consent. As controls, endometrial tissue samples were obtained after informed consent from 40 cycling, premenopausal women, age-(36.9±6.4 years) and menstrual phase-matched with ovarian endometriosis patients, who underwent surgery for benign gynecologic disorders or cervical intraepithelial neoplasia but without endometriosis, adenomyosis, or uterine fibroids. All tissue samples were subjected to immunohistochemistry analysis of eIF3e, TGF-β1, Snail, E-cadherin, vimentin, and PCNA.
Results: The epithelial component of ectopic endometrium showed significantly reduced immunoreactivity against eIF3e and E-cadherin but elevated immunoreactivity against TGF-β1, Snail, vimentin, and PCNA as compared with that of control endometrium (all p-values <0.05), and the difference was not affected by age, parity or menstrual phase. The eIF3e staining levels correlated negatively with that of TGF-β1 and of Snail (both p-values <0.05).
Conclusion: Decreased eIF3e expression may work with TGF-β1 and induce EMT in endometriosis. Future work will validate its role in promoting EMT by molecular studies.

O-25 Is eIF3e involved in epithelial-mesenchymal transition in adenomyosis?

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Background and Aims: Epithelial-mesenchymal transition (EMT) has been reported to be involved in adenomyosis likely through the promotion of invasion and of fibrogenesis. So far a few genes or factors have been reported to promote EMT in adenomyosis. The eIF3e protein is a component of the multisubunit eIF3 complex essential for cap-dependent translation initiation. The aim of this study was to investigate whether eIF3e is involved in EMT in adenomyosis.
Methods: Ectopic endometrial tissue samples were collected after informed consent from 31 premenopausal women (45.7±3.2 years) with ultrasonographically diagnosed and histologically confirmed adenomyosis. As controls, endometrial tissue samples were obtained after informed consent from 31 cycling, premenopausal women, age-(41.4±4.4 years) and menstrual phase-matched with ovarian adenomyosis patients, who underwent surgery for benign gynecologic disorders or cervical intraepithelial neoplasia but without endometriosis, adenomyosis, or uterine fibroids. All tissue samples were subjected to immunohistochemistry analysis of eIF3e, TGF-β1, Snail, E-cadherin, vimentin, and PCNA.
Results: The epithelial component of ectopic endometrium showed significantly reduced immunoreactivity against eIF3e and E-cadherin but elevated immunoreactivity against TGF-β1, Snail, vimentin, and PCNA as compared with that of control endometrium (all p-values <0.05), and the difference was not affected by age, parity or menstrual phase. The eIF3e staining levels correlated negatively with that of TGF-β1 and of Snail (both p-values <0.05).
Conclusion: Decreased eIF3e expression may mediate EMT in the development of adenomyosis through activation of the TGF-β1 signaling pathway. Future molecular studies will be conducted to validate its role in promoting EMT.

O-26 The relationship between uterine volume and treatment failure with levonorgestrel-releasing intrauterine devices in patients with adenomyosis

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Objective. This study is to evaluate the relationship between the uterine volume and the failure of levonorgestrel-releasing intrauterine device (LNG-IUD) in patients with adenomyosis.
Methods. A total of 171 women with adenomysis were treated with LNG-IUD from November 2009 to December 2011. The amount of menorrhagia, degree of dysmenorrhea, and the uterine volume were compared before and after insertion of LNG-IUD, and the treatment failure of LNG-IUD were observed.
Results. The mean age of the participants was 42.5 years (range, 29-53 years). The mean uterine volume was 158 mL (range, 46-769 mL). Among the total participants, 37 (21.6%) discontinued the treatment prematurely. There were no different characteristics between the ongoing treatment group and treatment failure group with LNG-IUD. However, there was significant difference of uterine volume between two groups (178 mL±14 and 141 mL±7, P=0.010). Based on the receiver operator characteristic analysis, the optimum cutoff value of uterine volume more than 150mL was significantly associated with failure of LNG-IUD (area under curve: 0.763, 95% CI: 0.669-0.856). In univariate analysis, the uterine volume more than 150mL was the only independent factor for the failure of LNG-IUD (odds ratio 6.76, 95% CI: 1.20-38.02, P=0.030).
Conclusion. The rate of treatment failure after LNG-IUD insertion for the patients with adenomyosis was related to the uterine volume. Specifically, the treatment failure rate of large volume uterus (>150 mL) with LNG-IUD was significantly higher than that of small volume uterus.
Key words; Adenomyosis; Levonorgestrel-releasing intrauterine device; Uterine volume

O-27 Evaluation of effect of Dienogest and LNG-IUS over 5 years on adenomyosis

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Background
Adenomyosis is a common disorder presenting with hypermenorrhea. However, the long-term clinical course and effect of continuous progesterone-only therapy on adenomyosis are unknown. We report the results of a 5-year clinical course evaluation.
Methods
A total of 313 women (37.8±4.2 years old) with hypermenorrhea or dysmenorrhea due to adenomyosis were enrolled between June 2009 and March 2011. Diagnosis was based on MRI. VAS, estradiol, and the blood hemoglobin level were measured regularly, and follicle development was evaluated with transvaginal ultrasound every 3 months. Pelvic MRI and bone mineral density measurement were performed annually. The uterine volume was evaluated with ZIO station 2 PLUS, volumetric analysis software.
Results
Evaluation was completed in 90 out of 96 and 136 out of 217 in LNG-IUS and Dienogest groups, respectively. In the LNG-IUS group, the study was discontinued in 14 patients (14.6%) due to expulsion, and 55 patients (25.3%) due to poor hemostasis. In both groups, a significant decrease in VAS and significant increase in hemoglobin were observed ($p<0.001$). No significant decrease in estradiol was noted in either group, and follicle development was observed in 49.0 and 47.8% of the LNG-IUS and Dienogest groups, respectively. The change rate of the uterine myometrial volume was 106.8 and 89.1% in the LNG-IUS and Dienogest groups, respectively, showing a significant decrease in the latter.
Conclusion
LNG-IUS and Dienogest decreased the aggravation of adenomyosis for 5 years. Follicle development was observed in about 50% of both groups, with no marked decrease in estradiol.

O-28 The minera is alternative treatment on adenomyosis—two years experience in one medical center of China

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Aim: to evaluate the effect of the Minera on the adenomyosis.
Material and methods: 132 cases of adenmyosis treated with Minera in Women's hospital School of Medicine Zhejiang University from February 1,2014 to May 31, 2014 were enrolled for analysised.
Result: 34 cases were managed with MInera followed with GnRHa therapy (group 1)and the other 98 cases inserted with Minera directly(group 2). Of 29 cases, the IUD was dropped off in the first year and 10 cases in the second year. Among them, 6 cases of group 2 occurred in the first month and 2 cases in the first menstruation after GnRHa therapy. The patients in two group had similar results of pain control, uterine volumn change and menstrual bleeding model. Serum CA125 is slight lower in group 1 than in group 2 after 1 year. 82% patients was agree with the Minera therapy and 40% of them had chief complaint of spot bleeding.
Conclusion: the Minera is effective on adenomyosis although the spot bleeding is complaint in 1/3 patients.

O-29 Drug therapy in adenomyosis: a prospective, non-randomized, parallel controlled study

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Objective: To catch new ideas for clinical treatment of adenomyosis after efficacy and side effects of different drugs through a prospective, non-randomized, parallel controlled study.
Study design: After obtaining approval from the in-hospital ethics committee, six groups were enrolled: group 1, following-up after treatment by regular dose (3.75mg) of leuprorelin acetate; group 2, following-up after treatment by half dose (1.88mg) leuprorelin acetate; group 3, simple implantation of Mirena; group 4, implantation of Mirena after 3.75mg leuprorelin acetate; group 5, implantation of Mirena after 1.88mg leuprorelin acetate; group 6, take San-Jie-Zhen-Tong-Jiao-Nang alone. A follow-up of patients' uterine volume, pain, CA-125 level, ovary function, side effects and Mirena's exfoliation were taken as well as history collected.
Result: No statistical differences of patients' age, weight, BMI index were found among 6 groups. Similar with 3.75mg leuprorelin acetate, 1.88mg leuprorelin acetate could reduce uterine volume and VAS score. While half dose of leuprorelin acetate had less incidence of hot flashes (P=0.029) and sweating (P=0.004). One years' exfoliation rate of Mirena and incidence of abnormal virginal bleeding in group 3 (10% and 32.5% respectively) was higher than group 4 and group 5 (3.33% and 11.67% respectively). Costs in group 1 and group 4 were significantly higher than in group 2 and 5(P<0.01 and P<0.05).
Conclusion: 1.88mg leuprorelin acetate had similar efficacy with and lower incidence of side effect and lower costs than 3.75 mg leuprorelin acetate. The combination of GnRH-a and Mirena could reduce slip and enhance curative effect.

O-30 Conservative surgical treatment for adenomyosis

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Since March 20, 2002, we have performed conservative surgical treatment for 1444 women with uterine adenomyosis (focal, n=1083; diffuse, n=361) who were diagnosed based on MRI findings. Our surgical procedures consist of 2 different methods. For focal type adenomyosis, excision of the lesion including surface serosa using a high-frequency cutter equipped with a round type of loop electrode, after which the muscle layer is reconstructed by suturing (Type I method). For diffuse type, after longitudinal and asymmetrical dissection of the uterus with a high-frequency electrical surgical knife, and preservation of the uterine cavity, and the adenomyosis lesion is excised from the incision area site using loop electrode of a high-frequency cutter, after which the uterus is rejoined (Type II method).
Median operative time was 141 minutes (43-651 minutes), median blood loss was 313 g (1-5596 g), and median resected lesion weight was 108 g (2.8-1595 g). Thirty patients received a blood transfusion. No major complications or sequelae were observed. After surgery, mean visual analogue score for dysmenorrhea decreased from 9.1 to 1.8 and heavy menstrual bleeding was improved in all patients. Two hundred and fifty-five pregnancies occurred in 206 patients after the operation (focal type, n=167; diffuse type, n=39). More than 100 healthy babies were successfully delivered. Of 1141 patients who underwent surgery more than 2 years prior, recurrence was seen in 110 (9.6%). The protocol of the present study received local institutional board approval.
Conservative surgery for uterine adenomyosis using a high-frequency resection device may be effective for both focal and diffuse types.

O-31 Will the uterus volume change after adenomyomectomy?~Examine the facts through the comparison between the normal group and the post adenomyomectomy group~

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Background & Objectives
Adenomyosis is a condition in which the endometrium breaks through the myometrium. By extracting the lesion, it is natural to believe that normal muscle of the uterus would decrease and therefore, the volume of the myometrium would decrease as well. In the process of developing the Uterus Preservation Method while performing adenomyomectomy as a standardized operational form, some detailed evaluations of the post operational uterus volume is critical.
Methods
In this retrospective study, two groups of uterus volume MRI (Magnetic Resonance Imaging) data were compared. One group (n=11) was obtained from those who have undergone adenomyomectomy between 2013 and 2015 at our hospital and the data were obtained 3 to 6 months after the surgeries. The other group (n =21) represented the normal uterus volume data. In MRI, the tri-axial (x, y and z) ellipsoid shape was used to represent the uterus and the semi-axes of this three-dimensional axis (a, b and c) were measured to calculate the volume of uterus. The equation for calculating the volume of this ellipsoid is as follows:$V \fallingdotseq \pi 4abc/3$
Results
There was no significant difference in uterus volume between the group following the adenomyomectomy and the normal group.
Conclusions
It is suggested that the volume of the uterus of the patients who have experienced adenomyomectomy does not necessarily decrease. This fact introduces the possibility for the myometrium to possess some ability to restore and regenerate on its own although we still have to examine the cause and effect of perinatal complications.

O-32 Hysteroscopic resection of myometrial adenomyosis: A two-year follow-up study

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Study objective: To explore the efficacy and safety of hysteroscopic resection of myometrial adenomyosis.
Design: A case series study.
Setting: Gynecology department of an university medical center.
Patients: From January 2013 to February 2016, 51 patients with symptomatic adenomyosis who had indication of surgical intervention and were willing to preserve the uterus without further desire of fertility.
Intervention: Hysteroscopic resection of myometrial adenomyosis were introduced. Patients were followed up during 24 months after operation at 3-months interval to estimate the relief of dysmenorrhea and menorrhagia by visual analogue scale score. Satisfaction with the surgery and the improvement in symptoms were primary outcomes.
Measurements and Main Results: All patients were successfully treated by the operation. Among the 51 patients, 31 of them completed the two years follow-up.. The mean age is 40.5±5.1(31-50) years, and the mean surgical time is 35.7±20.1(19-79) minutes. The mean volume of blood loss during surgery is 24.2±18.5(15-56) mL, and the postoperative fever morbidity was 3.23%(1/31). No event complicated the intraoperative and the postoperative course of these cases, and no case was converted to laparotomy or laparoscopy. 30 patients were treated by 1-step resection and 1 patient by 2-step resection. All patients gained clinical remission of menorrhagia($P<0.001$) and dysmenorrhea($P=0.001$) from baseline after the surgery. The recurrence rate of menorrhagia and dysmenorrhea was 16.1%(5/31) and 25.8%(8/31), respectively, during 24 months after surgery. Hysterectomy was performed in 1 patient because of recurrence of menorrhagia at 20 months after surgery.
Conclusion: Hysteroscopic resection of myometrial adenomyotic lesions appears to be effective and safe treatment for adenomyosis.

O-33 Conservative surgical management for young women with large diffuse adenomyosis

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Background: Adenomyosis most commonly occurs in women of reproductive age and major symptoms include dysmenorrhea, menorrhagia and infertility. For large diffuse adenomyosis the standard treatment is hysterectomy. However, with the young patients increasing, to preserve uterus has become a challenging issue. In the present study, we evaluated the efficacy of our conservative treatment modality, a novel adenomyomectomy and hysteroplasty, followed by GnRH-a injection and Mirena® use (levonorgestrel-releasing intrauterine system) for young women who wish to avoid hysterectomy. **Subjects & Methods:** Forty adenomyosis patients (31-42 years) with uterine volumes greater in size than 12 weeks' gestation were included. Adenomyomectomy and hysteroplasty was performed. Then GnRH-a was administrated at an interval of 28 days for 4-6 cycles followed by placement of Mirena® to prevent recurrence. Follow-up was done to record the clinical values including pain degree by visual analogue scale (VAS), Ca-125 level, menstrual flow and health-related quality of life (HRQOL). **Results:** The average operative time was 85 min (60-130 min) and blood loss was 95 mL (55-140 mL). The follow-up period was 32.4 months (12-73 months). Pain VAS score and Ca-125 level were significantly reduced after surgery. Anemia and HRQOL were improved in all patients. Only 2 patients reported mild pelvic discomforts 2 years later. **Conclusion:** Adenomyomectomy and hysteroplasty is an effective surgery for relieving dysmenorrhea and menorrhagia. The postoperative GnRH-a along with Mirena® treatment further maintained the clinical effects and prevent recurrence. Our conservative treatment modality may become an alternative to manage large diffuse adenomyosis for women who wish to preserve uterus.

O-34 Clinical outcome of severe adenomyosis with or without endometriosis

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Background and aims: High prevalence of adenomyosis has been reported in women with endometriosis. The aim of the study is to evaluate impact of endometriosis on clinical outcome in patients with severe adenomyosis. Methods: A retrospective cohort study of 210 women undergoing either adenomyomectomy (48 cases) or hysterectomy(162 cases) for adenomyosis was conducted in a affiliated hospital of university. Demographic data, prevalence of endometriosis, characteristics of pelvic pain and abnormal uterine bleeding was reviewed according the presence and subtypes of endometriosis. Results: Of the 210 women, 197 (93.81%) were confirmed to have concurrent endometriosis, with deep infiltrating endometriosis (DIE) in 33 women (15.71%) (group 1) and other subtypes of endometriosis in 164 women (78.95%) (group 2). Only 13 women (6.19%) presented adenomyosis alone (group 3). Chronic pelvic pain and dyschezia was present more in group 1 than other groups ($P<0.0001$, $P<0.0001$). Women in group 1 and group 3 were more likely to undergo hysterectomy,while women in group 2 were more likely to undergo adenomyomectomy ($P<0.01$). More advanced stage of endometriosis was found in group 1 ($P<0.0001$). There was no significant difference between three groups regarding presence of duration of pain, presence of dysmenorrhea, dyspareunia and abnormal uterine bleeding. Conclusion(s): Our study confirmed a 93.81% of prevalence of endometriosis in patients affected by severe adenomyosis. Chronic pelvic pain and dyschezia maybe indicat the presence of DIE for women with severe adenomyosis and hysterectomy should be the first choice for these patients if possible.

O-35 Altered expression of NGF, PGP9.5, S100 and VEGF at the endometrial-myometrial interface of uterus in women with adenomyosis

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Introduction
Although abnormality of the endometrial myometrial interface (EMI) of the uterus plays a key role in the pathogenesis of adenomyosis, yet, few studies on the abnormal innervation and angiogenesis in the EMI have been reported. The objective of this study was to determine the expression of protein gene product 9.5 (PGP9.5), nerve growth factor (NGF), S100 and vascular endothelial growth factor (VEGF) by immunohistochemical staining in the EMI.
Materials and Methods
The EMI samples obtained from women undergoing hysterectomy for adenomyosis (n=40) and uterine fibroids (n=20 were immunohistochemically stained to determine the expressions of PGP9.5, S100, NGF and VEGF in the EMI of the uterus. The severity of dysmenorrhea was evaluated by visual analogue scale (VAS).
Results
NGF was specifically expressed in ADS patients (AM with pain group: 4579.10±1787.40, AM with no pain group: 1764.40±146.71, control group: 35.30±14.94); PGP9.5 was specifically expressed in ADS patients (1799.15±255.80,&304.40±44.87&36.37±9.79). S100 was specifically expressed in ADS patients (2866.33±1270.47&446.62±131.82,& 43.34±10.38); VEGF was specifically expressed in ADS patients (3732.67±1030.31&417.67±83.18&45.14±5.79) There was significant difference in the PGP9.5, NGF, S100, VEGF expression in the EMI between the adenomyosis and the control group (P<0. 01),and also between adenomyosis reporting pain symptoms and no pain symptoms (P<0. 01).
Conclusion
These obtained results suggest that increased VEGF and NGF expressions and abnormal distribution of nerve fibers in the EMI of the uterus associated with dysmenorrhea in women with adenomyosis as compared with women without adenomyosis may imply a role in the pathogenesis of adenomyosis and disease-associated pain.

O-36 Clinical features and mechanism of pain in patients with adenomyosis

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Objective: To assess the relationship between laboratory examination and clinical manifestation and to explore possible pain mechanisms.
Study design: Adenomyosis patients with mild or none dysmenorrhea (n=40, Group 1) and moderate-to-severe dysmenorrhea (n=80, Group 2) were collected. Another 80 HSIL patients (Group3) were included for control. Charts of all patients were recorded. After obtaining approval from the in-hospital ethics committee, IHC analysis was employed to detect cellular levels of ER-α, ER-β, GnRH-R, NGF and NF in 50 cases.
Result: Compared with control, patients in Group 1 and 2 had larger uterine volume, higher CA-125 level and lower hemoglobin level; patients in Group 2 had higher platelet count (P<0.001) and higher rates of CS (P<0.05, OR 2.75). The level of ER-α in eutopic endometrium (EUE) from Group2 was higher than that in ectopic endometrium (ECE) from Group 1 (P<0.01), while level of ER-β in ECE from Group 2 was higher than EUE from Group 1 (P<0.001). The expression of ER-β in secretory endometrium was higher than that in proliferative counterpart (P<0.001); it also surpassed the level for EUE (P<0.001) and for ECE (P<0.05) in Group1. The expression of NF was higher in ECE than EUE in Group 2 (P<0.05).
Conclusion: History of CS is probably one risk factor for adenomyosis. The disease may be an inflammatory process, with increasing platelet level. Imbalances of ER-α and ER-β and in ECE may be related to the pathogenesis of dysmenorrhea. Higher NF level in ECE may be involved in pain mechanism of adenomosis.

O-37 Reproductive outcome in postoperative deep infiltrating endometriosis

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Background: To summarize and analyze clinical characteristics and reproductive outcome in postoperative deep infiltrating endometriosis (DIE). **Methods:** 40 patients of productive age diagnosed of DIE, undergone resection surgery and wished to conceive in our hospital from January 2009 to December 2014. Any plausible infertility factor was excluded. **Results:** Average patient age was 30.93±3.50, which was significantly younger in pregnancy group (PG) than in non-pregnancy group (NPG). Average follow up was 21.56±10.06 months. There were 23 pregnancies (57.5%) with 18 (78.3%) spontaneous pregnancy and 5 (21.7%) in-vitro fertilization (IVF).22 patients (95.65%) were term deliveries except one missed abortion. The interval between operation and pregnancy was 8.64±1.08 months. PG has higher EFI scores and lower rAFS-EMT scores than NPG significantly ($p<0.05$). In univariate analysis, lower EFI scores (EFI<8) was found to be a risk factor of infertility ($P=0.022$). There was no difference in number and size of lesion, lesion location, involvement (ovary/adenomyosis), residual, operation type and postoperative usage of GnRHa between two groups. Although not significant, the number and size of lesions were much higher in NPG than PG. **Conclusion:** The postoperative pregnancy rate of DIE is 57.5%. We encourage patients to conceive as soon as possible especially for elder patients with large and multiple lesions. The patients with lower EFI score (EFI<8) shouldn't be suggested long-term expectant treatment and postoperative IVF-ET may be a good choice. However, more cases should enroll and additional studies are required.
Our study has been approved by the ethics committee of gynecology and obstetrics hospital of Fudan University with ethical number 2016-06.

O-38 ElncRNA1, a long noncoding RNA induced by estrogen transcriptional regulation, promoting ovarian cancer cell proliferation and metastasis

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Background and aims We previously identified a new estrogen (E2)-induced long non-coding RNA (lncRNA) ElncRNA1 in ERα-positive epithelial ovarian cancer (EOC) cells using microarrays. In this study, we explored the mechanism by which E2 upregulate ElncRNA1 and the role of ElncRNA1 in E2-dependant EOC progression.
Methods A serial of assays were performed to determine whether E2 upregulation of ElncRNA1 is mediated through ERα-ERE pathway. In vitro and in vivo functional assays were performed to elucidate the role of ElncRNA1 in E2-dependant EOC progression.
Results E2 upregulation of ElncRNA1 was abrogated by ERα-inhibitor ICI 182, 780 and ERα-siRNAs. An estrogen response element (ERE) was predicted to be located in 59bp upstream region of the transcription start site of ElncRNA1. ChIP assay confirmed the enrichment of ERα-associated ElncRNA1 promoter fragments, which was enhanced by E2 treatment. Further, luciferase reporter assay revealed that ERα mimic significantly induced luciferase activity of ElncRNA1 promoter compared to controls, which was enhanced by E2 treatment; whereas mutations in the ERE sequences abrogated this effects. These findings suggest that E2 upregulation of ElncRNA1 is mediated through ERα-ERE pathway. Moreover, in vitro and in vivo functional assays revealed that ElncRNA1 knockdown impaired E2-dependant EOC cell proliferation and metastasis.
Conclusion E2 upregulation of ElncRNA1 is transcriptionally mediated through ERα-ERE pathway. ElncRNA1 contributes to E2-dependant EOC cell proliferation and metastasis. These results may shed a new insight into estrogenic effect on EOC progression by providing a perspective of lncRNA.

O-39 Dienogest down-regulates glandular progesterone receptors in ovarian endometriomas and vaginal polypoid endometriosis.

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OBJECTIVE:
Dienogest (DNG), a specific progesterone receptor (PR) agonist, is often used in the treatment of endometriosis, and has been reported to exert direct effects on endometriotic cells in vitro. However, PR expression levels are relatively low in ovarian endometriomas, and it has not been elucidated if the DNG effects are directly exerted on endometriomas through PR in vivo. We recently had a chance to treat a patient with vaginal polypoid endometriosis by DNG (2mg/day, orally) and observed that DNG thoroughly down-regulated glandular PR expressions in the endometriotic lesions. In this study, we examined if DNG down-regulates PR expressions in endometriomas similarly as vaginal polypoid endometriosis.
METHODS:
A retrospective control study of 5 and 10 surgically-treated patients with ovarian endometriomas pretreated and not-pretreated with DNG (2mg/day, orally at least for a month), respectively. Immunohistochemical investigations of PR expression in the endometriomas were performed.
Written informed contents from all the patients were prepared before the surgeries.
RESULTS:
We observed PR expression in both epithelial and stromal cells in all the endometriomas not-pretreated with DNG. Interestingly, DNG pretreatment thoroughly down-regulated glandular PR expression, but just slightly down-regulated stromal PR expression in almost all the patients.
CONCLUSION:
These results suggested that DNG down-regulates glandular PRs in endometriomas like vaginal polypoid endometriosis. Down-regulation of glandular PR expressions in the endometriotic lesions might be important in direct DNG effects on endometriosis.

O-40 Medication beyond hormone

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Endometriosis is an estrogen dependent disease also, a chronic inflammatory proliferative disease. Medication based on the former ways were GnRH, OC-LEP and the progesterone compounds, which expected anti-estrogen effect. On the other hand, the development of drugs based on the control against chronic inflammation were under way, and actual clinical application has not been manifested. Endometriosis is histologically defined as the presence of endometrial-like glands and stromal lesions outside of the uterus. Furthermore, we have focused on the fibrotic areas outside of the stromal lesion, interstitium. The remodeling such as smooth muscle metaplasia and innervation in this lesion has an essential role for the progression of endometriosis. We tried to conduct some modification to treat endometriosis against a chronic inflammation. Some therapeutic effect and a possibility of novel medication could be expected in a clinical trial and several animal experiments. Those immunological modification and eicosanoid related agents include, Tacrolims, Imatinib, Anti-osteopontin antibody, Montelukast (anti-leukotrien receptor antagonist) and EPA (Eicosapentaenoic acid). We performed a prospective randomized placebo-controlled study with Montelukast. It might be effective in alleviating pain associated with dysmenorrhea. Montelukast is safe and does not influence hormonal levels. Such agents with a clinically reasonable management should be as medication beyond hormone. Perspectives for developing possibilities include mRNA, peptides, and antibodies, etc. Both Safety and efficacy are essential to be evaluated. Furthermore, compliance for application and improvement of fertility should be considered.

O-41 Role of oral contraceptives in preventing progression of endometriotic lesions

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Aims: To analyze the effect of oral contraceptives on lesions in patients with endometriosis.
Methods: We designed *Dysmenorrhea and chronic pelvic pain questionnaire*. Patients with endometriosis who went to the gynaecology department of Peking University Third Hospital were included. According to their own willingness, patients were divided into research group and control group. Research group periodically took OC, while the control group received no treatment. They all filled in the questionnaire and followed-up every six months, total follow-up time were one and a half year.
Results: In the research group, the cyst size of both six months and one year after taking oral contraceptives had no obvious change (3.0 v.s. 3.2 v.s. 3.0 cm). For patients who took oral contraceptives for one year, cyst size after taking six months and one year showed no difference. While in the control group, cyst size grew obviously (4.0 v.s. 4.7 v.s. 6.1 cm).
The cyst size of most of the patients in research group had no obvious change (51.8%), some even smaller (24.1%), while the cyst size of most of the patients in control group went bigger (52.8%). The decreasing rate of patients who had cyst only was high (30.4%), while was low (0.0%) in those with adenomyosis.
Conclusions: Long-term use of oral contraceptives can make the cyst smaller. Time of taking medicine is not related to cyst decrease. Cyst decrease rate of patients with cysts only are high, while the patients with adenomyosis was low.

O-42 Evaluation of the therapeutic effects of ultrasound intervention with injection of methotrexate on the recurrent endometriosis

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Backgrounds Endometriosis is the presence of endometrial tissue with glands and stroma outside the uterus.Surgical excison is associated with a considerable burden of recurrences,with reported recurrence rates after surgery between 6% and 67%. Ultrasound intervention with injection of methotrexate might surpress fluid production by the cyst wall and prevent recurrence.
Aims To evaluate the therapeutic effects of ultrasound intervention with injection of methotrexate on the recurrent endometriosis.
Methods From February 2003 to March 2015, totally 23 patients with recurrent endometriosis were included in the study. Under ultrasonographic guidance, puncture aspiration of encapsulated hydrops, the lumen of cysts were rinsed by normal saline or metronidazole and then injected with methotrexate solution. The cyst size, recurrence rate and complications during follow up were evaluated.
Results 21 cases in 23 patients successed in puncture, 2 cases choosed surgery for aggravating abdominal pain after puncture and 3 patients were lost to follow-up. In 21 successful cases, the cysts of 15 cases were disappeared, 3 cases underwent unilateral adnexectomy for enlarging cysts after 2, 3.5 and 6 years, in 3 cases the lesions diameter was <4cm by ultrasound in follow-uo.3 latients with successful puncture had fertility requirement, 2 of them were naturally conceived and delivered safely.Among them,1 case underwent ovarian cyst excision after childbirth for enlarging cyst.1 patient underwent IVF twice but without pregnancy.
Conclusions For recurrent edometriosis, ultrasound-guided aspiration and injection with methotrexate is an effective,safe and treatment to relieve patients' pain.

O-43 Control of pain with endometriosis using Tranilast

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Objective
The most commonly proposed mechanisms for pain production in endometriosis are: 1) production of substances such as cytokines and growth factors released from activated macrophages and other cells; 2) direct and indirect effects of active bleeding from endometriotic implants; and 3) irritation or direct invasion of pelvic floor nerves induced by infiltrating endometriotic implants with the mechanism of 'epithelial to mesenchymal transition' (EMT). The use of Tranilast, an antiallergic drug, was approved in 1982 in Japan and Korea for treatment of bronchial asthma. It is a relatively safe drug that is well tolerated by most patients at doses of up to 600 mg/day. It reduces collagen synthesis in fibroblasts, inhibits growth of neurofibroma cells, and produces interleukin-6 in endothelial cells that processes EMT in vitro. In this preliminary clinical trial, we evaluated the efficiency of Tranilast that was given to 9 patients of endometriosis with pelvic pain.
Materials and Methods
This study was carried out with the approval from IRB of Kumamoto University. Tranilast was administered to patients with adenomyosis or endometriosis complaining of pelvic pain at a dose of 300mg/day for six months. The patients continued to record the degree of pain every day in the Numerical Rating Scale (NRS), which is based on a scale from 0 to 10; 0 represents no pain and 10 represents the worst possible pain.
Results
The average NRS score of low back pain or lower abdominal pain during menstruation period decreased from 6.25 to 3.63 at the end of the administration. One of eight patients showed a decrease in score of 70% or more (markedly improved). Four patients showed a 69-50% score reduction rate. In addition, three patients who were suffering with severe pain no longer required bed rest.
Conclusion
Tranilast is considered a useful drug to relieve the symptoms of pelvic pain of endometriosis by mechanisms different from the drug to control the ovarian endocrinological function.

O-44 The effects of GnRH-agonist treatment at the neovascularization of endometriosis

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BACKGROUND: The endometrium is one of the few tissues in the adult where physiological angiogenesis occurs. It is now well-accepted that an altered angiogenesis plays a key-role in the implantation and development of endometriotic lesions.
AIM: To evaluate the effects of a common treatment of endometriosis (GnRH-a) on angiogenetic factors in endometriotic tissues.
PATIENTS & METHODS: Thirty women with endometriosis allocated randomly in two groups. Group A comprised by women who received GnRH-a treatment for three months before operation and group B from women who didn't receive this treatment. Endometriotic samples were collected by all women and the expression of VEGF, TF, PAR-2, and Sp1 were examined by real time-PCR and Western Blotting analysis. This study follows Helsinki declaration and all women gave an informed consent.
RESULTS: Treatment with GnRH-a for three months significantly reduced the expression of mRNA and protein levels of VEGF, TF, and PAR-2 ($p<0.05$). Sp1 diminished activity found in women of Group A might suggest a regulatory mechanism for TF and PAR-2 expression in endometriotic tissues.
CONCLUSION: GnRH-a treatment has a negative impact on angiogenic factors expression in endometriotic tissues.

O-45 Endometriosis-derived thromboxane A2 Is a neurotrophic factor in endometriosis

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BACKGROUND AND AIMS: Pains of various kinds top the list of complaints from women with endometriosis, but their mechanisms are poorly understood. While hyperinnervation is now well established in endometriosis, so far the search for neurotrophic factors (NTFs) that drive hyperinnervation has only rounded up nerve growth factor (NGF) and possibly neurotropin-3 (NT-3). We recently reported that endometriotic stromal cells secrete thromboxane A_2 (TXA_2) and that platelets, which also release copious TXA_2 when activated, play important roles in the development of endometriosis. The aim of this study was to investigate whether TXA_2 is also an NTF.
METHODS: Primary neuronal cells were isolated from rat dorsal root ganglia (DRG), and treated with the TXA_2 mimetic U-46619. To determine whether endometriosis-derived TXA_2 is an NTF, the primary neurons were co-cultured with the primary ectopic endometrial stromal cells (EESCs), pretreated with or without Ozagrel, a selective TXA_2 synthase inhibitor.
RESULTS: U-46619 treatment increased the neurite outgrowth in primary neuronal cells in a concentration-dependent fashion ($p<0.001$). U-46619 treatment not only increased the length of neuronal cells but also the number of neurite ends. Ozagrel treatment had no effect on the neurite growth, but the treatment primary neuronal cells with the EESC supernatant increased the neurite outgrowth by nearly 3 folds as compared with the control ($p<0.01$). Pretreatment with Ozagrel abolished the stimulatory effect of the EESC by 31.3% ($p<0.05$).
CONCLUSIONS: These findings indicate that EESCs potently induce neurite outgrowth in DRG-derived neuronal cells, and endometriosis-derived as well as platelet-derived TXA_2 is an NTF.

O-46 Prorenin/renin-angiotensin system in local endometriosis lesions

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【Introduction】 The rennin-angiotensin system is activation cascade that plays a key role in the regulation of blood pressure and on the hydro-electrolytic balance. In human endometrium, receptors of the AT1/AT2 types have been detected. Binding of prorenin (REN) to ATP6AP2 activates it and catalyses the formation of angiotensin I from angiotensinogen. Angiotensin (Ang)-(1-7) is one of the major active component of RAS, produced by cleavage of Ang II by angiotensin-converting-enzyme type 2 (ACE2). Ang-(1-7) acts through binding to MAS1. We investigated into the prorenin/renin-angiotensin system in the local lesions of endometriosis.
【Methods of study】 Endometriosis samples were obtained from patients with endometriotic cyst. Endometrial tissues were obtained from patients undergoing operations for benign gynecological conditions. Informed consents were obtained from all the patients participating in this study. The expression of MAS1, REN, AT1, and AT2 receptors mRNA was examined by RT using total RNA extracted from frozen samples. Quantitative real-time PCR were performed.
【Results】 Expressions of AT1/AT2 receptors, REN and MAS1 mRNA were detected in all samples. The AT1/AT2 ratio in endometriotic cysts was significantly increased compared with that in the eutopic endometrium in the proliferative-phase in controls. Higher REN and MAS1 mRNA expressions were observed in endometriotic lesion. There was a relationship between expression of MAS1 and AT1 receptor mRNA in endometriosis samples.
【Conclusion】 The expressions of AT1/AT2 receptors, REN and MAS1mRNA of endometriosis samples indicate that prorenin/renin-angiotensin system may have an important role in the pathogenesis of endometriosis.

O-47 FGL2 is involved in the pathogenesis of endometriosis by promoting proliferation and invasion of endometrial stromal cells and inducing Th2/M2 macrophage polarization

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Background and aims: Endometriosis patients appear to have an increased number and activity of Treg in peritoneal fluid. However, the molecular mechanisms that Treg involved in endometriosis are still not fully understood. Fibrinogen-like protein 2 (FGL2) has been recently identified as a novel effector molecule of Treg and plays a pivotal role in regulating immune responses. In this study, we aim to investigate the role of FGL2 in endometriosis.
Methods: The expression of FGL2 and CD32B were analyzed by immunohistochemistry. The concentration of FGL2 were detected using ELISA assay. BrdU was performed to analyze cells proliferation. Transwell assay was used to show the invasion ability. The interesting mRNA and proteins expression were determined using qRT-PCR and western blot. Flow cytometry was performed to investigate the expression of intracellular cytokines and surface molecules.
Results: The levels of FGL2 increased in the peritoneal fluid of women with endometriosis compared with control. The eutopic endometrium and ectopic tissues had higher expression of FGL2 and CD32B than that in normal endometrium. FGL2 promoted ESCs proliferation and invasion by activating ERK, P38 signal pathways. FGL2 secreted by Treg which was enhanced by pro-inflammation cytokines contributed to Treg-mediated immune suppression and selectively induced Th2/M2 macrophage polarization.
Conclusions: Collectively, these results showed that FGL2 produced by Treg cells involved in the pathogenesis of endometriosis by promoting ESCs proliferation and invasion and skewing Th2/M2 macrophage polarization.
Ethical approval: This study was approved by the Ethics Committees of Obstetrics and Gynecology Hospital of Fudan University.

O-48 Adolescent dysmenorrhoea and outcomes at 10-15 years followup

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Aims: A descriptive cohort study including 10-15year followup, of adolescents with dysmenorrhea.
Methods: Data regarding menarche, menstrual pattern, pain, associated features and surgical interventions was extracted on a retrospective cohort (154 adolescents) with dysmenorrheoa attending a tertiary service (1997-2004). Followup (10-15 years later) of this cohort (aged 25-30years) utilized questionnaires regarding current pain, fertility, and any surgery undertaken. Relevant operation notes were examined. Ethics approval for the study
Results: In the retrospective review, adolescents (mean age 15.7yrs) had a mean duration of pain prior to presentation of 14.9 months. Adolescents self-reporting heavy menses had less pain on the day *prior to* menses than those without heavy menses ($p=0.004$). There was a significant correlation between nausea, vomiting ($p<0.002$), diarrhoea ($p<0.02$), headaches ($p<0.005$) and tiredness ($p<0.008$). The laparoscopy rate was 8%, with normal findings in 66%. 92% were satisfied with care/resolution of pain.
On longterm followup 50% could be traced, with no identifiable differences between those lost to followup and those found. Of young women found (mean age 26yo), 95% participated. With regard to current menses: 25% had no/minimal pain, 57% some dysmenorrhea and 15% had significant pain (7-10days/month). In the followup cohort, 26/70 had had a laparoscopy; 13/26 were diagnosed with minimal/mild endometriosis. Fertility rates in the followup cohort were equal to state-matched data.
Conclusions: For adolescents with significant dysmenorhoea, a very low laparoscopy rate and abnormal findings and high resolution of symptoms was found. On longterm followup, no cases of significant endometriosis were found despite 75% experiencing some ongoing dysmenorrhoea.

O-49 Reproductive outcome is favorable after laparoscopic resection of bladder endometriosis

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Bladder endometriosis is a rare form of endometriosis . The fertility outcome after surgial treatment is still unclear. The aim of our study was to evaluate retrospectively the reproductive outcome in women who underwent laparoscopic resection of bladder endometriosis.

SETTING:

A tertiary referral center .

PATIENTS:

From 2006 to 2009 , 69 consecutive women with symptomatic pelvic endometriosis underwent laparoscopic resection of bladder endometriosis.

INTERVENTIONS:

21 patients had full-thickness endometriotic invasion of the bladder and underwent laparoscopic partial cystectomy. While 48 patients had partial endometriotic bladder penetration and underwent partial-thickness excision of the detrusor muscle. Most patients (over 70%) had additional, nonbladder endometriotic lesions, which were also removed during surgery.

MEASUREMENTS AND MAIN RESULTS:

The minimum follow-up after surgery was 36 months. Of the 42 patients who wished to conceive, 35 patients (83.3%) conceived: 16 patients spontaneously and 18 patients after IVF treatment. No difference was observed in fertility outcome between « partial cystectomy »and « partial-thickness excision of the detrusor muscle ».

CONCLUSION:

Pregnancy rates after laparoscopic surgery for bladder endometriosis are favorable for spontaneous pregnancy and conception after IVF treatment. Urinary symptoms were improved for the majority of patients.

O-50 The role of ears and hearing in reproduction: facts and fiction

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A connotation on the role of hearing in reproduction can be found in Christian religious believe of divine conception of the Virgin Mary by "Word of God".
Hence, not surprisingly, in the medieval Western Europe, the women's ears were considered the private parts and uncovered ears were socially unacceptable.
However, the contribution of hearing to reproduction is not only a fiction or religious believe. Modern days' scientific knowledge and technology have provided an insight that the ears and hearing indeed may play a role in reproduction of animals and human species.
The oestrogen receptors are present in the organ of hearing in the inner ear and at different levels of the central nervous system. Together with the steroid receptors, they provide a physiological basis for direct and indirect effects of oestrogen and progesterone on the auditory system through a complex neuro-endocrine network.
Our research data suggest that hearing sensitivity is modulated by the reproductive hormones, with the best hearing acuity around the time of ovulation. This is consistent with an excitatory effect of oestrogen on the auditory system and it may imply that the auditory function is modulated as a part of the auditory adaptation, to enhance the process of reproduction.

O-51 Juvenile cystic adenomyosis: Should this be known as "Accessory uterine cavity" as evidence suggests it is a Müllerian anomaly?

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Aims: To describe 18 cases from Australia of young women with accessory uterine cavities[AUC] (otherwise known as juvenile cystic adenomyosis[JCA]) and combine the data with all previously documented cases form the world literature.
Methods: All cases that have been referred for opinion or been seen by the paediatric and adolescent gynaecology team at Royal Children's Hospital had clinical features noted. In particular the location of the lesion was noted in all cases. Consent from all patients was obtained.
Results: In all Australian cases the women were young and had a history of significant dysmenorrhea for some time. The masses were unilocular and located in the lateral aspect of the uterus below the round ligament, and had no communication with the uterine cavity. Of the 13 that have been resected, the unilocular cyst has been lined by endometrium and smooth muscle with no other significant adenomyosis present.
A literature review revealed 50 similar cases, variously named adenomyotic cysts, cystic adenomyomas, juvenile cystic adenomyomas, accessory uterine cavities, non-communicating uterine cavities, uterine like masses and accessory and cavitated uterine masses [ACUM]. Where detailed information was reported or could be found by direct communication with the authors, the location was confirmed to be the same as in the Australian series.
Conclusions: These findings suggest that the JCA are likely to be Müllerian anomalies and thus terminology should reflect this origin rather than a pathological origin.

O-52 A comparative study between ovarian carcinomas arising from and coexisiting with endometriosis

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Objectives: This study compares the clinicopathlogical characteristics and prognosis between patients diagnosed of epithelial ovarian carcinoma arising from endometriosis and just concomitantly present with endometriosis.
Methods: A retrospective review was performed involving patients between January 1995 and December 2014 at OB/GYN Hospital of Fudan University.
Results: There are 149 patients identified as endometriosis associated with ovarian cancer. Of these, 110 (73.8%) patients were diagnosed of ovarian carcinoma arising from endometriosis, while the other 39 (26.2%) patients were only concomitantly present with endometriosis. For the patients diagnosed with ovarian carcinoma arising from endometriosis, more patients were FIGO stage I (85.5% *vs.* 43.6%) (p <0.01) and clear cell carcinoma (70.9% *vs*.43.6%) (p<0.01). For the patients diagnosed with carcinoma coexisting with endometriosis, more patients were FIGO stage II(4.5% *vs.* 20.5%) (p <0.01) or III (9.1% *vs.* 33.1%) (p <0.05) and high-grade serous adenocarcinoma (0 *vs*. 33.3%) (p <0.01). The two groups had no significant difference in age, tumor size, gravidity, parity, the proportion of patients received cytoreductive surgery, chemotherapy regimen, cycles and chemosensitivity. After ruling out the confounding factors, cox regression analysis showed that there was no significant difference of 5-year overall survival and disease-free survival between the two groups.
Conclusions: We concluded that these two groups were heterogeneous in features such as FIGO stage and histological types. However, the prognosis of the two groups was not different.

O-53 Metabolic or molecular biological pathway interruption to eradicate endometriosis; win the battle but lose the war

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Aim: Overall evaluation of success rate in the diagnosis and treatment of endometriosis
Materials and Methods: A series of 124 patients in addition to a very long list of literature review were registered for time to diagnosis, time to first intervention, percent of cures with minimal intervention, mean number of operations and overall patients' compliance and satisfaction of the therapies. In addition the number of referrals (either by gynecologists or patients their selves) were registered.
Results: Most series were comparable with our patients. The mean time to diagnosis was 42months± 4 months. The time to first intervention was 8 months after suspected diagnosis; the time to first major intervention was 26 months. The cure rate with medical treatment or minimal intervention was 26-52% and the mean number of operations either laparoscopic or open surgeries were 3.6. Grading patients' satisfaction into 4 stages of excellent, good, fair and poor showed 18, 22, 30 and 30 percent respectively.
Conclusions: The failure to diagnose the disease early, the high recurrence rate, the low response rates and the inefficacy of the available treatments urges novel treatments with molecular biological backgrounds rather metabolic or endocrine managements including hormone deprivation. Though a benign disease, the above data are comparable to a moderately aggressive cancer but with a very protracted course and hence extraordinary suffering. As in most cancers it is now time to block specific molecular biological pathways such as RAS, RAF, WNT and EGF at different sites.

O-54 Study on periodic extension of GnRHa

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Gonadotrophin receptor hormone analogues (GnRHa) are commonly used in a range of sex hormone-dependent disorders, but they are expensive, have potential side effects. They are thought to result in down regulation of the pituitary and induce a hypogonadotrophic hypogonadal state, and all of the present GnRHa: nafarelin, leuprolide, buserelin, goserelin, triptorelin are suggested and clinically used every 4 weeks. The several clinical entities targeted for treatment with GnRHa such as symptomatic endometriosis, adenomyosis, uterine fibroids, ovarian hyperandrogenism, precociouspuberty, or breast cancer, are not "six-month diseases". So it is important to make sure that whether we can prolong the medication cycle. We find that at the 33rd day or even 35rd after the 6th GnRHa, the levels of FSH and LH are still below 5IU/L, and the level of E_2 is below 80pmol/L in 35years younger women. This foundation will initiate studies about periodic extension of GnRHa, which will enable wider application, reduce side effects and expenses, longer durations of treatment and an increase in compliance.

O-55 Transcriptome analysis of adenomyosis eutopic endometrium: a new insight into its pathophysiology

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Backgrounds: Eutopic endometrium of adenomyosis has been acknowledged to play an important role in the pathogenesis. Previously studies mostly were focus on the expression of some specific molecules in adenomyosis to understanding the pathogenesis of adenomyosis through transcriptome level.
Objective: Identify differentially expressed genes (DEGs) and molecular networks in eutopic endometrium of adenomyosis women, and provide new insight at transcriptome level relating to mechanisms.
Subjects and Methods: Samples of eutopic endometrium of women with adenomyosis (n=6) and in controls (n=6) were collected with ethical consent. Transcriptome sequencing was performed using Illumina Hiseq 2500. The DEGs were functional analyzed using Ingenuity Pathway Analysis (IPA) and were validated by quantitative PCR (qPCR) and Western blotting.
Results: 385 DEGs were identified in adenomyosis eutopic endometrium (|log2(fold change)|≥1; q-value≤0.05) when comparing to controls. Pathway analysis enriched the well-known pathways related to adenomyosis: IL-6 signaling pathway (p=5.5×10-6) and ERK/MAPK signaling pathway (p=2.34×10-5). Downstream analysis and upstream regulator analysis revealed the Cell proliferation (z-score=4.258;p=4.32×10-21) and Cell invasion (z-score=2.752; p=2.54×10-19) molecular networks were significantly activated, while the miR-155 was significantly inhibited (z-score=-2.572;p=2.55×10-4). qPCR data indicated the expression of miR-155 was negatively correlated with the DEGs in the Cell proliferation and Cell invasion molecular networks.
Conclusion: The study has identified 385 DEGs and provided transcriptome profiles of adenomyosis eutopic endometrium. Our results revealed key pathways and miRNA-related networks in eutopic endometrium of adenomyosis and may improve our understanding of the pathogenesis of this disease.

P-001 Prevalence of autoimmune diseases and cancers among families with endometriosis history

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Introduction: Endometriosis is a common and enigmatic disease. There are suggestions about genetic bases and co-occurrence of other diseases. We evaluated autoimmune diseases and cancers in patients and their relatives.
Material and Methods: We did a hospital based case-control study with 678 participants (386 cases and 292 controls). We assessed the association between family history of desired diseases (autoimmune inflammatory diseases, rheumatoid arthritis, diabetes mellitus, hypothyroidism, multiple sclerosis, ovarian cancer, breast cancer and epithelial cancer) and endometriosis by logistic regression.
Results: The results showed that endometriosis is associated with increased odds for endometriosis(OR=4.15, 95%CI: 1.35-6.95), thyroid diseases(OR 2.82, 95%CI 2.13-3.51), polycystic ovarian syndrome(PCOS) (OR=4.33, 95%CI: 1.53-7.13) and Rheumatoid arthritis(OR 3.58, 95%CI 1.95-5.22) in first-degree relatives but we did not find the same increased risk for ovarian cancer, breast cancer, multiple sclerosis, Diabetes mellitus, epithelial cancer and autoimmune diseases. A written informed consent was obtained from all of the cases before enrolling the study.
Conclusion: Endometriosis patients and their families frequently suffer from some autoimmune diseases such as hyperthyroidism and Rheumatoid Arthritis. Also there is a hereditary nature of disease. These data help us in future genetic studies and remind us to consider possible concomitant problem in endometriosis women and their families.

P-002 Identification and validation of novel serum markers for diagnosis of endometriosis: SOD1, CD34, E-cadherin, VCAM1 and GSTM4

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Background
Endometriosis is a common gynecological disorder that affects 10% to 15% of all women and 35% to 50% of women with pelvic pain and infertility. There will be no biomarker available except by invasiveness laparoscopy. The purpose of this study to discover and identify useful biomarkers for diagnosis and follow-up of endometriosis.
Methods
Sera and tissues were collected from both endometriosis and non-endometriosis patients during laparoscopic surgery. Western Blot assay, immunohistochemistry (IHC) analysis and ELISA were carried out to compare the protein expression levels of candidate genes. Student's t-test and Receiver Operating Characteristic (ROC) were used for statistical analysis.
Results
According to tissue cDNA microarray, several genes including E-cadherin, CD34, SOD1 and Glutathione S-transferase mu4 (GSTM4) were found to be up-regulated 3-fold higher in patients with endometriosis compared with the controls. Furthermore, serum SOD1 and CD34 were shown to be increased in women with endometriosis compared with non-endometriosis ($p<0.05$). By Western Blot assays, SOD1 and CD34 were down regulated and GSTM4 was found to be up-regulated following GnRHa treatment ($p<0.05$). ROC curve analyses revealed that four serum proteins (SOD 1, E-cadherin, CD34 and VCAM1) could be useful biomarkers for distinguishing endometriosis from non-endometriosis women (respectively AUC=0.90, AUC=0.82, AUC=0.73, AUC=0.81, $P<0.05$).
Conclusions
Increased serum SOD1 prevents tissue from oxidative damage induced by endometriosis. Adhesion (E-cadherin) and angiogenesis (CD34) activities are suppressed and GSTM4 detoxification ability enhanced in patients with endometriosis following GnRHa treatment. These results indicate that E-cadherin, CD34, SOD1 and GTSM4 may be potential biomarkers for detection and follow-up of endometriosis.

P-003 Increased ipsilateral uterine artery vascular resistance in women with ovarian endometrioma

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Introduction: Endometriosis may be associated with impaired vascular flow. The present study investigated changes in vascular flow on the ipsilateral side of the endometrioma and contralateral side in women with ovarian endometrioma before and after surgery. **Methods:** This prospective case-control study included 144 women (ovarian endometrioma [n=40], endometriosis without ovarian endometrioma [n=33], non-endometriotic ovarian cyst [n=17], and normal pelvis [n=54]). The uterine artery vascular resistance (UtA-VR) indices (pulsatility index [PI] and resistance index [RI]) were measured using transvaginal Doppler sonography, and UtA diameters were measured using magnetic resonance imaging. **Results:** The UtA PI and RI were significantly higher on the ipsilateral side of the endometrioma than on the contralateral unaffected side in the endometrioma group ($P<0.01$), as well as in the non-endometriosis ovarian cyst group ($P<0.05$) and normal pelvis group ($P<0.01$). The UtA PI and RI on the ipsilateral side of the endometrioma were significantly lower after cystectomy than before cystectomy ($P<0.01$). The UtA diameters were significantly larger ($P<0.01$) on the ipsilateral side of the endometrioma than on the contralateral side. **Conclusions:** The UtA-VR might be higher on the ipsilateral side of the endometrioma than on the contralateral unaffected side, indicating a risk of subclinical atherosclerosis in women with endometriosis.

P-004 Enlarged uterine corpus volume in women with endometriosis: assessment using three-dimensional reconstruction of pelvic magnetic resonance images

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【background and aims】 There has been little report on direct structural changes in the uteri of women with endometriosis. We assessed and compared the uterine volume and shape between women with and without endometriosis by using three-dimensional reconstruction of pelvic magnetic resonance imaging (MRI).
【methods】 In this case-control study, a total 75 nulligravid women with regular menstrual cycles aged 20-45 years who had been surgically proven to have no other uterine lesion were enrolled. This study was approved by IRB of our University. Endometriosis group underwent operations for endometrioma (n=39), whereas control group underwent operations for ovarian cysts other than endometrioma (n=36). The primary outcomes were corpus uterine volume assessed using three-dimensional reconstruction of preoperative pelvic magnetic resonance images.
【results】 The mean uterine volume was significantly larger in the endometriosis group than in the control group (mean± standard deviation, 50.9±14.4 cm^3 vs. 41.7 ± 14.3 cm^3; $P<0.01$). The longitudinal length and transverse diameter of the corpus, and the longitudinal length of the endometrium were also significantly larger in endometriosis group ($P<0.01$). However, there were no significant differences between the two groups in uterine cavity volume or antero-posterior diameter of the corpus, diameter of the endometrium, corpus-cervix angle, diameters of anterior/posterior junctional zones, or the length or antero-posterior diameter of the cervix.
【conclusions】 An increase in uterine volume and endometrium length was observed in women with endometriosis.

P-005 Assessment of serum chemokines and cytokines as novel clinical markers of endometriosis

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Endometriosis is a chronic gynecological disease of unknown etiology characterized by growth of endometrial tissue outside the uterine cavity. It is a frequent benign gynecological disorder that affects 6%-10% of fertile women and causes severe pelvic pain, suffering, infertility, and hysterectomy. Previous studies have showed that eutopic endometrium from women with endometriosis contains several characteristics including aberrant production of cytokines, growth, adhesion, and angiogenic factors, as well as specific cancer-related molecules. Because lack of suitable diagnostic marker, endometriosis has been visual inspection by laparoscopy. In this study, we systematically detected **the endometriosis-associated** chemokines and cytokines **using Bio-plex assay.** Experiments of human samples have been approved by *Institutional Review Boards (IRB) of* Taipei Medical University Hospital. Among 40 chemokines and cytokines, five genes are **increased in serum of endometriosis patients, including, CXCL10 (IP-10)** [3.28-fold], IL-1b [2.15-fold], **CCL25 (TECK)** [2.08-fold], **CCL17 (TARC)** [1.78-fold], **and CXCL9 (MIG)** [1.63-fold]. **Moreover, we analyzed the ROC curve and found that the Area Under Curve of CXCL10 was 0.809. CXCL 10 is an effector of lymphocyte recruitment.** IL-1b promotes inflammatory process and tissue remodeling. **CCL25 promotes invasion of endometrial stromal cells.** CCL17 regulates T-reg cell activity. CXCL9 promotes Th1-type inflammation. **These upregulated-chemokines and -cytokine are novelly detected in human serum with endometriosis and it may be** involved in the endometriosis pathogenesis. These results suggested that chemokines and cytokine may serve as biomarkers and help us to understand the etiology of endometriosis and offer the possibility to develop a diagnostic system for non-invasive detection.

P-006 The incidence of left sided ovarian endometrioma

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objectives: The aim of this study is determine the incidence of Left sided ovarian endometrioma.
Methods: Case histories of 35 patients with endometrioma were analyzed, from March 2010 to June 2011. The characteristics of patients and the incidence of laterality were determined by analysis using chi-square and t-test
Results: the data reveal that 30 endometrioma were located on the Leftt side (76%),12 were located on the right (30%) and 11 were bilateral (8.3%)
Conclusion: This study determine the percentage of left-sided ovarian endometrioma.

P-007 Secondary dysmenorrhea causes, symptoms and other factors exerting influence on its occurance

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Background Menstruation has a dual meaning in a woman's life. It defines the beginning and end of a woman's reproductive period, affirming a woman's maturity. Also can cause a lot of health problems. One of the problems-dysmenorrhea.
Aim of study The aim of the study is to evaluate the most common causes, clinical sings and other factors influencing secondary dysmenorrhea.
Methods A group of 30 women were examined with secondary dysmenorrhea signs. They were examined anthropologically, pelvic ultrasound was perfomed after menstruation, blood sample was taken from vein for biochemical analysis. Bleeding intensity was examined by using the **P**ictural **B**lood loss **A**ssessement **C**hart STD were examined by Polymerase chain reaction
Results.
The age of examined women ranged from 18 to 25 years. The average age was 22 years old. Average BMI value 21,67 kg/m^2 63,3% of patients had PMS, 16,7% had STD, Bleeding intensity average was 67,7 score Average CA125 value was 19,2 U/ml Ultrasound examination results shows endometriosis in 46,7% cases, IUD-16,7%, ovarian cysts-10%, polycystic ovarian-6,7%. CA125 correlates with endometriosis and bleeding intensity $p<0,05$.
Conclusions The most common cause of secondary dysmenorrhea is endometriosis 46,7%. secondary dysmenorrhea also was caused by: ovarian cyst 10,0%, intrauterine device (IUD) 16,7%, STD 16,7%, fibroids and adenomyosis were only 3,3%. Ca125 was weakly increased and correlated with endometriosis and menstrual bleeding intensity. PMS 63,3% was as a leading sign of dysmenorrhea.

P-008 Higher vitamin D reserve associated with endometriosis

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Background
The function of the vitamin D system is not only limited to the regulation of plasma calcium concentration and skeleton mineralization, but also has been shown to be an effective modulator of the immune system. Endometriosis has been shown to be associated with significant immune derangements. The impaired immune-mediated clearance of endometrial fragments refluxed into the pelvic peritoneum during menstruation has been hypothesized to to play a crucial role in endometriosis development.
Aims
Vitamin D may influence the development of the disease by locally modulating the immune system within the peritoneal cavity. We would like to investigate the possible link between endometriosis and the vitamin D system.
Methods
From 2013/01/01 to 2015/12/31, All women who admitted in department of Obstetrics & Gynecology, Inha University Hospital for gynecologic operations were evaluated age, BMI, cholesterol, and 25 hydroxy-vitamin D3. 25 hydroxy-vitamin D3 below 30 ng/ml was defined as vitamin D insufficiency.
Results
Seventy-six women with endometriosis and 58 controls were recruited. Mean (±SD) levels of 25-hydroxyvitamin-D3 in women with and without endometriosis were 19.3±10.7ng/ml and 15.3±7.2, respectively (P=0.01). Vitamin D insufficiency rate in women with and without endometriosis were 60.5%(46/76) and 81%(47/58), respectively(P=0.018).
Conclusion
Endometriosis is associated with higher vitamin D reserve, 25 hydroxy-vitamin D3.

P-009 Evaluation of deep endometriosis lesions by preoperative MRI in patients with adenomyosis

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The objective of this study is to retrospectively evaluate the accuracy of magnetic resonance (MR) imaging in predicting deep endometriosis lesions in patients with adenomyosis. Institutional review board approval was not required for this retrospective study, but informed consent was obtained from all patients. Between 2008 and 2016, 44 patients with adenomyosis underwent total laparoscopic hysterectomy at Tokushima University Hospital. We retrospectively evaluated their Intraoperative findings and MR images. MR images were scored for the presence of the five findings: retroflexed uterus, elevated posterior vaginal fornix, intestinal tethering in direction of uterus, faint strands between uterus and intestine, and fibrotic nodule covering serosal surface of the uterus. Of the five findings, intestinal tethering and faint strands between uterus and intestine, the sensitivity is 64-76%, specificity is 92-100%, which is useful for the detection of deep endometriosis lesions. However, retroflexed uterus did not help in the detection of lesions. For elevated posterior fornix and fibrotic nodule covering surface of the uterus, the sensitivity is as low as 47-52%, specificity was as high as 85-96%. In the pre-operative MR imaging, to assess the intestinal tethering and faint strands between uterus and intestine is useful for the prediction of endometriosis lesions in the pelvis.

P-010 A new MRI sequence to discriminate between benign endometriotic cysts and endometriosis-associated ovarian cancer

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Background: The diagnosis of endometriosis-associated ovarian cancer (EAOC) before surgery is yet to be determined. An iron-rich environment in endometriotic cysts may play an important role in carcinogenesis of the malignant transformation of endometriosis. We aimed to investigate the clinical applicability of iron concentration measurement in endometriotic cysts and EAOC using a new MRI sequence.
Methods: The patients with endometriotic cysts (n=67) or EAOC (n=15) were enrolled in this study after obtaining informed consent. The iron concentration in each cyst fluid samples was determined by inductively coupled plasma optical emission spectrometry (ICP-OES), and the value to indicate the iron concentration by using a high-speed T2-corrected multi-echo (HISTO) MR spectroscopy (MRS) sequence with a 3T-MRI.
Results: Before surgery, the MRS values were corresponded to the iron concentrations (r=0.926). Thus, the MRS values were demonstrated to reflect the iron concentrations within patients' bodies. The mean MRS values and the iron concentrations in EAOC group were lower than that in the benign group (7.2±4.5 vs. 22.2±9.8, $p<0.001$ and 29.6±42.3 mg/L vs. 244.4±182.9 mg/L, $p<0.001$). In ROC curve analysis, the cut-off value for maximum sensitivity (86%) and specificity (94%) for differentiating EAOC from endometriotic cysts was 12.1.
Conclusions: This is the first study to present a new MRI sequence that can discriminate between endometriotic cysts and EAOC with high rates. The iron concentrations may predict malignant transformation from an endometriotic cyst into EAOC.

P-011 Association between endometriosis and serum CA125 level during the menstruation

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[Objective] Mild endometriosis, which is difficult to diagnose, is reported to be a significant cause of infertility. In this study, we measured serum CA125, an endometriosis marker, during menstruation.
[Methods] Following laparoscopic surgery from 2005 to 2016, 131 women who were measured for serum CA125 levels enrolled in this study after gaining informed consent and approval from the local ethics committee. Endometriosis was diagnosed in 100 women (rASRM stage 1: n=27; stage 2: n=19; stage 3: n=34; and stage 4: n=20). Those without endometriosis (n=31) were defined as the control women.
[Results] There was a significant difference in CA125 levels except during menstruation between control women (11.9±2.2 U/ml, mean±S.D.) and with women diagnosed with endometriosis (39.7±5.2 U/ml). In addition, CA125 levels during menstruation in women with endometriosis (47.0±5.4 U/ml) were significantly higher than that of the control women (16.6±2.1 U/ml).
The average CA125 levels not during menstruation were 20.2 U/ml in stage 1, 24.1 U/ml in stage 2, 47.3 U/ml in stage 3, and 40.7 U/ml in stage 4. Those during menstruation were 22.5 U/ml, 44.3 U/ml, 63.4 U/ml, and 62.3 U/ml, respectively. The ratio of women with a CA125 level over 25 U/ml was 18.5%, 42.1%, 53.0%, and 60.0%, respectively. Only 6.7% of control women had a CA125 level over 25 U/ml.
[Conclusion] Measurement of serum CA125 during menstruation can possibly assist mild endometriosis diagnoses.

P-012 MRI findings of deeply infiltrating endometriosis with surgical and pathological correlation

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Objectives: We carried out this study to review the magnetic resonance imaging (MRI) findings of deeply infiltrating endometriosis (DIE) with surgical and pathological correlation. And we have illustrated DIE with emphasis on the anatomic distribution of **endometriosis.**.
Materials and Methods: We reviewed MR images and photographs obtained during laparoscopy in twenty endometriosis patients with pathologically confirmed as DIE. The relevant images were compared with focus on radiologic and surgical correlation.
Results: MRI findings
Infiltrating small endometriotic implants have punctate foci of high signal intensity on fat-suppressed T1-weighted images, which correlates with hemorrhagic implants found during laparoscopic surgery.
Many solid deep lesions seem to be appeared as low to intermediate intensity with high signal intensity foci on T1-weighted images, low signal intensity on T2-weighted images**, especially with fat-suppressed sequences.**
The uterosacral ligaments and rectovaginal septum were two common sites of involvement by endometriosis. The lesions were also found in the rectosigmoid colon, appendix, vesicouterine septum, bladder, ureter, abdominal wall of previous cesarean section wound, and perineal episiotomy site.
Conclusions: MRI is a valuable modality contributing in diagnosis and mapping of DIE lesions prior to surgical intervention. We have presented common and less common sites of DIE with surgical and pathological correlation. We have concentrated on the anatomic distribution of the disease to enhance awareness of '**endometriosis'.**

P-013 Decreased zinc and increased lead blood levels are associated with endometriosis in Asian women: a hospital-based cross-sectional study

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Objective: To compare the blood levels of various trace metals in infertile women with and without endometriosis.
Design: Cross-sectional study.
Setting: Center for reproductive medicine of a university hospital.
Patient(s): The study included 190 women who visited the infertility clinic at Taipei Medical University Hospital from 2008 through 2010: 68 with and 122 without endometriosis.
Intervention(s): Phlebotomy.
Main Outcome Measure(s): Trace metal levels in whole blood were measured by inductively coupled plasma mass spectrometry.
Result(s): The zinc levels were significantly lower in infertile women with endometriosis than in those without it (4.47 vs. 22.52 mg/L); the odds ratio after adjusting for potential confounders (aOR) was 0.39 (3rd tertile vs. 1st tertile, 95% CI, 0.18-0.88). In contrast, the lead levels were significantly higher in infertile women with endometriosis than in those without it (21.3 vs. 4.64 μg/L); the aOR was 2.67 (3rd tertile vs. 1st tertile, 95% CI, 1.17-6.07). The cadmium levels were higher in women with endometriosis, but aOR was not significant. The levels of copper, manganese, iron, mercury, and chromium were not significantly associated with endometriosis.
Conclusion(s): Zinc has antiinflammatory characteristics and regulates homeostasis of zinc-containing superoxide dismutase. High lead levels might induce reactive oxygen species and deplete antioxidant defense mechanisms. Our findings suggest that zinc and lead are associated with endometriosis, but further prospective studies are needed to explore any possible causations.

P-014 Contrast-enhanced ultrasonography in sclerotherapy for ovarian endometrial cyst

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Objective We investigated the characteristics of contrast-enhanced ultrasonography (CEUS) before and after sclerotherapy for ovarian endometrial cyst (OEC).
Methods Forty-three patients in our hospital with one-sided, single, untreated OEC who were about to undergo sclerotherapy were included in the study. CEUS was performed on all lesions before and after sclerotherapy. OEC wall thickness from 2-dimensional (2D) ultrasonography and CEUS, enhancement modes and parameters of the time-intensity curve from CEUS were recorded and compared before and after sclerotherapy.
Results There was no significant change in OEC wall thickness after sclerotherapy. However, the wall thickness measured using 2D ultrasonography was significantly larger than that measured using CEUS. The OEC wall showed rapid enhancement and slow clearance both before and after sclerotherapy. In addition, there was no difference in wash-in time and wash-out time. Before sclerotherapy, the cystic wall mainly presented even medium enhancement. After treatment, it mainly presented low enhancement, with partial uneven enhancement of the cystic wall. Compared to before treatment, time to peak was delayed, peak intensity was reduced, and perfusion slope was decreased after sclerotherapy. There was no significant difference in the contrast agent arrival time and area under the curve.
Conclusions: CEUS modes and quantitative parameters had some changes after sclerotherapy, therefore, treatment involving sclerosing agent retention can help improve the efficacy of sclerotherapy for OEC.
Key words: OEC; CEUS; sclerotherapy

P-015 The incidence rate of ovarian endometrioma after cervical conization

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Background: The association between cervical conization and subsequent development of endometriosis is uncertain. The objective of this study was to estimate the incidence rate of endometrioma after cervical conization, and clarify factors that are associated with the development of endometrioma.
Materials and Methods: The study protocol was approved by the University of Tokyo's review board. Out of 365 patients who underwent cervical conization at our institute between January 2006 and December 2013, 142 patients were included in this study. Their records were retrospectively studied until April 2015. Patients characteristics (age, parity, pre-operative and post-operative diagnosis, observation period) were compared. The incidence rate of ovarian endometrioma was calculated.
Results: Six of 142 patients developed endometrioma after cervical conization, and the incidence rate of endometrioma among patients who underwent cervical conization was 10.8 per 1000 person-year (95%CI; 3.6-20.5). Patients' age, % of nulliparous, post-operative diagnosis and observation period were not associated with the development of endometrioma after the conization. Pre-operative diagnosis with invasive cancer was significantly associated with the post-conization development of endometrioma ($p<0.05$).
Conclusions: The incidence rate of ovarian endometrioma among patients who underwent cervical conization was higher than reported general prevalence (1.0-3.0 per 1000 person-year), and this is possibly associated with the cervical stenosis. Further studies with larger sample size and prospective cohort studies are required better understanding of the relationship between the procedure and the development of endometriosis.

P-016 Improved clinical outcomes of patients with ovarian carcinoma arising in endometriosis

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Objective Despite enormous efforts to dissect the role of endometriosis in ovarian cancer development, the difference in prognosis between ovarian cancer patients with or without endometriosis remains elusive. The predictive value of endometriosis for survival controlled for ovarian cancer was analyzed.
Methods This study included 196 ovarian cancers with clear cell, endometrioid or mixed histology arising or not in endometriosis on the basis of strict histologic criteria at a single institute between 1995 and 2011. Clinicopathologic variables, progression free survival (PFS) and overall survival (OS) were recorded. Kaplan-Meier method was applied to compare survival curves. Cox regression models were fitted to analyze the effect of prognostic factors on PFS and OS.
Results Ovarian cancer arising in endometriosis tended to be presented as clear cell histology, early stage, less intraperitoneal metastasis and ascites, and lower CA125 level compared with those without endometriosis. Endometriosis did have a significant relationship with PFS and OS, especially for early stage. Multivariate Cox regression analysis identified endometriosis as an independent prognostic factor for PFS and OS. A nomogram integrating endometriosis and clinicopathologic factors was established to predict PFS and OS. Calibration curves showed optimal agreement between predictions and observations.
Conclusions Endometriosis *per se* appears to predict prognosis in ovarian cancer patients.

P-017 The clinical research of peritoneal endometriosis diagnosis and treatment during laparoscopy with narrow-band imaging

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Objective: To evalute the practical value of the diagnosis and treatment in peritoneal endometriosis during laparoscopy with narrow-band imaging (NBI). Methods: In hd-laparoscopic surgery, the first thing to do is the comprehensive exploration abdominopelvic cavity under WL, observing pelvic peritoneum, and recording a diagnosis of peritoneal type in different disease lesion under WL, then converting into observed pelvic peritoneum under NBI. Record the WL+NBI different disease in the diagnosis of peritoneal type lesions and in two modes of focal line photo, cut off different disease lesions below the peritoneum and suspicious lesions within the organization completely and shear a normal peritoneal tissues. histologic examination diagnosis, compare the WL and WL+NBI two modes of peritoneal type in different peritoneal endometriosis diagnosis accuracy and sensitivity. Results: 1.The consistency of identifying different lesions and pathological results under the white light is 58% and the good consistency under the WL+NBI is 80%. 2. Diagnostic peritoneal endometriosis under the WL of accuracy, sensitivity, negative predictive value were 79.3%, 74.5%, 67.1%respectively, while under the WL+NBI were90.7%, 94.7%, 90.40%, $P<0.05$ was statistically significant. Diagnostic peritoneal endometriosis under the WL of specific degrees, positive predictive value were87.5%, 90.9%, respectively, under the WL+NBI were83.9%, 90.8%respectively, $P>0.05$,was no statistical significance. Conclusion: Laparoscopic diagnosis under WL+NBI and pathological diagnosis results have good consistency, Laparoscopic diagnosis under WL+NBI has a higher degree of accuracy and sensitivity than under WL, we can identify more lesions, reduce missed diagnosis,and improve the negative predictive value.

P-018 Clinical management of deep infiltrating endometriosis with urianary and rectosigmoid involvement

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Backgroud Deep infiltrating endometriosis (DIE) is a very symptomatic form of endometriosis that is difficult to diagnose and treat. Urinary and rectosigmoid involvement by endometriosis is rare and silent which can lead to dysfunction.
Case The case reports a 40-year-old patient with an endometrial growth on the uterosacral ligament, vaginal, rectovaginal septum, rectosigmoid, bladder and ureteral causing dysmenorrhea, dyspareunia, irregular vaginal bleeding, tenesmus, anuria and loss of renal function. But the uterus, ovaries, and fallopian tubes were in normal size and morphology. A laparoscopic approach was proposed to remove all of the visible lesions, free the ureters, and excise part of rectum. We preserved the uterus and bilateral adnexa because of the patient's strong desire. After the surgery, the patient was treated with GnRH agonists and hormone replacement therapy for six months. The patient had a reWe not only resected all the visible lesions, but also protected the integrity and excretion function. The patient has a clinically significant improvement in symptoms. Recurrence of new lesions was found on the vagina after a 14-month follow-up. And the radiotherapy was used for the purpose of ovarian ablation.
Conclusion The patient presented with almost all the types of DIE. The laparoscopic approach combined with pharmacological therapy is the best choice for life-long management. Most of the important is inhibiting or teminating the ovarian function.

P-019 The efficacy of the levonorgestrel—releasing intrauterine system in perimenopausal women

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OBJECTIVE To evaluate the efficacy of the levonorgestrel-releasing intrauterine system (LNG-IUS) in perimenopausal women who had various benign gynecologic diseases.
METHODS One hundred ninety two women over 40 years old were analyzed for a 2-year follow-up period. The changes in the amount and duration of bleeding and the pain scores were checked at 3, 6, 12 and 24 months.
RESULTS The most common indication for LNG-IUS was adenomyosis (52.6%) and this was followed by leiomyoma (17.7%), endometriosis (16.1%), endometrial hyperplasia (4.7%), idiopathic hypermenorrhea (4.7%), endometrial polyp (2.1%) and idiopathic dysmenorrhea (2.1%). Twenty six (13.5%) women failed with LNG-IUS treatment and they received hysterectomy. Age, parity, the type of diseases, the amount of menstrual bleeding, the mean duration of persisted hypermenorrhea and the severity of pain before treatment were not the factors affecting removal of the LNG-IUS and undergoing hysterectomy. However, the pain score of the third month and the amount of bleeding on the sixth month were the factors affecting undergoing hysterectomy ($p<0.05$). When hysterectomy was performed, the average duration from LNG-IUS insertion to hysterectomy was 8.9 months. The participants who persisted with the LNG-IUS treatment for 24 months showed a success rate of 80.7%.
CONCLUSION LNG-IUS is an effective device for the treatment of perimenopausal women who have various medical indications and it is a simple and effective alternative to surgical treatment.
Key words: levonorgestrel-releasing intrauterine system (LNG-IUS), perimenopause, hysterectomy

P-020 Dienogest is effective for suppressing recurrence of ovarian endometrioma and relieving pain after laparoscopic surgery

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To assess the effect of dienogest on recurrence of ovarian endometriomas and severity of pain after laparoscopic surgery, a retrospective study was performed at three institutions in Osaka, Japan. Patients had a six-month minimum follow-up after laparoscopic surgery for ovarian endometriomas performed since June 2012. Patients who chose to receive 2 mg dienogest daily and those who were managed expectantly postoperatively were included. Recurrence was defined as the presence of endometriomas of more than 2 cm. A visual analog scale (VAS) was used to score the intensity of pelvic pain. The cumulative recurrence rate and absolute VAS score changes between the baseline and at 6, 12, 18 and 24 months after the start of administration were evaluated in both groups. The recurrence rate was 16.5% and 24.0% in the expectant management group at 12 and 24 months, respectively. No recurrences occurred in the dienogest treatment group. The rate of VAS score reduction was significantly higher in the dienogest than in the expectant management group. Dienogest is effective on the recurrence of ovarian endometrioma and relieving pelvic pain after laparoscopic surgery.

P-021 The success rate of GnRH agonist for small recurrent endometrioma (3cm)

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The endometrioma is not treated by medical treatment well, so endometrioma is usually treated surgically. However, 63 patients do not want re-operation and the decrease of ovarian function is also afraid when endometioma is recuured. Therfore 3-6 months GnRH agonist therapy was performed before final decision of re-operation. If endometrioma is disappeared by 3-6 GnRH agonist therapy, operation was canceled. We divided two groups; group A (42 patients) is cyst size ≦ 3 cm, group B (21 patients) is cyst size >3 cm.
We got the result of the effect of 3-6 months GnRH agonist therapy before determination of re-operation in group A and B.
(1) Group A: In the 32 of 42 patients, cysts were disappeared after GnRH agonist therapy for 3 months ($p<0.01$). In the 7 of 42 patients, cysts were not disappeared and decreased in size after GnRH agonist therapy for 3 months. The GnRH agonist therapy for 6 months for these patients, and then cyst was disappeared in the 5 of 7 patients (<0.05).
(2) Group B: In none of 21 patients, cysts were disappeared after GnRH agonist therapy for 3 months. In only 1 of 42 patients, cysts were not disappeared and decreased in size after GnRH agonist therapy for 3 months. However this one patients had also cyst after the GnRH agonist therapy for 6 months.
Therefore, the 3-6 months GnRH agonist therapy can be performed before re-operation in the patients with recurrent endometrioma with cyst size 3 cm or less.

P-022 Effects of low dose oral contraceptive pill containing drospirenone/ ethinylestradiol in endometriosis patients with dysmenorrhea

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Objectives: Low dose oral contraceptive pills (OCPs) that contain synthetic estrogen and progestin are often used to relieve chronic pelvic pain associated with endometriosis. We sought to evaluate the efficacy of drospirenone/ethinylestradiol (DRSP/EE) with low-dose estrogen in treating endometriosis.
Study Design: A prospective clinical study in six hospitals and 1 clinic in Japan was conducted. Forty-nine 20- to 45-year-old patients who suffered from endometriosis-associated dysmenorrhea were included in the study. The primary endpoint was the change in size of ovarian endometrioma as measured by transvaginal ultrasonography. The secondary endpoint was the change in dysmenorrhea as evaluated by VAS (visual analog scale) scores before treatment and at 3 and 6 cycles of treatment. In addition, serum CA125, anti-mullerian hormone (AMH), interleukin (IL)-6, and IL-8 were evaluated after 6 cycles of treatment.
Results: The maximum diameter and volume of the ovarian endometrioma significantly decreased after 3 and 6 cycles compared with pretreatment. VAS scores of dysmenorrhea pain were also reduced after 1, 3 and 6 cycles. A significant correlation between the reduced size of the endometrioma and the decline of VAS scores was found. The levels of serum CA125 and AMH concentration were decreased after 6 cycles. No significant changes were observed in serum IL-6 and IL-8.
Conclusion: Low dose DRSP/EE therapy is a promising treatment not only to reduce the size of endometrioma but also for dysmenorrhea.

P-023 Adverse effects and tolerability of dienogest over 60 weeks after conservative surgery for endometriosis

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Objective: To evaluate the adverse effects and tolerability of Dienogest (DNG) over 60 weeks for prevention of the recurrence of symptoms and lesions after conservative surgery for endometriosis.
Methods: DNG was administered to 150 patients with endometriosis over 60 weeks after conservative surgery. Medical charts were retrospectively examined on the pooled analyses for safety assessments, including adverse events, laboratory tests, vital signs, body weight, and bleeding patterns. Adverse effects, patient evaluation of their symptoms and willingness to continue taking DNG were assessed by a questionnaire.
Results: The median duration of treatment was 72 weeks, with the longest follow-up duration being 120 weeks. The most common adverse drug reactions were headache, breast discomfort, acne, weight gain and mild depressed mood. In terms of adverse events, more than 50% of patients experienced amenorrhea. However, this did not prove to be a cause of discontinuation. The bleeding pattern associated with DNG 2mg was well tolerated, and only two patients reported bleeding events as the primary reason for discontinuation. Rather than that, major cause of discontinuation was unwanted weight gain. Laboratory and vital sign assessments indicated no safety concerns for dienogest.
Conclusions: DNG was well tolerated with a favorable safety profile extending over a period of up to 60 weeks after conservative surgery for endometriosis. Our results suggest that not only atypical vaginal bleeding but also unwanted weight gain should be regarded.

P-024 Ethinylestradiol 20μg/drospirenone 3mg in a flexible extended regimen for the management of endometriosis-associated pain: a randomized, controlled trial

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Aims: To confirm the superiority of ethinylestradiol 20 μg/drospirenone 3 mg versus placebo in a flexible-extended regimen ($Flexible_{MIB}$) for the management of endometriosis-associated pelvic pain.
Patients: 312 patients aged ≥20 years with endometriosis, confirmed pelvic pain (Visual Analog Scale [VAS] score of ≥40 mm), and regular cyclic menstrual periods.
Methods: Patients were randomized to $Flexible_{MIB}$, placebo, or dienogest. Patients randomized to $Flexible_{MIB}$ or placebo received 1 tablet each day continuously for 24-120 days, with a 4-day tablet-free interval either after 120 days or in the event of ≥3 consecutive days of spotting and/or bleeding. After 24 weeks, patients receiving placebo swapped to $Flexible_{MIB}$. Patients randomized to open-label dienogest received a total daily dose of 2 mg/day for 52 weeks.
The primary efficacy outcome was the absolute change in severest pelvic pain from baseline to Weeks 17-24 with $Flexible_{MIB}$ versus placebo. Genital bleeding patterns with $Flexible_{MIB}$ versus dienogest were also assessed in addition to placebo.
Results: Compared with placebo, $Flexible_{MIB}$ alleviated severest pelvic pain (mean difference -26.3; 95% CI -31.6, -20.9; $p<0.0001$) significantly. The efficacy of $Flexible_{MIB}$ was consistently maintained until 52 weeks. Bleeding/spotting days were fewer with $Flexible_{MIB}$ versus dienogest in early phase of treatment.
Conclusions: $Flexible_{MIB}$ improved pain associated with endometriosis and was well tolerated, suggesting that it may provide a new alternative for the management of endometriosis.

P-025 Neuraltherapy for treatment of endometriosis

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Endometriosis is a chronic inflammatory disease. Although the exact pathophysiology of the disease is unknown, one of the possible causes is believed to be a blockage in the sympathetic nervous system. One of the best indicators of this is amplifications observed in neurons. Cytokines and inflammatory markers, which are secreted upon inflammatory process triggered by a blockage in the sympathetic nervous system, as well as tissue deformation and organ perfusion, contribute to formation of both disease and pain. More specifically, these increase levels of dyspareunia, dysmenorrhea and pelvic pain in the patients. Moreover, a blockage in sympathetic nervous system affects the hypothalamic pituitary adrenal axis and leads to its deregulation. Neural therapy is a regulation treatment by local anesthetics (procaine-lidocaine).
Purpose
Induced endometriosis, chronic pelvic pain and the relief of pain associated with other symptoms indicate the effectiveness of neuraltherapy
Method
Neuraltherapy to patients who were diagnosed endometriosis and pain associated symptoms was applied.
Clinical findings
In our study, we included 50 volunteer endometriosis patients, whom we followed for one year. We have obtained significant results based on the use of visual analog scale (VAS). If the cause of endometriosis is a hormonal dysfunction Hormonal therapy, which will be held axle (pituitary, celiac ganglion, thyroid, uterovaginal plexus) is the first step of treatment.
Results
The cure was achieved in all patients. Stimulation of sympathetic nervous system has an anti-inflammatory effect. Tissue perfusion is restored and persistence of microcirculation is ensured. Thus, pathophysiological mechanisms leading to endometriosis are removed.

P-026 Study of Dienogest versus oral contraceptives in the treatment of endometriosis-associated pelvic pain

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Objective: To compare the efficacy of dienogest and oral contraceptives in the treatment of endometriosis-associated pain.
Patient(s): Thirty-Eight women with endometriosis-associated pelvic pain.
Intervention(s): Twenty-Four weeks of either dienogest orally, daily; or a generic monophasic oral contraceptive containing drospirenone/ethinylestradiol 3 mg/20 μg (DRSP/EE: Yaz®), administered in a 24/4 regimen (24 days of active pills followed by 4 days hormone free) given daily
Main Outcome Measure(s): Biberoglu and Behrman (B&B) pain scores, numerical rating scores (NRS), Beck Depression Inventory (BDI), and Index of Sexual Satisfaction (ISS).
Result(s): Based on enrollment of 38 women randomized to oral contraceptives and to dienogest, there were statistically significant declines in B&B, NRS, and BDI scores from baseline in both groups. There were no significant differences, however, in the extent of reduction in these measures between the groups.
Conclusion(s): Dienogest and oral contraceptives appear to be equally effective in the treatment of endometriosis-associated pelvic pain

P-027 Cost-effectiveness of recommended medical intervention for treatment of dysmenorrhea and endometriosis in Japan setting

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[Objectives] Self-care with non-steroidal anti-inflammatory drugs (NSAIDs), etc. is widely used for pelvic pain relief in dysmenorrhea patients in Japan; however, guideline-recommended medical intervention consists of low-dose estrogen and progestin hormonal combinations (LEP). This study aims to assess the cost-effectiveness of intervention including LEP for the prevention of endometriosis and/or disease progression of dysmenorrhea, compared to self-care, in Japan.
[Methods] A Markov model with a 43-year time horizon and annual cycles was constructed. The model consisted of five major health states with four sub-medical states based on gynecologists' consensus. The analyses were conducted from social, payer's and woman's perspectives. Transition probabilities among health and medical states were derived from epidemiological patient surveys. Disease-associated direct costs were included. Utility measures were collected prospectively from patients with stage I-IV endometriosis using a visual analogue scale.
[Results] Base case outcomes indicated that intervention would be superior to self-care when only considering direct costs (cost-saving amount of approximately 270,000 JPY, with 3.8 incremental quality-adjusted life-years [QALYs] gained). From the payer's perspective, intervention would be more cost-effective than self-care, as the incremental cost-effectiveness ratio (ICER) yielded 106,000 JPY per QALY gained. A tornado diagram depicting the deterministic sensitivity analysis was constructed, and robustness of the base case was confirmed.
[Conclusion] Our analysis demonstrated that, in Japan, intervention would be more cost-effective than self-care in preventing endometriosis and/or disease progression for patients with dysmenorrhea. These findings could be used to inform health-care decision-making in women with dysmenorrhea and health-policy makers.

P-028 Chinese herbal medicine to prevent the recurrence of pelvic endometriosis after conservative surgery: a multi-center prospective, parallel controlled, randomized clinical trial of efficacy and safety

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METHODS: Between April, 2008, and February, 2010, we enrolled 240 women who the first time underwent conservative surgery for pelvic endometriosis at 8 tertiary Hospital departments of gynecology in China. Using stratified blocked randomization, participants were randomly assigned in 1:1 ratio to undergo post-operative administration of Chinese herbal medicine (CM group) or gonadotropin-releasing hormone agonist (GnRH-a)(WM group), Stages I-II(r-AFS) for 3 months, Stages III-IV for 6 months, GnRH-a+Tablets after 3 months. In CM group participants were treated using three types of Chinese herbal medicine based on syndrome differentiation. Owing to GnRH-a too expensive, many patients refused to use. We adjusted the original study plans and allow WM group use gestrinone. Participants accepted a clinical assessment, ultrasonography, CA125, gynecologic examination once every 3 months. The primary outcome was recurrence rate and adverse reaction. Analysis was by intention to treat. This study has passed the Guang' anmen hospital ethics committee review.

RESULTS: In CM group116 participants completed treatment, 99 followed-up for 3 years, 16 recurred; in WM group 109 completed, 93 followed-up, 22 recurred. Incidence of adverse reaction during the medication was significantly lower in CM group than in WM group (12/116, 10.3% VS 88/109, 80.7%, P=0.000). Recurrence rate did not show any significant differences between the two groups (16/99, 16.1% VS 22/93, 23.6%, P=0.193).

CONCLUSION: Both therapies seemed equally efficacious in preventing the recurrence of pelvic endometriosis. Chinese herbal medicine showed fewer and lighter adverse reactions.

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P-029 Hormonal therapies for extragenital endometriosis

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Background: For the case of extragenital endometriosis, surgical therapy is popular, however, hormonal therapies remain controversial.

Aims: To search the most available hormonal therapies for extragenital endometriosis.

Methods: We retrospectively reviewed extragenital endometriosis patients who received surgical or hormonal therapy within our department from 2000 to 2015.

Results: There were 22 cases of extragenital endometriosis, of which 11 cases in intestinal endometriosis (5 rectum, 3 appendix, 2 small bowel, 1 Sigmoid), 4 cases in urinary tract endometriosis (2 bladder, 2 ureter), 1case in catamenialpneumothorax and 6 cases in other site (3 umbilics, 2 inguinal region, 1abdominal wall), respectively. Mean age was 42.5 years old (range 21-60). 8 cases were only received hormonal therapy (4 rectum, 2 bladder, 1 umbilics and 1 inguinal region). 2 cases (1 inguinal region and 1 catamenialpneumothorax) were received hormonal therapy because of recurrence.The details of hormonal therapies were 8 Dienogest, 4 gonadotrophin-releasing hormone agonists (GnRHa) and 3 Low dose estrogen-progestin (LEP). (There is some overlapping.) Mean duration of therapies were 6months in GnRHa, 28.5 months (range 6-81) in Dienogest, 4 months (range 4-30) in LEP. All of cases in GnRHa and Dienogest therapy obtained satisfactory therapeutic effects, however, the 3 cases in LEP changed to other hormonal therapy because of side effect, fear of thrombosis, or insufficient therapeutic effect.

Conclusion: LEP, which is the most popular medicine in endometriosis, is hard to use for the therapy of extragenital endometriosis because their most onset age is over forty. Otherwise, the therapeutic effect of Dienogest and GnRHa are efficient. Dienogest may be the most convenient medicine for the case need to control the symptoms of extragenital endometriosis for a longtime.

P-030 Post-surgical ovarian insufficiency in infertile women with endometrioma

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[Background and aims] Laparoscopic resection of the endometrioma capsule has been widely performed with regards to the patient's fertility. However, the incidence of ovarian insufficiency after bilateral endometrioma resection is estimated to be 1.3-2.4%. The aim of this study was to show post-surgical ovarian insufficiency in infertile women with endometrioma.
[Methods] Between Jan. 2013 and June 2015, 350 infertile women visited our hospital. AMH level was assessed in 32 of 40 infertile women with endometriosis. As the standard AMH level depends on woman's age, we defined "adjusted AMH value" by calculating the ratio of the measured AMH value divided by the age specific standard AMH value × 100.
[Results and conclusions] 11.4% (40/350) of women complicated with endometriosis. Except for a woman whose AMH value below cut-off value, 31 women with endometriosis were divided into 4 groups. 18 (58.1%) women had past history of resection of endometrioma. In them, 9 women had bilateral resection (Group A), and another 9 women had unilateral resection (Group B). On the contrary, 13 women had endometrioma without past history of resection. In them, 4 women had bilateral endometrioma (Group C), and another 9 women had unilateral endometrioma (Group D). The "adjusted AMH value" in each group was 38.1%, 98.9%, 59.1%, and 69.1%, respectively. There was a significant difference of the value between group A and B (p=0.013). However, there was no difference between group C and D (p=0.763). These findings suggested that ovarian insufficiency is closely related with bilateral resection of endometrioma. In infertile women with endometrioma, careful manipulation during operation should be considered to avoid post-surgical ovarian insufficiency.

P-031 Impact of endometriosis to pregnancy outcome of ART

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Background:
ART (assisted reproductive technology) has been increasingly popular in our modern society. Rise in both numbers of endometriosis patient and ART-related pregnancy was reportedly attributable to advanced age in marriage as well as of hope for child in consequence. However, it is not clearly elucidated the impact of endometriosis to pregnancy outcome of ART.
Aims:
To identify the pregnancy outcomes of the patients with endometriosis conceived by ART.
Methods:
We reviewed the medical records of the patients who underwent IVF-ET treatment at Tokai University Hospital from January 2010 to December 2014 (N=826; cycle). According to the research protocol approved by IRB, 101 pregnancies were retrospectively recruited. 23 were affected with endometriosis (Em+group), and 78 had no clinical signs of endometriosis (Em-group). Two groups were analyzed their background, and several aspects of pregnancy course with perinatal outcomes.
Results:
There were no significant differences in mean age, history of miscarriage between the two groups. The plasma level of Anti-Mullerian Hormone (AMH) showed a significant difference (Em+group: 2.20±1.46ng/ml vs Em-group: 3.76±2.05ng/ml). The rate of miscarriage showed a significant difference (Em+group: 52% vs Em-group: 25%). Perinatal outcomes (premature delivery, caesarean section, gestational age at delivery, birth weight, Apgar score, umbilical arterial blood pH, NICU admission) were not significantly different between the groups.
Conclusions:
In the patients who underwent IVF-ET treatment, endometriosis may increase the rate of miscarriage. Regarding other aspects of pregnancy outcome, the impact of endometriosis should be clarified in large prospective study.

P-032 The predictive value of endometriosis fertility index for IVF outcome in women with endometriosis

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Introduction
Endometriosis is a common disease that occurs in 6 to 10% of reproductive-age women. It is one of the main causes of infertility. Approximately 25 to 50% of infertile women have endometriosis, and 30 to 50% of women with endometriosis are infertile. The most widely used staging system of endometriosis is the revised American Fertility Society (r-AFS) classification but it has limited predictive ability for pregnancy after surgery. Recently, new score system was invented known as endometriosis fertility index (EFI). This aim of this was to evaluate the predictive value of EFI for ART outcome in surgically treated patients with endometriosis.
Methods
Eighty one women with endometriosis receiving IVF treatment after surgery were analyzed from 2009 to 2015 at Pusan National University Hospital. The EFI score and r-AFS classification were compared to in the same population. The cases were divided into two groups according to the EFI score ($\leq$5 and $\geq$6).
Results
The EFI score and EFI score group were significantly correlated with IVF outcome (p-value=0.000 and 0.017). Also, the patients' age has significant correlation with IVF outcome (p-value=0.005). But the r-AFS classification was not correlated with IVF outcome.
Conclusion
It suggests that the EFI has more predictive power for IVF outcomes in endometriosis patients than the r-AFS classification. The clinical pregnancy rate was higher in patients with EFI greater than or equal to 6 score than with EFI lower than or equal to 5 score.

P-033 The impact of different down-regulation protocols on the IVF/ICSI-ET outcome of endometrioma: a retrospective study

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Background: Endoetrioma is the most common type of endometriosis. In IVF/ICSI-ET, the topic which down-regulation protocol is appropriate for patients with endometrioma is still in argue.
Aims: To investigate the impact of different down-regulation protocols on the IVF/ICSI-ET outcomes of patients with endometrioma.
Methods: Patients with endometrioma in the reproductive center of Sun Yat-sen Memorial Hospital for IVF/ICSI-ET from January 2011 to December 2014 were collected and retrospectively analyzed. 272 cycles were included and divided into two groups: those without history of endometrioma excision as group A; those with a history of endometrioma excision as group B. Both groups were respectively divided into the prolonged down-regulation protocol subgroup (group A1 and B1) and the long down-regulation protocol subgroup (group A2 and B2).
Results: Number of oocyte retrieved, implantation rate (IR) and clinical pregnancy rate (CPR) showed no significant difference between group A1 and A2. Compared with group B2, total dose of consumed Gn was increased (2838.47u vs. 2544.29u, $P<0.05$), while both number of oocyte retrieved (8.31 vs. 10.04, $P<0.05$) and available embryo (5.10 vs. 6.42, $P<0.05$) were decreased in group B1. However, there was no significant difference between group B1 and B2.
Conclusion: Number of oocyte retrieved and clinical pregnancy rate were of no significant difference between two down-regulation protocols for endometrioma patients without history of endometrioma excision. While for those with history of endometrioma excision, ovarian reponse to Gn stimulation was decreased and clinical pregnancy rate was of no advantage in prolonged down-regulation protocol than long down-regulation protocol.

P-034 The impact of endometriosis fertility index on the IVF/ICSI-ET outcome: A retrospective analysis

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Background: Endometriosis fertility index (EFI) has been reported as a new effective parameter to evaluate the non-ART pregnancy outcome after surgery for patients with endoetriosis. However, the effectiveness of EFI to indicate the outcome of IVF/ICSI is still need more evidence.
Aim: To investigate the influence of EFI on the IVF/ICSI outcome for patients with endometriosis.
Methods: 231 patients with endometriosis in the reproductive center of Sun Yat-sen MemorialHospital for IVF/ICSI-ET from January 2011 to December 2014 were collected and retrospectively analyzed. Only the first cycle was included. EFI was achieved according to the operation records and basic characters. ROC curve was used to assess the value of EFI in predicting the clinical pregnancy rate of fresh embryo transfer. Patients were divided into two groups according to the cut-off EFI of the ROC curve to further analyze the IVF/ICSI outcomes.
Results: The area under ROC curve (AUC) was 0.571(P=0.066), with a cut-off value of 7.5. Number of oocyte retrieved and available embryo, as well as the implantation rate(IR) were significantly higher in the group of EFI>7 than the group of EFI ≤7 (1.58 vs. 9.90, 7.29 vs. 5.98 and 46.8% vs. 32.7% respectively), while the clinical pregnancy (CPR) rate manifested a higher tendency in the group of EFI>7 than group of the EFI≤7 (64.8% vs. 52.4%, P=0.058).
Conclusion: EFI may be related with the number of oocyte retrieved, available embryo and IR of the patients with endometriosis. The predicting value of EFI for the CPR in fresh embryo transfer was limited.

P-035 Analysis of pregnancy outcome and decline of anti-Mullerian hormone after laparoscopic cystectomy for ovarian endometriomas

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Aims: Excision of the ovarian endometrioma (OE) may induce the reduction of ovarian reserve. We evaluated the pregnancy outcome after laparoscopic cystectomy (LC), and the pre- or post-operative levels of anti-Mullerian hormone (AMH) to consider the ovarian reserve.
Methods: Forty women with OEs and 16 women with benign ovarian tumors, who hoped to have a child and underwent LC were enrolled. To evaluate the ovarian reserve of 40 patients (OE group; endometrioma: n=24, non-OE group; n=16), we measured serum AMH levels before and after the surgery.
Results: In 40 women who underwent LC for OE, the cumulative pregnancy rate was 50%. Prior to the cystectomy, serum AMH levels in the OE group, especially patients over the age of 35, were significantly lower than those in the non-OE group. Rate of decline in serum AMH in the OE group was remarkable compared with that in the non-OE group 6 months after surgery. With patients over the age of 35 in the OE group, AMH level 1 year after surgery decreased noticeably.
Conclusions: LC for OEs could be a preferred surgical approach, but effective therapeutic strategies will have to be developed to prevent damage in the ovarian reserve, especially for the older patients.

P-036 Laparoscopic excision of ovarian endometrioma does not exert a qualitative effect on ovarian function

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PURPOSE: To evaluate whether laparoscopic excision of endometrioma exerts a qualitative effect on ovarian function.
METHODS: A retrospective analysis of oocytes retrieved in 25 cycles of 21 patients undergoing IVF treatment with controlled ovarian stimulation. The number of oocytes recovered from ovaries with a history of excision of endometrioma (E-Ov) were compared to those from contra-lateral healthy ovaries (H-Ov) as for the analysis of a quantitative effect of surgery. As for the analysis of a qualitative effect, 55 oocytes from E-Ov were compared to 128 oocytes from H-Ov in terms of normal fertilization rate and the rate of top-quality embryos per normally fertilized eggs. Furthermore, 10 embryos derived from oocytes recovered from E-Ov were compared to 24 embryos derived from oocytes from H-Ov in terms of clinical and on-going pregnancy rates per embryos in 34 single embryo transfer cycles. All the study protocols are approved by IRB and a written informed consent was obtained from each patient.
RESULTS: Mean number of oocytes recovered from E-Ov was significantly smaller than that from H-Ov (2.2±2.0 vs. 5.1±3.3, P=0.009). There was no difference between oocytes from E-Ov and H-Ov as for normal fertilization rate (63.6% vs. 69.5%, P=0.43) and the rate of top-quality embryos (40.0% vs. 49.0%, P=0.34). Clinical and on-going pregnancy rates per embryos were also similar in embryos derived from oocytes recovered from E-Ov and H-Ov (40.0% vs. 25.0%, P=0.39 and 20.0% vs. 20.8%, P=0.96).
CONCLUSIONS: The quality of oocytes recovered from the ovary with a history of laparoscopic excision of endometrioma is not inferior to the quality of oocytes from contra-lateral healthy ovary.

P-037 Change of Anti-Müllerian hormone after endometrioma surgery by administration of oral contraception

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Background and aims: To investigate changes in serum anti-Müllerian hormone (AMH), concentrations following endometrioma surgery, and predictors of these changes.
Methods: Study design was Retrospective study. Women of reproductive age received laparoscopic endometriosis cyst surgery between March 2011 and September 2015. Thirty-three patients undergoing cystectomy for endometriomas (n=33). Serum AMH concentrations were measured preoperatively, 1 and 3 or 6 months postoperatively. Main outcome measures were changes in AMH after surgery and the association with parameters of endometriosis and surgery for endometriomas.
Results: The median AMH levels were 2.66, 1.39, 2.34, and 1.81 ng/ml preoperativery, 1, 3 and 6 months postoperatively. Twenty-five patients showed higher AMH levels 6 months postoperatively than 1 month postoperatively (recovery group); Eight patients showed lower AMH levels (not-recovery group). We could not find any statistically significant difference in the ages (p=0.16), cyst size (p=0.63), AMH presurgery (p=0.76), rASRM score (p=0.27) by surgery, but administration of oral contraception (p=0.02) between the two groups. Three patients were taking oral contraception in recovery group by contrast four patients in not-recovery group. 40% of revovery group have a successful pregnancy (6 patients in 15 patients) and 25% of not-recovery group have pregnant (1 patient in 4 patients).
Conclusions: AMH after endometrioma surgery can recover. Our results suggest that the use of oral contraception decrease serum AMH levels. And oral contraception might be arrest of folliculogenesis.

P-038 Can serum AMH level and ovarian blood flow be useful to predict the recurrence of endometriotic cyst following laparoscopic vaporization?

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Objectives: To investigate whether serum AMH level and ovarian blood flow can be the predictive factor of the recurrence following vaporization
Methods: We investigated 41patients who underwent laparoscopic vaporization for endometriotic cysts in the Department of Obstetrics and Gynecology of Hokusetsu General Hospital between June 2011 and December 2015. Blood samples were obtained from the patients at the early proliferative phase before surgery and 1, 6, 12 months after surgery. The evaluation of ovarian blood flow with color Doppler USG was carried out simultaneously with obtaining blood sample. Calculating vascular index (VI), Flow index (FI) and Vascularization Flow Index (VFI) of the VOCAL-designated area using 3D-power Doppler
Results: Age, the diameter of cyst and serum CA-125 level showed no statistical difference between non-recurrent and recurrent case. Serum AMH level of the recurrent case was statistically higher than that of the non-recurrent case. VI at 1 and 6months after operation of the recurrent case was of the recurrent case were statistically higher than those of non-recurrent case.
Conclusion: AMH level and ovarian blood flow can be useful to predict the recurrence of endometriotic cyst following laparoscopic vaporization.

P-039 Effect of laparoscopic electrocoagulation of endometrimas on ovarian reserve in infertile women

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Abstract Aim To retrospectively estimate the impact of laparoscopic electrocoagulation of endometrimas on ovarian reserve in infertile women. **Methods** From January 2011 to June 2015, infertile women underwent surgery with laparoscopic electrocoagulation of endometrimas. 97 patients were included and reviewed retrospectively. **Results** No significant changes in basal FSH and E_2 level at 6 months after surgery compared to preoperative level. There was a significant increase in the numbers of AFC at 3 months after surgery compared to preoperative measurements. There was a significant decrease in basal FSH level in the groups of patients with endometrioma largest diameter ≥3cm, Age ≥35 years, FSH>8 and (or) AFC ≤6 at 3 months after surgery compared to preoperative level, in other groups this differences was not detected. The number of AFC was statistically significantly higher in patients with endometrioma largest diameter ≥3cm, bilateral cysts, stage III, stage IV, especially in patients with FSH>8 and (or) AFC ≤6 (P=0.001). **Conclusions** Our results revealed that electrocoagulation of the cyst wall may be a valuable alternative treatment to cystectomy before IVF, especially for those women with a high risk of unrecoverable ovarian reserve impairment.

P-040 The Endometriosis fertility index (EFI) and preoperative FSH are effective choices for the postoperative fertility treatment of endometriosis surgery

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Objective: There has been an ongoing discussion whether to choose non-IVF or IVF as a postoperative treatment for infertility women with endometriosis. Recently, Endometriosis fertility index (EFI) which is a predictive scoring system for non-IVF pregnancy after the surgery has been widely noticed. However, ovarian reserve is not included in EFI scoring system. We evaluated the effectiveness of EFI and ovarian reserve as a postoperative fertility treatment of endometriosis operation. Method: 77 infertility patients with endometriosis who underwent operation between January 2009 and March 2016 followed by fertility treatment. We compared the patients' characteristic, EFI, revised American Fertility Society score (rAFS), and ovarian reserve tests including FSH and AMH between the non-IVF pregnancy including AIH (n=16) group and the non-pregnancy including IVF pregnancy (n=61) group. Informed consent was obtained in treatment. Result: There was a significant difference in age between non-IVF pregnancy group and non-pregnancy group (mean±SD: 32.1±3.3 vs 34.3±3.5, respectively, p value=0.028). The EFI of the pregnancy group is significantly higher than that of the non-pregnancy group (6.4±1.4 vs 5.4±1.8, p value=0.043). Preoperative FSH (mIU/ml) of pregnancy group is significantly lower than that of the non-pregnancy group (6.1±1.6 vs 8.5±3.1, p value=0.039). There was no significant difference among the preoperative AMH (ng/ml) between pregnancy group and non-pregnancy group (4.0±2.7 vs 3.0±2.8, p value=0.39). Conclusion: This study showed that combination of the EFI and preoperative FSH might be effective choice as a postoperative fertility treatment for infertility women with endometriosis.

P-041 Serum anti-Müllerian hormone levels after laparoscopic ovarian cystectomy

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Objective To evaluate the effects of laparoscopic cystectomy of endometrioma and nonendometrioma ovarian cyst on ovarian reserve within one year, and to identify the factors in predicting ovarian reserve.
Methods Seventy-five patients underwent laparoscopic ovarian cystectomy, with bilateral endometrioma (n=22), unilateral endometrioma (n=28), and unilateral other benign ovarian cyst (n=25). Twenty-one patients with laparoscopic myomectomy or hydrotubation at the same period were treated as the control group. Ovarian reserve was assessed by serum anti-Müllerian hormone (AMH) preoperatively, and at 1,6 and 12 months postoperatively. Correlations between several factors and the rate of decline of AMH levels were analyzed by bivariate correlation analysis.
Results The preoperative AMH levels were similar between groups. AMH levels obviously decreased at one month postoperatively compared with preoperative levels in endometrioma group especially in bilateral endometrioma ($P<0.05$). However, there were no significant difference at 6, 12 months postoperatively ($P>0.05$). AMH levels were not significantly decline in nonendometrioma ovarian cyst after surgery. The rate of AMH decline was statistically significantly greater in bilateral endometrioma group compared with other two groups ($P<0.05$).
Conclusions There was no detectable difference on AMH levels between four groups and from baseline values at sixth month and twelfth month after laparoscopic ovarian cystectomy of endometrioma, although the AMH levels were significantly declined in the first month postoperatively. Bilaterality was the only significant factor correlating with postoperative AMH decline.

P-042 Risk factors for recurrence after laparoscopic conservative surgery in premenopausal women with previously untreated stage III-IV ovarian endometriomas

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Objective: To analyze the risk factors associated with recurrence after laparoscopic conservative surgery in premenopausal women with previously untreated ovarian endometriomas.
Materials and Methods: The inclusion criteria consisted of 1) premenopausal women, 2) previously untreated ovarian endometrioma, 3) the revised American Fertility Society (rAFS) stage III-IV, 4) laparoscopic complete excision of endometriosis, 5) preservation of uterus and ovarian tissue in one or both ovaries, and 6) follow-up longer than 6 months.
Results: A total of 874 patients met the inclusion criteria. After the mean follow-up time of 36 months (range, 6-141 months), recurrent endometrioma was detected in 61 patients. In univariate analysis, younger age, parity, infertility, dysmenorrhea, elevated CA 125 level, concomitant myoma, multiple endometrioma, bilateral endometrioma, and ovarian hyperstimulation (OH) during the observation period were significantly associated with the increased risk of recurrence. However, body mass index, size of endometrioma, rAFS score, rAFS stage, postoperative gonadotropin releasing hormone analogue or oral pill, pregnancy during the observation period were not predictive for recurrence. In multivariate analysis, younger age, dysmenorrhea, concomitant myoma, and OH after surgery were significant factor for predicting recurrence.
Conclusion: After laparoscopic conservative surgery for previously untreated stage III-IV ovarian endometrioma in premanopausal women, younger age, dysmenorrhea, concomitant myoma, and OH after surgery were significant factor for predicting recurrence.

P-043 Recurrent pattern of endometrioma: 10-year follow-up analysis

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Endometriosis is highly recurrent disease, but long-term evaluation of recurrent pattern has not been reported yet. To evaluate incidence and pattern of endometrioma recurrence for 10 years, we analyzed the clinical data of 226 patients who received the laparoscopic operation for endometrioma at 1997-1999 (2 years) and was followed-up until 2010 (10-12 years). Endometrioma was not recurred in the 188 patients (83.2%) for 10 years (group A), and recurred twice (group B) in the 28 patients (12.4%) and three times and more (group C) in the 10 patients (4.4%). The comparisons among three groups were done by age, the levels of tumor markers (CA125, CA19-9, and CA72-4), degree of adhesion (grade 0-3 by none, mild, moderate and severe) and the duration of recurrence. The mean age, the levels of tumor markers, and the degrees of adhesions were not significantly different. However, the time interval from surgery to first recurrence of endometrioma in group C was shorter than that in group B (2.6±2.3 years *vs.* 4.2±2.1 years, $P<0.05$). The time interval between first and second recurrences of endometrioma was 3.6±0.9 years, and it was not significantly different compared to that between surgery and first recurrence. In summary, no clinical factors predict recurrent endometrioma. If recurrence was not occurred within 6-7 years, further recurrence of endometrioma may not be occurred. Further studies of underlying genetic factors and biological mechanisms may be needed.

P-044 Management of deep infiltrating endometriosis by laparoscopic surgery: 12-year experience.

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Background: Deep infiltrating endometriosis (DIE) was defined as endometriosis infiltrating the peritoneum by >5 mm. DIE is associated with very severe pain and infertility. When gastrointestinal or urinary structures are involved, dyschezia, dysuria, and/or hematuria may be present. Laparoscopic excision of DIE is frequently advocated as a treatment option.
Aims: We investigate our surgical management and recurrence of DIE.
Methods: This case-series study enrolling patients managed for DIE in our department was carried out between February 2004 and April 2016. A total of 29 patients with diagnosis of DIE were included.
Results: Thirteen patients underwent excision of DIE. Among the patients, 8 women had undergone a complete laparoscopic resection, and 2 women had undergone abdominal resection, and 3 women had undergone excision of DIE by TUR-Bt or transvaginal surgery. All patients had no intraoperative or postoperative complication in laparoscopic resection. Among the patients who undergone abdominal resection, one of them had bowel endometriosis with intestinal perforation, and the other had severe recto-sigmoid and ureter endometriosis. These operations were undergone with surgeons and/or urologists. Three patients who underwent excision of DIE had relapse. Two of them were undergoing infertility treatment. There was no recurrence in patients who had a complete resection of DIE.
Conclusions: Laparoscopic surgical management of DIE is feasible except for very severe DIE. Patients who had undergone an incomplete resection and had not been administered with postoperative hormonal treatment had recurred. If patients who don't desire to bear children, we should undergo a complete resection to prevent recurrence of DIE.

P-045 Comparison of preoperative treatment contribute minimally invasive surgery for ovarian endometrioma

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Preservation of ovarian function with removing tumors is an important problem, science ovarian endometrioma relatively develops in youths and corresponding to reproductive ages. The aim of this study is to evaluate the influence and value of hormonal treatment before laparoscopic surgery. This study obtains consent of Institutional Review Board of Toho University medical center Omori hospital. **Thirty** patients who scheduled laparoscopy for ovarian endometrioma from 2010 to 2013 are assigned to **three groups, using a GnRH analog for preoperative treatment group(GnRHa), using a Dinogest for preoperative treatment group(Dinogest) and none treatment group(non-T) randomly. Three groups were compared operative time, total amount of bleeding, cystic wall peeling time, coagulation time and number of primary follicles pathologically. There are no difference in size of endometrioma, r-ASRM score and amount of bleeding among three groups. In operative time, Dinogest group (44.6min) is shorter than GnRHa group (61.2min) and non-T group (52.2min). In coagulation time, Dinogest group (34.3sec) is shorter than GnRHa group (62.5sec) and non-T group (89.3sec).. In number of primary follicles which shown in resected specimen, Dinogest group (0.8 follicles per microscopic field)** is less than **GnRHa** group **(1.7 follicles per microscopic field)** and **non-T group (4.0 follicles per microscopic field).** Using Dinogest for preoperative treatment contribute **minimally invasive surgery for ovarian endometrioma, with shortning coagulation time and reducing number of primary follicles in resected specimen.**

P-046 Preoperative risk factors in recurrent endometrioma after primary conservative surgery

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Objectives
Endometriosis is a common gynecological disorder caused by ectopic implantation of endometrial glandular and stromal cells outside the uterine cavity. Among several types of endometriosis, endometrioma is the only subtype that could be determined preoperatively using pelvic ultrasonography, and guidelines recommend pathologic confirmation of endometrioma greater than 3 cm in diameter. However, although surgery is performed in cases of endometrioma, endometrioma has a high cumulative rate of recurrence. Therefore, because determining the possibility of recurrence before performance of initial surgery is important, we examined preoperative factors associated with recurrent endometrioma.
Methods
This was a retrospective, comparative study including 236 patients who visited the outpatient clinic between January 2009 and December 2011. Patients who were pathologically diagnosed with endometrioma were included in this study. They were followed up postoperatively and were divided into two groups according to presence of recurrent endometrioma.
Results
We examined associations between baseline factors and recurrent endometrioma. In multivariate analysis, dysmenorrhea and cyst septation were statistically significant after adjusting with age, parity, surgical staging and postoperative management. We examined cumulative recurrence free survival within cases of recurrent endometriosis, based on the presence of inner cyst septation. The cumulative recurrence free survival was lower in cases with septation.
Conclusions
Our study found that recurrent endometrioma is more likely in patients with inner cyst septation and the recurrence occurred within a shorter duration of time than in patients without inner cyst septation on preoperative ultrasonography. Therefore intensive caution and postoperative long term medical therapy would be appropriate in these patients.

P-047 Risk factors for recurrence of ovarian endometriomas after surgical treatment

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STUDY OBJECTIVE: Since ovarian endometrioma is a common disease among women with endometriosis, surgical treatmment of the endometrioma is performed in most cases. Endometriomas, however, often recur after surgical treatment. The aim of this study is to analyze those risk factors which influence the recurrence of endometrioma after laparoscopic excision.
METHODS: A total of 123 patients who undertook laparoscopic ovarian endometrioma excision between November 2009 and July 2015 at Hokusetsu General Hospital were studied retrospectively. Of those 123, 60 underwent cystectomy and 63 underwent ovarian vaporization. Recurrence was defined as the presence of any endometriomas over 2cm in size and identified by regular ultrasonographic examinations. The recurrence of menstrual pain was defined as pain recurring after surgery with visual analogue scale equal to or higher than that before surgery. Sixteen factors were analyzed using Cox's proportional hazards model.
RESULTS: The rate of pain recurrence was 5.0% versus 7.9% in cystectomy versus vaporization, and no significant risk factors were associated with pain recurrence. The rate of cyst recurrence was 2.4% versus 4.2% in cystectomy versus vaporization, and significant factors that were associated with a higher cyst recurrence were a higher CA125 level [odds ratio (OR)= 0.995,95% confidence interval (95%CI)=0.991-0.998, P=0.0056)] and higher preoperative AMH level (OR=0.899 95%CI=0.847-0946, P<0.0001).
CONCLUSION: The results of this study indicate that patients who have a higher CA125 or higher preoperative AMH level have a high risk of endometrial cyst recurrence after surgery. As a result, adjuvant hormone therapy should be considered in some cases.

P-048 Clinical outcomes of conservative surgery for ovarian endometrioma among older women aged≧40 years

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Objective: To evaluate the clinical outcomes of conservative surgery for endometriosis among older women aged ≥40 years.
Methods: A retrospective review of the clinicopathologic data and clinical outcomes was performed on patients ≥40 years of age who underwent endometriosis surgery between 2011 and 2012. Patients who were followed up for at least 6 months after surgery were included in the study analysis. Recurrence was considered when sonography indicated an endometriotic cyst of ≥20 mm. Postoperative menopause was diagnosed either when the amenorrhea duration was over 12 months or when the FSH level was ≥30 IU/mL in the presence of vasomotor symptoms. Risk factors for recurrence and postoperative menopause were analyzed by chi-square test or Fisher's exact test as appropriate.
Results: A total of 157 patients aged ≥40 years were included in the final analysis. The median age was 43.1 years (range, 40-54 years). Most of the surgeries were performed via laparoscopy (93.6%), and ovarian cystectomy was most commonly performed (82.2%). Adjuvant treatments, including oral pills or gonadotropin-releasing hormone agonists, were applied in 67.5% of patients. During a median follow-up period of 29.5 months (6.1-64.8 months), 3 recurrences (1.9%) were diagnosed. Among 150 patients who were premenopausal before surgery, 21 patients (14.0%) were menopaused after a median period of 25.1 months (0-52.2 months). Endometriosis stage, particularly cul-de-sac obliteration, was moderately associated with development of menopause (p=0.038).
Conclusions: In this preliminary study, the recurrence risk after endometriosis surgery among older women was low. Risk of postoperative menopause was associated with the endometriosis stage.

P-049 The pattern of medical treatment after endometriosis operation

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The objective of this study was to evaluate medical treatment patterns in doctors for patients with endometriosis after operation in one region.
Six doctors, three oncologists and three endocrinologists, participated this retrospective chart review at four national university hospitals.
Sequential cases of women identified on chart review with chronic pelvic pain unresponsive to dysmenorrheal treatment who underwent initial laparoscopy or laparotomy for diagnosis and surgical destruction of endometriosis. Two hundred and twenty four consecutive cases between January 2015 and December 2015 were analyzed.
Patients were 36.89±8.74 years of age at the time of the initial laparoscopy or laparotomy. The median endometriosis stage at operation was stage III by ASRM score. The basic characteristics of patients made no difference between gynecologists and endocrinogolists.
211 patients were treated with 1st line medical therapy after surgery with GnRH agonist (83%) or oral contraceptives (17%). 13 patients did not receieve the medical treatment for prgnancy. Then, the decision for administering second-line medical treatment was, in most cases, at the discretion of the physician The 2nd line medical treatment after operation was used to 106 patients (50.1%). Of these, gynecologist prescriebed that to 20 (18%) of the 106 patients, endocrinogolist to 86 (92%) the 90 patients. There was a significant likelihood for 2nd line medical treatment in endocrinologists.
In conclusion, it is important to share the guideline for the treatment of endometriosis regularly.

P-050 Transvaginal aspiration and ethanol sclerotherapy (TVUAE) in cystic recurrence of previous endometriosis surgeries? a 5-year follow up

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Objective: To evaluate the long term efficacy of cyst aspiration and ethanol sclerotherpy in cases of cystic recurrence after previous endometriosis surgeries.
Methods: A hundred eighty-three women with recurrent adnexal cysts underwent 277 transvaginal aspiration and ethanol sclerotherapy between July 2001 and July 2005. All patients sufferred from recurrent cystic lesion sized between 3.0cm and 10.0cm in diameter. All cysts were pre-evaluated to exclude dermoid cysts, multiseptation cysts, cysts with papillary protrusions or solid components.
Transvaginal ultrasound guided aspiration performed with normal saline irrigation followed by 95% ethanol irrigation for 3 to 5 minutes then either removed (irrigation group) or retained insitu. All patients were followed at 3 months, 6 months, 12 months, then annually till 5th months or further.
Results: During the 5-year follow-up period, cyst size reduced to a maximal range at 12th month (36.5%). The size change became slurggish till the end of 5th year (52.0%) excluded those patients with repeat surgeries. Ninety-two cases recieved re-aspiration therapy at an average of 21.7±16.1 months; while 50 casies recieved major abdominal surgeries at an average of 20.6±17.9 months. Ninteen over 133 infertile patients (17.5%) achieved spontaneous or assisted pregnancy at an average of 10.0±11.3 months. At the end of 5 years, 47 patients over 110 patients who were free of repeat surgical interventions had persistent cystic lesion sized 3.0cm or more (38.2%). The final success rate were 32.9%. Retention group obtained the less re-aspiration rates and longer re-operation period than the irrigation group.
Conclusions: Aspiration with ethanol sclerotherapy is a safe and efficient alternative therapy for cystic recurrent patients.

P-051 A case of extrauterine uterus-like mass coexisting with endometriosis

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A 35-year-old nulliparous woman visited the emergency room due to severe dysmenorrhea that made her syncope. Transabdominal ultrasonography was taken and under the diagnosis of bilateral endometriomas each measuring 6cm and 7cm, an emergency laparotomy was done. The uterus was normal in size and shape. Right ovarian cystectomy including the endometriotic cyst was successfully done preserving the normal ovarian tissue. The left fallopian tube and the ovarian ligament were intact. Left ovarian cystectomy was not feasible because of the unusually hard consistency of the left ovarian mass. It had to be taken out as a whole. The pathologic diagnosis of her right ovarian cyst came out to be an endometrioma as expected, but her left ovarian cyst consisted endometrial lining surrounded by smooth muscle cells which resembled a normal uterus. Ovarian epithelial cells were pushed to the margin of the uterus-like mass replacing the left ovary. Less than 25 cases of uterus-like mass developing in sites other than the uterus itself have been reported since Cozzutto published the first case in 1980. The pathophysiology of this unusual finding is proposed to be a mechanism of metaplasia of the ovarian stromal cells into smooth-muscle cells of the uterus, but further investigation is needed. I hereby report a case of a uterus-like mass that arose in the ovary with the background of endometriosis.

P-052 Case report: Bladder deep infiltrated endometriosis

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Urinary tract endometriosis can occur in up to 52% of women presenting with deep endometriosis. Bladder is the most frequent location in cases of urinary endometriosis. Surgical removal has been recommended for treatment but long-term outcomes remain unclear.
A 35-year-old G0P0 woman presented with symptoms of dysmenorrhea and dysuria. Gynecologic ultrasound revealed a 4 cm sized cystic mass on the left ovary and a 3 cm sized protruding solid mass inside the bladder. Cystoscopy showed an irregular shaped mass in the bladder. Since the patient did not want partial cystectomy, we only removed small part of the bladder mass for biopsy via transurethral endoscopy, and also performed laparoscopic left ovarian cystectomy. Histological review confirmed endometriosis of both the left ovary and the bladder. The patient was treated with dienogest 2mg for 12 months. The size of the mass inside the bladder remained the same, but the symptoms has been improved.
Medical treatement for deep infiltrated endometriosis inside bladder can be an option for patients who do not want extensive surgery.

P-053 A report of two cases ileal endometriosis which showed different conditions of pelvic endometriosis.

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Ileal endometriosis is an uncommon disease that often cause bowel obstruction, and may require emergency operation. We report two case of patients with ileal endometriosis which both showed bowel obstruction, but had completely different conditions with pelvic endometriosis.
[Case 1] 28-yo 0G0P. Her chief complaint was dysmenorrhea and vomiting during periods. She visited at ER on the fifth day of period. Bowel obstruction was suspected by CT-scan. We performed an emergency laparoscopic surgery, and found a thickened bowel wall and strong obstruction involving the terminal ileum. Her Douglas pouch was completely closed and chocolate cysts were noted in both ovaries. The r-ASRM score was 116 points, severe. An excision of endometriosis and ileocecal resection was performed. Ileal endometriosis was confirmed by the pathological examination. Her symptoms were improved. [Case 2] 43-yo 4G3P. Her chief complaint was repeated upper abdominal pain during the periods. She visited at the emergency room and was performed laparoscopic surgery in the diagnosis of intestinal obstruction. Distal ileum had been confined by the adhesion of endometriosis. However, only scattered pelvic endometriosis was revealed. Both ovaries were normal and Douglas was open. The r-ASRM score was 5 points, minimal. An electrocauterization of endometriosis and ileocecal resection was performed. Her postoperative course was good.
Ileal endometriosis often cause acute bowel obstruction. In our cases, even if endometriosis affect t intestinal tract, pelvic endometriosis is not always severe. Therefore we must consider intestinal or other organ endometriosis if patients repeatedly complain of symptoms during the periods.

P-054 Endometriosis cysts of the cervix: a case report and review of the literature

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BACKGROUND: Giant and heterogeneous endocervical cysts are rare and need to be differentiated from cervical neoplastic lesions. CASE REPORT: The authors report a 37-year-old woman presenting with a giant heterogeneous endocervical cystis associated with hypogastralgia and vaginal bleeding. The giant heterogeneous endocervical cystis originated in part from the endocervix. This trilobular mass (53×27×44mm) had small cysts on the surface and focal areas of haemorrhage. Microscopic examination revealed areas with expanses of endometrial stroma and endometrial glands. CONCLUSION: Endometriosis cystis of the cervix is rare and it is a distinct form of endometriosis that may be mistaken for a neoplasm. The earlier reports of this entity have rare described. We conclude that this condition be considered in the differential diagnosis of cervical nepplasm. A comprehensive understanding of the history, and imaging data is helpful to diagnosis, but pathology after operation need to be confirmed.

P-055 Withdrawn

P-056 Giant ovarian endometriotic cyst associated with non-communicating rudimentary uterine horn in the absence of dysmenorrhea in an adolescent girl

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Introduction: Obstruction or stenosis of the menstrual outflow pathway may cause pelvic endometriosis because of retrograde menstruation through the Fallopian tube. Most such patients complain of severe dysmenorrhea accompanied by menstrual molimina. Here, we present a case of giant ovarian endometriotic cyst associated with ipsilateral non-communicating rudimentary uterine horn in an adolescent girl who did not present any menstrual disorder. Case: A giant ovarian cyst was incidentally detected during an evaluation of proteinuria in a 16-year-old girl. She had regular menstrual cycles, without dysmenorrhea. Magnetic resonance imaging revealed a giant hemorrhagic cyst, with the longer axis measuring 15 cm, filling the pelvic cavity. A small uterus appeared to deviate toward the right pelvic wall because of compression by the cyst. We performed left salpingo-oophorectomy for resection of the cyst. After removal of the left adnexa, we eventually recognized a right unicorn uterus with a left non-communicating rudimentary uterine horn. We also identified severe pelvic endometriosis. Because of obstruction to menstrual outflow from the rudimentary horn, severe dysmenorrhea associated with menstrual molimina was apparent. Therefore, we removed the rudimentary horn as a second procedure. Severe dysmenorrhea improved after the surgery.
Conclusion: It was difficult to detect the non-communicating rudimentary uterine horn in the absence of a functional endometrium by preoperative imaging in the current case; however, the rudimentary horn may have been related to an ipsilateral ovarian endometriotic cyst, and may induce severe dysmenorrhea once the functional endometrium developed. Therefore, simultaneous resection of the endometrial cyst and rudimentary horn was desirable.

P-057 A case of ovarianendometrioma accompanied by microinvasive endometrioid adenocarcinoma of 4×2mm

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[Objectives] Ovarian endometrioid adenocarcinoma is a common tumor representing 15.5% of all malignant surface epithelial-stromal tumors, and its relationship with ovarianendometrioma has been suggested. This time we experienced a case of microinvasive endometrioid adenocarcinoma measuring 4×2 mm which was considered to have arisen from ovarianendometrioma. Considering it to be a rare case based on its invasion pattern, we report the results of special staining and immunostaining as well as bibliographic consideration. [Case] The patient was a 50-year-old woman, G0P0, menopause at 45, with the history of excision of ovarianendometrioma, submucosal myomectomy and osteoporosis. She visited a clinic with abdominal pain, where hematosalpinx was pointed out. She had been followed up with HRT for osteoporosis. In a subsequent follow-up visit, a right ovarian tumor measuring 6 cm was found and she was referred to our department for surgical purposes. Tumor marker levels (CEA,CA125,CA19-9) were not elevated. She underwent three times of contrast MRI, all of which resulted in the diagnosis of hematosalpinx and right ovarianendometrioma. However, only the first MRI revealed an enhanced solid lesion, for which malignancy could not be negated, and laparoscopic bilateral adnexectomy was performed for diagnostic purposes. Postoperative pathology resulted in diagnoses of ovarian endometrioid adenocarcinoma G1 measuring 4×2 mm with a background of endometriosis and, separately, endocervical-like mucinous borderline tumor. This endometrioid adenocarcinoma fell in the category of microinvasive carcinoma according to the General Rules for Clinical and Pathological Management of Ovarian Tumors, and endometrioid borderline tumor/atypical proliferative endometrioid tumor according to the WHO classification.

P-058 Ureteral endometriosis: analysis of 47 cases

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Objectives: To investigate the diagnosis and treatment of ureteral endometriosis. **Methods:** We performed a retrospective study of 47 cases diagnosed as ureteral endometriosis with surgery confirmed in Peking University First Hospital from January 2000 to October 2015. Results: The prevalence of ureteral endometriosis was 1.1%, with an average age of 41.3years. Among 47 cases, urological symptoms and pelvic pain including dysmenorrheal, periodic abdominal pain and osphyalgia are the main forms of clinical character, while 10 patients were asymptomatic. All patients with ureter endometriosis had hydronephrosis and hydroureter before surgery, hydronephrosis were right sided in 25 patients, left sided in 22 patients. The distal and middle sections of ureteral obstructions exist in 41 patients and 6 patients. Nine patients presented intrinsic lesions. Out of the 47 ureteral lesions 34 were extrinsic. Laparotomy was decided in 21 patients, and laparoscopy in 26 patients. In cases of ureteral surgery, ureterolysis, ureteroureterostomy, ureteroneocystostomy and unilateral nephrectomy were undertaken in20, 15, 8 and 4 patients separately. The median follow-up was 51 months, with 8 cases lost. During the follow-up period, hydronephrosis recurred in 1 patient. **Conclusions:** Because of the lack of specific symptoms, ureteral endometriosis potentially lead to serious consequences which should received additional consideration. Surgery is the treatment of first choice to remove endometriotic lesions and relieve ureteral obstruction.

P-059 The Impact of Japan enlightenment committee in endometriosis (JECIE) activities

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【Background】
Japan Enlightenment Committee in Endometriosis (JECIE) is a non-profitable organization established in 2012, aiming to increase public awareness of endometriosis in Japan. JECIE projects contain giving lectures to various health advisers such as nursing teachers by gynecologists, leafleting, pressing, broadcasting, and establishing information stations using a website and social-networking systems. The targets of these projects are company employees (both men and women), college students, adolescent girls and their mothers. This report shows the impact of JECIE's projects on numbers of women who visited medical institutions for management of endometriosis/dysmenorrhea, and prescribed medications for endometriosis/dysmenorrhea in Japan. These numbers were determined according to the Japanese National Health Insurance database. The annual increasing rate of 2013 was compared with that of 2010, 2011 and 2012.
【Results】
The number of patients who visited medical institutions for treatment of endometriosis/dysmenorrhea was 732,621 in 2010, 777,311 in 2011, 931,700 in 2012 and 1,010,030 in 2013. When compared between 2011 and 2013, the number of LEP prescription increased by 26.2% for endometriosis and 54.2% for dysmenorrhea, and the number of dienogest prescription increased by 47.6%. The number of Chinese medicine and NSAIDs prescription did not increase in compared with the increase patients number.
【Conclusion】
The number of patients who sought medical consultations for endometriosis/dysmenorrhea increased after launch of JECIE activity. Further studies are needed to clarify effective initiatives for boosting public awareness of endometriosis and motivating women to seek medical attentions.

P-060 miR-503 regulates the extracellular matrix contractility of endometrioic cyst stromal cells

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Background and aims
In the pathogenesis of endometriosis, a number of roles for miRNAs are becoming apparent. We designed the present study to evaluate the role of miR-503 using the miR-503-transfected endometrioic cyst stromal cells (ECSCs).
Methods
We assessed the functions of miR-503, a miRNA that is downregulated in ECSCs, in the pathogenesis of endometriosis by using the miR-503-transfected ECSCs. Real time RT-PCR and western blotting of Ras homology (Rho) A, Rho-associated coiled-coil-forming protein kinase (ROCK) 1, and ROCK2 were carried out. Collagen gel contraction assays were also performed.
Results
The mRNA expressions of Rho A, ROCK1, and ROCK2 in ECSCs were significantly suppressed by miR-503 transfection. The protein expressions of Rho A, ROCK1, and ROCK2 in ECSCs were also suppressed by miR-503 transfection. When untreated ECSCs were cultured in 3-D collagen gels, the cells contracted the initially loose network to a dense tissue-like structure. Their morphology was dendritic to stellate. In contrast, the morphology of the ECSCs transfected with miR-503 remained round to polygonal in comparison to the control cells. In addition to the morphological changes, miR-503 transfection decreased the cell density of ECSCs.
Conclusion
The transfection of miR-503 into ECSCs resulted in the suppression of Rho/ROCK pathways and the attenuation of extracellular matrix contractility.
It has been suggested that the mevalonate-Rho/ROCK pathway plays important roles in the formation of endometriosis-associated fibrosis.
The present study is the first to demonstrate that miRNA could regulate the exptracellular matrix contractility through regulating the mevalonate-Rho/ROCK pathway.

P-061 Effects of the hypoxia-inducible factor-1 inhibitor echinomycin on vascular endothelial growth factor production in human ectopic endometriotic stromal cells

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Background: *Recent evidence points to a possible role for hypoxia-inducible factor (HIF)-1 in the pathogenesis and development of endometriosis.*
Aims: *To investigate the critical role of hypoxia-inducible factor (HIF-1) in endometriosis and the effect of the HIF-1 inhibitor echinomycin on human ectopic endometriotic stromal cells (eESCs).*
Methods: *Ectopic endometriotic tissues were obtained from 20 patients, who received an operation for ovarian endometriomas. We examined vascular endothelial growth factor (VEGF) and stromal cell-derived factor-1 (SDF-1) production, HIF-1 expression, cell proliferation and apoptosis of eESCs.*
Results: *Cobalt chloride (a hypoxia-mimicking agent) significantly induced expression of HIF-1α protein and VEGF production in a time-dependent manner in eESCs, but reduced SDF-1 production. VEGF production was significantly suppressed by treatment of 100 nM echinomycin without causing cell toxicity, but 0.1-10 nM echinomycin or 100 nM progestin had no significant effect. SDF-1 production was not affected by echinomycin treatment at any dose. Echinomycin inhibited cell proliferation and induced apoptotic cell death of the eESCs, and significantly inhibited expression of the anti-apoptotic proteins Bcl-2 and Bcl-xL.*
Conclusions: *Echinomycin inhibits VEGF production and induces apoptosis of eESCs by suppression of Bcl-2 and Bcl-xL. These findings suggest the unique therapeutic potential for echinomycin as an inhibitor of HIF-1 activation for endometriosis treatment.*

P-062 Decidualization differentially regulate microRNA expression in eutopic and ectopic endometrial stromal cells

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Decidualization of the endometrium and endometriosis involves the morphological and biochemical reprogramming of the estrogen primed proliferative stromal compartment under the continuing influence of progesterone. The aim of this study was to evaluate the involvement of microRNA in the decidualization processes of normal endometrial stromal cells (NESCs) and endometriotic cyst stromal cells (ECSCs). With written informed consent and approval by institutional review board, NESCs and ECSCs were isolated from normal endometrium and ovarian endometriotic tissues, respectively. In vitro decidualization of NESCs and ECSCs was induced by long-term culture with a combination of 0.5 mM of dibutyryl-cAMP and 100 nM of dienogest. The effect of in vitro decidualization on the microRNA and mRNA expression profiles of the NESCs and ECSCs were investigated using global microarray techniques and an Ingenuity pathways analysis. Decidualization differentially enhanced the miR-30a-5p expression in NESCs and miR-210 expression in ECSCs. The enhanced miR-30a-5p expression in NESCs correlated with the increased mRNA expression of KLF9 and PER3 as well as the decreased mRNA expression of TLL1, TLL2, and PITX1. The enhanced expression of miR-210 in ECSCs correlated with the decreased mRNA expression of GHR and TK1. It is speculated that the loss of miR-30a-5pmediated mechanisms of decidualization and the acquisition of miR-210-mediated mechanisms of decidualization may be involved in the progesterone resistance in endometriosis. Further investigations are necessary to prove these hypothesis.

P-063 Differences of C-type lectin receptors in the peritoneal fluid of patients with endometriosis and gynecologic cancers

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Objective: Endometriosis, although not malignant, has clinically demonstrated properties of invasiveness and metastasis. The pathogenesis of endometriosis, however, has not yet been elucidated.
Methods: The levels of expression of C-type lectin receptors mRNAs, including those encoding Dectin-1, MR1, MR2, DC-SIGN, Syk, Card 9, Bcl 10, Malt 1, src, Dec 205, Galectin, Tim 3, Trem 1, and DAP 12, were measured by real time polymerase chain reaction in peritoneal fluid of 43 patients with benign masses (control group), 45 patients with endometriosis, and 44 patients with gynecologic (ovarian, uterine, and cervical) cancers. In addition, the concentrations of IgG, IgA and IgM were measured by enzyme-linked immunosorbent assays (ELISA) in peritoneal fluid of the same patients. Findings in the three groups were compared.
Results: The level of galectin mRNA was significantly lower, and the level of MR2 mRNA significantly higher, in the endometriosis than in the control group($p<0.05$).
Conclusions: C-type lectin receptors and immunoglobulins act cooperatively and are closely associated in the pathogenesis of endometriosis. The decreased expression of galectin mRNA in the peritoneal fluid of the endometriosis group suggests that endometriosis and gynecologic cancers have similar immunologic characteristics.

P-064 Effect of prolactin on human endometriosis-derived endometrial storomal cells

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■Introduction

Progestin is commonly used to treat endometriosis because it is effective in decidualizing endometriotic cells. Contrastingly, prolactin (PRL), secreted by the decidualized endometrial and endometriotic cells, suppresses the decidualization of endometrial cells in the uterus. Here, we studied the effect of PRL on endometriotic cells and their decidualization.

■Methods

This study was approved by the Institutional Review Board of Okayama University.

Endometriotic endometrial stromal cells (EESCs) were obtained from women (n=10) with ovarian endometrioma.

EESCs were cultured in medium containing 10^{-8} M estradiol (E2) or 0-100 ng/ml PRL for 48 hours. EESCs were incubated in the presence of 10^{-8} M E2, 10^{-7} M medroxyprogesterone acetate, 0.5 mM dibutyryl-cyclic adenosine monophosphate, and 0-100 ng/ml PRL for 9 days.

Total mRNA was extracted from these cells and real-time PCR was performed. These cells were also immunostained with anti PRL-R antibody.

■Results

In the presence of PRL, vascular endothelial growth factor (VEGF) mRNA expression was significantly increased compared with that of the control. EESCs cultured with PRL had progesterone receptor (PR), PRL, and insulin-like growth factor binding protein-1 (IGFBP-1) mRNA levels significantly downregulated compared with those observed in decidualized EESCs without PRL. PRL-R localization in EESCs cultured with E2 was considerably lower than that in decidualized EESCs.

■Conclusion

Although PRL has a progressive effect on endometriotic cells, without progestin the low PRL-R expression diminishes the effect of PRL. In the presence of progestin, PRL has inhibitory effect against decidualization by reducing PR expression.

P-065 Estrogen regulates pain through ERK/MAPK pathway in vitro and vivo

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Background and aims: Found the effect of estrogen on neuropathic pain, a significant characteristic of endometriosis. And confirm the role of MAPK pathway in this process. Methods: We build endometriosis models of SD rats without ovaries and different fold dose estrogen application (1*E, 2*E, 4*E group). Pain threshold was measured by heat tail-flick test after 24 days. Protein expression and phosphorylation of ERK in DRG tissue were detected by Western Blot. Other models without ovaries were treated with ER inhibitor on day 24. Pain threshold and ERK protein were detected also. DRG cell culture in vitro was performed routinely. The cells were treated with different concentration estrogen or estrogen and ER innibitor. ERK were detected again. Results: The pain thresholds in estrogen application groups were significant lower than the control. There was significant correlation between pain threshold and estrogen concentration. The protein expressions and phosphorylation of ERK were significant higher in 1*E group than the other three groups. After inhibitor administered, the pain threshold was significant improved. The protein expressions and phosphorylation of ERK were significant decreased. After DRG cells were treated with different concentrations of estrogen, the protein expression of ERK were improved, and it was phosphorylated rapidly. The levels were increased with the increased estrogen concentrations. However, when DRG cells were treated with ER inhibitor, no change was found about ERK. Conclusion: Estrogen can regulate pain through MAPK pathway in endometriosis. However, MAPK pathway was not the only pathway participating in the regulating process.

P-066 GnRHa induces both apoptosis and autophagy of endometriotic tissues by down-regulation of estradiol levels in women with endometriosis

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GnRH agonist (GnRHa) exhibits anti-proliferative and apoptosis-enhancing activities and has long been used for the treatment of endometriosis. This research tried to identify the signaling pathways and to evaluate the effects of GnRHa therapy on endometriotic tissues through studies of apoptosis and autophagy. A prospective controlled study in patients with stage III-IV endometriosis in a university hospital. The study group was treated with long-acting GnRHa at least 1 month before laparoscopic surgery (n=15), and the control group (n=15) was no GnRHa treatment before surgery. The data were expressed as the mean±SD of 3 or more independent experiments and statistical analysis was performed using *Student's t*-test. GnRHa treatment induced apoptosis via upregulation of Bax/Bcl-2 ratio ($p<0.05$) in endometriotic tissues. In addition, cytochrome c release and caspase-3 cleavage were also demonstrated by IHC staining. GnRHa induced autophagy in endometriotic tissue was shown by a significant increase in LC3-II expression, a hallmark of autophagy. Besides, GnRHa downregulated the phosphorylation of major components of mTOR pathway, such as p-Akt at Ser473, p-mTOR and its downstream substrates p-p70S6K and p-S6K ($p<0.05$). E2 is a potent inhibitor of apoptosis and it regulates the expression of several apoptotic proteins, including Bcl-2 and mTOR in endometriotic tissues. Indeed, compared with GnRHa treatment, decreased mTOR activity in endometriotic tissues *without GnRHa treatment* inhibited autophagy and apoptosis induction. Therefore, it can be postulated that altered induction of autophagy by aberrant mTOR activity is a feasible mechanism that facilitates the decreased apoptosis found in endometriotic tissues.

P-067 Copy number variation in pelvic endometriosis

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Objective: Endometriosis is one of the most common gynecologic disorders affecting, 2-22% of women of reproductive age. Despite extensive research of endometriosis including genetic studies, the etiology and pathogenesis are quite limited. This study was designed for identification and validation of copy number variation (CNV) in patients with pelvic endometriosis.
Materials and Methods: I genotyped subjects (65 cases of endometriosis and 673 matched controls with no pelvic endometriosis) for CNV screening on Affimatrix SNP Chip. 41 regions were screened for candidates of CNV and analyzed statistically by multiple logistic regression analysis. Real-time quantitative PCR (qPCR) was used for confirmation of candidate CNV regions for pelvic endometriosis.
Results: Association analysis was performed on 41 CNV regions (CNVR). Two CNVRs were identified with significant difference between the endometriosis and control group ($P<0.05$). CNVR of 1q21.3 was coding Aryl hydrocarbon receptor nuclear translocator (ARNT) and showed significantly lower incidence of copy number losses in the endometriosis group compared to controls ($p<0.028$). CNVR of 1p13.3 was coding glutathione S-transferase M1 (GSTM1), and showed much higher copy number gain CNVs in the endometriosis group compared to controls ($p<0.038$). Genomic qPCR showed significantly less deletion of CNV in the endometriosis group in 1q21.3 region ($p=0.032$). CNVR 1p13.3 was gained more in the group of endometriosis but there was no significance ($p=0.237$).
Conclusion: This study identified two CNVRs for endometriosis. 1q21.3 and 1p13.3 could be a potential target for screening and diagnosis of pelvic endometriosis.

P-068 Lower expression of latency-associated peptide on the surface of peritoneal fluid macrophages and lymphocytes in patients with endometriosis

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[Background and Aims]
TGF-β, known as a key factor in an etiology of endometriosis, is secreted as part of an inactive complex and to exert its biological activity, TGF-β must be released from the latent complex by cutting its peptide, latency-associated peptide (LAP).
[Methods]
We compared 18 women diagnosed as endometriosis with 18 control women. The Ethics Committee of our institution approved this study and written informed consent was obtained from participants. Peripheral blood (PB) and peritoneal fluid (PF) were collected during laparoscopy and isolated by density gradient centrifugation using Ficoll. Macrophages and lymphocytes were gated based on side light scatter and CD11b expression by flow cytometry. $CD11b^{high}LAP^{+}$ macrophages, $CD11b^{negative\text{-}dim}LAP^{+}$ lymphocytes and $CD45RA^{-}FoxP3^{high}CD4^{+}$ T lymphocytes (effector-Treg cells) were analyzed using monoclonal antibodies recognizing each markers, and the concentration of TGF-βwas evaluated in PF.
[Results]
The percentages of $CD11b^{high}LAP^{+}$ macrophages and $CD11b^{negative\text{-}dim}LAP^{+}$ lymphocytes among macrophage and lymphocyte gates, respectively, were significantly decreased in PF with endometriosis (p=0.01 and p=0.02, respectively), and no significant difference in PB (p=0.71 and p=0.18, respectively). The proportion of effector-Treg cells was significantly higher in PF with endometriosis (p=0.01) and not statistically significant in PB (p=0.76). Significantly higher concentration of TGF-β in PF with endometriosis was also demonstrated (p=0.03).
[Conclusion]
This study suggests that LAP on the surface of peritoneal fluid macrophages and lymphocytes is lower, while the proportion of effector-Treg cells is higher in patients with endometriosis.

P-069 Demethylation of CpG island promoter is associated with 14-3-3 ζ gene higher expression in stromal cells of endometriosis

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Our previous results have found that the mRNA and protein levels of 14-3-3ζ were higher in endometriotic versus endometrial stromal cells. To unravel the mechanism for aberrant 14-3-3ζ expression in endometrial and endometriotic stromal cells, the MALDI-TOF-MS was used to detect the methylation status of 14-3-3ζ promoter-associated CpG islands in the endometriotic stromal cells and endometrial stromal cells. We found that up-regulation of 14-3-3ζ mRNA and protein expression were demonstrated in endometriotic stromal cells and a marginal level of 14-3-3ζ mRNA and protein expression was observed in the endometrial cells. The 14-3-3ζ marginal endometrial cells showed a dense methylation pattern at the 14-3-3ζ promoter. In contrast, the majority of the CpG sites were not methylation in endometriotic cells. Treating endometrial cells with the demethylation agent 5-aza-dC enhanced 14-3-3ζ mRNA expression. These results imply demethylation of CpG island promoter is associated with 14-3-3ζ gene higher expression in stromal cells of endometriosis.
This work was supported by the National Natural Science Foundation of China (Grant No.81360096). This study was approved by the local ethics committees. Corresponding authors: Prof. Feng Wang and Ming He.

P-070 Decreased expression of ESR1 in endometriosis is caused by aberrant DNA methylation of T-DMRs (Tissue-dependent and differentially methylated regions)

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Estrogen receptor alpha (ESR1) shows tissue-specific expression. ESR1 has several upstream exons (uExons) from which ESR1 variants are transcribed. Previously, we revealed that ESR1 has tissue-dependent and differentially methylated regions (T-DMRs) at the upper regions of the promoters of each uExon, and that DNA methylation of the T-DMRs, but not of the promoter, regulates the tissue-specific expression of ESR1. Expression of ESR1 is known to be decreased in endometriosis compared with normal endometrium. Aberrant DNA methylation is involved in endometriosis. Here, we investigated whether aberrant DNA methylation of T-DMRs is involved in the decreased expression of ESR1 in endometriosis.
This study was approved by the Institutional Review Board of Yamaguchi University. Written informed consent was obtained from the participants. Since the transcription of ESR1 preferentially occurs from uExon-A, -B and -C, we first examined mRNA expression status of each uExon in endometriosis and normal endometrium. The endometriosis showed significantly lower expression statuses compared to the endometrium in all uExons. Then we examined the DNA methylation statuses of the promoter regions and T-DMRs in each uExon by Illumina HumanMethylation450K and bisulfite sequencing. The promoter regions showed DNA hypomethylation in both endometriosis and normal endometrium, while the T-DMRs of endometriosis showed significantly higher DNA methylation compared to T-DMRs of the endometrium. The inverse correlation between mRNA expression and DNA methylation statuses of T-DMRs suggests that DNA methylation of T-DMRs causes the decrease in ESR1 expression in endometriosis and these aberrant DNA methylation might contribute to the pathogenesis and development of endometriosis.

P-071 Network analysis revealed the possible upstream regulator genes involved in pathogenesis and development of ovarian chocolate cyst

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Pathogenesis of endometriosis is still unclear. We have reported that aberrant DNA methylation is involved in the pathogenesis of endometriosis. Recently, accumulating data have shown that several upstream regulator genes play important roles in various diseases by cellular reprograming. In the present study, we developed a transcriptional regulatory network analysis using genome-wide mRNA expression data and DNA methylation data to find a deregulated transcriptional regulatory network and its upstream regulator genes. Here, we searched the upstream regulator genes which are involved in the pathogenesis and development of endometriosis.
This study was approved by the Institutional Review Board of Yamaguchi University. Written informed consent was obtained from the participants. Endometrial stromal cells were isolated from **the eutopic endometrium (ESCs) of the cases with endometriosis and ovarian chocolate cyst (choESCs).** After the genome-wide mRNA expression analyses, **the expression profiles were integrated into the** transcriptional regulatory gene network data obtained from REACTOME database**. On this integrated data, we performed** transcriptional regulatory network analysis and found 9 candidates as upstream regulator genes of endometriosis. DNA methylation analysis showed that 5 of 9 genes had aberrant DNA methylation statuses. To validate the aberrant expression statuses of these genes, qRT-PCR analysis using additional ESCs and choESCs samples was performed. The expression statuses of *PPARγ* and *HOXC8* were significantly increased and *ESR1* was decreased in choESCs compared to ESCs.
We found *ESR1, PPARγ* and *HOXC8* as candidates of upstream regulator genes of endometriosis. These genes may play key roles in the pathogenesis and the development of endometriosis.

P-072 Association of ovarian cancer and recurrence of endometriosis patient using targeted next generation sequencing: a pilot study.

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Background: Endometriosis have increased in high recurrence rate. Endometriosis has mixed traits of benign disease and malignancy. Although epidemiological evidence of relationships between endometriosis and epithelial ovarian cancer (EOC) has been obtained mainly from many studies, the study about recurrence endometriosis is still needed to be elucidated.
Aims: We use the NGS to investigate the genetic polymorphism of recurrence endometriosis gene. In this study, our objective is found that DNA mutation or variants of recurrence endometriosis patient involve in DNA mutation pattern of ovarian cancer patient cluster.
Methods: We collected to recurred endometriosis tissue (N=2). the study protocol of collected tissues was approved by the hospital's institutional review board (SCHBC 2013-01-027). The two samples have severe endometriosis with more than rASRM stage 3. Targeted next generation sequencing based gen polymorphism identifies in recurrence endometriosis using TCGA data. We use the Ion Ampiseq™ Comprehensive Cancer Panel (CCP).
Results: After NGS analysis, target genes were selected to pathogenic mutations associated with ovarian cancer. Target gene list was that; ARID1A, BCL2, CCND1, ESR1, GATA2, KIT, KRAS, MUC1, PTEN, TP53. NGS-based mutational analysis of the GATA2 gene in two patients revealed a missense mutation (c.748 G>C, p. Pro250Ala, rs78245253).
Conclusion: Through a pilot study, our further study can be gene pattern analysis of severe endometriosis patient. Moreover, this genes of format are discovered, giving researchers a new tool for DNA mutation detection and discovery in recurrence endometriosis patient.

P-073 Harmful effect of endometriotic cyst on granulosa cell function in in-vitro study.

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Objective: Endometriosis is a common disease in reproductive age of women. The one of the clinical problem of endometriosis is disruption of fertility. Researchers have recently considered that the endometriotic cyst may affect the ovarian function. In the present study, we investigated the effect of endometriotic cyst on granulosa cell function. We also examined the response of gonadotropin on granulosa cell by endometriosis.
Methods: Endometriotic cyst stromal cells (ECSCs) were obtained from premenopausal patients who had undergone a salpingo-oophorectomy or cystectomy for ovarian endometriotic cysts under the informed consent. Isolated ECSCs were cultured and its supernatant was stored. The KGN cells, which is derived from granulosa cell tumor, were also cultured during the desired length in stimulation with ECSCs supernatant or follicle stimulating hormone (FSH). To investigate the intracellular signal transduction system in KGN cells, we performed a western immunoblotting analysis. This study was approved by the institutional review board (IRB) of the Faculty of Medicine, Oita University.
Results: ERK and Akt activity was increased by FSH stimulation in KGN cells. On the other hand, they were decreased by a combination of ECSC supernatant and FSH stimulation. The activity of p70 S6 kinase and 4E-BP1 were also decreased by their stimulation. Intracellular cAMP levels were increase by FSH, but it was also decreased by a combination of ECSC supernatant and FSH stimulation.
Conclusions: The activity of ERK and Akt were reduced by ECSC supernatant. These data suggested that endometriosis may contribute to the negative effect of ovarian function in reproduction.

P-074 DNA methylation status of progesterone receptor promoter regions in ovarian endometriosis

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Background: Endometriosis is a chronic gynelogical disorder, defined as the presence of endometrium-like tissue outside of the uterine cavity. Endometriosis is the most common causes of infertility and pelvic pain and affects 1 of 10 women in the reproductive age group. Progesterone resistance has been found in endometriosis and associated with the low levels of PGR. Since promoter hypermethylation is associated with gene silencing, we try to determine the methylation status of PGR promoter regions in endometriosis tissue using methylation specific PCR.
Methods: This research is a case-control study comparing 20 women with ovarian endometriosis and 20 women without endometriosis. Methylation status was analyzed with methylation spesific PCR. Statistical analyses was Mann-whitney test, a two-tailed p value less than 0,05 was considered significant.
Result: We found that methylation status in women with endometriosis (84,14%) was significantly higher than women without endometriosis (3,74%), statistically significant associations with the disease (p=0,000).
Conclusion: Promoter regions of PGR is hypermethylated in endometriosis as compared with control. This findings suggest that the promoter hypermethylation of PGR may contribute to the pathogenesis of endometriosis.
Keywords: Methylation, Progesterone receptor, endometriosis

P-075 Relationship between secretion of monocyte chemoattractant protein-1 and cell-extracellular matrix adhesion in endometriotic stroma cells.

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In the development of endometriosis, adhesion of endometrial cells to extracellular matrix is thought to be the initial step. Chronic inflammation is one of the features of endometriosis. However, mutual effects of these two important features have been hardly explored. Integrins have been demonstrated to regulate cell survival, proliferation and invasion via focal adhesion kinase (FAK) in many types of cells including endometriosis. Monocyte chemoattractant protein-1 (MCP-1) is one of the highly upregulated chemokines in endometriotic tissues.
The purpose of this study is to investigate FAK and adhesion-mediated MCP-1 secretion from endometrial and endometriotic stromal cells.
We purified and cultured stromal cells from surgically removed specimens of endometrium and endometriotic cysts. All human samples were obtained with informed consent. We assayed the concentrations of MCP-1 in the culture media of endometrial stromal cells with or without endometriosis (eESC and ESC, respectively) and endometriotic cyst-derived stromal cells (CSC).
The results showed that the concentration of MCP-1 was more than 10-fold in CSC culture media compared to ESC and eESC. MCP-1 secretion was increased by attachment to collagen and fibronectin, although significance was only found in the fibronectin. FAK inhibitor and Jnk inhibitor inhibited secretion of MCP-1 from CSC, while MEK inhibitor did not show any inhibition.
In conclusions, increased secretion of MCP-1 from endometriotic stromal cells was mediated via FAK which was stimulated by integrin-extracellular matrix adhesion. These results suggest that inflammatory response and cell adhesion is interrelated and implicated in the development endometriosis.

P-076 Androgen receptor gene CAG trinucleotide repeat polymorphism in patients with endometriosis

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Objective: To investigate the association between endometriosis and the CAG repeat polymorphism in the androgen receptor (AR) gene

Design: Case-control study

Materials and Methods: Four hundred twenty-one women diagnosed with endometriosis and 349 controls were included in this case-control study. The AR CAG repeat polymorphism was genotyped using the fluorescent polymerase chain reaction.

Results: There was no difference in the allele frequency of CAG repeats between patients with endometriosis and the controls. When the endometriosis group was divided by the ASRM stage, allele frequency of 24 CAG repeats was significantly higher in mild endometriosis (stage I-II) group compared to the controls (19.8% vs 13.3%, p=0.032). And patients with mild endometriosis showed higher frequency of genotypes with both alleles of 24 or higher CAG repeats compared to the controls (25.6% vs 15.2%, p=0.022).

Conclusions: The androgen receptor gene CAG trinucleotide repeat polymorphism is associated with an increased risk of developing mild endometriosis, but not with advanced stage endometriosis.

P-077 Hormonal treatment for women with endometriosis affects expression of natural cytotoxicity receptors on NK cells

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Background: We have reported the decrease of NKp46 expression on NK cell and the increase of IFN-γ and TNF-α producing NK cell in peritoneal fluid of endometriosis patient. However, the effect of low dose-estrogen-progestin (LEP) and dienogest for NK cells has not clarified yet.

Aims: To investigate the difference of the expression of Natural cytotoxicity receptors (NCRs: NKp46, NKp44, NKp30) on NK cells in peritoneal fluid among control, untreated endometriosis, endometriosis treated by LEP or dienogest.

Methods: NK cells in peritoneal fluid from women with severe endometriosis (n=59) and controls (n=70) were collected at operative laparoscopy. We divided endometriosis group into three groups; women with LEP treatment (LEP group (n=11)), women with dienogest treatment (dienogest group (n=6)) and women without treatment (untreated group (n=42)). The expression of NCRs and CD16 on NK cells were analyzed using multi-color flow cytometry. All women had given informed consent prior to entering the study, and the study was approved by the institutional review board.

Results: The percentages of $NKp46^+$ NK cells in dienogest group ($p<0.05$), LEP group ($p<0.05$) and control group ($p<0.01$) were significantly higher than that in untreated group. The percentages of $NKp30^+$ NK cells in LEP group ($p<0.05$) and dienogest group ($p<0.05$) were significantly higher than that in untreated group.

Conclusions: The expression of NCRs on NK cells in peritoneal fluid would be normalized by LEP and dienogest treatment. Besides, it was suggested that cytokine production of NK cells in peritoneal fluid in endometriosis women might be changed by LEP and dienogest.

P-078 The expression of vascular endothelial growth factor C and anti-angiogenesis therapy in endometriosis

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Background:
Angiogenesis is an important pathogenesis of Endometriosis. Vascular endothelial growth factor C (VEGF-C) is one of the most important factor in the regulation of angiogenesis. Anti-angiogenic treatment of endometriosis is still in the exploratory stage.
Aims:
Investigate the relationship between VEGF-C and endometriosis, the therapeutic effects of Endostar in the rat endometriosis model. And evaluate the value of VEGF-C as a serum marker of endometriosis.
Methods:
Tissue samples were obtained from 83 women with endometriosis and 30 women without endometriosis. The expression of VEGF-C was studied by immunohistochemistry. Serum VEGF-C values were measured by ELISA Kit. Viable implants were measured in rat endometriosis model after treated with Endostar (Recombinant Human Endostatin Injection) in 2 weeks. All tissue samples were obtained with informed consent and all procedures were performed in accordance with the Human Investigation Ethical Committee of Shanghai Fengxian District Central Hospital.
Results:
Immunohistochemical expression of VEGF-C was higher in endometriotic tissues than in control normal ovary tissues ($P<0.01$) and higher in the endomertriosis grade III-IV than in endomertriosis grade I-II ($p=0.013$). ROC curves for VEGF-C showed the specificity is 92.11%. In rat endometriosis model, we observed a significant reduction in the mean volume and weight of the endometriotic implants per rat in the treatment group as compared with the control group.
Conclusions:
VEGF-C may be involved in the pathogenesis of endomertriosis by regulating the angiogenesis. Soluble VEGF-C may be a new serum marker for diagnosis endometriosis. Endostar has therapeutic effects of endometriosis lesions in rat endometriosis model.

P-079 DNA methylation as diagnostic marker in endometriotic tissues

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Objective: Genome-wide profiling of DNA methylation seems to show a distinct facet of epigenetic backgrounds in endometriosis. In the hope of searching for DNA methylation as the diagnostic maker in endometriosis, we sought to extract CpG loci with aberrant methylation in endometriotic cells. We classified the DNA methylation depending on the rate of methylation and the association with gene expression.
Methods: The IRB of our institute approved this project. The chocolate cyst lining in the ovaries of patients with endometriosis was the source of endometriotic tissues. Endometrial tissues were obtained from uteri of premenopausal women who underwent hysterectomy for leiomyoma. In some experiments, the fallopian tube of patients with endometriosis was used. Stromal cells were prepared from these tissues. DNA methylation was assayed using HumanMethylation450 array. Gene expression was evaluated using RT-PCR, Western blots and immunochemistry.
Results: 1) Differentially methylated CpG loci were extracted from endometriotic cells. 2) We extracted promoter proximal CpGs and finally selected GATA6 gene for further analysis. 3) Hypomethylation within the gene body was demonstrated in endometriotic cells, but not in endometrial cells. 4) GATA6 was highly expressed in endometriotic tissues, but not in endometrium. 5) Interestingly, GATA6 expression was demonstrated in the fallopian tube of patients with endometriosis. 6) Molecular background of GATA6 expression in these tissues was examined using stromal cells.
Conclusion: Methylation of GATA6 gene may become a candidate for diagonostic marker in endometriosis. The finding that GATA6 is expressed not only in chocolate cyst, but in fallopian tube suggests a facet of pathogenesis and/or pathophysiology in endometriosis.

P-080 Therapeutic potential of activation of SIRT1 for endometriosis

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Background: Endometriosis has two aspects; chronic inflammatory and anti-apoptotic diseases. Sirtuin1 (SIRT1) plays a role in regulation of inflammation and apoptosis. We evaluated the anti-inflammatory and the pro-apoptotic effects of SIRT1 on endometriosis. **Methods:** This study is approved by the University of Tokyo review board. Resveratrol (RVT) and sirtinol were chosen for the activator and the inhibitor of SIRT1, respectively. Cultured endometriotic stromal cells (ESC) were pre-treated with RVT (0-40 μM) or sirtinol (20 μM) followed by TNF-α stimulation. Expression of IL-8 mRNA and protein in ESC were measured using RT-qPCR and ELISA, respectively. In order to assess the apoptosis, we treated ESC with 40 μM of RVT and measured the mRNA expression of survivin, one of the major anti-apoptotic molecules. We further examined the effect of RVT on the TNF-related apoptosis-inducing ligand (TRAIL)-induced apoptosis of ESC using Annexin-V stain.
Results: RVT suppressed TNF-α-induced IL-8 mRNA and protein expression in ESC in a dose-dependent manner. On the contrary, sirtinol enhanced IL-8 production from ESC even in the absence of TNF-α. RVT also reduced survivin mRNA expression in ESC by one tenth of the control. While RVT did not induce apoptosis by itself, RVT significantly enhanced TRAIL-induced apoptosis of ESC.
Conclusion: This study showed that activation of SIRT1 by RVT suppresses inflammatory response and enhances sensitivity to apoptotic stimulations in ESC, suggesting that RVT has a therapeutic potential for endometriosis.

P-081 The effects of connective tissue growth factor on the phagocytic activity of pelvic peritoneal macrophages in patients with endometriosis

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Objective: To evaluate the effect of connective tissue growth factor (CTGF) on the phagocytic activity of the peritoneal macrophages in patients with endometriosis.
Design: An experimental study on peritoneal fluid and serum samples from patients with endometriosis.
Materials and Methods: The Institutional Review Board of Cathay General Hospital approved this study. From Aug 01, 2011 to Jul 31, 2012, Eighteen women with endometriosis undergoing laparoscopy or laparotomy were included in the study. Women without endometriosis who were undergoing tubal ligation were as the controls. The concentrations of CTGF in the plasma and peritoneal fluid from were examined by ELISA. Peritoneal macrophage was collected from the pelvic peritoneal fluid and treated with CTGF to characterize whether CTGF can regulate the phagocytic activity in vitro.
Result(s): With the severity of endometriosis, the concentration of CA125 in serum, and the WBC count and the concentration of CTGF in peritoneal fluid were significantly higher in stage III/IV than in stage I/II disease ($P<0.05$). The reduced CTGF levels were found in the endometriosis patient received gonadotropin-releasing hormone (GnRH) agonist treatment. The co-treatment of phorbol 12-myristate 13-acetate (PMA) and CTGF on peritoneal macrophage ingested significantly fewer latex beads per cell when compared to the treatment of PMA only ($P<0.05$). In addition, CTGF also reduced the expression of PMA-induced scavenger receptors on peritoneal macrophages.
Conclusion(s): CTGF may contribute to the development of endometriosis by modulating the functions of peritoneal macrophages from the pelvic peritoneal fluid of women with endometriosis.

P-082 Immunotoxicity of 2,3,7,8-tetrachlorodibenzop-dioxin (TCDD) in mice with endometriosis

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Objective: To investigate the immunotoxicity effect of 2,3,7,8-tetrachlorodibenzop-dioxin (TCDD) on the development of endometriosis in mouse model.
Methods: The endometriosis mouse model was established via auto-transplantation of endometrium. Female mice were pretreated with TCDD at a dose of 0(control),1,3 or 10 μg/kg by gastric perfusion twice times at the first and twenty-third day, and the endometrium were transplanted to peritoneum and ovary after the second drug delivery. Mice were killed at the 3, 6 and 9 weeks after auto-transplantation for measurement of ectopic focus size, and thymus gland weight as well as detection of IL-1β mRNA expression in ectopic focus.
Results: The ectopic foci in the mice were gradually atrophied and disappeared in the control group, while the foci in TCDD-treated mice enlarged in a time- and dose-dependent manner ($P<0.05$).When compared to the control group, the organ coefficient of the thymus gland in TCDD-treated mice decrease in a time- and dose-dependent manner($P<0.05$),which was negatively correlated with the weight of thymus gland ($P<0.05$). Moreover, when compared to the mice in control group, IL-1β mRNA expression in TCDD-treated mice was up-regulated with the prolonged time and increased dose($P<0.01$).
Conclusion: TCDD may promote progression of endometriosis ectopic foci in the mouse model, which might be related to its systemic and local immunotoxicity.
Key words: 2,3,7,8-tetrachlorodibenzop-dioxin(TCDD); endometriosis; immunotoxicity.

P-083 Targeting inhibitor of NF-κB kinase beta (IKKβ) may represent a possible novel treatment for endometriosis.

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[Background]
Mounting evidence have shown that nuclear factor-κB (NF-κB) pathway activates many of the target genes that are critical to the initiation and establishment of endometriosis. Therefore, we evaluated the therapeutic potential of targeting this pathway using a novel IKKb inhibitor, IMD-0560 (IMMD. Inc. Tokyo, Japan)
[Methods]
Endometriotic stromal cells (ESCs) and normal eutopic endometrial stromal cells were isolated d from ovarian endometriotic cyst or uterine endometrium without endometriosis. Both samples are excised from surgically removed tissues under written consent. PCR array was performed to evaluate the expression of adhesion molecule genes on ESCs with or without IMD-0560. Result from PCR array, we focused on vascular cell adhesion molecule-1 (VCAM-1). The inhibitory effects of IMD-0560 on ESCs were assessed by cell proliferation assay, adhesion assay and Western Blots. The location of VCAM-1 expression in endometriotic cyst was assessed by immunohistochemistry.
Results: The treatment of IMD-0560 inhibited the proliferation and NF-κB activation of ESCs. In addition, the expression levels of VCAM-1 were significantly increased on ectopic ESCs and IMD-0560 treatment decrease the expression of VCAM-1. Luciferase activity assay indicating that NF-κB directly regulates VCAM-1 promoter activity. IMD-0560 suppressd ESC adhesion to HPMC. Immunohistochemistry revealed that VCAM-1 and p-IKKα/β concurrently locate stromal region of endometrioric cyst.
Conclusion: VCAM-1 may play an important role in the pathogenesis of endometriosis. VCAM-1 expression is regulates by NF-κB. Targeting IKKb may be a novel therapeutic option for endometriosis.

P-084 G protein-coupled estrogen receptor 1 agonist G-1 induces cell cycle arrest in the mitotic phase, leading to apoptosis in endometriosis

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Introduction: We investigated to demonstrate the effects of the selective G protein-coupled estrogen receptor 1 (GPER) agonist G-1 in human ovarian endometriotic stromal cells (ESCs).
Material and Methods: This study was approved by the institutional review board (ERB-C-108) and informed consent was obtained from all patients. A total of 33 patients with ovarian endometrioma were enrolled and endometriotic stromal cells from ovarian chocolate cysts were treated with the GPER agonist G-1. The primary outcomes were cell proliferation, measured using the WST-8 assay; cell cycle, as analyzed using flow cytometry, fluorescent immunocytochemistry, and cytotoxicity; caspase activity, as measured by fluorescent and luminescent enzyme assays; and protein expression levels, as determined by Western blot analysis.
Results: G-1 suppressed ESC proliferation in a concentration-dependent manner. The inhibitory effect was not blocked when GPER signaling pathways. Including the GPER itself, were inhibited. G-1 induced cell cycle arrest and accumulation in the sub-G1 phase in ESCs. Immunofluorescence analysis demonstrated that G-1 interrupted microtubule assembly at the mitotic phase. G-1 also induced caspase-3 dependent apoptosis without significant cytotoxicity.
Conclusions: G-1 suppressed proliferation and induced apoptosis in ESCs, suggesting the potential use of this compound as a therapeutic drug for the treatment of endometriosis.

P-085 The expression and significance of BCAR1 gene in endometriosis

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Objective: To investigate the expression and significance of BCAR1 gene in the eutopic and ectopic endometria of endometriosis. Methods: Eutopic and ectopic endometria sampled from 32 patients with endometriosis as well as eutopic endometria obtained from 15 patients without endometriosis. Written informed consent was obtained from all participants, and the study protocol was approved by the Institutional Review Board of China Medical University (Shenyang, China). Real-time quantity PCR, western blot and immunohistochemistry were performed to examine BCAR1 mRNA and protein expression and correlation analyses were used to access BCAR1 expression with the stage of endometriosis and with the menstruation period. Results: BCAR1 mRNA and protein levels were higher in ectopic endometria than in paired eutopic endometria ($P<0.05$) and were higher in eutopic endometria from patients with endometriosis than patients without endometriosis ($P<0.05$). When compared patients with stage III-IV endometriosis to those with stage I-II endometriosis, the expression of BCAR1 mRNA and protein were similar in eutopic endometria ($P>0.05$) and higher in ectopic endometria ($P<0.05$). There was no significant difference in BCAR1 gene expression between proliferative and secretory phases in eutopic endometria from patients with or without endometriosis ($P>0.05$). Moreover, proliferative and secretory phase expression of BCAR1 protein was higher in eutopic endometria with endometriosis ($P<0.05$).Conclusion: Aberrant high expression of BCAR1 gene may play an important role in the pathogenesis and development of endometriosis. Inhibiting anti-estrogen and promoting epithelial-mesenchymal transition may be the underlying molecular mechanism of BCAR1.

P-086 BCAR3 overexpression promotes endometrial stromal cell and endometrial epithelial cell invasion through different mechanisms in endometriosis

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Our aim is to examine BCAR3 expression in endometriosis and to investigate the impacts and the possible molecular mechanisms of BCAR3 on the migration and invasion of endometrial cells. Written informed consent was obtained from all participants, and the study protocol was approved by the Institutional Review Board of China Medical University (Shenyang, China). Here we demonstrated a higher expression of BCAR3 in ectopic and eutopic endometrium compared with normal controls. Nevertheless, we detected increased BCAR3 and E-cadherin expression and decreased vimentin expression in endometriotic epithelial cells but not in endometrial counterparts. We found that overexpressed BCAR3 functioned together with estrogen to induce epithelial-mesenchymal transition in endometrial epithelial cells. In addition, for stromal cells, BCAR 3 protein expression is highest in endometriotic stromal cells, lower in endometrial stromal cells (ESCs) and lowest in normal endometrial stromal cells (NESCs). We found that inhibition of BCAR3 significantly repressed migration and invasion of ESCs, while overexpression of BCAR3 promoted migration and invasion of NESCs. Moreover, overexpression of BCAR3 promoted NESCs migration by activating Src kinases. In addition, the functional impact of BCAR3 on cell behavior was regulated by miR-126-5p which directly bind to BCAR3 3' UTR. Taken together, our results indicate that abundant expression of BCAR3 is correlated with the enhanced migratory and invasive properties of endometrial cells via different mechanisms, which may facilitate the formation of endometriotic lesions and provide a promising therapeutic strategy for endometriosis.

P-087 Relationship between angiotensin receptors and mPGES-1 gene expression in local lesions of endometriosis patients

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Back ground and aims: The presence of angiotensin receptors has been demonstrated in the endometrial tissue. Angiotensin II in endometrial stromal cells was mediated via AT1 receptor. We investigated into the expression of AT1, AT2 receptors in local lesions of endometriosis and eutopic endometrium.
Methods of study: Endometriosis samples were obtained from 32 patients of endometriosis. Endometrial tissues were obtained from patients undergoing operations for benign gynecological conditions. Institutional Review Board (IRB) approval was obtained, and informed consents were obtained from all the patients participating in this study. The expression of AT1, AT2 receptors and mPGES-1 mRNA was examined by real-time reverse-transcription PCR. We investigate into the relationships between expressions of AT1, AT2 receptors and mPGES-1.
Results: The ratio of AT1/AT2 in endometriosis sample was significantly increased compared to eutopic proliferative endometrium of non-endometriosis control. There was a relationship between the AT1 mRNA expression and that of mPGES-1 mRNA in the endometriotic cysts. There was a significant relationship between the mRNA expression of the AT2 receptor and that of mPGES-1 in eutopic endometrium of non-endometriotic control.
Conclusions: The expressions of AT1, AT2 receptors and mPGES-1 mRNA of endometriosis samples indicate that RAS may have important role in the pathogenesis of endometriosis.

P-088 Long non-coding RNA aHIF predicts poor prognosis in epithelial ovarian cancer and affects cell proliferation through the regulation of cell cycle, apoptosis and senescence

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Background and aims
The contribution of aHIF, a well-known long non-coding RNA, to epithelial ovarian cancer (EOC) remains largely unknown. In the present study, we aimed to investigate its expression pattern, clinical significance, and biological function in EOC.
Methods Expression of aHIF in EOC tissues and its correlation with clinicopathological factors and overall survival (OS) was examined. A series of in vitro and in vivo assays were performed to determine the function and mechanism of aHIF in EOC progression.
Results Clinically, aHIF was overexpressed in EOC tissues relative to normal controls, and the overexpression correlated with advanced International Federation of Gynecologists and Obstetricians stage and high histological grade. Multivariate analysis indicated that aHIF is an independent prognostic factor for overall survival in EOC. Gain- and loss-of-function experiments demonstrated that aHIF promotes EOC cell proliferation both in vitro and in vivo. The proliferative effect was linked to the promotion of cell cycle progression and inhibition of apoptosis and senescence. Moreover, Downregulation of Bcl-2 by aHIF may partially explain aHIF-induced EOC cell proliferation.
Conclusion These results highlight the importance of aHIF in EOC cell proliferation and suggest that aHIF is a potential prognostic biomarker.

P-089 Vascular endothelial growth factor is upregulated by leukemia inhibitory factor and interleukin-6 in human endometriotic stromal cells

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Endometriosis is a benign gynecological inflammatory condition defined as ectopic growth of endometrial glands and stroma outside the uterine cavity. Vascular endothelial growth factor (VEGF) plays an important role in the regulation of angiogenesis in endometriosis. Leukemia inhibitory factor (LIF) and interleukin-6 (IL-6) are pleiotropic cytokine of the interleukin-6 family, which exerts a wide range of biological functions. The objective of this study was to compare the expression of leukemia inhibitory factor (LIF), interleukin-6 (IL-6) and vascular endothelial growth factor (VEGF) in tissue and fluid samples from patients with endometriosis and patients without endometriosis, and investigate whether LIF and IL-6 regulate VEGF in human endometriotic stromal cells (ESCs). VEGF and IL-6 was expressed at significantly higher levels in the serum and peritoneal fluid of patients with endometriosis than patients without endometriosis. VEGF, LIF and IL-6 mRNA expression were significantly higher in ectopic endometium and ESCs compared to pair-matched eutopic endometrium and EMs. VEGF protein expression was synergistically upregulated by LIF and IL-6 in primary ESCs. These results show that overexpression of LIF and IL-6 may synergistically contribute to upregulation of VEGF in ESCs and promote angiogenesis in endometriosis.

P-090 Role of prostaglandin E2 receptors in the development of endometriosis

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[Background]
It has been shown that prostaglandin E2 (PGE2) is enhanced in endometriosis, and therefore PGE2 pathway may be a potential therapeutic target. The aim of this study was to investigate the therapeutic potential of PGE2 receptor antagonist for endometriosis.
[Methods]
Under informed consent, endometriosis tissues were collected from patients with endometriosis during laparoscopy. 1) Expressions of EP2 and EP4 on endometriosis tissue were evaluated using immunohistochemistry. 2)-1 Endometriotic stromal cells (ESC) were isolated from ovarian endometriosis and treated with EP2 or EP4 antagonist for 24h. DNA synthesis in ESC was detected using BrdU incorporation analysis. 2)-2 ESC was stimulated with IL1β, and treated with EP2 or EP4 antagonist for 24h. Supernatants were collected and concentrations of IL-6 and IL-8 were measured using ELISA.
[Results]
1) Both EP2 and EP4 proteins were expressed in the ovarian and the peritoneal endometriosis, and adenomyosis. 2)-1 EP2 antagonist reduced BrdU incorporation in ESC to 85.8±5.1% (mean±SEM, $p<0.05$), whereas EP4 antagonist did not change BrdU incorporation. 2)-2 Both EP2 and EP4 antagonists decreased IL-6 secretion in ESC to 64.1±8.3% ($p<0.01$) and 89.1±11.1% ($p<0.05$), respectively. EP2 antagonist decreased IL-8 secretion in ESC to 77.9±9.7% ($p<0.05$), while EP4 antagonist did not affect IL-8 secretion.
[Conclusions]
EP2/4 receptors are expressed in endometriosis lesions. Antagonists for these receptors reduced proliferation and production of inflammatory cytokines in ESC. These results suggest that EP2/4 antagonists may have a therapeutic potential for endometriosis.

P-091 Mannose receptors are highly expressed by peritoneal dendritic cells in endometriosis

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Background and aims
Though aberrant peritoneal immune environment was reported in the endometriosis patients, the role of peritoneal dendritic cell in the endometriosis progression is unclear. We characterize peritoneal dendritic cells (DC) in endometriosis and clarify their role in its etiology.
Methods
The study was approved by Institutional Review Board. Peritoneal DC from endometriosis and control samples were analyzed for the expression of cell surface markers. Monocyte-derived dendritic cells were cultured with dead endometrial stromal cells to investigate changes in phagocytic activity and cytokine expression. Cell surface markers and cytokine expression and identification undertaken by flow cytometry or RT-PCR. Changes in cytokine expression and phagocytic activity of Mo-DC cultured with dead endometrial stromal cells and d-mannan were measured using flow cytometry and RT-PCR.
Results
The proportion of MR positive myeloid DC type I was higher in endometriosis samples than in controls (84.9% v.s. 88.4%, $p<0.01$). The blocking of MR reduced phagocytosis of dESC by Mo-DC ($p<0.05$). Mo-DC cultured with dESC expressed higher levels of IL-1β and IL-6 than controls (3.4 fold and 3.0 fold, $p<0.05$ and $p<0.05$, respectively).
Conclusions
Peritoneal DC in endometriosis tissue express high levels of MR, which promotes phagocytosis of dead endometrial cells, and thereby contributes to the etiology of endometriosis.

P-092 Genome-wide DNA methylation analysis predicts a pathogenesis in endometriosis

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Endometriosis is a common and painful condition affecting women of reproductive age while the underlying pathophysiology is still largely unknown. Some key genes promoter hypermethylation occur in endometriosis and associated with the silencing of these genes which might contribute to the endometriosis. In this article, we conducted a whole genome scanning of methylation status of ectopic and eutopic endometrial tissues with endometriosis in more than 485,000CpG sites using Illumina 450K platform and combined with pyrosequencing and analyzed the difference between Uighur and Han ethnic group. Expression levels of Homeobox A10 (HOXA10) and Catechol-O-Methyltransferase (COMT) protein in endometrium were measured by immunohistochemistry. A total of 5,383CpG sites (covering 230genes) were methylated in eutopic endometrial with endometriosis. Of these, 3,203CpG sites (covering 170 genes) were hypermethylated. 12genes are significantly higher methylated in Uighur ectopic endometrial tissues, and 10genes are significantly higher methylation in Han ectopic endometrial tissues, respectively. COMT is strongly inactivated and methylated, whereas HOXA10 is constitutively expressed and unmethylated in ectopic endometrial tissues with endometriosis In conclusion, our newly identified methylated patterns in endometriosis lesions insight into the cause and development of endometriosis and identifies potential biomarkers.

P-093 The role of ureaplasma infection of mesothelial cells in pelvic endometriosis

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Pelvic endometriosis is one of the important causes of infertility. Retrograde menstruation following peritoneal implantation of endometrial tissue is most widely recognized theory on the genesis of endometriosis and a recent study reported a role of genital infections in it. This study assessed the potential role of peritoneal *Ureaplasma* infection and TLR2 in pelvic endometriosis. We used wild-type mice and TLR2 knockout (KO) mice and their peritoneal mesothelial cells. *Ureaplasma Urealyticum* infection (UUI) induced the secretion of IL-6, CXCL1, and CCL2 from mesothelium and it was reproduced with TLR2 ligand, Pam3CSK4. UUI of mesothelium also induced epithelial-to-mesenchymal transition markers such as N-cadherin and slug. In addition, the expression of ICAM-1 and VCAM-1 were elevated by UUI in peritoneal mesothelial cells. All above results were not observed in TLR2 KO mice. Our findings support a potential role of TLR2 through UUI in peritoneal mesothelial cells in genesis of pelvic endometriosis.

P-094 Adenosine triphosphate regresses endometrial explants in a rat model of endometriosis

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This study was to determine the effects of adenosine triphosphate (ATP) in a rat endometriosis model. After surgical induction of endometriosis, three rats were sacrificed; explants were measured in the remaining 19 rats, which were then randomly assigned to four groups. Group I (n=4) received normal saline (2 mL/day; i.g.); Group II (n=4) gestrinone (0.5 mg/kg/day; i.g.); Group III (n=5) ATP (3.4 mg/kg/day; i.g.); and Group IV (n=6) ATP (1.0 mg/kg/day; i.m.), respectively. Four weeks after medication, they were euthanized to evaluate histological features of explants and eutopic uterine tissues. To test the effect of ATP on growth of eutopic endometrium stromal cells, proliferation rates of hEM15A cells at 24, 48, and 72 h after treatment with different concentrations of ATP and vehicle control were detected with the CCK-8 method. There was a significant difference between pretreatment and post-treatment volumes within Group II (positive control; P=.048) and Group IV (P=.044). On condition that pre-treatment implant size was similar in both groups (P=.516), regression of explants in Group IV was significantly higher than that in Group I (negative control; P=.035). Epithelial cells were significantly better preserved in Group I than in Group III (P=.008) and Group IV (P=.037). CCK-8 assay showed no significant difference in proliferation among hEM15A cells treated with ATP and controls. **These results suggest that ATP regresses endometriotic tissues in a rat endometriosis model, but has no impact on growth of eutopic endometrium stromal cells.**

P-095 Mechanism research of ginsenside Rg3 on Anti-angiogenesis through VEGFR-2-mediated PI3K/Akt/mTOR signaling pathway in a rat model of endometriosis

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Objective: To explore the pharmacodynamic action of Ginsenoside Rg3 on rat model of experimentally-induced endometriosis.

Methods: The model of EMs was established by allotransplantation. Rats with EMs were treated with Ginsenoside Rg3, gestrinone and ovariectomy. Treatment effects were monitored in vivo by the volume of ectopic endometrium and serum estradiol-progesterone levels,and in inectopic endometrium tissues by immunohistochemistry, western blot for levels and phosphorylation status of PI3K/AKT/mTOR signaling pathway components.

Results: Rats were executed after 21 days of continuous administration. EMs responded to high-dose Ginsenoside Rg3, gestrinone and ovariectomy. And it was dependent on the status of PI3K/AKT/mTOR signaling.

Conclusion: Ginsenoside Rg3 can inhibit the growth of ectopic endometrium in rats with EMs, possibly by decreasing the level of serum E_2In addition, Ginsenoside Rg3 can reduce the expression of VEGF, p-Akt and p-mTOR in ectopic endometrium, and then inhibit PI3K/Akt/mTOR signaling pathway mediated by VEGFR-2, finally inhibit angiogenesis and induce apoptosis of ectopic endometrial cells.

P-096 Lipopolysaccaride promotes the development of murine endometriosis-like lesions via nuclear factor-kappa B pathway

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Objective: We previously demonstrated that Lipopolysaccharide (LPS) promoted the proliferation of human endometriotic cells. We focused on the influence of pelvic inflammation and the link with NF-kB pathway in the murine endometriosis model and aimed to delineate the mechanism involved in the pathogenesis of endometriosis.
Method: A homologous murine endometriosis model was established by transplanting donor mouse uterine tissue. After 4 weeks of LPS injection, an inflammation stimuli, or a vehicle, the extent of endometriosis-like lesions was evaluated. Parthenolide (Par) as a NF-kB inhibitor was administered prior to LPS injection. Expression of inflammatory factors in the endometriosis-like lesions were evaluated by real time RT-PCR. The inflammatory or angiogenic activity was assessed by CD3, F4/80, or PECAM immunohistochemical staining. The expression of Toll-like receptor 4 (TLR4), Ki-67 and NF-kB-p65 were also evaluated by immunostaining.
Result: Endometriosis-like lesions had grown in the abdominal cavity. Administering LPS significantly increased the total number and the size of endometriosis-like implants compared with the control, and Par treatment with LPS completely diminished these proliferative effects. Exogenous LPS increased inflammatory-related gene expression in the implants. LPS enhanced the expression of TLR4, CD3, F4/80, PECAM, and Ki-67. Expression of NFkB-p65 detected in the cytoplasm of endometriosis-like lesions was intensely enhanced by LPS treatment. With regard to phospho-NFkB-p65 expression, LPS obviously augmented the expression in the nuclei of epithelial and stromal cells in the implants. Par treatment attenuated these LPS-induced stimulatory effects.
Conclusion: LPS-induced pelvic inflammation status enhanced the development of murine endometriosis-like lesions *via* NF-kB pathway.

P-097 Mouse model for investigating the invasion of endometrial epithelial cells in endometriosis

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This research aimed to develop a basic mouse model for investigating the invasion process of endometrial epithelial cells alone. We first cultured endometrial epithelial cell line End1/E6E7 (ATCC CRL-2615) isolated from endometriosis patient and confirmed that the cell proliferation could be dose dependently increased by estradiol treatment. Then the cells were subcutaneously grafted into nude mice with intraperitoneal estradiol supplement. After the subcutaneous inoculation, the formation of glandular structures was observed in the subcutaneous adipose tissue without support of endometrial stromal cells. The finding implies that endometrial epithelial cells alone may be capable of invading other tissues. There have been several animal models established for endometriosis research, but most of them utilized endometrium tissue containing both epithelial and stromal cells so that they might not be appropriate enough for investigating the individual effects of either epithelial or stromal cells. Therefore, the mouse model we proposed in the presented work could be a useful tool for future studies of endometrial epithelial invasion.

P-098 Revisiting peritoneal macrophages in murine endometriosis model

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Macrophages play an important role in pathogenesis of endometriosis. Previous studies indicated that peritoneal macrophages differentiated into M2 in murine endometriosis model, promoting the growth and vascularization of ectopic endometrium. In addition, elevated levels of M2 markers were detected on macrophages from endometriosis patients. But, in vitro, macrophages cultured with conditioned medium from ESC of endometriosis patients show both M1 and M2 polarization. What' more, macrophages isolated from ascites of endometriosis patients secreted increased M1 and M2 associated cytokine than those from control. So macrophage polarization is still a mystery in endometriosis. Recent study clarified that peritoneal macrophages are composed of two different styles: large peritoneal macrophages (LPM) and small peritoneal macrophages (SPM). Apart from the different morphology, their origins and functions are quite different. Combined the M1/M2 polarization and LPM/SPM styles, we aimed to evaluate peritoneal macrophage transformation in endometriosis mice dynamically and systematically. We injected endometrial segments into mouse peritoneal cavity, mimicking the pathological progression of endometriosis. Then the percent of LPM, SPM, M1, M2, th1, th2, th17, treg were detected by FCM after the injection at day 0.25,3,14,28 and42. Proportions of SPM, th1, th17,treg were elevated, while LPM decreased. Both M1 and M2 were elevated. LPMs and SPMs show different tedencies of polarizaton. LPM and SPM should be introduced into our researches about endometriosis.
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P-099 Molecular mechanism of TCDD on development of ectopic endometrium in mouse

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Objective: To investigate the effects and potential molecular mechanism of 2,3,7,8-tetrachiorodibenzo-P-dioxin (TCDD) on the development of endometriosis in mouse model.
Methods: Endometriosis mouse model was established via transplantation of autologous endometrium of mice. The mouse was pretreated with TCDD at a dose of 0, 1, 3, or 10 ug/kg by gastric perfusion once every 21 days, then executed at modeling 3,6,9 weeks for measurement of the size of ectopic lesion, the expressions of aryl hydrocarbon receptor (AhR) and cytochrome P450 1A1 (CYP1A1) mRNA and protein in mice ectopic endometrium by using immunohistochemistry and RT-PCR.
Results: The average volume, the AhR protein expression and the AhR mRNA expression of TCDD-exposed ectopic foci lesion increased in a positive dose- and time-dependent manner (both $P<0.05$), and higher than those in control group. Furthermore, the CYP1A1 protein and CYP1Al mRNA expression was enhanced with the increase of TCDD dose (both $P<0.01$), which was not detected in control group. **Conclusion**: TCDD may promote the development of endometriosis lesions in mouse model, probably related with the activation of AhR and CYP1A1. Therefore, the enhanced expression of AhR and CYP1A1 might be the potential biomarker to TCDD exposure.
Key words: 2,3,7,8-tetrachiorodibenzo-P-dioxin(TCDD); endometriosis; mouse; AhR; CYP1A1

P-100 Intraperitoneal inflammation progress the development of endometriosis in mouse model

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[Objective] The aim of this study is to clarify the intraperitoneal inflammation progress the development of endometriosis in mouse model.
[Methods] First, we conducted the analysis of the concentration of inflammatory cytokines in ascites. We used C57BL/6J female mice in 8 weeks. We injected LPS (50μg/body) into the abdominal cavity of mice. Then abdominal irrigation was done with saline(1ml) after 2 hours, 6 hours, 1day, 3days, 5days, 7days and 10days of injection. The measurement items are TNFα, MIP-2, and IL-6.
Then we experienced with mouse models. Oophorectomy was performed to donor mice. Then estradiol (2μg/day) was injected for 7 days. The endometrium tissue was removed on 8th day. The tissue and flesh blood (100μl/body) of donor mice was implanted to recipient mice intraperitoneally as a control group. In another group, LPS (100μg/body) was injected intraperitoneally one day before the implantation. In the other group, the endometrium tissue, flesh blood (100μl/body) and LPS(100μg/body) was implanted at the same day. The abdominal cavity was opened in 15th day, then the number of lesion and the greatest dimension was measured. The endometriosis lesion tissue were diagnosed histologically with HE staining.
[Results] TNFα and IL-6 reached the maximum level in 2 hours, and MIP-2 did in 7days after injection. The endometrial lesions are significantly formed in the mice which was implanted blood, endometrial tissue, and LPS at the same time.
[Conclusion] LPS causes inflammation, and it progresses the development of endometriosis.

P-101 Hydrogen sulfide suppresses lesion growth and adhesion in mouse with induced endometriosis

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Background: Endometriosis (EMs) is a common disease in women of childbearing age.Recent research shows that gaseous signal molecule, hydrogen sulfide (H2S), frequently participates in many physiological and pathological processes, playing an important role in cardiovascular system in the aspects of inhibition of myocardial inflammation, decrease of oxidative stress, reducing production of pro-fibrotic cytokines and collagen, and inhibition of myocardial fibrosis.This study sought to evaluate the effect of hydrogen sulfide in a mouse model of endometriosis. Methods: The mice model for EMs with autologous endometrial suture was established and provided withNaHS,in which pyrrolidinedithiocarbamate (PDTC) was set as positive drug.Three weeks after treatment, all mice were sacrificed and their ectopic endometrial tissues were harvested and analyzed by Lesion size,adhesion rate, HE staining, Masson staining and immunohistochemistry analysis. Hotplate test was administrated to all mice before the induction, treatment and sacrifice. Results: Hydrogen sulfide treatment significantly reduced the lesion size and adhesion and improved generalized hyperalgesia in a dose-dependent fashion in mice with induced endometriosis.Conclusion:Hydrogen sulfide significantly reduced lesion size and adhesion in mice with induced endometriosis.

P-102 The innervation of the fallopian tubes in advanced adenomyosis

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Objective: To investigate the innervation of the fallopian tubes in advanced adenomyosis.
Methods: Histological sections of the fallopian tube isthmus tissues were obtained from women undergoing laproscopically hysterectomy for advanced adenomyosis (n=31) and other benign gynecological diseases (n=25). The morphology appearance of uterosacral ligaments and fallopian tubes were recorded by images taken in laproscopic surgery. The expression of protein gene product (PGP 9.5), which is the marker of nerves fibers damage and reinnervation, were detected by immunohostochemistry.
Results: The injuries of uterosacral ligaments, including disappearance of smooth arch, hypertrophy, asymmetry and shortened of uterosacral ligaments were noted in the patients with adenomyosis. The wall of vessels was thickened and the vascular cavity was narrowed. The nerve fibers stained with PGP 9.5 in the basal layer of the myometrium layer of fallopian tubes were significantly decreased in women with advanced adenomyosis as compared with women without adenomyosis ($p<0.05$). The nerve fibers were decreased in the uterosacral ligaments of women with advanced adenomyosis ($p<0.05$).
Conclusions: These results suggest that decreased nerve fibers in the fallopian isthmus in women with adenomyosis in comparison to women without may (cause tubal dysmotility by interfering with the release of neurotransmitters) and thus imply a role in the pathogenesis of adenomyosis.
This study was approved by the Human Ethics Comittee of The First Affiliated Hospital of Wenzhou Medical University. All subjects gave their informed consent to participate in the study.

P-103 New strategy for treatment of adenomyosis using dienogest combined with aromatase inhibitor

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Objective: It is well known that dienogest (an orally-active semisynthetic, steroidal progestogen) is effective for the treatment of endometriosis, and widely used in Japan and European countries. Dienogest has clinical excellent effect, however, it has a disadvantage point that it can cause unpredictable uterine breakthrough bleeding especially complicated with adenomyosis. On the other hand, aromatase inhibitor suppresses estrogen synthesis and inhibits the endometrial growth through this mechanism. The present study was performed to elucidate the effect of the combination of these two drugs for the prevention of the unexpected uterine breakthrough bleeding in the cases of adenomyosis.
Methods: Eleven patients of adenomyosis who had the lesions projecting into the uterine cavity were subjected under the enough informed consent (39.0±3.6 y.o.). Then, aromatase inhibitor (Letrozole, 2.5mg/day) was administered from the first day of the menstrual cycles for 4 weeks, and after that, dienogest (Dinagest, 2mg/day) was administered continuously. The duration of no breakthrough bleeding (days), the plasma various hormone levels were examined during the treatment.
Results: The duration of no breakthrough uterine bleeding was 83.3±25.3 days. There were no significant changes in plasma gonadotropin levels, however, plasma estradiol levels decreased significantly by the administration of aromatase inhibitor (65.2±18.4→11.4±2.4ng/ml, $p<0.001$), and during dienogest administration (36.5±19.2ng/ml).
Conclusion: The prior administration of the aromatase inhibitor decreased plasma estradiol levels and could extend the unexpected uterine breakthrough bleeding during dienogest administration. This new therapy may be useful for the improvement of the QOL of the patients with adenomyosis during dienogest administration.

P-104 Laparoscopic resection of uterine cystic adenomyosis: report of seven cases

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Uterine cystic adenomyosis is a type of adenomyosis in which cystic lesion is formed in a uterine wall as a result of repeated intramural hemorrhage in endometriotic tissue and causes severe dysmenorrhea. After the approval of institutional review board, we conducted a retrospective review of seven cases of uterine cystic adenomyosis treated with laparoscopic resection.
The median age at diagnosis was 28. Parity was six nulliparae and one multipara. All the patients had a history of dysmenorrhea lasting several months to years. The diagnosis of uterine cystic adenomyosis was made after pelvic examination, transvaginal ultrasonography, and MRI. In six among seven patients, two to six cycles of gonadotropin releasing hormone (GnRH) analogue was administered preoperatively. Harmonic Scalpel™ or Nd-YAG laser was used to dissect the lesion. After resection was complete, the surgical wound was closed with two-layer interrupted sutures.
Pathological diagnosis of resected specimen was uterine cystic adenomyosis in all cases. All the patients experienced postoperative relief of their menstrual pain. There was no recurrence of adenomyosis, including cystic adenomyosis, after six to 15 years of follow-up. Among the two patients with a wish for childbearing, one became pregnant three times, a left tubal pregnancy which required laparoscopic tubal resection and two full-term cesarean deliveries.
Although uterine cystic adenomyosis is relatively rare and lacks specific symptoms, it can be diagnosed preoperatively by detailed history, phisical findings, and MRI. Surgical treatment of cystic adenomyosis with laparoscopically resection is minimally invasive, fertility-sparing and highly effective in relieving menstrual symptoms.

P-105 LASP1 plays crucial roles in the development of adenomyosis

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Adenomyosis is a common gynecological disorder in reproductive-aged women and characterized by infiltration of the endometriums into nearby myometriums. In spite of great advances in our understanding of the pathogenesis of adenomyosis, its pathogenesis is still not completely understood. Prior studies have revealed that the ectopic endometrial stromal cells (EcESCs) harbored certain genetic alterations promoting the progression of adenomyosis, to better define the molecular drivers underlying adenomyosis, we here analyzed differentially expressed genes between EESCs from adenomyosis and eutopic endometrial stromal cells (EuESCs) from control samples with 2DE/MS approach, all samples signed informed consent and the study conformed to the tenets of the Declaration of Helsinki and was approved by the institutional review board of Jiangxi Provincial Maternal and Child Health Hospital. A total of 28 significantly differentially expressed genes were identified, among which, the gene encoding the LIM and SH3 domain protein (LASP1) was significantly upregulated in EcESCs than EuESCs. The upregulated LASP1 expression was further confirmed among the endometriums of 12 adenomyosis patients and 17 control samples with IHC assay. Gene knockdown of LASP1 by siRNAs revealed that LASP1 downregulation could suppress the proliferation and migration of EcESCs. In conclusion, we revealed that upregulation of LASP1 in EcESCs could promote the development of adenomyosis via conferring EESCs both proliferative and metastatic capacities, which might serve as a potential therapeutic target for the therapy of adenomyosis. (The study was supported by the National Science Foundation of China (No. 81260097 and 81560784), the corresponding authors: Li-Qun Wang and Ou-Ping Huang).

P-106 Interaction of macrophages and endometrial cells induced epithelial-mesenchymal transition-like processes in adenomyosis

Min An, Guoyun Wang
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Epithelial-mesenchymal transition(EMT) processes play an important role in adenomyosis. Considerable research has indicated that macrophages can induce EMT in cancer. Although adenomyosis involves macrophages, whether macrophages induce EMTprocesses in adenomyosis has not been elucidated. In the present study, we developed and validated cross-sectional clinical studies of women with and without adenomyosis, in vitro experimentation, studies on primary cells and Ishikawa cells co-cultured with macrophages. We found that CD68-positive macrophages aggregated in adenomyosis lesions, concomitant with the elevated protein expression of mesenchymal markers. However, the epithelial markers decreased. After co-culture with primary cells with THP-1-derived macrophages, the protein expression of n-cadherin, vimentin, and s100a 4 of endometrium cells increased, whereas that of e-cadherin and CK7 decreased. The rate of M2 macrophages derived from THP-1 macrophages increased. The M2 macrophages demonstrated a bidirectional effect on Ishikawa cells by inducing EMT. In summary, our preliminary work showed the aggregation of macrophages was related to the EMT of epithelial cells in adenomyosis lesions. THP-1-derived macrophages can induce epithelial cells of primary eutopic endometrium of adenomyosis and Ishikawa cells to present EMT. Interacting with endometrial cells, THP-1-derived macrophages polarized to M2 phenotype. Although the molecular mechanism of EMT in adenomyosis was complicated and various, we believed that the EMT induced by macrophages must play an important role in promoting the formation and development of adenomyosis.
This research was supported by grants 81270671 from the National Natural Science Foundation of China.

P-107 Could comparable ART outcome be achieved in patients with adenomyosis to those without by frozen embryo transfer after controlling disease activity with Leuplin depot?

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Background: Adenomyosis was reported to impact negatively on IVF/ICSI outcome owing to reduced clinical pregnancy, and increased early pregnancy loss.
Aims: Can long-term pituitary down regulation rescue the negative impact on ART outcome in adenomyosis patients?
Materials and Methods: From Jan 2013 to Dec 2015, we have 507 frozen embryo transfer cycles, with at least one good embryo. Of these, 38 patients identified to have adenomyosis by sonography served as study group. These patients were not surgically treated and received Leuplin treatment for 2~3 doses before their FET. All the other patients without adenomyosis were included as control group. The pregnancy outcomes of the two groups were statistically compared and their serum CA-125 before and after the treatment was correlate with their pregnancy outcome.
Results: The clinical pregnancy rates of the study and control groups were 57.6% and 47.4% (p=0.22). The live birth/on-going pregnancy rates were 44.6% and 42.1% (p=0.77). The abortion rates were 22.6% and 11.1% respectively (p-0.38). Abortion rates correlated to initial serum CA-125 levels with a trend, but significantly correlated with the timing of FET after the last CA-125 check. Abortion rate was 44.4% and 12.5% for patients with interval longer than and shorter than two months.
Conclusions: Adenomyosis patients could achieve satisfactory and comparable ART outcome to non-disease patients after Leuplin-Depot to reduce their negative impact. Initial higher CA-125 level may correlate with higher abortion rate. It is better to perform FET within two months of serum marker control.

P-108 Dienogest reduces proliferation, NGF expression and density of nerve fibers in human adenomyosis

Arisa Taekuchi, Kaori Koga, Mariko Miyashita, Tomoko Makabe, Fusako Sue, Ayumi Taguchi, Miyuki Harada, Tetsuya Hirata, Yasushi Hirota, Tomoyuki Fujii, Yutaka Osuga
(Department of Obstetrics and Gynecology, Graduate School of Medicine, the University of Tokyo, Japan)

Objective: Dienogest is a novel progestin that inhibits endometriosis. Dienogest also controls adenomyosis, especially adenomyosis-associated pain, although its mechanism has not been determined. The aim of this study was to evaluate the *in vivo* effect of dienogest on proliferation, apoptosis, aromatase expression, vascular and nerve fiber density, and nerve growth factor (NGF) expression in human adenomyosis tissue.
Materials and methods: We collected adenomyosis tissues from patients who had been treated with dienogest (N=6, dienogest group) or not treated (N=6, controls). Cell proliferation, vascular and nerve fiber density in adenomyosis tissue were evaluated by staining for Ki67, von Willebrand factor and PGP9.5, respectively. Apoptosis was detected using the TUNEL assay. The expressions aromatase and NGF were evaluated by staining with corresponding antibodies.
Results: The proportion of Ki67 positive cells was significantly lower in the dienogest group than in controls ($p<0.05$). The proportions of TUNEL positive and aromatase positive cells were not different between groups. The density of blood vessels was marginally lower in the dienogest group in comparison with controls but statistical significance was not reached ($p=0.07$). The density of nerve fibers and the intensity of NGF expression were significantly lower in the dienogest group than in controls ($p<0.05$, both).
Conclusion: This study demonstrates that adenomyosis, taken from patients treated with dienogest, shows remarkable histological features, such as reduction in proliferation NGF expression and nerve fiber density. This study clarifies the overall impact of dienogest on local histological events, and further our understanding of its therapeutic effect on adenomyosis.

P-109 The impact of adenomyosis on the IVF/ICSI-ET outcome: A retrospective analysis

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Background: The impact of adenomyosis on assisted reproductive technology is still to be answered. However, research on this topic is far from enough to date.
Aim: To investigate the impact of different down regulation protocols on the outcome of IVF/ICSI-ET in patients with adenomyosis.
Methods: One hundred and seventy one IVF/ICSI cycles of patients with adenomyosis diagnosed by trans-vaginal ultrasound combined with clinical manifestation were collected from Jan 2011 to Dec 2014. Among the adenomyosis patients(group A), 41 cycles was treated with long down regulation protocol (LDRP) as group A_1 and 130 cycles treated with prolonged down regulation protocol (PLDRP) as group A_2. Two hundred IVF/ICSI-ET cycles of patients with tubal factor treated with LDRP during the same period were collected as group B. The basic characteristic and clinical outcomes were recorded and analyzed.
Results: The implantation rate (IR, 10/62,16.1%) and clinical pregnancy rate (CPR, 8/28,28.3%) of group A_1 were significantly lower than group B (IR, 128/258, 49.6%, CRP, 94/165,57.0%).The IR (85/225, 37.8%) and CRP (57/105, 54.3%) of group A_2 were significantly higher than group A_1.
Conclusion: Adenomyosis reduces implantation rate and clinical pregnancy rate in IVF/ICSI-ET cycles under long down regulation protocol. The prolonged down regulation protocol improves the clinical pregnancy rate and implantation rate in the patients with adenomyosis.

P-110 Compound chinese medicine (Qiling for treating pain) to treat 43 cases of adenomyosis dysmenorrhea

Fei Hang, Tingting Zhang
(Gynecology's Office, Yueyang Hospital, China)

Objective
This research adapts compound Chinese medicine (Qiling for treating pain) to treat 43 cases of adenomyosis dysmenorrhea. The paper will conclude the effect of treating AM dysmenorrhea through compound Chinese medicine.
Methods
43 standard AM dysmenorrhea patients have been treated through compound Chinese medicine for 3 months. Observation should be taken before and after the treatment including dysmenorrhea symptom score, VAS score, life quality questionnaire and changes of PGE2, PGF, hemorheology, and blood platelet.
Results
1. The total effective rate of dysmenorrhea treatment effect is 83.72%; 2. The symptoms of dysmenorrhea of patients have been significantly improved after treatment ($P<0.01$). 3. Pain visual VAS of patients obviously decreased after treatment ($P<0.01$). 4. The patients in the physiological functions have statistical significance ($P<0.05$) and there is significant difference in bodily pain, social function, energy, general health($P<0.01$) while there is no statistical difference in the rest ($P>0.05$); 5. Laboratory indicators: (1) The PGE2 and PGF of patients have been comparative decreased after treatment ($P<0.01$).; (2)there is a statistically significant difference in high and low shear blood viscosity, packed cell volume, ESR equation K ($P<0.01$) after treatment; (3) there is a significant increase in PT, APTT, TT and INR compared after treatment ($P<0.01$).
Conclusions
Compound Chinese medicine (Qiling for treating pain) can relieve patients' pain symptoms and pain sensation as well as develop living standard. In addition to that, it also can decrease the PGE2 and PGF of patients suffering from AM of uterus, and improve patients' hemorheology and blood platelet.
Key words: Compound Chinese medicine, adenomyosis, dysmenorrheal

P-111 A comparative study of human oviductal ciliary morphology and beat frequency between patients with adenomyosis and leiomyoma

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(International Peace Maternity and Child Health Hospital[1], School of Medicine, Shanghai Jiaotong University, China[2])

Background: Adenomyosis and endometriosis are characterized by the presence of glandular tissue outside uterine cavity. It has been evidenced that endometriosis affect the function of oviduct by inducing abnormalities of tubal structure, ciliary movements and ovum capture activity. The significance of ciliary morphology and ciliary beat frequency (CBF) to the function of human oviduct has been well-established. However, whether adenomyosis is associated with abnormal tubal cilia has not been studied.
Objective: To compare ciliary morphology and CBF of oviducts between patients with adenomyosis and leiomyoma.
Methods: Oviducts were collected from patients with adenomyosis or leiomyoma who had undergone hysterectomy and salpingectomy. Ciliary morphology of tubal ampulla and isthmus was observed by light and transmission electron microscope. The percentage of ciliated cells were counted by light microscopy using 400′ magnifications. Ciliary beat actions were recorded by inverted bright-field microscope and CBF was measured manually.
Results: There was no significant difference in histomorphology and ultrastructure of ciliated cells between different tubal portions within each group or same part of two groups,. The percentage of ciliated cells in ampulla was significantly higher than that in isthmus within each group ($P<0.05$). CBF was similar in ampulla and isthmus within each group and there was no statistical intergroup difference in CBF of ampulla or isthmus ($P>0.05$).
Conclusion: The human oviductal ciliary morphology and CBF in adenomyosis patients has no difference comparing with leiomyoma. Further studies are needed to explore whether adenomyosis affect other functions of oviduct including movements of tubal muscle or ovum capture activity.

P-112 Using biofeedback electrical stimulation for the primipara with decreased pelvic floor muscle strength comparing with Kegel excise and vaginal cones

Xiaodan Zhang, Meng Yu, Jingxin Ding, Jian Huang, Keqin Hua
(Obstetrics and Gynecology Hospital of Fudan University, China)

Objective: To compare the effect of biofeedback electrical stimulation, Kegel exercise and pelvic floor muscle training with vaginal cones in treating primipara with decreased pelvic floor muscle strength postpartum.
Study design: This was a multicenter prospective randomized controlled study performed in five public hospitals and was approved by the Ethics Committee of the Obstetrics and Gynecology Hospital of Fudan University. 2700 primipara with decreased pelvic floor muscle strength postpartum were included and randomly allocated to four groups: control group (n=675), Kegel exercise group (n=675), vaginal cones group (n=675) and biofeedback electrical stimulation group (n=675). At last, 297 were lost in contact and the data of the 2403 patients were used in our final statistical analysis. The treatment began at 6 weeks postpartum and the baseline information, the pelvic floor muscle strength, ureterovesical junction mobility (UVJ-M) and score of the PISQ-12 were mesured before the treatment started. All of the treatment lasted 6 weeks in total. At the end of treatment and 6 months after treatment, those scores above were recorded again.
Results: Biofeedback electrical stimulation is superior to the other 3 groups on improving the strength of the pelvic floor muscles (both type I and type II myofibers), increasing the scores of the PISQ-12 and decreasing the UVJ-M.
Conclusion: Biofeedback electrical stimulation has some advantages on improving the strength of the pelvic floor muscles, quality of sexual life and preventing the postpartum pelvic floor dysfunction.

Big news !!

Reproductive Medicine and Biology (RMB) is an official journal of ASEA(Asian Society of Endometriosis and Adenomyosis).

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Asian Society of Endometriosis and Adenomyosis

Message from RMB Editor-in-Chief
Switch Over to Open Access Journal

I am now delighted that Reproductive Medicine and Biology (RMB) will be starting Open Access Journal in January 2017. It has been 15 years since RMB was launched as the official journal of the Japan Society for Reproductive Medicine, the Japan Society of Fertilization and Implantation, the Japan Society of Andrology in 2002. In 2016, the Asian Society of Endometriosis and Adenomyosis also jointed our Journal. RMB is an internationally peer-reviewed journal that includes original research articles, review papers, and case reports on a broad range of subjects related to the female/male reproductive system. I believe that our journal is making a progress. Currently, about 25-30 articles have been published per year. A number of excellent original papers and review papers have been published so far, and we are sure that our journal plays an important role among the many journals in the field of reproductive medicine and biology, even if it is only a small part of the whole. However, the number of submissions did not increase in these 10 years. After the first printed issue of RMB in 2002, submissions mainly come from Japan (domestic). We are afraid that RMB may not be well known in other countries. Therefore, the first thing we have to do is to spread the awareness of RMB, and for further development of RMB, we decided that our journal becomes an Open Access Journal from January 2017. Open access publishing was also supported by most of the members in the Japan Society for Reproductive Medicine, the Japan Society of Fertilization and Implantation, the Japan Society of Andrology, and Asian Society of Endometriosis and Adenomyosis

We hope that the number of not only submissions but also full-text downloads will increase greatly after becoming an Open Access Journal. In addition, we will take efforts for many researchers and clinicians to have a high interest in the original and review articles published in RMB, hopefully resulting in the increase in submissions from all over the world. Our emerging role is to present cutting-edge information as an international opinion leader in the field of reproductive medicine.

It is a pleasure to invite you to contribute a review or an original research article to RMB. Authors and readers from all countries focused on Reproductive Medicine are welcome. We would appreciate it if you could refer RMB to your colleagues and other contacts in the field. I welcome submissions not only from our membership, but also from non-members around the world.

I will work hard toward the achievement of our goals together with new editors. We all look forward to receiving submissions from all over the world.

Norihiro Sugino
Editor-in-Chief

M.D.,Ph.D.
Obstetrics and Gynecology
Yamaguchi University

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