Deep Endometriosis – Diagnosis, Impact of Surgical Treatment, Future Perspectives on Therapies (Didactic)

PROGRAM CHAIR
Charles E. Miller, MD

Mauricio S. Abrao, MD Charles Chapron, MD Jim Tsaltas, MD
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PG 210
Deep Endometriosis – Diagnosis, Impact of Surgical Treatment, Future Perspectives on Therapies (Didactic)

Charles E. Miller, Chair
Faculty: Mauricio S. Abrao, Charles Chapron, Jim Tsaltas

Course Description
Due to the inexperience in appreciating the diagnosis prior to surgery, the complexity of the surgery itself, and the potential need for a multidisciplinary approach, many women with deep endometriosis are not satisfactorily treated at the time of the initial laparoscopic surgery.

This course demystifies the surgical approach to deep endometriosis, including proper pre-surgical assessment and the current surgical therapies recommended. This will include strategies for the treatment of the ovarian endometrioma, bowel and urinary tract endometriosis, as well as the frozen pelvis. The new AAGL Classification for Endometriosis will be introduced. Teaching will be enhanced with interactive video session, featuring all faculty members.

Learning Objectives
At the conclusion of this course, the participant will be able to: 1) Discuss pre-operative strategies to diagnose deep endometriosis; 2) explain surgical tenants in treating the frozen pelvis; 3) discuss how to treat deep endometriosis of the bowel and urinary tract; 4) explain how the new AAGL Classification of Endometriosis was derived; and 5) demonstrate the proper surgical technique in the treatment of the ovarian endometrioma.

Course Outline

8:00 Welcome, Introductions and Course Overview  C.E. Miller
8:05 Current and Future Strategies to Plan the Treatment of Endometriosis  M.S. Abrao
8:30 Treatment of the Ovarian Endometrioma  J. Tsaltas
8:55 Strategies in the Dissection of the Frozen Pelvis  C.E. Miller
9:20 Video/Interactive Session, Q&A  All Faculty
9:55 Break
10:10 Current Surgical Techniques to Treat Bowel Endometriosis  M.S. Abrao
10:35 Urinary Tract Endometriosis – Therapeutic Strategies  C. Chapron
11:00 The AAGL Classification for Endometriosis  M.S. Abrao
11:25  Video/Interactive Session, Q&A  All Faculty

12:00  Course Evaluation
PLANNER DISCLOSURE
The following members of AAGL have been involved in the educational planning of this workshop and have no conflict of interest to disclose (in alphabetical order by last name).
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Viviane F. Connor
Consultant: Conceptus Incorporated
Frank D. Loffer, Executive Vice President/Medical Director, AAGL*
Linda Michels, Executive Director, AAGL*
Jonathan Solnik
Other: Lecturer - Olympus, Lecturer - Karl Storz Endoscopy-America

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Other: Royalties - CooperSurgical
Linda Bradley
Grants/Research Support: Elsevier
Consultant: Bayer Healthcare Corp., Conceptus Incorporated, Ferring Pharmaceuticals
Speaker's Bureau: Bayer Healthcare Corp., Conceptus Incorporated, Ferring Pharm
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Speaker’s Bureau: Covidien, Abbott Laboratories
Other: Proctor - Intuitive Surgical

FACULTY DISCLOSURE
The following have agreed to provide verbal disclosure of their relationships prior to their presentations. They have also agreed to support their presentations and clinical recommendations with the “best available evidence” from medical literature (in alphabetical order by last name).
Charles E. Miller
Grants/Research Support: Covidien, Femasys, Olympus, Novartis, Abbott Laboratories
Consultant: Covidien, Femasys, Abbott Laboratories, Ferring Pharm
Mauricio S. Abrao
Other: Visanne Board Member - Bayer Healthcare Corp.
Charles Chapron*
Jim Tsaltas
Grants/Research Support: Covidien, Merck Serono
Scott G. Chudnoff*

Asterisk (*) denotes no financial relationships to disclose.
ENDOMETRIOSIS
Current and Future Strategies to Plan the Treatment

2012

Mauricio S Abrao, MD
Endometriosis Division, Sao Paulo University, Brasil
www.endometriosis.com.br

Disclosure
Other: Visanne Board Member - Bayer Healthcare Corp.

DEEP ENDOMETRIOSIS
INTRODUCTION

• Deeply infiltrating endometriosis
• Depth of lesion >5mm
• Deeply infiltrating endometriosis is related to more intense clinical complaints (pelvic pain)

Endometriosis: 756 cases

Endometriosis Division, Sao Paulo University, 2012

ENDOMETRIOSIS DIAGNOSIS
LAPAROSCOPY

www.endometriosis.com.br
Endometriosis: questions that must be answered before the surgery:
Clinical Data: Main Symptom, 1077 cases

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Peritoneal</th>
<th>Ovarian</th>
<th>Deep</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dysmenorrhea</td>
<td>22(51.8%)</td>
<td>126(48.5%)</td>
<td>229(62.9%)</td>
<td>0.005</td>
</tr>
<tr>
<td>Chronic pain</td>
<td>96(50.3%)</td>
<td>143(54.8%)</td>
<td>233(63.5%)</td>
<td>0.006</td>
</tr>
<tr>
<td>Infertility</td>
<td>96(50.2%)</td>
<td>66(26.2%)</td>
<td>124(34.1%)</td>
<td>0.03</td>
</tr>
<tr>
<td>Cyclic Dyschezia</td>
<td>21(11.4%)</td>
<td>33(13%)</td>
<td>&lt;20(33.5%)</td>
<td>&lt;0.001</td>
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<tr>
<td>Cyclic Dysuria</td>
<td>27(14.1%)</td>
<td>34(13%)</td>
<td>56(15.3%)</td>
<td>0.71</td>
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<tr>
<td>Dyspareunia</td>
<td>97(51.6%)</td>
<td>138(62.9%)</td>
<td>227(63.4%)</td>
<td>0.007</td>
</tr>
</tbody>
</table>

Mean time (+/-SD) elapsed between the onset of symptoms and the diagnosis of endometriosis (years)*

Deep endometriosis affecting rectum-sigmoid, bladder and/or ureter (n=53) 7.71 +/- 5.6
Without deep endometriosis (n=178) 6.12 +/- 5.26

*p<0.05


Endometriosis Division - Sao Paulo University 1990-2008


ENDOMETRIOSIS: pain x most severe disease site
819 cases

<table>
<thead>
<tr>
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</table>

Bellelis, P, Abrao, MS et al. - RAMB 2010
**Endometriosis & Inflammation**

**IL-1, IL-6, SAA**

- Serum IL-6 and peritoneal fluid SAA: diagnosis of endometriosis
- Best accuracy: serum IL-6
- Cut-off of 3.45 pg/ml
- Sensitivity: 52.6%
- Specificity: 61.5%

Ejzenberg, Abrão et al., 2012

**Endometriosis & Inflammation**

**Treg Cells – Foxp3**

- Foxp3 presence in peritoneal cells: RT-PCR
- CD4+CD25+ peritoneal fluid cells of endometriosis patients: high levels of Foxp3
- Treg cells

Podgaec, Abrão et al., in press. 2011

**Endometriosis**

**Antinuclear Antibodies (ANA)**

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Endometriosis n=45</th>
<th>Lupus n=15</th>
<th>Controls n=21</th>
<th>p</th>
<th>p*</th>
<th>p**</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANA +</td>
<td>8 (18)</td>
<td>14 (93)</td>
<td>0</td>
<td>0.003</td>
<td>0.014</td>
<td></td>
</tr>
<tr>
<td>Pattern</td>
<td>Homogêneo</td>
<td>1 (12.5)</td>
<td>2 (14)</td>
<td>1</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td>Pontilhado</td>
<td>5 (62.5)</td>
<td>9 (64)</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Misto</td>
<td>2 (25)</td>
<td>3 (22)</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Levels</td>
<td>≤1:160</td>
<td>3 (37.5)</td>
<td>4 (26)</td>
<td>1</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td>&gt;1:160</td>
<td>5 (62.5)</td>
<td>10 (71)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>


**Endometriosis**

**Laboratorial Diagnosis - CA 125**

- Main serum marker
- To be measured on the 1st, 2nd or 3rd days of the menstrual cycle
- Low accuracy in early stages

ENDOMETRIOSIS
Current and Future Strategies to Plan the Treatment

**STRATEGY 2**

- **Markers**
  - CA 125

**Measurement during the period**
- (1st, 2nd or 3rd days)

**ENDOMETRIOSIS DIAGNOSIS**

www.endometriosis.com.br

**Deep Endometriosis:**
Rectal Endoscopic Ultrasound

<table>
<thead>
<tr>
<th>US Findings</th>
<th>n</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Normal</td>
<td>6</td>
<td>16.7</td>
</tr>
<tr>
<td>Deeply infiltrating Endometriasis without rectal involvement</td>
<td>24</td>
<td>66.6</td>
</tr>
<tr>
<td>Deeply infiltrating Endometriasis with rectal involvement</td>
<td>6</td>
<td>16.7</td>
</tr>
</tbody>
</table>

Abrao MS et al. J Am Assoc Gynecol Laparosc 11:50, 2004

**Deep Endometriosis:**
Rectal Endoscopic Ultrasound: Disadvantages

- Cost
- Under sedation
- Public health purposes
- Other sites of disease

**Deep Endometriosis:**
Transvaginal Ultrasound with bowel preparation
Deeply Endometriosis
Transvaginal Ultrasound
normal Rectal Layers

SM
Muscularis
SM
Serosa
Inner musculis
Submucosea
Mucosae

TVUS - Diagnosis of Deep Endometriosis
SMALL LESION (<1cm) - Serosa of the Rectum

hypoechoic irregular nodule compromising the serosa of the rectum

MRI - Diagnosis of Endometriosis

MRI - benefits
• Non invasive and well tolerate for the patients
• High accuracy to demonstrate ovarian and deep endometriosis
• Providing a pelvic cavity map
• Associate pathologies (Fibroids and adenomyosis)

Kinkel et al., 2006

PATIENTS AND METHODS

MRI - Diagnosis of Endometriosis

Yes / No

Bladder
Ovary
Retrocervical
Rectum / Sygmoid
Ureter

Laparoscopic / histopathological findings

RESULTS - OVARY

MRI - Diagnosis of Endometriosis

Sensitivity Specificity PPV NPV Accuracy
% 100% 71.4% 80.6% 100% 87%
n 50 / 50 30 / 42 50 / 62 30 / 30 80 / 92

RESULTS - RETROCERVICAL

MRI - Diagnosis of Endometriosis

Sensitivity Specificity PPV NPV Accuracy
% 91.5% 69.7% 84.4% 82.1%
n 54 / 59 23 / 33 54 / 64 23 / 28
RESULTS - RECTUM / SYGMOID

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>85,1%</td>
<td>86,7%</td>
<td>87%</td>
<td>84,8%</td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>40 / 47</td>
<td>39 / 45</td>
<td>40 / 46</td>
<td>39 / 46</td>
<td></td>
</tr>
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</table>

MRI - Diagnosis of Endometriosis

**RESULTS - RECTUM / SYGMOID**

<table>
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<td></td>
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</table>

Transvaginal US x MRI for Deep Endometriosis

<table>
<thead>
<tr>
<th>Local Method</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVUS</td>
<td>98.1%</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rectum Endo MRI</td>
<td>83.3%</td>
<td>97.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Exam</td>
<td>72.3%</td>
<td>54%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TVUS</td>
<td>95.1%</td>
<td>96.4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rectosigmoid MRI</td>
<td>76%</td>
<td>68%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Exam</td>
<td>68.3%</td>
<td>46%</td>
<td></td>
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</table>

PREOPERATIVE WORK-UP FOR PATIENTS WITH DEEPLY INFILTRATING ENDOMETRIOSIS: TVUS VS TRUS

**ABSTRACT**

**BACKGROUND:**

Transvaginal ultrasonography (TVUS) has important advantages compared with transrectal ultrasonography (TRUS). It is less invasive, is cost-effective, is a familiar and well-accepted approach, and anesthesia is not required. We compared the accuracy of TVUS and TRUS for diagnosing rectal wall involvement in patients presenting with histologically proved DEE.

**METHODS:**

Prospective study of 134 patients with histologically proved DEE underwent preoperative investigations using both TVUS and TRUS. The radiologist (TVUS) and sonographer (TRUS) were unaware of the clinical findings but knew that DEE was suspected.

**RESULTS:**

DEE was confirmed histologically in all the patients. A rectal wall involvement was histologically proved in 75 patients (56%). For the diagnosis of infiltration of the intestinal wall, TVUS and TRUS, respectively, had a sensitivity of 90.7% and 96.0%, a specificity of 96.5% and 100.0%, a positive predictive value of 97.1% and 100.0% and a negative predictive value of 88.9% and 95.2%.

**CONCLUSIONS:**

TVUS and TRUS have similar degrees of accuracy for predicting intestinal involvement. TVUS must be the first-line imaging process to perform for patients presenting with clinically suspected DEE. The question for the coming years is still open: if it is necessary to perform TRUS to be certain but systematically in cases of clinically suspected DEE.

**REFERENCES**


**RESULTS**

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVUS</td>
<td>95%</td>
<td>100%</td>
<td>100%</td>
<td>88%</td>
<td></td>
</tr>
<tr>
<td>Retrocervical MRI</td>
<td>92%</td>
<td>87%</td>
<td>94%</td>
<td>81%</td>
<td></td>
</tr>
<tr>
<td>Rectum/sigmoid</td>
<td>98%</td>
<td>100%</td>
<td>100%</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td>REU</td>
<td>94%</td>
<td>86%</td>
<td>96%</td>
<td>57%</td>
<td></td>
</tr>
</tbody>
</table>

Comparison between transvaginal ultrasound and rectal endoscopic ultrasound for the diagnosis of deep endometriosis

Mauricio S Abrao*, M.D.; Manoel OC Gonçalves, M.D.*

Eva Rossini, M.D.; Juao A Dias Jr, M.D.; Luis FC Fernandes, M.D.; Sergio Podgaec, M.D.*

* Department of Obstetrics and Gynecology, University of São Paulo Medical School, São Paulo, Brazil
* Department of Obstetrics and Gynecology, University of São Paulo Medical School, São Paulo, Brazil
* Digimagem Medicina Diagnóstica, São Paulo, Brazil
* Santa Casa Medical School, São Paulo, Brazil
ENDOMETRIOSIS
Current and Future Strategies to Plan the Treatment

**STRATEGY 3**

TRANSVAGINAL US
with Simple enema before the exam

Best Imaging method for deep endometriosis

---

Bowel Endometriosis:
Questions that must be answered before the surgery

- If the bowel is compromised:
  - Is the disease multifocal?
  - Which is the deepest layer of the bowel with endo?
  - What is the distance between the lesion and the anal verge?
  - Is the ileum/cecum and appendix compromised?

---

**TVUS-BP x number of lesions and rectosigmoid layers in Bowel Endometriosis**

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectosigmoid lesion detection</td>
<td>97%</td>
<td>100%</td>
<td>100%</td>
<td>98%</td>
<td>99%</td>
</tr>
<tr>
<td>Presence of at least two rectosigmoid lesions</td>
<td>81%</td>
<td>99%</td>
<td>93%</td>
<td>96%</td>
<td>96%</td>
</tr>
<tr>
<td>Lesions affecting the submucosal/mucosal layer</td>
<td>83%</td>
<td>94%</td>
<td>77%</td>
<td>96%</td>
<td>92%</td>
</tr>
</tbody>
</table>

---

**TVUS without Bowel Prep x rectosigmoid layers in Bowel Endometriosis**

<table>
<thead>
<tr>
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<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serosa/Muscularis</td>
<td>98%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
</tr>
<tr>
<td>Submucosa/Mucosa</td>
<td>62%</td>
<td>53%</td>
<td>97%</td>
<td>97%</td>
<td>94%</td>
</tr>
</tbody>
</table>

---

Deep Endometriosis
The distance between the lesion and the anal verge


Gonçalves, Abrao et al. - Human Reprod 2010
ENDOMETRIOSIS
Current and Future Strategies to Plan the Treatment

STRATEGY 4
Transvaginal US with bowel prep to predict:
Rectosigmoid Endometriosis
   Number of lesions
   Size of lesions
   Distance from the anal verge

Bowel Endometriosis
Decision concerning the symptom
Clinical Exam + TVUS

With Pain VAS>7
Surgery?

Without Pain
Clinical treatment

Involv. of inner layer Muscularis or deeper
Segmental resection

Involv. of serosa or outer layer Muscularis
Nodule resection

Trimestral Control

Bowel Endometriosis: Small Bowel/appendix

ENDOMETRIOSIS
Current and Future Strategies to Plan the Treatment

STRATEGY 5
Superficial unifocal Lesions
Deep and or multifocal Lesions
(< Inner muscularis) (> inner Muscularis)
Disc resection Segmental resection

Bowel Endometriosis compromising the ileum/Cecum/appendix

ENDOMETRIOSIS
Current and Future Strategies to Plan the Treatment

STRATEGY 6
Ultrasound: Abdominal Probe
Endometriosis special care with:
Bowel obstruction Carcinoid of appendix
Endometriosis of Urinary Tract

- posterior bladder wall, distal ureters
- US and MRI: Bladder and Hydronephrosis
- Other exams: cistoscopy, urography or uro MRI

Endometriosis

- Clinical Evaluation
- Transvaginal US: Simple, Best Exam, Simple training
- Multidisciplinary team; bowel prep
- One shot surgery
Future Strategies

- New Markers
- New imaging methods
- Combined techniques
- One shot surgery
Treatment of the Ovarian Endometrioma

Dr Jim Tsaltas
President AGES
Head of Gynaecological Endoscopy
Southern Health and Monash Medical Centre
Melbourne IVF

Scope of talk

- Pathophysiology
- Histology
- Diagnosis
- Impact on Fertility
- Surgical Management
- Ovarian Reserve

Pathogenesis

- Three (3) main theories of endometrioma formation:
  - Invagination secondary to bleeding of a superficial implant
  - Invagination secondary to metaplasia of coelomic epithelium in cortical inclusion cysts
  - Endometriotic transformation of functional cysts

  - Postulated by different groups but there is no reason to believe that they are mutually exclusive


Histopathology

- Classically - endometriomas are described as ovarian cysts
- Sometimes loculated and at least partially lined by an endometrium like epithelium, stroma and haemosiderin-laden macrophages
- It is important to note that the follicular densities in the ovarian cortex surrounding endometriomas appear to be much lower than in other benign cysts such as dermoid cysts (Schubert B et al 2005)
  - May imply lower baseline ovarian reserve

Disclosures

- Grants/Research Support: Covidien, Merck Serono

Histopathology Image:

- Lining epithelium
- Haemorrhage, fibrosis and haemosiderin laden macrophages in cyst wall

Lumen

Melbourne Pathology
**Classical Symptoms**

- Severity of symptoms does not correlate well with the degree of disease.
- Endometriomas – may have the following symptoms:
  - Cyclical pain
  - Ovulation pain
  - Pain with intercourse
  - Acute pelvic pain associated with possible endometrioma rupture
- Diagnosis:
  - Examination – Ovarian mass
  - Ultrasound – extremely accurate method of diagnosis (classic ground glass cyst, reduced ovarian mobility), sensitivity 84-100% and specificity 90-100% (Moore et al. – 2002)

**Abnormal anatomy: Ovary**

- Ground glass appearance
- Thick walled
- Uni- or multilocular
- Multiple lesions
- Kissing ovaries
- Hyperechogenic wall foci
- Wall nodularities
- Acoustic enhancement
- Absence of internal vascularity
- ‘shifting’ content
- (No acoustic streaming)
- Do not regress

**Tip of the iceberg**

- Endometriomas are often seen as marker of more severe disease (Banerjee SK et al. – 2008)
- Important to be aware that there may be more severe disease once you start operating (Chapron C et al. – 2009)
- Surgery – anatomical assessment and normalization of anatomy
  - Mobilization of ovaries, identification of other lesions, decision to treat
  - Endometriomas, other areas of DIE, single or two step procedure
  - Have a formal approach

**Planning Surgery**

- Careful pre op assessment
- Indication for surgery:
  - Confirm diagnosis
  - Pain
  - Infertility
  - Facilitate access to oocytes at IVF OPU
- Assessment of ovarian reserve – will become more critical
  - Ultrasound to include – AFC
  - AMH (Anti-Mullarian Hormone)
    - AMH is produced by the follicles, it corresponds well with AFC and ovarian response to hyperstimulation in IVF, it is the only marker that is menstrual cycle independent and easily measurable (Chang HJ et al – 2010)

**Infertility and endometriomas**

- Time to treat – 6 – 12 months depending on age, symptoms, pain, male factor
- Need to individualize treatment
- Treatment of endometrioma dependent on a number of factors:
  - Ovarian reserve
  - Size of the endometrioma (4cm or greater) – ESHRE Guidelines – 2005
  - If IVF can we access oocytes at OPU
  - Reduce chance of infection at OPU
  - Associated pain and QOL issues
  - Appropriate access to trained surgeons and IVF specialists
  - Must no look at surgery and IVF as competing interests but rather as complementary therapeutic strategies
Excision of endometriomas

- Laparoscopic cystectomy by excisional surgery for endometriomata 4cm or greater improves fertility (spontaneous pregnancy rates) compared to drainage and coagulation (Beretta 1998, Alborzi 2004). Many other observational studies show an increased pregnancy rate after surgery for endometriomas with a weighted mean of 50% - summarized in Vercellini 2009 (see next slide)

- As well as improved fertility rates excision has lower recurrence of endometriomas and symptoms (Hart 2008 and updated 2011 – cochrane review) as compared to drainage and coagulation

Issues related to treatment

- Early studies suggested minimal if any damage to the ovarian reserve after surgical treatment for endometriomas – (Loh 1999, Donnez 2001, Canis 2001)

- Recent studies however have demonstrated damage to the ovarian reserve
  - Methodology to assess this includes D2 FSH, AFC, Ovarian reserve, response to gonadotrophins in IVF and AMH
  - Damage may also relate to size of endometrioma being excised (Roman 2010)

Reducing Risks

- Care with surgical technique
  - Ensure appropriate ovarian peritoneal plane is identified
  - Avoid perforation of the ovary
  - Reduce trauma to the ovary
  - Minimize diathermy and conserve all ovarian tissue possible

- Small study looked at reduction of post-operative adhesions by sutures to close the ovary (Hart, 2009 compared to traditional diathermy (endometriomas) – Fertil Steril 2008

- Key method: Use of a tonal hyaluronic acid to reduce scar tissue formation

- Ameliorate the effect of adhesions via suture (Angiolillo R et al – 2009)

If ovarian reserve compromised

- Consider egg freezing in women under age of 39 if ovarian reserve is compromised pre or post surgery
- Consider particularly prior to recurrent endometrioma surgery
- We will see more of this

- Appropriate consent and understanding of chance of success – move from slow freeze to vitrification (what are the long term results ???)

- Sclerotherapy with ethanol may be a promising alternative to repeat surgery for recurrent endometriomas – risk infection (Hsieh et al 2009)

Reducing recurrence

- Recurrence rates post surgery have been quoted at 12 – 30% after 2-5 year follow up (Seracchioli et al 2010)
- The length of use of the COCP post surgery is one of the critical factors related to recurrence
- Method of use is also critical
- Seracchioli’s study - divided patients into three groups:
  - 1: Continuous COCP, 2: Cyclical COCP, 3: No COCP
- Recurrence rate at 24 months:
  - 1: 8.2%, 2: 14.7%, 3: 29%
Conclusion

- Symptoms
- Diagnosis
- Indications for surgery
- Markers of ovarian reserve
- Preservation of ovarian tissue
- Consider surgical technique
- Post-operative reduction in recurrence
- Egg Freezing prior to recurrent surgery or even after primary surgery in young women – we will see more of this
Strategies in the Dissection of the Frozen Pelvis

Charles E. Miller, MD, FACOG

- President, International Society for Gynecologic Endoscopy (ISGE)
- President, AAGL (2007-2008)
- Clinical Associate Professor, Department OB/GYN, University of Illinois at Chicago, Chicago, IL USA
- Director of Minimally Invasive Gynecologic Surgery, Advocate Lutheran General Hospital, Park Ridge, IL USA
- Director, AAGL/SRS Fellowship in Minimally Invasive Gynecologic Surgery, Advocate Lutheran General Hospital, Park Ridge, IL USA

Disclosures:
- Grants/Research Support: Covidien, Femasys, Olympus, Novartis, Abbott Laboratories
- Consultant: Covidien, Femasys, Abbott Laboratories, Ferring Pharm

Objectives
1. Discuss a generalized approach to the frozen pelvis.
2. Outline the repair of a small bowel laceration at the time of surgery.
3. Identify the appropriate use of energy in the frozen pelvis.

Keys to Success – Meticulous Adhesiolysis
- No roadmap to success
- Greatest risk to vital structures
- Increased risk of bleeding
- Concern for post operative adhesions
- Proper preoperative evaluation
- Consider LUQ incision
- Visualize the endpoint
- Know the anatomy
- Minimize energy
- Maintain hemostasis
- Generally work lateral to midline
- Resect vs. transect adhesions when possible
- Utilize barriers unless contraindicated
Strategies in the Dissection of the Frozen Pelvis

Minimize Energy

• Use “cold” scissors when possible
• If energy necessary, use monopolar scissors with “cutting current” or ultrasonic energy at “max
• Consider use of 5mm clips
• Minimize bipolar energy especially around vital structures
• Use rectal probe, and “back fill” bladder as necessary

Adhesiolysis

• Step 1 – mobilize bowel off anterior abdomen and pelvis
• Step 2 – mobilize bowel off adnexa
• Step 3 – mobilize adnexa off pelvic side wall, medial broad ligament, uterus and cul-de-sac
• Step 4 – excise pelvic sidewall endometriosis – margin must be clean
• Step 5 – consider liberal use of ureterolysis to accomplish steps 3 & 4
• Step 6 – consider suspending adnexa while addressing remaining adhesions
• Step 7 – mobilize rectosigmoid off of medial posterior broad ligament

Step 8 – resect endometriosis as necessary

• Ureterolysis
• Watch ureteral vessels

Step 9 – mobilize rectosigmoid off of anterior portion of posterior cul-de-sac

• Develops pararectal spaces
• Dissect into rectovaginal space
• Use rectal probe

Step 10 – resect endometriosis of uterosacral ligaments, posterior cervix, and cul-de-sac

Step 11 – treat deep infiltrative endometriosis of rectum and vagina

Step 12 – use adhesion barrier when not contraindicated

Special Considerations – Bowel Injury

Repair should be perpendicular to the long access of the bowel to prevent narrowing of the bowel lumen

• Small bowel
  • “Freshen up edges”
  • Serosa
    • No repair
      • Single layer closure
        • Continuous vs. interrupted
        • 3-0 vs. synthetic absorbable sutures
  • Muscularis or mucosa
    • Single layer closure
      • Continuous vs. interrupted
      • 3-0 silk vs. synthetic absorbable sutures

Note: large defects may require resection with reanastomosis

• Large bowel
  • “Freshen up edges”
  • Serosa
    • Single layer closure
      • Continuous vs. interrupted
      • 3-0 or synthetic absorbable sutures
  • Muscularis
    • Two layer closure
      • Layer one – through and through interrupted with 3-0 silk
      • Layer two – intracuticular stitch with 3-0 silk or synthetic absorbable sutures
  • Mucosa
    • Two layer closure
      • Layer one – through and through interrupted with 3-0 silk
      • Layer two – intracuticular stitch with 3-0 silk or synthetic absorbable sutures

Note: large defects may require resection and reanastomosis; rarely colostomy

Adhesions Before and After Ovariopexy in Patients with Deep Infiltrative Endometriosis Undergoing Radical Surgery

• N = 65

Before

<table>
<thead>
<tr>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

After

<table>
<thead>
<tr>
<th>Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

Mann W., et al., UpToDate, complications of gynecologic surgery, 2012

Keckstein J, et al., Ceska Gynekol 2004; 69(5): 408-11
Strategies in the Dissection of the Frozen Pelvis

Posterior Cul-De-Sac Obliteration Associated with Endometriosis: MR Imaging Evaluation

• Retrospective study
  – 30 patients scored by 4 radiologists
• Scores based on retroflexed uterus, vaginal fornix, intestinal tethering or tethered appearance of the rectum in direction of uterus, faint strands between uterus and intestine, fibrotic plaque or nodule covering serosal surface of the uterus

### Performance of MR Imaging Criteria for Diagnosing Posterior Cul-De-Sac Obliteration

<table>
<thead>
<tr>
<th>Diagnostic criterion</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
<th>PPV (%)</th>
<th>NPV (%)</th>
<th>Accuracy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior cul-de-sac</td>
<td>46 (29–61)</td>
<td>64 (57–71)</td>
<td>62 (57–71)</td>
<td>44 (29–61)</td>
<td>57 (44–71)</td>
</tr>
<tr>
<td>Posterior border</td>
<td>62 (34–89)</td>
<td>55 (46–64)</td>
<td>62 (57–71)</td>
<td>44 (29–61)</td>
<td>57 (44–71)</td>
</tr>
<tr>
<td>Posterior gravid uterus</td>
<td>44 (29–61)</td>
<td>64 (57–71)</td>
<td>62 (57–71)</td>
<td>44 (29–61)</td>
<td>57 (44–71)</td>
</tr>
<tr>
<td>Posterior bladder</td>
<td>62 (34–89)</td>
<td>55 (46–64)</td>
<td>62 (57–71)</td>
<td>44 (29–61)</td>
<td>57 (44–71)</td>
</tr>
<tr>
<td>Posterior sigmoid</td>
<td>44 (29–61)</td>
<td>64 (57–71)</td>
<td>62 (57–71)</td>
<td>44 (29–61)</td>
<td>57 (44–71)</td>
</tr>
<tr>
<td>Anterior peritoneum</td>
<td>62 (34–89)</td>
<td>55 (46–64)</td>
<td>62 (57–71)</td>
<td>44 (29–61)</td>
<td>57 (44–71)</td>
</tr>
<tr>
<td>Note: Data are mean values. Data in parentheses are ranges.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Strategies in the Dissection of the Frozen Pelvis

Posterior Cul-De-Sac Obliteration Associated with Endometriosis: MR Imaging Evaluation


### References

- Mann, W, et al., UpToDate, complications of gynecologic surgery, 2012
- Keckstein J, et al., Ceska Gynekol 2004; 69(5): 408-11
Current Surgical Techniques to Treat Bowel Endometriosis 2012

Mauricio S Abrao, MD
Endometriosis Division, Sao Paulo University, Brazil
www.endometriosis.com.br

Disclosure

• Other: Visanne Board Member - Bayer Healthcare Corp.

ENDOMETRIOSIS COMPROMISING THE RECTUM:

- Morphologic aspects
- Fibrosis x Endometriosis
- Depth x Circumference
- Is it possible to define the criteria before surgery?
- Rectosigmoid endometriosis:
  - Shaving, Nodulectomy or Segmental resection?

ENDOMETRIOSIS COMPROMISING THE RECTUM:

- Morphologic aspects
- Fibrosis x Endometriosis
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- Is it possible to define the criteria before surgery?
- Deep endometriosis: non rectal
  - Rectosigmoid endometriosis:
    - Shaving, Nodulectomy or Segmental resection?

Rectum/Sigmoid Endometriosis:
Morphologic aspects - 345 cases

<table>
<thead>
<tr>
<th>Morphologic aspect</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multifocal</td>
<td>148</td>
<td>42</td>
</tr>
<tr>
<td>Mean Longitudinal Diameter</td>
<td>3.4 cm</td>
<td>-</td>
</tr>
<tr>
<td>Undifferentiated or Mixed disease</td>
<td>324</td>
<td>94%</td>
</tr>
</tbody>
</table>

Abrao MS et al. in press 2012
Müllerian Differentiation, normal or abnormal

- Endosalpingiosis
- Endocervicosis
- Epithelial endometrioid Metaplasia
- Stromal endometrioid Metaplasia
- Fibrosis

Stem Cells

Estrogen and progesterone receptors in smooth muscle component of deep endometriosis:
- ER and PR - Immunohistochemistry
- smc deep endo
- uterosacral endometriosis n = 14;
- bladder endometriosis n = 10;
- colonic endometriosis n = 16;
- rectovaginal endometriosis n = 20
- ER and PR did not differ significantly with cycle’s phases.
- ns difference between ER and PR in SMC around endometriotic foci than at a distance

Noel J et al. Fertil Steril 2010

ENDOMETRIOSIS COMPROMISING THE RECTUM:

- Morphologic aspects
- Fibrosis x Endometriosis
- Depth x Circumference
- Is it possible to define the criteria before surgery?
- Deep endometriosis: non rectal
- Rectosigmoid endometriosis:
- Nodulectomy or Segmental resection?

% of the circumference of the rectum compromised: 45 cases

Lesion Length X Circumference (n = 68)

<table>
<thead>
<tr>
<th>Circumference affected</th>
<th>≤ 40%</th>
<th>&gt; 40%</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.1</td>
<td>2.7</td>
<td>0.02</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>1.2</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>0.0 – 4.5</td>
<td>1.0 – 6.0</td>
<td></td>
</tr>
</tbody>
</table>

Abrão MS, Podgaec S, Dias JA Jr, Averbach M, Silva LF, de Carvalho FM. Endometriosis lesions that compromise the rectum deeper than the inner muscularis layer have more than 40% of the circumference of the rectum affected by the disease. J Minim Invasive Gynecol. 2008;15(3):280-5

Endometriosis lesions that compromise the rectum deeper than the inner muscularis layer have more than 40% of the circumference of the rectum-sigmoid affected by the disease

Abrão MS, Podgaec S, Dias JA Jr, Averbach M, Silva LF, de Carvalho FM. Endometriosis lesions that compromise the rectum deeper than the inner muscularis layer have more than 40% of the circumference of the rectum affected by the disease. J Minim Invasive Gynecol. 2008;15(3):280-5

Deeply Endometriosis

Transvaginal Ultrasound normal Rectal Layers

Abrão MS et al. Eur J Obstet Gynecol 123 (suppl 1): 04, 2005
Bowel Endometriosis
Decision concerning the symptom

Clinical Exam +
On 12
DIE compromising the Bowel

Pain > VAS 7
Multifocal or Inv. of inner layer Muscula
Unifocal or Involv. of or deeper Muscula
Segmental resection
Nodule resection
Surgery ?
Clinical treatment
Trimestral Control

Pain < VAS 7

ENDOMETRIOSIS COMPROMISING THE RECTUM:
• Morphologic aspects
  • Fibrosis x Endometriosis
  • Depth x Circumference
• Is it possible to define the criteria before surgery?
  • Rectosigmoid endometriosis:
    • Shaving, Nodulectomy or Segmental resection?

Transvaginal US x MRI for Deep Endometriosis


Discoid Resection - Circular Stapler

• One Lesion
• < 3cm
• < submucosa

Bowel Resection

• Step one: Overview of the abdominal cavity
Endometriosis: how to plan the treatment

- Clinical Data
- Transvaginal US, enema one hour before for deep endo
- Multidisciplinary team; bowel prep
- One shot surgery
Urinary Tract Endometriosis: Therapeutic strategies

Professor Charles Chapron, MD
Head of Department, Université Paris Descartes, Sorbonne Paris Cité, Faculté de Médecine, AP-HP, GHU Ouest, CHU Cochin, Paris, France

Disclosure Slide
No financial relationships to disclose

Learning Objectives Slide
At the conclusion of this activity, the participant will be able to discuss the diagnostic and therapeutic strategies for patients with urinary tract endometriosis

Endometriosis: Definitions
Endometriosis is defined by the presence outside of the uterus of endometrial tissue:
- Endometrial glands
- Stroma

Deep endometriosis: Définitions
Surgery for bladder endometriosis: long-term results and concomitant management of associated posterior deep lesions
Charles Chapron1,2, Antoine Bauwens3, Nicolas Chapron1, Bertrand Dejean1, Michel Leconte1, Delphine Arnoczyk-Quercus2, Dominique de Ziegler2, and Bruno Borghese1,3

Severe ureteral endometriosis:

Definition

- Only DIE lesions causing significant obstruction to urinary flow with ureteral stenosis (Uro-MRI) > 11 mm
- Severe ureterolysis for complete resection of DIE lesions but not causing ureteral stenosis were not considered as SUE.

Chapron et al., Fertil Steril (2010)

Ureteral endometriosis

Definition: Two histological types

- Intrinsic: presence of endometriotic glands and stroma in the ureteral wall, resulting in a thickened ureteric wall with fibrosis and proliferation of the ureteric muscularis (Clement PB, 1989).
- Extrinsic: Compression of the ureteric wall by endometriotic lesions.

Chapron et al., Fertil Steril (2010)

Urinary Tract Deep Endometriosis

N = 920 patients with histologically proved DIE lesions

<table>
<thead>
<tr>
<th>DIE Lesions</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bladder without ureter</td>
<td>107</td>
</tr>
<tr>
<td>Bladder with ureter</td>
<td>10</td>
</tr>
<tr>
<td>Ureter without bladder</td>
<td>48</td>
</tr>
<tr>
<td>Total</td>
<td>167</td>
</tr>
</tbody>
</table>

117 / 920 = 12.7%
58 / 920 = 6.3%

Chapron, non published data (2012)

Bladder DIE: pathogenesis

- Bladder endometriosis: deep infiltrating endometriosis or adenomyosis?
- Reparative and regenerative pathogenesis
- Metaplasia of Mullerian remnants
- Adenomyosis
- Iatrogenic

Bladder DIE pathogenesis

Bladder endometriosis: deep infiltrating endometriosis or adenomyosis?

Bladder DIE patients: clinical and pathogenetic implications

J Urol (1996)

Materials and methods

- March 2003: Prospective observational study
- March 2011: 410 DIE Patients, 68 Bladder DIE Patients
- 11 scared uterus (16%) and 57 not scared uterus (84%)
### Deep bladder endometriosis: Results

<table>
<thead>
<tr>
<th>Preop VAS scores</th>
<th>Scared (n=11)</th>
<th>Not scared (n=57)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM</td>
<td>7.5 ± 2.6</td>
<td>7.5 ± 2.1</td>
<td>NS</td>
</tr>
<tr>
<td>DP</td>
<td>4.3 ± 3.6</td>
<td>3.7 ± 3.2</td>
<td>NS</td>
</tr>
<tr>
<td>NCCPP</td>
<td>3.4 ± 3.4</td>
<td>2.5 ± 3.2</td>
<td>NS</td>
</tr>
<tr>
<td>GI symptoms</td>
<td>3.6 ± 4.3</td>
<td>3.8 ± 3.3</td>
<td>NS</td>
</tr>
<tr>
<td>LUT symptoms</td>
<td>5.0 ± 3.4</td>
<td>4.9 ± 3.6</td>
<td>NS</td>
</tr>
</tbody>
</table>

### Deep bladder endometriosis: Results

<table>
<thead>
<tr>
<th>rAFS scores</th>
<th>Scared (n=11)</th>
<th>Not scared (n=57)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implants</td>
<td>9.2 ± 8.1</td>
<td>13.1 ± 12.3</td>
<td>NS</td>
</tr>
<tr>
<td>Adhesions</td>
<td>24.0 ± 25.0</td>
<td>28.6 ± 29.6</td>
<td>NS</td>
</tr>
<tr>
<td>Total</td>
<td>33.1 ± 29.7</td>
<td>41.7 ± 37.6</td>
<td>NS</td>
</tr>
</tbody>
</table>

### Deep bladder endometriosis: Results

<table>
<thead>
<tr>
<th>rAFS Classification</th>
<th>Scared (n=11)</th>
<th>Not scared (n=57)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>2</td>
<td>18.2</td>
<td>4</td>
</tr>
<tr>
<td>IV</td>
<td>4</td>
<td>36.4</td>
<td>27</td>
</tr>
</tbody>
</table>

### Deep bladder endometriosis: Results

| Mean Nb of associated DIE lesions | 3.4 ± 2.4 | 3.2 ± 2.2 | NS |

### Deep endometriosis: Association between bladder and ureter lesions

<table>
<thead>
<tr>
<th>Total Nb of DIE lesions</th>
<th>Scared (n=11)</th>
<th>Not scared (n=57)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>36.4</td>
<td>22</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>18.2</td>
<td>6</td>
</tr>
<tr>
<td>≥ 3</td>
<td>5</td>
<td>45.5</td>
<td>29</td>
</tr>
</tbody>
</table>

**Endometriosis of the ureter and bladder are not associated diseases**

Fertil Steril (2009)

Maurodo Sanchez Arbon, M.D., Ph.D., a,b Juan Antonio Dias, Jr, M.D., a,b Patrick Belfer, M.D., a Sergio Rodger, M.D., Ph.D., a,b Casiano Ricardo Nestuerz, M.D., a,b and Celso Gimenes, M.D., Ph.D., a,b
Deep endometriosis: Association between bladder and ureter lesions

<table>
<thead>
<tr>
<th>Authors</th>
<th>Bladder DIE</th>
<th>Associated ureteral DIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrao (2009)</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td>Chapron (2012)</td>
<td>117</td>
<td>10</td>
</tr>
</tbody>
</table>

Severe ureteral endometriosis

Anatomic distribution (n = 58 patients; 65 ureteral DIE lesions)

<table>
<thead>
<tr>
<th>Location</th>
<th>Patients</th>
<th>Ureteral DIE lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>Bilateral</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Left</td>
<td>40</td>
<td>69</td>
</tr>
</tbody>
</table>

Deeply infiltrating endometriosis: Anatomic distribution

n = 426 patients; n = 730 PELVIC DIE lesions

<table>
<thead>
<tr>
<th>Compartment</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTERIOR</td>
<td>48</td>
<td>6.6</td>
</tr>
<tr>
<td>POSTERIOR</td>
<td>682</td>
<td>93.4</td>
</tr>
</tbody>
</table>

Deeply infiltrating endometriosis: Anatomic distribution

n = 426 patients; n = 759 TOTAL DIE lesions (Uni + Bil)

<table>
<thead>
<tr>
<th>Main lesions</th>
<th>Left</th>
<th>Median</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>USL</td>
<td>400</td>
<td>227</td>
<td>173</td>
</tr>
<tr>
<td>VAGINA</td>
<td>123</td>
<td></td>
<td>123</td>
</tr>
<tr>
<td>BLADDER</td>
<td>48</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>INTESTINE</td>
<td>172</td>
<td>30</td>
<td>123</td>
</tr>
<tr>
<td>URETER</td>
<td>16</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>759</td>
<td>264(35.3%)</td>
<td>294(38.7%)</td>
</tr>
</tbody>
</table>

Deeply infiltrating endometriosis: Anatomic distribution

n = 759 DIE lesions (Uni + Bil)

- Pelvic lesions > Abdominal lesions
- Pelvis: Posterior lesions > Anterior lesions
- Pelvis: Left lesions > Right lesions
- Abdomen: Right lesions > Left lesions

Diagram of the pathways of flow of intraperitoneal fluid.

[Adapted from Meyers (1973)]

- Pouch of the Douglas at the rectosigmoid level
- Right paracolic gutter lateral to the cecum and ascending colon
Deeply infiltrating endometriosis: Anatomical distribution of intestinal DIE lesions

Chapron et al., Hum Reprod (2006)

L: 83.47%
R: 11.02%

Endometriosis: Pathogenesis

Menstrual blood
Retrograde menstruation
Transplantation theory

Gravidity
Intraperitoneal Fluid flows
Asymetric pelvic anatomy

Endometriosis

Urinary Tract Deep Endometriosis: Therapeutic strategies

Therapeutic strategies

Diagnosis
Surgery

Urinary Tract Deep Endometriosis: Therapeutic strategies

Therapeutic strategies

Diagnosis

Endometriosis: Clinical symptoms

Pelvic pain
Infertility

Surgery for bladder endometriosis

<table>
<thead>
<tr>
<th>Painful symptoms</th>
<th>Pre-operative</th>
<th>Post-operative</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM</td>
<td>7.8 ± 2.5</td>
<td>2.2 ± 2.0</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>DP</td>
<td>6.0 ± 2.9</td>
<td>0.9 ± 1.8</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>NCCPP</td>
<td>7.8 ± 3.4</td>
<td>0.8 ± 1.9</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>GITS</td>
<td>5.1 ± 3.1</td>
<td>0.6 ± 1.8</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>LLUTS</td>
<td>5.9 ± 3.5</td>
<td>0.4 ± 1.6</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Chapron et al., Hum Reprod (2010)
Bladder DIE endometriosis
Baseline characteristics (n = 117 patients)

<table>
<thead>
<tr>
<th>Patients characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hematuria</td>
<td>12</td>
<td>16.0</td>
</tr>
<tr>
<td>ATCD transurethral resection</td>
<td>14</td>
<td>18.7</td>
</tr>
<tr>
<td>Speculum: red/bluish lesions</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Pelvic examination: anterior nodule palpated</td>
<td>42</td>
<td>56.0</td>
</tr>
<tr>
<td>Positive cystoscopy</td>
<td>22</td>
<td>29.3</td>
</tr>
</tbody>
</table>

Chapron et al., Hum Reprod (2010)

Bladder deep endometriosis: Transvaginal ultrasonography

Severe Ureteral endometriosis
Clinical signs (n = 29 patients)

<table>
<thead>
<tr>
<th>Patients</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No urologic symptoms</td>
<td>17</td>
<td>58.6</td>
</tr>
<tr>
<td>Severe posterior painful symptoms</td>
<td>26</td>
<td>89.6</td>
</tr>
<tr>
<td>Haematuria</td>
<td>2</td>
<td>6.9</td>
</tr>
<tr>
<td>Rectorraghia</td>
<td>5</td>
<td>17.2</td>
</tr>
</tbody>
</table>

Chapron et al., Fertil Steril (2010)

Severe Ureteral endometriosis
Silent loss of kidney (n = 58 patients)

<table>
<thead>
<tr>
<th>Patients</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nephrectomy</td>
<td>13</td>
<td>22.4</td>
</tr>
</tbody>
</table>

Chapron, non published data (2012)

Severe Ureteral endometriosis
MRI

Chapron et al., Fertil Steril (2010)

Severe Ureteral endometriosis
MRI

Chapron, non published data (2012)
Severe Ureteral endometriosis
MRI: Bilateral lesions

Severe Ureteral endometriosis
Kidney scintigraphy: Symmetric curves

Severe Ureteral endometriosis
Kidney scintigraphy: Asymmetric curves

Urinary Tract Deep Endometriosis: Therapeutic strategies

Therapeutic strategies

Surgery

Bladder DIE endometriosis
Previous surgical history (n = 117 patients)

<table>
<thead>
<tr>
<th>Patients characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATCD transurethral resection</td>
<td>14</td>
<td>18.7</td>
</tr>
</tbody>
</table>

Chapron et al., Hum Reprod (2010)

Bladder endometriosis:
Laparoscopic partial cystectomy
Bladder endometriosis: Laparoscopic partial cystectomy

Surgery for bladder endometriosis

<table>
<thead>
<tr>
<th>Painful symptoms</th>
<th>Pre-operative</th>
<th>Post-operative</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM</td>
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<td>&lt;0.0001</td>
</tr>
<tr>
<td>DP</td>
<td>6.0 ± 2.9</td>
<td>0.9 ± 1.8</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>NCCPP</td>
<td>2.8 ± 3.4</td>
<td>0.8 ± 1.9</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>GJIS</td>
<td>3.1 ± 3.1</td>
<td>0.6 ± 1.8</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>LUTS</td>
<td>5.9 ± 3.5</td>
<td>0.4 ± 1.6</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Chapron et al., Hum Reprod (2010)

Deep endometriosis: Painful heterogeneity

Is rectovaginal endometriosis a progressive disease?

Luigi Fedele, MD,1,2,4 Stefano Blanchi, MD,5 Giovanni Zanconato, MD,5
Ricciarda Raffaeli, MD,5 Nicola Berianda, MD5

Prospective observational study
33 patients with untreated asymptomatic DIE
Median follow-up time: 5.7 years (1 – 9)
No DIE treatment during laparoscopy
Peritoneal and ovarian lesions fully treated
DIE lesions biopsied

Progression of disease and/or appearance of pain symptoms attributable to DIE: 8.8% 95% CI: 1.9% - 11.7%
Estimated cumulative proportion of patients with progression of disease and/or appearance of pain symptoms attributable to DIE after 6 years: 9.7%

Deep endometriosis
Painful heterogeneity

**Bladder Endometriosis**

<table>
<thead>
<tr>
<th>Recurrence</th>
<th>N</th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated</td>
<td>27</td>
<td>36.0</td>
<td>0</td>
</tr>
<tr>
<td>Associated posterior DIE</td>
<td>48</td>
<td>64.0</td>
<td>0</td>
</tr>
<tr>
<td>Symptomatic (Surgical exeresis)</td>
<td>33</td>
<td>44.0</td>
<td>0</td>
</tr>
<tr>
<td>No symptoms (NO Surgical exeresis)</td>
<td>15</td>
<td>20.0</td>
<td>1</td>
</tr>
</tbody>
</table>

Chapron et al., Hum Reprod (2010)

Deeple bladder Osis

Chapron et al., unpublished data (2012)

Severe Ureteral endometriosis:
Extrinsic versus Intrinsic

(n = 29 patients; n = 34 ureteral lesions)

<table>
<thead>
<tr>
<th>Patients</th>
<th>Ureteral lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Isolated</td>
<td>11 (37.9%)</td>
</tr>
<tr>
<td>Associated Intestinal DIE</td>
<td>18 (62.1%)</td>
</tr>
<tr>
<td>Total</td>
<td>29 (100%)</td>
</tr>
</tbody>
</table>

Chapron et al., Fertil Steril (2010)

Severe Ureteral endometriosis:
Associated DIE lesions
(n = 58 patients)

<table>
<thead>
<tr>
<th>Patients</th>
<th>DIE lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>USL</td>
<td>38 (65%)</td>
</tr>
<tr>
<td>VAGINA</td>
<td>35 (60%)</td>
</tr>
<tr>
<td>BLADDER</td>
<td>10 (17%)</td>
</tr>
<tr>
<td>INTESTINE</td>
<td>48 (83%)</td>
</tr>
<tr>
<td>URETER</td>
<td>58 (100%)</td>
</tr>
<tr>
<td>Total</td>
<td>58 (100%)</td>
</tr>
</tbody>
</table>

Chapron, unpublished data (2012)
Severe Ureteral endometriosis: Extrinsic versus Intrinsic
(n = 29 patients; n = 34 ureteral lesions)

<table>
<thead>
<tr>
<th></th>
<th>Patients</th>
<th>Ureteral lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic</td>
<td>11</td>
<td>37.9%</td>
</tr>
<tr>
<td>Extrinsic</td>
<td>18</td>
<td>62.1%</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>34</td>
</tr>
</tbody>
</table>

Chapron et al., Fertil Steril (2010)

Severe ureteral endometriosis

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Bladder</th>
<th>Ureteral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associated OMAs</td>
<td>28</td>
<td>23.9</td>
</tr>
<tr>
<td>Associated Intestinal DIE</td>
<td>41</td>
<td>35.0</td>
</tr>
<tr>
<td>Mean Nb DIE lesions</td>
<td>2.68 ± 2.1</td>
<td>4.59 ± 2.6</td>
</tr>
</tbody>
</table>

Chapron, non published data (2012)

Take home messages

Strategies
- Bladder deep endometriosis
- Diagnosis: Painful urinary symptoms during menstruation, Transvaginal ultrasonography
- Surgery: No place for transureteral resection
- Gold standard: Partial cystectomy
- Only exeresis of painful nodules

Strategies
- Ureteral deep endometriosis
- Diagnosis: Rarely urinary symptoms
- MRI and kidney scintigraphy
- Major risk: silent kidney loss
- Surgery: Multifocal disease: Multidisciplinary approach
- Referal center
- Two types
- Histology: extrinsic versus intrinsic
- Surgery: Extensive ureterolysis
- Severe ureteral endometriosis: Radical surgery
References list (1)


Nisolle M, Donnez J: Peritoneal endometriosis, ovarian endometriosis and adenomyotic nodules of the rectovaginal septum are three different entities. Fertil Steril 1997; 66; 595-596.

References list (2)


NEW ENDOMETRIOSIS CLASSIFICATION
2012
REPRODUCTIVE SURGERY & ENDOMETRIOSIS AAGL SIG

Disclosure

• Other: Visanne Board Member - Bayer Healthcare Corp.

Why do we need a new endometriosis classification?

- Kistner et al, 1977
- Schweppe et al, 1984
- AFS, 1985
- ASRMr, 1986
- Koninckx and Martin, 1992
- Adamyan, 1993
- Enzian Score
- Abrao et al, 2000
- Adamson, 2010

DEEP ENDOMETRIOSIS, 1990

Criteria for a good classification system

- Good correlation with the symptoms
- Easy to perform
- Good correlation with the therapeutic response
- Association with all types of the disease
- Helpful to predict the prognosis of the disease

ASRM classification: associated with all types of endometriosis?

32 yo
Severe dysmenorrhea (VAS 10)
Deep Dispareunia
Acidic pelvic pain
Infertility
Doubts about the ASRM classification for this case:

- Does it have correlation with the symptoms?
- Does it have correlation with the therapeutic response?
- Does it predict the amount of disease?
- Is it helpful to predict the prognosis of the disease?

Limitations of the ASRM classification

- Does the ASRM stage correlate with the symptoms?
- Does the ASRM stage correlate with the therapeutic response?
- Does the ASRM stage predict the actual amount of disease?
- Is the ASRM stage helpful in predicting the prognosis of the disease?

No!
INFLTRATIVE ENDOMETRIOSIS

Tipe II: RETRACTION

Koninckx PR, Martin D. Fertil Steril 58:942, 1992

QuickTime™ and a DV/DVCPRO - NTSC decompressor are needed to see this picture.

Tipe III: “ADENOMIOSIS EXTERNA”

Koninckx PR, Martin D. Fertil Steril 58:942, 1992

QuickTime™ and a DV/DVCPRO - NTSC decompressor are needed to see this picture.

ENDOMETRIOSIS

Three Different Diseases

Peritoneal
Ovarian
Rectovaginal Septum

Peritoneal

Nisolle, M; Donnez, J; Fertil Steril, 1997

ENDOMETRIOSIS Fenotypes

Endometriosis

• More common
• Implantation
• Superficial
• Fewer symptoms
• Progressive?
• Better response to Hormonal treatment

Adenomiosis

• Less common
• Metaplasia
• Deeper
• More symptoms
• Progressive
• Fewer response to Hormonal treatment

Brosens I, Brosens JJ. Human Reprod 15:1, 2000

DEEPLY INFILTRATING ENDOMETRIOSIS: RETROCEVICAL OU RETOVAGINAL SEPTUM?

Retrocervical
Retovaginal Septum

Martin DC J Am Assoc Gynecol Laparosc 8:12, 2002

Endometriosis: Morphologic Criteria

• Classical:
  • Endometrial Stroma
  • Fibrosis and hemorrhagia
• Actual Criteria:
  • Stroma
    ■ CD10 positive (Groisman GM, Neer A. 2003)
    ■ Citoplasmatic Expression of COX-2 (Terada et al. 2006)
  • Müllerian Epithelium
    ■ With stroma
    ■ With hemorrhagia and fibrosis
    ■ Citoplasmatic Expression of COX-2 (Terada et al. 2006)
Endometrial Stroma and endometriosis

- Induces the mullerian epithelial differentiation in the mesothelium (Mai et al 97)
- Possible origin of the epithelial component of the lesion (Zámecník 98)
- High proliferative activity and higher level of ER and PR (Nisolle et al 97, Porto 98)

Epithelial morphology in Endometriosis

- Different phenotypes of the endometrial epithelial glands
- Different patterns of mullerian differentiation

Histologic Classification of endometriosis: an alternative for the prediction of the response to the treatment

- Stromal Disease: presence of stroma morphologically similar to that of topical endometrium
- Well Differentiated glandular pattern:
  - morphology of the epithelial cells is indistinguishable from that of topical endometrium
- Undifferentiated glandular pattern:
  - epithelium is flattened or low cuboidal, with no correspondence with topical epithelium, resembling the mesothelium lining the peritoneum

ENDOMETRIOSIS

Histological Appearance

- Highly Differentiated / Stromal Disease
- Poorly Differentiated / Mixed Disease

Histologic Classification of endometriosis: an alternative for the prediction of the response to the treatment


Histologic Classification of endometriosis: an alternative for the prediction of the response to the treatment

- **Glandular pattern of mixed differentiation:**
  - epithelium with a well-differentiated or undifferentiated pattern in the same biopsy


---

Histologic Classification of endometriosis: an alternative for the prediction of the response to the treatment

- 412 biopsies obtained from 241 patients
- Division of Endometriosis of the Gynecology Clinic of the University Hospital, Faculty of Medicine, University of São Paulo
- Correlation between Histologic Classification and:
  - Stage of the disease (ASRM, 1996)
  - Site of the disease: Peritoneal, ovarian or Deep endometriosis
  - Level of Pain before the treatment (Low, Moderate and Severe)
  - Clinical outcome: pain and infertility

**Two Groups: With and Without Undifferentiated Endometriosis**

- **Undifferentiated**
  - 39 biopsies (9.5%)

- **Well Differentiated**
  - 165 biopsies (40%)

- **Mixed**
  - 95 biopsies (23.1%)

- **Stromal**
  - 113 biopsies (27.4%)


---

Histologic Classification of endometriosis: Distribution according ASRM (1996) Classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>15%</td>
</tr>
<tr>
<td>II</td>
<td>5%</td>
</tr>
<tr>
<td>III</td>
<td>28%</td>
</tr>
<tr>
<td>IV</td>
<td>19%</td>
</tr>
<tr>
<td>I + II x III + IV</td>
<td>p &lt; 0.05</td>
</tr>
</tbody>
</table>


---

Histologic Classification of endometriosis: Site of the Disease

[Bar chart showing distribution of disease site]

- **Peritoneal**
  - 74%

- **Ovarian**
  - 61%

- **Deep**
  - 60%

p < 0.05


---

Histologic Classification of endometriosis: Level of Pain Before the treatment

- **Low or Moderate**
  - 106 (56%)

- **Severe**
  - 35 (17%)

- **W/O or Stromal**
  - 5 (4%)

- **Low or Mixed**
  - 10 (22%)

- **W/O or Mixed**
  - 9 (20%)

p < 0.05

Histologic Classification of endometriosis: Outcome according level of Pain two years after Surgical treatment

<table>
<thead>
<tr>
<th>Level of Pain before treatment</th>
<th>Histological Pattern</th>
<th>Poor</th>
<th>Partial</th>
<th>Complete</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low or moderate</td>
<td>Well diff/Stromal</td>
<td>0 (0%)</td>
<td>11 (33%)</td>
<td>22 (67%)</td>
<td>33 (100%)</td>
</tr>
<tr>
<td></td>
<td>Undiff/Mixed</td>
<td>0 (0%)</td>
<td>7 (22%)</td>
<td>1 (32%)</td>
<td>8 (100%)</td>
</tr>
<tr>
<td>High</td>
<td>Well diff/Stromal</td>
<td>14 (18%)</td>
<td>34 (43%)</td>
<td>60 (77%)</td>
<td>98 (100%)</td>
</tr>
<tr>
<td></td>
<td>Undiff/Mixed</td>
<td>21 (26%)</td>
<td>22 (27%)</td>
<td>79 (100%)</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>16 (7%)</td>
<td>96 (45%)</td>
<td>104 (48%)</td>
<td>226 (100%)</td>
</tr>
</tbody>
</table>

p < 0.05


Histologic Classification of endometriosis: Outcome according Infertility two years after Surgical treatment

<table>
<thead>
<tr>
<th>Histological Pattern</th>
<th>Became pregnant</th>
<th>Didn’t Become Pregnant</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well differentiated/Stromal</td>
<td>27 (69%)</td>
<td>18 (40%)</td>
<td>45 (100%)</td>
</tr>
<tr>
<td>Undifferentiated/Mixed</td>
<td>27 (79%)</td>
<td>7 (21%)</td>
<td>34 (100%)</td>
</tr>
</tbody>
</table>

TOTAL 16 (7%) 96 (45%) 104 (48%) 216 (100%)

p < 0.05

Understanding Endometriosis

- Different ways in its genesis and developing
- Undifferentiated Endometriosis: worse prognosis
- Mullerian disease: may be associated with the capacity of differentiation from the stem cells
- Fundamental: Interaction between Gynecologist and Pathologist

AAGL 2011 ENDOMETRIOSIS CLASSIFICATION

Step 1 Tabulation System: G30

- 30 endometriosis experts were asked to provide a score (0-10) regarding the importance of each involvement site on the outcomes of pain, infertility and surgical difficulty.

i. Tabulation System: G30: METHODS

A. Pelvic/ abdominal endometriosis: <3cm _________ >=3cm _________ (sum of total lesion diameter)
B. Cul-de-sac obliteration: Partial: _________ Complete: _________
D. Other unrelated conditions (to be listed, not participating of the score system): Adenomyosis / Diaphragm Endometriosis / Lung Endometriosis / etc

43
Step 1  Tabulation System: G30

<table>
<thead>
<tr>
<th>Site of Disease</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peritoneal</td>
<td>1.8</td>
<td>3.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ovarian</td>
<td>1.3</td>
<td>3.1</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>D Retrocervical</td>
<td>5.3</td>
<td>7.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E Vaginal</td>
<td>5.4</td>
<td>7.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E Bladder</td>
<td>5.1</td>
<td>7.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P Rectum/Sigmoid</td>
<td>6.9</td>
<td>9.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Bowell</td>
<td>5.6</td>
<td>7.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rectovaginal septum</td>
<td>7.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appendix</td>
<td>4.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cul de Sac</td>
<td>5.6</td>
<td>8.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydroureter</td>
<td></td>
<td></td>
<td>4.0</td>
<td>5.6</td>
</tr>
<tr>
<td>Tubes</td>
<td>Slight</td>
<td>Serosal injury</td>
<td>Moderate</td>
<td>In jury Severe</td>
</tr>
<tr>
<td>Partial</td>
<td>1.6</td>
<td>2.9</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>Complete</td>
<td></td>
<td></td>
<td></td>
<td>4.90</td>
</tr>
</tbody>
</table>

Agreement between ASRM and AAGL Staging

<table>
<thead>
<tr>
<th>ASRM Stage</th>
<th>Stage I</th>
<th>I</th>
<th>II</th>
<th>II</th>
<th>III</th>
<th>III</th>
<th>IV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAGL Stage</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>164</td>
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<td>124</td>
<td>216</td>
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<td>238</td>
<td>521</td>
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</table>

Step 2  Validation of the score system

- Pain Scores (for dysmenorrhea, deep dyspareunia, acyclic pelvic pain, dyschezia and or dysuria) were obtained from patients before surgery (VAS, 0-10)
- Infertility before surgery was documented

Step 2  Validation Results: 521 patients

<table>
<thead>
<tr>
<th>ASRM Stage</th>
<th>Stage I</th>
<th>Stage II</th>
<th>Stage III</th>
<th>Stage IV</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAGL Stage</td>
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<tr>
<td>Grand Total</td>
<td>164</td>
<td>164</td>
<td>124</td>
<td>124</td>
<td>216</td>
</tr>
</tbody>
</table>

Surgical Difficulty were categorized into 4 levels:

- Level 1 - Excision or desiccation of superficial implants, and simple thin avascular adhesions
- Level 2 - Stripping of ovarian endometriomas, appendectomy, deep endometriosis non involving the bowel, vagina, ureter or bladder (not requiring suture), dense adhesions not involving the bowel or the ureter
- Level 3 - Dense adhesions involving the bowel or the ureter; bladder surgery requiring suture, ureterolysis, bowel surgery without resection
- Level 4 - Bowel resection or ureteral reimplantation or anastomosis
Step 2: Statistical Evaluation

Agreement between ASRM and AAGL Staging

<table>
<thead>
<tr>
<th>ASRM Stage</th>
<th>AAGL Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>II</td>
<td>22</td>
</tr>
<tr>
<td>III</td>
<td>41</td>
</tr>
<tr>
<td>IV</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>107</td>
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</table>

<table>
<thead>
<tr>
<th>Stage I</th>
<th>Stage II</th>
<th>Stage III</th>
<th>Stage IV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASRM</td>
<td>AAGL</td>
<td>ASRM</td>
<td>AAGL</td>
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</tr>
<tr>
<td>18</td>
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<td>8</td>
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<tr>
<td>130</td>
<td>100</td>
<td>67</td>
<td>224</td>
<td>521</td>
</tr>
</tbody>
</table>

In only 284 (54.1%) there was an agreement between both stages.

% of patients with infertility for ASRM and AAGL Stagings

AAGL Classification correlated with infertility in a linear fashion, better than ASRM system.

Total Pain Average for ASRM and AAGL Stagings

AAGL Classification correlated with patients' levels of pain in a linear fashion, better than ASRM system.

Surgical Difficulty between ASRM and AAGL Stagings

AAGL Classification correlated with surgical difficulty in a linear fashion, better than ASRM system.

In conclusion:

• First validated classification for Endometriosis correlated with patients' levels of pain, infertility and surgical difficulty
• User-friendly
  • Preliminary data shows that it is better than the existing classification system in associating the stage to the levels of pain, to the infertility and to the level of surgical difficulty

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In conclusion:

- First validated classification for Endometriosis correlated with patients level of pain, infertility and surgical difficulty

- User-friendly

- Preliminary data shows that it is better than the existing classification system in associating the stage to the levels of pain, to the infertility and to the level of surgical difficulty

**Step 2**

**STATISTICAL EVALUATION**

Agreement between ASRM and AAGL Staging

<table>
<thead>
<tr>
<th>Peritoneal (superficial) endometriosis</th>
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</thead>
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<tr>
<td>&lt; 3 cm</td>
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<tr>
<td>Ovarian</td>
</tr>
<tr>
<td>D Retrocervical</td>
</tr>
<tr>
<td>C Vaginal</td>
</tr>
<tr>
<td>E Bladder</td>
</tr>
<tr>
<td>P Rectum/Sigmoid</td>
</tr>
<tr>
<td>Small Bowel</td>
</tr>
<tr>
<td>Rectovaginal septum</td>
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</tbody>
</table>

**Step 3**

**Daily use: mobile app**
### Step 2: Statistical Evaluation

#### Agreement between ASRM and AAGL Staging

<table>
<thead>
<tr>
<th>Stage</th>
<th>ASRM</th>
<th>AAGL</th>
</tr>
</thead>
<tbody>
<tr>
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<td>II</td>
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<tr>
<td>III</td>
<td>16-23</td>
<td>16-23</td>
</tr>
<tr>
<td>IV</td>
<td>24-95</td>
<td>24-95</td>
</tr>
</tbody>
</table>

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**Endometriosis and Reproductive Surgery AAGL SIG**

Mauricio S. Abrav, Chairman
Charles Miller, Vice Chair
William Hurd, Immediate Past Chair
Charles Chapron
Roy Merschbach
CULTURAL AND LINGUISTIC COMPETENCY

Governor Arnold Schwarzenegger signed into law AB 1195 (eff. 7/1/06) requiring local CME providers, such as the AAGL, to assist in enhancing the cultural and linguistic competency of California’s physicians (researchers and doctors without patient contact are exempt). This mandate follows the federal Civil Rights Act of 1964, Executive Order 13166 (2000) and the Dymally-Alatorre Bilingual Services Act (1973), all of which recognize, as confirmed by the US Census Bureau, that substantial numbers of patients possess limited English proficiency (LEP).

California Business & Professions Code §2190.1(c)(3) requires a review and explanation of the laws identified above so as to fulfill AAGL’s obligations pursuant to California law. Additional guidance is provided by the Institute for Medical Quality at http://www.imq.org

Title VI of the Civil Rights Act of 1964 prohibits recipients of federal financial assistance from discriminating against or otherwise excluding individuals on the basis of race, color, or national origin in any of their activities. In 1974, the US Supreme Court recognized LEP individuals as potential victims of national origin discrimination. In all situations, federal agencies are required to assess the number or proportion of LEP individuals in the eligible service population, the frequency with which they come into contact with the program, the importance of the services, and the resources available to the recipient, including the mix of oral and written language services. Additional details may be found in the Department of Justice Policy Guidance Document: Enforcement of Title VI of the Civil Rights Act of 1964 http://www.usdoj.gov/crt/cor/pubs.htm.

Executive Order 13166, “Improving Access to Services for Persons with Limited English Proficiency”, signed by the President on August 11, 2000 http://www.usdoj.gov/crt/cor/13166.htm was the genesis of the Guidance Document mentioned above. The Executive Order requires all federal agencies, including those which provide federal financial assistance, to examine the services they provide, identify any need for services to LEP individuals, and develop and implement a system to provide those services so LEP persons can have meaningful access.

Dymally-Alatorre Bilingual Services Act (California Government Code §7290 et seq.) requires every California state agency which either provides information to, or has contact with, the public to provide bilingual interpreters as well as translated materials explaining those services whenever the local agency serves LEP members of a group whose numbers exceed 5% of the general population.

If you add staff to assist with LEP patients, confirm their translation skills, not just their language skills. A 2007 Northern California study from Sutter Health confirmed that being bilingual does not guarantee competence as a medical interpreter. http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2078538.

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