Current Advances in Minimally Invasive Surgery for Female Pelvic Organ Prolapse (POP) (Didactic)

PROGRAM CHAIR
C.Y. Liu, MD

John DeLancey, MD  John B. Gebhart, MD
Professional Education Information

Target Audience
Educational activities are developed to meet the needs of surgical gynecologists in practice and in training, as well as, other allied healthcare professionals in the field of gynecology.

Accreditation
AAGL is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

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Current Advances in Minimally Invasive Surgery for Female Pelvic Organ Prolapse (POP) (Didactic)

C.Y. Liu, Chair
Faculty: John O. DeLancey, John B. Gebhart

Course Description

The dynamic functional anatomy of female pelvic floor and pathophysiology of POP are still poorly understood. Currently there are numerous surgical procedures for POP available, all claiming to have high success rate. However, careful study reveals that the vast majority of them actually have either an unacceptable complication rate, low long-term success rate, or inadequate long-term follow up.

This course begins with a lecture by Dr. John DeLancey on Anatomic Factors for Successful Native Tissue Repair, which will be transmitted live from University of Michigan. A cadaver dissection to demonstrate the various mechanisms and levels of female pelvic floor support will be shown during this lecture. After focusing on sound anatomic concepts, the participants will then evaluate various commonly performed surgical procedures for POP. A presentation will be given on those procedures that have evidenced long-term success – laparoscopic, vaginal, and robotic approaches – for apical support, enterocele repair, cystocele, rectocele, and total pelvic floor reconstruction. This will be followed by a presentation by Drs. Arnaud Wattiez and Alan Lam, two pioneer surgeons from Europe and Australia, on the most commonly performed POP surgery in their respective countries. The course ends with a discussion on the prevention, recognition, and management of common complications of prolapse surgery.

Learning Objectives

At the conclusion of this course, the participant will be able to: 1) Identify the anatomy of the female pelvic floor support and important structures of pelvic sidewalls related to surgical planning for POP repair; 2) outline the anatomic defects of various conditions of POP; 3) discuss the clinical examination of the patient with enterocele and plan the most appropriate surgical procedure for her condition; 4) evaluate the various surgical procedures for POP based upon sound anatomic principles; 5) identify the most effective surgical procedure for anterior, posterior, and apical defects; and 6) describe the prevention, recognition, and management of complications related to POP reparative surgery.

Course Outline

8:00 Welcome, Introductions and Course Overview C.Y. Liu

8:05 Anatomic Factors for Successful Native Tissue Repair (Live Tele-Transmission of Cadaver Dissection) J.O. DeLancey

9:05 Questions & Answers Faculty

9:20 Are Uterosacral Ligaments Strong Enough to Be Used in Apical Support? C.Y. Liu
9:50  Break


10:45  Vaginal Approach to POP: How I Do It and What Are the Results – Apical Support, Anterior and Posterior Compartment Defects  J.B. Gebhart

11:45  Questions & Answers  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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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).
C.Y. Liu*
John B. Gebhart
Grants/Research Support: American Medical Systems
Consultant: Astellas, Ethicon Women's Health & Urology, Boston Scientific Corp. Inc.
John O. DeLancey
Grants/Research Support: American Medical Systems, Kimberly-Clark, Johnson & Johnson, Philips Ultrasound, Proctor and Gamble

Asterisk (*) denotes no financial relationships to disclose.
Is Uterosacral Ligament Strong Enough for Use in Apical Support?

C. Y. Liu, M.D., F.A.C.O.G.

Disclosure

- I have no financial relationships to disclose.

Pericervical Ring

- The narrowest diameter in the pelvis is in between the ischial spines.
- Maximum pelvic connective tissue strength is located within this most restricted area.
- The impact of childbirth.

Pericervical Ring is at Level of Ischial Spine!

(what is the normal position of cervix or apex of vagina?)
Uterosacral Ligament Origin and Insertion Points (MRI studies on 61 asymptomatic women)

Three regions of origin:
- Cervix: 33%
- Cervix and Vagina: 63%
- Vagina: 4%

Four insertion points:
- Sacrospinous ligament/Coccygeus m: 82%
- Sacrum: 7%
- Piriformis m, Ischial spine or Sciatic foramen: 11%

Surgery for Pelvic Organ Prolapse

- Apex is the keystone for the pelvic organ support. Without good support of the vaginal apex the ventral and dorsal wall of vagina are exposed to intra-abd. force that drive these tissue toward introitus.
- The best surgical correction of the anterior and posterior walls is doomed to failure unless the apex is well supported.

Vaginal Vault/Uterovaginal Suspension

Suspend the apex of vagina to the level of ischial spine
- Sacro-colpopexy
- Sacrospinous ligament suspension
- Uterosacral Ligament suspension
Uterosacral Ligament Suspension
(Originally described by McCall in 1938)

Once access to the posterior cul-de-sac has been attained, the uterosacral ligament remnant can be found with the use of Allis clamps placed at the posterior medial aspect of the ischial spine. Up to three sutures are placed in each ligament and incorporated into the anterior and posterior fibromuscular layer of the vagina as well as vaginal epithelium.

Uterosacral Ligament Suspension – Mayo clinic experience

- 693 posthysterectomy vaginal vault prolapse.
- 31 patients underwent abdominal sacro-colpopexy.
- 662 (95%) underwent McCall uterosacral ligament vaginal vault suspension.
- 82% are satisfied with their repair.


Uterosacral Ligament Vaginal Vault suspension

<table>
<thead>
<tr>
<th>Investigator</th>
<th>No of pts</th>
<th>Mean follow-ups (months)</th>
<th>Cure rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amundsen et al</td>
<td>33</td>
<td>28 (6-43)</td>
<td>27/33 (82%)</td>
</tr>
<tr>
<td>Karram et al</td>
<td>168</td>
<td>21.6 (6-36)</td>
<td>158/168 (94%)</td>
</tr>
<tr>
<td>Shull et al</td>
<td>289</td>
<td>Maximum 48</td>
<td>251/289 (87%)</td>
</tr>
<tr>
<td>Barber et al</td>
<td>46</td>
<td>15.5 (3.5-48)</td>
<td>90%</td>
</tr>
<tr>
<td>Jenkins</td>
<td>50</td>
<td>33 (6-48)</td>
<td>48/50 (96%)</td>
</tr>
<tr>
<td>Mikolas et al</td>
<td>17</td>
<td>6.3 (1-17)</td>
<td>88%</td>
</tr>
</tbody>
</table>
11% ureteral injury. (usually kinking due to medial displacement or suture ligation that impedes urinary flow, rather than transection).


Figure 3: Mesh for Square hysterovaginalpexy
Enterocle
What and How to Manage it

C. Y. Liu, M.D.

Disclosure
I have no financial relationships to disclose.

Lessons from Clinical Exam
What is Enterocele?

Your Definition?
**Pericervical Ring**

The crucial connection or continuation of the pubocervical fascia, rectovaginal septum, and uterosacral ligaments.

**Definition of Enteroccele**

When pelvic peritoneum contacts directly with vaginal epithelium without intervening fascia.
Repair of enterocele and vaginal vault suspension

Reconstruct the **pericervical ring**
(reattachment of uterosacro-cardinal ligament to pubocervical fascia and rectovaginal septum).

Resuspend the apex of vagina to the level of **ischial spine**.
Vaginal Approach to POP
Why?  How?

John Gebhart, M.D., M.S.
Mayo Clinic
Rochester, MN

Disclosures

- Grants/Research Support: American Medical Systems
- Consultant: Astellas, Ethicon Women's Health & Urology, Boston Scientific Corp. Inc.

Objectives

- Share reasons why you should consider the vaginal approach to POP
- Review technical points to accomplish a good repair vaginally

Good Advice

The surgeon should always choose a procedure that fits the patient, her specific complaints and anatomy, as well as the surgeon’s skill level

Vaginal Route: Pro

- The ability to address a single prolapsed compartment or all prolapsed compartments as well as any urinary incontinence

Vaginal Route: Pro

- Less expensive
- Quicker
- Less morbid

References:
Patel M Int Urogynecol J 2009 Feb;20(2):223-8
**Vaginal Route: Pro**

- Effective primary and secondary operation

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**Incidence of PFR after Hysterectomy**


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**Reoperation Rates**

- N = 456, age 62 (31-93), 10 year follow-up
- 89% had VH + colporrhaphy
- 13/456 (2.9%) reoperations identified
- Interval, 5.5 yrs (1.5-10)
- Reoperation rate for prolapse after primary VH + colporrhaphy appears modest (>3%)
- Data do not support paradigm shift in primary prolapse surgery


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**Vaginal Apex Data**

- 693 patients with 1° VVP (11years)
- 49.5 TAH / 43.4 VH
- Median years to repair after hyst = 15.8
- 80 had evidence of recurrent POP
- 36 (5.2%) had subsequent repair
- 82% satisfaction with result


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**Vaginal Apex Data**

- 200 patients - advanced uterovaginal or VVP treated with uterosacral support
- F/U 6 – 36 mo.
- 45.2% 1° repair / 54.8 recurrence
- N = 168
- 89% satisfied ; 10 (5.5%) repeat operation
- Significant improvement in QOL

Vaginal Apex Data

- 5 yr functional outcomes of uterosacral suspension
- N = 72
- Surgical failure 11/72 = 15.3%
- Apical recurrence 2.8%
- 94% “sexually satisfied”
- IIQ/UDI scores significantly improved


Anterior Compartment Data

- Anterior compartment
  - 15-37% failure
  - Anterior repair augmentation with nonabsorbable synthetic mesh improves short-term objective outcomes over suture-only repair – however erosion rates were highest in this group

2: Up-To-Date May 2009

Anterior Compartment Data

- Reoperation rate for traditional repair (N = 207). Median F/U 4 years
- Anatomic recurrence rate of cystoceles at 3 months postop = 12%
- However, the reoperation rate for recurrent cystocele by 50 months was 3.4%

Kapoor DS Int Urogynecol J 2010 Jan;21(1):27-31

Plication/Mesh Kits/ASC

- Sacral colpopexy and traditional vaginal procedures
  - Lowest rates of complications that required surgical intervention
- Traditional vaginal procedures
  - Highest reoperation rate for prolapse recurrence
  - Lowest total reoperation rate
- Vaginal mesh kits
  - Shortest follow-up period
  - Highest rate of complications that required surgical intervention
  - Highest total reoperation rate

Diwadkar et al. Obstet Gynecol 2009 Feb;113(2 Pt 1): 367-73

Apical Compartment

- Hysterectomy??
  - Yes - if prolapse is the indication
  - Vaginal approach most common
Apical Compartment

- Vaginal approach
  - Who?
  - Delayed absorbable or permanent
  - Mayo-McCall culdoplasty
  - “deep suspension”
  - tailor the operation
Vaginal Vault Pedicles and McCall Sutures

Vaginal Vault Closure
Anterior Repair Video

Posterior Repair Video
References

• Patel M Int Urogynecol J 2009 Feb;20(2):223-8
• Tamussino K, et al. Oral Presentation 2010 SGS Meeting, Tucson, AZ

References

• ACOG Technical Bulletin #79, Feb 2007
• Up-To-Date May 2009
• Kapoor DS Int Urogynecol J 2010 Jan;21(1):27-31
• Diwadkar et al. Obstet Gynecol 2009 Feb;113(2 Pt 1): 367-73
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.