Surgical Tutorial 3: Cuff Dehiscence

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Professional Education Information

Target Audience
This educational activity is developed to meet the needs of surgical gynecologists in practice and in training, as well as other healthcare professionals in the field of gynecology.

Accreditation
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Surgical Tutorial 3: Cuff Dehiscence

James D. Kondrup, Chair

Faculty: Kathy Huang, Chong K. Khoo

This session provides a close-up look at this rare but important complication of hysterectomy. Faculty will review the data on incidence, risk factors, route of closure, closure techniques and pathophysiology of vaginal cuff dehiscence. Discover how faculty members utilize their experience and understanding of the data to perform colpotomy, vaginal cuff closure, including suture choice and tricks to minimize the risk of cuff dehiscence. The faculty will also discuss how they recognize and manage this unfortunate complication. Presentations will include traditional “straight stick” and robotic techniques, by experienced and approachable faculty who are passionate about educating others.

**Learning Objectives:** At the conclusion of this course, the participant will be able to: 1) Describe multiple options for creating and closing the colpotomy at laparoscopic/robotic hysterectomy; 2) explain how to recognize the types of dehiscence and how to manage them.

**Course Outline**

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<th>Time</th>
<th>Session</th>
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</tr>
</thead>
<tbody>
<tr>
<td>2:15</td>
<td>Welcome, Introductions and Course Overview</td>
<td>J.D. Kondrup</td>
</tr>
<tr>
<td>2:20</td>
<td>Cuff Closure and Dehiscence: The Southeast Asia Perspective</td>
<td>C.K. Khoo</td>
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<tr>
<td>2:35</td>
<td>Cuff Closure and Dehiscence: The Robotic Perspective</td>
<td>K. Huang</td>
</tr>
<tr>
<td>2:50</td>
<td>How to Identify Types of Dehiscence and Fix Them!</td>
<td>J.D. Kondrup</td>
</tr>
<tr>
<td>3:05</td>
<td>Questions &amp; Answers</td>
<td>All Faculty</td>
</tr>
<tr>
<td>3:15</td>
<td>Adjourn</td>
<td></td>
</tr>
</tbody>
</table>

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PLANNER DISCLOSURE
The following members of AAGL have been involved in the educational planning of this workshop (listed in alphabetical order by last name).
Art Arellano, Professional Education Manager, AAGL*
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Amber Bradshaw
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Other: Proctor: Intuitive Surgical
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Joseph (Jay) L. Hudgens
Contracted Research: Gynesonics
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Speakers Bureau: Ethicon Endo-Surgery, Myriad Genetics Lab, Pall Medical, Teleflex
Royalty: Laparoscopic Innovations
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Suketu Mansuria
Speakers Bureau: Covidien
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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).
Kathy Huang
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Speakers Bureau: Ethicon Endo-Surgery, Myriad Genetics Lab, Pall Medical, Teleflex
Royalty: Laparoscopic Innovations
Content Reviewer has no relationships.
Asterisk (*) denotes no financial relationships to disclose.
Cuff Closure and Dehiscence
S.E. Asian Experience

Dr KHOO CHONG KIAT
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Objectives
• Explain the various terms used
• Discuss an overview of the global incidences
• Identify the risk factors involved
• Diagnose dehiscence from various presentations
• Discuss an overview of SE Asian experiences, proper vault closure, recommendations, and Tips & Tricks

Terms
• Interchangeable
  • Vault dehiscence = Vaginal cuff dehiscence
  • breakdown and separation of the vaginal vault after hysterectomy,
  • regardless of the route of surgery

Presentation
• Bleeding (Chan 2012)
• Pain
• Bowel Evisceration

Small bowel (Percalli, 2016, Kahramanoglu, 2016)
Bowel evisceration beyond the vulva introitus, can lead to peritonitis, bowel injury and necrosis, or sepsis (Mastrolia, 2014)

Incidences
• A rare complication
• Mostly less than 1%
• Ranging from 1.35% Hur 2011
  1.14% Agdi 2009
  0.96% Fuchs 2015
  0.64% Uccella 2012
  0.39% Clarke 2013
  0.39% Ceccaroni 2011
  0% Morgan-Ortiz 2013
  0% Siedhoff 2011
• Rates of incidences have fallen
Risk Factors
- Post-coital / early resumption of sexual activities
  - (Day 30-83, O’Hanlan 2016), (3 month, Thomopoulos 2016), (Day 47, Rettenmaier 2013), (3 weeks, Dallenbach 2015), (Day 30, Leggieri 2014), (Day 18, Chan 2012), (Day 47-103, Hada 2011), (Day 60, Agdi 2009)
- Cancer surgery (Tinelli 2016), (Favero 2015)
- Routes of hysterectomy (laparoscopic / robotics > abdominal > vaginal (Clarke 2013)
- Protective factors of obese and older age (Donnellan, 2015)

Laparoscopic hysterectomy TLH has a higher rates of dehiscence than vaginal and abdominal routes (Kim 2014)(Uccella 2012)

TLH with intra-corporeal cuff suturing was superior to TLH with vaginal continuous suture (Kim 2014)

Robotics > Laparoscopic (Uccella 2011)

S.E. Asian Experience
- Generally very low rates of vault dehiscence in tertiary university teaching hospitals
- Greater experience of surgeons leads to lower rates
- Avoidance of sexual intercourse post-operatively in Asians (different culture)

Indonesian – similar results ISGE, Bali (Sept)
Thailand – zero dehiscence Siraj hospital, Bangkok (Oct)
Korea – zero dehiscence St. Mary’s Hospital of Catholic University (Kim 2016)
Japan 0.37 % Asan Medical centre (Koo 2013)
Kangdong Hospital (Lee 2013),
Australia 0.42 % Sydney West Advanced Pelvic Surgery SWAPS (Chan 2012)

KK Hospital, Singapore
Personal cuff closure technique
- 4 – ports, all 5 mm, diamond configuration (better ergonomics)
- Main surgeon & assistant (camera holder)
  - Stand on the right to stitch
    - Barbed suture (Stratafix 20cm) (self-retaining)(tighter)(slower absorption)
    - Assistant holds up U-V fold (avoid bladder complications)
  - Start stitching on the right corner
    - Mucosal to mucosal
    - Continuous, 1 cm apart, tighten as you go
    - Halfway thru, after 3 stitches, do not tighten at the left corner unless ...
  - “Return leg” of 2nd layer back to the right corner
  - Stitch in between the 1st layer sutures, thus making intervals only 5mm
  - Interceed on vault
    - If extensive hemostasis, do a “sandwich” method of putting Fibrillar/Snow, then cover over with Interceed
    - Check integrity of the vault with finger or swab on sponge
    - Intra-op antibiotics Cephazolin 1g

Latest research / PUBMED

- 49 hits when "vault dehiscence" was used as a keyword
- 108 hits when "vaginal cuff dehiscence" was searched

References

- Donnellan C, Ioannides A et al. Obesity and older age as protective factors for vaginal cuff dehiscence following total hysterectomy. Gynecol Oncol. 2015 Jul;137(1):89-93.

References II

- Morgan GM et al. Delayed absorbable monofilament barbed (V-Loc or Stratafix) – 2-layer continuous running suturing (Kim, 2016)(Rettenmaier, 2016)
- Donnellan C, Ioannides A et al. Obesity and older age as protective factors for vaginal cuff dehiscence following total hysterectomy. Gynecol Oncol. 2015 Jul;137(1):89-93.
Thank You!

谢谢
Objective

- Discuss rate of vaginal cuff dehiscence relative to mode of hysterectomy
- Describe robotic surgical techniques to reduce complications
Incidence and Characteristics of Patients With Vaginal Cuff Dehiscence After Robotic Procedures

Rebecca M. Kha, MD, Mohamed N. Ali, MD, Jeffrey L. Corvella, MD, Paul M. Maglery, MD, Mary Ellen Wacker, MD, and Jason P. Magrini, MD

OBJECTIVES: To evaluate the incidence and characteristics of patients with vaginal cuff dehiscence after robotic cuff closure.

METHODS: We reviewed medical records from March 2006 to December 2006 of all patients with vaginal cuff dehiscence after a robotic simple and radical hysterectomy, transvaginal, and laparoscopic robotic hysterectomy using the da Vinci robot.

RESULTS: Twenty patients were identified with vaginal cuff dehiscence (6.6%, 30 patients). Twenty were identified as vaginal cuff dehiscence. In 20 of the patients, the robotic procedure...

When cuff is sutured transvaginally, the risk of dehiscence is significantly lower.

Technique of closure rather than the thermal damage is the main contributor to the significant increased risk for cuff dehiscence in TLH.

Lower power setting did not have protective effect on dehiscence rate.

January 2000 - December 2009

11,606 hysterectomies

7392 TAH

2543 TVH

1687 TLH

28 vaginal cuff dehiscence

14 s/p TLH (1.35%)

2 s/p LAVH (0.28%)

13 s/p TAH (0.15%)

2 s/p TVH (0.08%)

Vaginal Cuff Dehiscence After Different Modes of Hysterectomy

Hye-Young Han, MD, Nicole DeMello, MD, Salima Menar, MD, Rachel E. Barber, MD, Richard Goeb, MD, and Ted Lee, MD

OBJECTIVES: To update the incidence of vaginal cuff dehiscence after different modes of hysterectomy and assess surgical and patient characteristics of dehiscence complications.

METHODS: The study was a retrospective cohort study at a single institution. All patients underwent hysterectomy between January 2000 and December 2000. Dehiscence was defined as the presence of a vaginal cuff diaphragm either preoperatively or postoperatively.

RESULTS: Out of a total of 1,239 patients, 28 patients (2.3%) had vaginal cuff dehiscence. The overall incidence of vaginal cuff dehiscence was 2.3% (95% CI 1.8-2.9) compared with 1.6% (95% CI 1.1-2.2) among total laparoscopic hysterectomies and 2.8% (95% CI 2.1-3.6) among total abdominal hysterectomies. The incidence of vaginal cuff dehiscence was significantly increased compared with other modes of hysterectomy, with a risk ratio of dehiscence after total laparoscopic hysterectomy of 1.6 (95% CI 1.3-2.0) compared with total abdominal hysterectomy, risk ratio of 1.7 (95% CI 1.3-2.7) compared with total laparoscopic hysterectomy, and risk ratio of 4.3 (95% CI 3.0-5.7) compared with LAVH.

CONCLUSIONS: Our updated 3.3% incidence of dehiscence after total laparoscopic hysterectomy is much lower than previously reported.
Significant difference in the incidence of vaginal cuff dehiscence between early and later cases

Improvement in the surgeon’s experience and knowledge will help to decrease operative complications, including cuff dehiscence

Table 3. Risk Ratio of Vaginal Cuff Dehiscence Comparing Total Laparoscopic Hysterectomy With All Other Modes of Hysterectomy

<table>
<thead>
<tr>
<th>Total Hysterectomy Mode of Surgery</th>
<th>Risk Ratio (95% CI) Year</th>
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<tbody>
<tr>
<td>TAH</td>
<td>2.0 (0.7–5.6)</td>
</tr>
<tr>
<td>TVH</td>
<td>44.6 (5.6–355.3)</td>
</tr>
<tr>
<td>LAVH</td>
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</tbody>
</table>

CI, confidence interval; TAH, total abdominal hysterectomy; TVH, total vaginal hysterectomy; LAVH, laparoscopic-assisted vaginal hysterectomy.

Adequate exposure of vaginal fornices

Speedy colpotomy with swift movements of concentrated current

Avoid “charred” or devascularized tissue
- Adequate purchase of the vaginal tissue: at least 10-15mm from the coagulated edge
- Pelvic Rest x 8 weeks
How to Identify Cuff Dehiscence & Fix Them

AAGL 2016
Orlando, FLA
James Dana Kondrup, M.D., FACOG

Disclosure

- Speakers Bureau: Ethicon Endo-Surgery, Myriad Genetics Lab, Pall Medical, Teleflex
- Royalty: Laparoscopic Innovations

Objective

- Discuss minimizing risk and management of vaginal cuff dehiscence.

Vaginal Cuff Dehiscence

(Evisceration: Bowel extrudes)

Can be:
- Stressful for both patient and surgeon.
- Dangerous if not handled immediately.
- Easy to repair or a major challenge.

Incidence:

- 0.24-0.31% but range 0.14 to 4.9%.
- Very underreported.
- Continuous running stitch may help.
- Barbed suture can decrease incidence.


“Sometimes it just lands on your number and dehiscence occurs.”

GYN Surgeon
Three Levels

- Partial dehiscence.
- Mucosa separated.
- Vaginal cuff dehiscence.
  - Complete separation of cuff.
- Vaginal cuff evisceration (35-67% of dehiscence)
  - True emergency must be handled immediately.

Partial Dehiscence

- Treat vaginally - Estrogen or interrupted 0 Vicryl.

Full Thickness

- May fix vaginally.
  - Freshen edges. Use balloon technique?
- Do laparoscopy if not sure if adhesions.
  - Use 5mm scope to start.

Close Vaginally

Freshen Edges
The “Trifecta”
An interesting case and novel management
✦ 44 yo presenting for TLH due to menorrhagia.
✦ Healthy, non-smoker, nurse.
✦ Plan: TLH-BS & close above or below.

The TLH and 1st closure
✦ Video 1

The 1st dehis. & 2nd closure
✦ Video 2

The 2nd dehis. & 3rd closure
✦ Video 3

Summary
✦ Do not “over-cauterize” cuff.
✦ Use continuous or barbed closure.
✦ Close from below?
✦ Fix from below?
✦ Evisceration is emergency.
References


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](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](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](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.

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