Vaginal Hysterectomy –
Studebaker or Ferrari? (Didactic)
**Professional Education Information**

**Target Audience**
This educational activity is developed to meet the needs of residents, fellows and new minimally invasive specialists in the field of gynecology.

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

The AAGL designates this live activity for a maximum of 3.75 *AMA PRA Category 1 Credit(s)™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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So why aren’t we doing more vaginal hysterectomies?

For the surgeon who used to perform vaginal hysterectomy but needs to refresh his or her skills, this course will help you.

For the surgeon who has stopped doing vaginal hysterectomy in favor of laparoscopic procedures, this course will renew your enthusiasm for vaginal hysterectomy.

For the surgeon who has stopped doing vaginal hysterectomy, who we cannot convince to start again, this course will give you a great skill set for removing specimens through the vagina and managing vaginal complications.

**Learning Objectives:** At the conclusion of this activity, the clinician will be able to: 1) Differentiate complication rates with different approaches to hysterectomy; 2) review surgical approach to optimize patient outcomes; 3) assess different methods of uterine morcellation; 4) list options for venous thromboembolism prophylaxis in hysterectomy patients; 5) describe the path of the pelvic ureter; and 6) choose appropriate antibiotic prophylaxis for hysterectomy.

**Course Outline**

- 8:00 Welcome, Introductions and Course Overview
  P.K. Tulikangas

- 8:05 Hysterectomy: Which Approach? An Evidence-Based but Not Preachy Review
  R.J. Penketh

- 8:30 Debate: Case Presentations with Debate on Surgical Approach and Audience Scoring
  P. Mangeshikar, P.K. Tulikangas, B.M. Ridgeway

- 9:15 Vaginal Hysterectomy – New Techniques for an Old Procedure
  (Thermal Energy Devices, New Suture Types, Endoscopy)
  B.S. Levy

- 9:45 Questions & Answers
  All Faculty

- 10:00 Break

- 10:15 Vaginal Hysterectomy: Review of Techniques with Tips and Tricks
  R.M. Kho

- 10:40 Difficult Hysterectomy and Morcellation Techniques
  B.M. Ridgeway
11:05  Complications of Vaginal Hysterectomy: Bladder Injury, Bowel Injury, Hemorrhage –
Case Presentations, Panel Discussion and Audience Scoring
   P. Mangeshikar, P.K. Tulikangas, B.M. Ridgeway

11:30  Cuff Closure Techniques – Prevention of Dehiscence and Prolapse  P.K. Tulikangas

11:45  Questions & Answers  All Faculty

12:00  Course Evaluation/Adjourn
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).
Art Arellano, Professional Education Manager, AAGL*
Viviane F. Connor
Consultant: Conceptus Incorporated
Kimberly A. Kho*
Frank D. Loffer, Executive Vice President/Medical Director, AAGL*
Linda Michels, Executive Director, AAGL*
M. Jonathan Solnik*
Johnny Yi*

SCIENTIFIC PROGRAM COMMITTEE
Ceana H. Nezhat
Consultant: Ethicon Endo-Surgery, Lumenis, Karl Storz
Other: Medical Advisor: Plasma Surgical
Other: Scientific Advisory Board: SurgiQuest
Arnold P. Advincula
Consultant: Blue Endo, CooperSurgical, Covidien, Intuitive Surgical, SurgiQuest
Other: Royalties: CooperSurgical
Linda D. Bradley*
Victor Gomel*
Keith B. Isaacson*
Grace M. Janik
Grants/Research Support: Hologic
Consultant: Karl Storz
C.Y. Liu*
Javier F. Magrina*
Andrew I. Sokol*

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).
Rosanne M. Kho*
Barbara S. Levy*
Prashant Mangeshikar*
Richard J. Penketh*
Beri M. Ridgeway*
Paul K. Tulikangas*

Asterisk (*) denotes no financial relationships to disclose.
Hysterectomy: Which Approach?

Richard Penketh
Cardiff and Vale University Health Board
Cardiff
Wales UK

I have no financial relationships to disclose.

• Rationale for vaginal hysterectomy
• Available evidence
• Available advice
• A taste of tricks and tips

Hysterectomy - What is required

• Access
• Detach the attachments of
  - Ovaries from pelvic side wall
  - Uterus from broad ligament
  - Cervix from vagina
• Close Vagina
• Close Access Point
• If vagina is the access point – less steps

Vaginal Hysterectomy Evidence

• Skin incisions – cosmetic appeal greatest with pfannenstiel
  - Currie et al BJOG1996 103 252 – 4
• No scars better still = vag hyst

• Soranus AD 120 – gangenous uterus
• Survivors – middle ages - Berengarius 1507
• Described by Conrad Langenbeck
  - op was planned – vaginal carcinoma 1813
  - tied ligature with teeth
  - Patient lived 26 years
• Pean 1886  60 cases – all survived
  - clamps bisection
  - Abdo hyst had mortality of 35%
• Growth of Laparoscopic surgery last 30 years
• Laparoscopic hysterectomy initially associated with many complications
• Consensus regarding entry techniques
• Training and mentorship instigated
• Improved safety of TLH, LAVH, LSH
• Disposables costs
• Longer operating times -short hospitalisation
• Robotics -relevance in benign hysterectomy?
• Despite this most hysterectomies abdominal

LAVH vs VH
• Only division of utero-sacrals from above makes vaginal op easier
• If can open POD and divide USLs can complete the op vaginally
• Bladder dissection quicker vaginally
• Large uterus –well described techniques
• Vaginal oophorectomy - easier the bigger the uterus

Relevance today –
• Deflation in Health Budgets
• Focus on cost effectiveness
• VH as primary mode of non-prolapse hysterectomy – a few champions
• Training issues :
  – A generation of robotic surgeons
  – Technology is cool operate laparoscopically because we should not because we can
  – Few procedures per training c.f. “old days”
  – Just not comfortable with vaginal approach
• Life long learning – Specialists can change

Difficulty depends on operator experience
• Nulliparity – narrow long vagina lack of descent
• Caesarean sections – bladder injury
• Fibroids
• Size of uterus
• Bulky cervix reducing access
• Obesity
• Previous surgery –
  – Abdominal – midline laparotomy
  – Vaginal – eg manchester repair
  – Adnexal surgery
• Technique same with tricks and tips

EVALUATE CONCLUSIONS
• LAVH best for detecting additional pathology
• VH quickest and least painful
• 533 cases of DUB allocated to AH arm of trial - better managed by VH/LAVH
• Moving all such hysterectomies to VH / LAVH would mean 75% of hysterectomies without laparotomy

Perceived Contraindications
• Prior abdominal and pelvic surgery
• Caesarean section
• Nulliparity
• Narrow sub pubic angle
• Obesity
• Oophorectomy required
  – 90+ % removable Quinlan 2002
• Large uterus
• Adnexal pathology
• Endometriosis – laparoscope to excise
Contraindications
- Post VVF repair
- Fixed uterus
- Massive uterus –
  - limit related to experience
- Cervix flush with vagina
  - limit related to experience
- Uterine suspension procedures

VH and LAVH as Day Surgery
Studies in USA had reported safety & acceptability of VH and LH as day cases.
- Outpatient vaginal hysterectomy in a community hospital.
- Outpatient vaginal hysterectomy as a new trend in gynecology.
  - Bhan et al. AORN J 1995 Nov;62(5):810-4
- Outpatient total laparoscopic hysterectomy.
- Outpatient laparoscopic hysterectomy in a rural ambulatory surgery centre

Cardiff
- pressure on beds
- Short Stay Surgical Unit development

First UK study of VH & LAVH with planned 24 hour stay
Penketh, Griffiths, Chawathe BJOG 114 (4) 430-436 2007
• 71 elective Hysterectomies in Ambulatory Care Unit May 01
  - Nov 04. 7 LAVH (endo), 35 VHBSO, 28 VH
• No prolapse or ASA IV and V
• Anaesthesia - GA (41) or spinal and propofol infusion (30)
• One bladder injury. Discharged with catheter
• 64 home after overnight stay, 2 same day (93%)
• Three unplanned admissions
  1. Post op chest pain - fit to go awaited VQs
  2. Bled - uterine artery back to theatre
  3. Post op fainting required transfusion

Implications for practice
• When technically feasible, VH should be performed in preference to AH because of more rapid recovery and fewer febrile episodes post-operatively. Where VH is not possible, LH has some advantages over AH (including less operative blood loss, more rapid recovery, fewer febrile episodes, and wound or abdominal wall infections) but these are offset by longer operating time and more urinary tract (bladder or ureter) injuries.

• No advantages of LH over VH could be found; LH had longer operation time and more substantial bleeding, and TLH had more urinary tract injuries.

• Cochrane Review 2009
  - Nieboer et al Cochrane Database Syst Rev Jul 8(3):CD3677
    - 4495 total women
    - return to normal activities VH and LH better than AH
    - Urinary tract injuries same VH vs AH more for TLH
    - No difference in major long term complications
    - Quality of life better VH vs AH
    - Intra-op bleeding VH = AH, < LH
    - Unintended laparotomies VH = LH
    - Blood transfusion VH < LH
    - VH = LH for Hospital stay
    - + Febrile episodes, vault haematoma, UTI, chest infection
    - VH quicker than AH (74 vs 98 h) and LH (109)
    - VH cheaper than LH and AH

• NICE guidance on commissioning a hysterectomy service
  - Taking into account the need for individual assessment, the route of hysterectomy should be considered in the following order: first line vaginal, second line abdominal

• RCOG -
  - ACOG 2009
    - Vaginal hysterectomy is the approach of choice whenever feasible, based on its well-documented advantages and lower complication rates.
ACOG 2009 cont

- The choice of whether to perform prophylactic oophorectomy at the time of hysterectomy is based on the patient's age, risk factors, and informed wishes, **but not on the route of hysterectomy**.

- Laparoscopic hysterectomy is an alternative to abdominal hysterectomy for those patients in whom a vaginal hysterectomy is not indicated or feasible.

- Experience with robot-assisted hysterectomy is limited at this time; more data are necessary to determine its role in the performance of hysterectomy.

- Finhyst prospective study of 5279 hysterectomies and their complications (Hum Reprod 2011 1741 – 51)
  - 53 hosps in Finland 2006
  - AH 24%, LH 32%  VH 44%
  - Major comps AH 4%, LH 4.3%, VH 2.6%
  - Total comps 19.2, 15.4, 11.7

- Whenever possible hysterectomy should be minimally invasive

- Gendy et al metanalysis of vaginal versus total laparoscopic hysterectomies and their complications (Am J Obstet Gynecol 2011;204:388.e1–8.)
  - 5 studies  332 TLH, VH 331
  - Major comps no difference
  - Urinary tract injury 5 vs 0 (NS)
  - Laparotomy no difference
  - Operative time VH quicker
  - Post op stay shorter with TLH

- Underpowered, cost implications of TLH, need further investigation

Vaginal Hysterectomy Conclusion

Excellent support for vaginal hysterectomy both in evidence and advice

**What should strategy be?**

- Primary route of hysterectomy vaginal inc BSO
- List for VHBSO +/- laparoscopy
- LAVH = laparoscopy after vaginal hysterectomy
- LAVH LH when significant associated pathology eg endometriosis
- TLH for endometrial cancer and severe obesity

The future of hysterectomy should be **VAGINAL** laparoscopy has a small but important place

Vaginal Hysterectomy Evidence

- Published 2002
  - Surish Sheth &John Studd

- Contributors
  - Alan de Cherney
  - Mohamed Hefni
  - Robert Kovac
  - Adam Magos
  - Marco Pelosi 2 & 3
  - Stuart Stanton
  - Thomas Stoval
  - Chris Sutton
Tips for success

- Patient positioning
- Assistance
- Retraction
- Use both hands
- Suturing technique
- Knot tying

Difficult Vaginal Hysterectomy

- Theatre set up – operating table with tray
- Sit or stand?
- Light positioning x 2
- Leg supports
- Assistants 1 or 2? Sit or stand
- Suture long labia
- Infiltration
- Retraction Illuminated?
  - Simms
  - French
  - Rosanne Kohs Magrina Buchalter

Needle - grip tip towards cervix half way, angled
Utero-sacral suturing

- Figure of 8 suture
- Large pedicles divided
- Through centre
- Round tip
- Through centre
- Pedicle contracts well before clamp removed

Difficult Vaginal Hysterectomy

Figure of 8 to IPL

Thank You

richard@penketh.org.uk
Vaginal Hysterectomy – New Techniques for an Old Procedure

Barbara Levy MD FACOG, FACS
VP Health Policy
The American College of Obstetricians and Gynecologists

Conflicts of Interest
I have no financial relationships to disclose.

Learning Objectives
• Describe techniques to improve outcomes and reduce complications at vaginal hysterectomy
• Demonstrate techniques to perform vaginal hysterectomy in most patients
• Describe approaches for obese women to facilitate a vaginal approach
• Describe how to avoid complications

“You must be the change you wish to see in the world.”
Gandhi

Vaginal Hysterectomy – The ORIGINAL NOTES Procedure

Current International Guidelines
• Cochrane analysis – Update July 2009 with more laparoscopic hyst studies
  Nieboer et al CochraneDatabase Syst Rev 2009 CD003677
• ACOG Educational Bulletin – Nov 2009
  Obstet Gynecol 2009;114:1156

Vaginal hysterectomy should be the procedure of choice when technically feasible.

Current International Guidelines
Cochrane: Equal or significantly better outcomes on all parameters with VH...
Should be performed in preference to AH
Where VH not possible LH may avoid the need for AH, however at the cost of increased length of surgery and cost
Common Contraindications to the Vaginal Approach

- Previous pelvic surgery
- Nulliparity or no prior vag delivery
- Enlarged uterus
- Need for adnexectomy
- Pelvic pain
- Endometriosis
- Inaccessibility – arch <90 degrees or vaginal stenosis
- Carcinoma

Evidence-Based Contraindications to Vaginal Hysterectomy

- Malignancy
- Undiagnosed pelvic mass
- Inability to access the uterine vessels

Surgical practice – defined by our tools

Laparoscopic Equipment

- Surgical innovation dependent upon manufacturers’ support and development
- New tools facilitated new procedures

Problems with Vaginal Access

- Upper vaginal ring & poor visualization
- Lack of descensus
- Large buttocks
- Redundant vaginal sidewalls
- Obliterated cul de sac

Solutions for Vaginal Access

- Flexibility in choice of retractors
- Eliminate as much metal as possible
- Detailed knowledge of anatomy
- Dissection and clamp placement prior to peritoneal entry – either anteriorly or posteriorly
- Split uterus in the midline carefully
Tricks in Performing Difficult Vaginal Surgery - Visualization

Use a fiberoptic light source to increase visualization – laparoscopy has taught us the advantage of good light.

Relentlessly pursue simplicity

Surgical check lists and comparison to other industries supports the value of standardization in approach and technique.

Variations lead to errors and complications.

New Methods of Achieving Hemostasis

- Eliminate need to suture in tight spaces
  - Control vessels 1mm to 7mm in diameter
  - Manage pedicles without isolation and dissection reducing necrotic tissue
  - Randomized trials confirm reduced OR time and post-operative pain.

Methods of Achieving Hemostasis

- Suture
- Vessel sealing
- Pulsed Bipolar coagulation
- Ultrasonic energy application

Energy-Based Vessel Ligation Comparison

The artery has been fused and the lumen obliterated with one 5 second application of the LigaSure™ System.

The artery has been coagulated with one application of a standard bipolar forceps. The lumen is open and a proximal thrombus is present.

Animal Model
**H&E Stained Renal Artery Longitudinal Section**

Note the fused lumen of the vessel walls

---

**Sutureless Hysterectomy**

- Faster
- More precise control of pedicles
- Reduces necrotic tissue
- Reduces inflammation
- Reduces pain
- Reduces potential for adjacent organ injury

Lakeman M, Kruitwagen RF, Vos MC, Roovers JP. JMIG 2008;15

Electrosurgical Bipolar Vessel Sealing Versus Conventional Clamping and Suturing for TAH

---

**Energy Based Vessel Sealing Technology Applications in Vaginal Hysterectomy**

- Prospective Randomized Controlled Trial Comparing LigaSure™ to Suture Ligation


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**Vaginal Hysterectomy Using Vessel Sealer**

- Safe
- Efficient
- Permits vaginal approach in patients with difficult anatomy
  - Nulliparous
  - Small pelvis
- Permits safe vaginal approach to adnexectomy
- Reduces operating time in experienced hands 25-33%

---

**Don’t Forget**

Removal of the uterus (with or without the adnexae) is just the beginning
While hysterectomy may be performed without using suture……
Reconstruction of the support structures and the pubocervical ring requires skilled suturing and distinguishes the great vaginal surgeon

---
Avoidance of Complications

• Careful patient positioning
• DVT prophylaxis
• 1 dose 1st generation cephalosporin
• Meticulous hemostasis
• Careful tissue handling
• Early ambulation
• Avoid indwelling catheter

Tricks in Performing Difficult Vaginal Surgery - Positioning

• Carefully position the patient with the buttocks over the edge of the table to gain optimal exposure – avoid hyperflexion or significant external rotation at the hip to reduce femoral nerve injury
• Place padding under the sacrum in extremely thin women to reduce the risk of sciatic injury.

Tricks in Performing Difficult Vaginal Surgery - Access

ELIMINATE side wall retractors – they restrict mobility and cause soft tissue injury – use the suction-irrigator to gently retract tissue

• Use the shortest weighted speculum available to reduce the distance to the cervix.
• In patients with large buttocks or an upper vaginal ring, consider using a narrow Deaver retractor to gain access to the posterior cul de sac.

Tricks in Performing Difficult Vaginal Surgery

• Learn to morcellate, core or split the uterus while maintaining anatomic orientation.

• A mobile uterus OF ANY SIZE can be removed vaginally if:
  – The uterine vessels are accessible
  – Morcellation of myomas can be accomplished

Tricks in Performing Difficult Vaginal Surgery - Safety

• Routinely use intravenous indigo carmine dye to identify bladder injuries early
• Consider routine cystoscopy to identify ureteral obstruction (will NOT identify all injuries)
Critically Analyze Studies
Candiani et al Am J Obstet Gynecol 2009;200
Prospective randomized trial of VH vs TLH
N=60

• Patients were operated upon using “standard technique”
• What is “standard” for vag hyst?
• Heaney technique was used – ie all pedicles were controlled with suture
• Times were shorter for VH, BUT mean was 82 minutes!

Critically Analyze Studies
Candiani, et al.

• Reduced blood loss at TLH - due to laparoscopy or to vessel control technique?
• Study conclusions difficult to understand – why would there be less pain and lower blood loss with a longer procedure that requires additional incisions?

Benefits to Vaginal Hysterectomy

• Reduced cost
• Shorter length of stay
• Improved cosmetic result
• Lower complication rates
• Improved post-operative pelvic support? Not substantiated by case control studies of poor quality

Tricks in Performing Difficult Vaginal Surgery

• Think creatively
• Be on the lookout for new technology
• Know anatomy
• Be prepared to abandon the approach
• No promises!

Conclusion

- Where an attempt at vaginal hysterectomy is not contraindicated, use of the laparoscope adds unnecessary expense, time and morbidity
- Technological advances permit safe vaginal hysterectomy in the vast majority of cases

References

• ACOG Committee Opinion 444 Obstet Gynecol 2009;114:1156
• Nieboer et al. Cochrane Database Rev 2009 CD003677
• Candiani et al. Am J Obstet Gynecol 2009, 200
Objectives:
At the end, one would be able to:

- Develop a new selection criteria
- Articulate the specific challenges to vaginal approach
- Apply the use of surgical devices and techniques to overcome challenges

Traditional “contraindications” to the vaginal route

- Previous pelvic surgeries
- Adnexal mass
- Nulliparity
- >12 weeks’ size uterus

US vaginal surgeries performed

- >80% surgeons perform LESS than 5 vaginal surgeries per year
- <5% surgeons perform more than 10 vaginal surgeries per year

- Rogo-Gupta et al. Ob Gyn 2010;116:1341
“Contraindications” to the Vaginal Route
- Previous pelvic surgeries
- Adnexal mass
- Nulliparity
- >12 weeks’ size uterus

Mayo Clinic AZ: Criteria to Determine Route
- Level of suspicion for malignancy
- Endometrial cancer
- Early stage
- Not requiring morcellation

Criteria to determine route
Level of suspicion for Malignancy
- Uterine sarcoma
- MRI w/ gadolinium
- Total LDH & isoenzyme type 3
  - Goto et al. IJGynCA 2002, 12, 354
- Suspicious adnexal mass

Technical Challenges in VH
- Exposure
- Hemostasis
- Entry into the anterior cul de sac
- Large uterus
- Avoiding bladder/ureteral injury

Exposure: Magrina-Bookwalter Vaginal Retractor
Magrina-Bookwalter vaginal retractor system (Symmetry Surgical)
Technical Challenges in VH

- Exposure
  - Magrina-Bookwalter Vaginal Retractor (Symmetry Surgical)
  - Fiberoptic light
  - Lighted suction-irrigator (Vital Vue, Covidien)
  - Large pack to keep bowel up
  - Modified long/extra long deavers
  - LONG instruments

Exposure: Gaining vaginal access

- 1° episiotomy

Technical Challenges in VH

- Hemostasis
- Vessel-sealing device
- Grasps & seals
- Measures tissue impedance
- Minimal lateral thermal tissue injury

Technical Challenges in VH

- Large Uterus
- Morcellation ONLY after ligating uterine arteries
  - Bivalve cervix/Wedge excision
  - Long curved morcellating knife (Precise CMK, Precise Surgical, CA)
- Keep track of uterine serosa
  - “dunk” technique
- Avoid digging into a hole

Vaginal Incision for Narrowed Introitus
What happens when you enter the bladder?
- Cystotomy
- Tag edges with dyed suture
- CONTINUE dissection/finish hysterectomy
- Repair with 3-0 Vicryl/ two-layer
- Instill bladder with methylene blue
- Cystoscopy to check proximity to ureteral orifices
- Leave foley 7-10 days

Traditional: Mesosalpinx-mesoovarium (one pedicle) technique

Limitations:
- Thick pedicle
- Retraction of ovary
- Incomplete removal
- Up against the pelvic side wall: risk to ureters

Ovarian Remnant Syndrome
- Ovarian stroma extends microscopically up to 1.5 cm beyond gross margins
  - Gyn Onc 2009;114:61

Conversion: NOT a COMPLICATION
- When:
  - Heavy uncontrolled bleeding
  - During morcellation
  - Avulsed vascular pedicle that you cannot control
  - Loops of bowel into the vagina
My essential pieces of equipment for VH

- **Exposure:**
  - Magrina-Bookwalter vaginal retractor system
  - Modified deavers
  - Long vaginal pack

- **Dissection:**
  - Sharp Mayo scissors
  - Gerald pick-up forceps

- **Hemostasis:**
  - Vessel-sealing device
  - Heaney clamps

**Summary**

- VH
  - a minimally invasive procedure
  - The preferred approach
  - Develop new “criteria” for vaginal approach
  - Utilize new technology & instrumentation

**References:**

- Rogo-Gupta et al. Ob Gyn 2010;116:1341
- Gyn Onc 2009;114:61
Difficult Vaginal Hysterectomy and Morcellation Techniques

Beri Ridgeway, M.D.
Assistant Professor, Cleveland Clinic Lerner College of Medicine
Center for Urogynecology and Pelvic Reconstructive Surgery
The Cleveland Clinic

Objectives

- Review rationale to increase the vaginal approach to hysterectomy
- Discuss patient characteristics which make vaginal hysterectomy more challenging
- Discuss techniques to employ in a challenging vaginal hysterectomy
  - Anterior entry
  - Posterior entry
  - Morcellation
- Describe and demonstrate vaginal morcellation techniques

Comparison Between Different Approaches to Hysterectomy

- Vaginal hysterectomy vs. abdominal hysterectomy
  - Shorter duration of hospital stay
  - Faster return to normal activity
  - Decreased postoperative febrile morbidity
- Vaginal hysterectomy vs. laparoscopic hysterectomy
  - Shorter operating time

Disclosures

I have no financial relationships to disclose.

Hysterectomy – Vaginal, Abdominal or Laparoscopic

Laparoscopic vs. Vaginal Hysterectomy for Benign Disease

In a RCT of LH vs. TVH from Italy (Candiani et al, 2009):

- 60 patients were randomized to LH or TVH
- LH had longer mean operating time (82 vs. 99 minutes, P=.033)
- LH was associated with reduced mean blood loss (84 vs. 178 ml), shorter hospital stay (2.7 vs. 3.2 days), and less postoperative pain
- Planned BSO was done in 100% of LH cases and only 73% of TVH cases

 Costs of Hysterectomy

- Cost analysis trials consistently demonstrate that TVH is the most cost-effective route.
- Laparoscopic hysterectomy can be cost-effective relative to abdominal procedure, but the difference varies among different surgeons, health systems, and countries.
- The main cost determinants are the length of hospital stay, operating room time, and the use of disposable surgical devices.
- The robot usually increases costs.

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

Because of its well-documented advantages and relatively lower complication rates, vaginal hysterectomy should be the approach of choice when feasible.

Suggestions to Increase the Proportion of Vaginal Hysterectomies and Oophorectomies in your Patients

- Careful attention to patient set-up and assistants in surgery.
- Do more vaginal surgery in general to get comfortable — Think first about TVH.
- Learn morcellation techniques.
- Try to get better at dissection of tissue planes and at vaginal ovarian removal.

Factors That Impair Vaginal Access to the Uterus and Make Vaginal Hysterectomy Difficult Include:

- A narrow pubic arch (< 90°).
- A narrow vagina (narrower than 2-finger breaths, especially at the apex).
- An undescended and immobile uterus.
- Broad, immobile uterus — Access to uterine arteries is limited by the size and shape of the uterus in relation to the pelvic size.
- When one or more of these factors are present, the laparoscopic or abdominal route should be considered.

Indications for Laparoscopic or Open Hysterectomy

- Severe endometriosis, dense adhesions.
- Adnexal pathology.
- Reduced vaginal access; tight pelvis.
- Uterine size > 16 - 18 weeks.
- Lymphadenectomy for early upper genital tract malignancy.
- Inability to properly position the patient for vaginal access. — Example: Severe arthritis, hip disease.
- Fibroid uterus — No!
- Prophylactic oophorectomy — No!
- Prior C/S — No!
General Considerations

Optimize Outcomes During Vaginal Surgery
- Medical and anesthesia optimization
- Antibiotic prophylaxis
- Anti-embolic prophylaxis
- Good positioning: legs in high stirrups, buttocks at end of table
- Surgical time out and checklists
- Two good assistants if possible
- Good lighting
- May consider cell-saver

Minimize Bleeding During Vaginal Surgery
- Preoperative assessment
  - Discontinue NSAIDS, ASA 2 weeks pre-op
  - Optimize medically – iron infusion, etc.
- Careful entry into proper tissue planes
  - Lidocaine 1% with epinephrine 1:200,000
  - Precise and rapid dissection

Techniques to Accomplish a Difficult Vaginal Hysterectomy
- Narrow vagina – Schuchardt incision (mediolateral episiotomy)
- Adhesive disease, endometriosis, or previous abdominal suspension -- careful and anatomic dissection
- Uterine enlargement -- morcellation
- Cervical elongation -- patience
- Ovarian removal -- proper technique
Traction and countertraction help to increase the distance between the clamps and the ureter, thus minimizing the risk of ureteral injury during vaginal hysterectomy.

Clamp and ligate the pedicles in continuity to help avoid bleeding.

**Difficult Vaginal Hysterectomy**

- Weighted retractor posterior and short Heaney retractor anterior
  - Sidewall retractors as needed
- Circumferential incision with posterior “V”
  - Incision or additional dissection to cervical stroma
- Posterior entry first
Difficult Entry into Posterior Cul-de-Sac can be caused by:

- Shallow Pouch of Douglas
- Long cervix
- Endometriosis
- Posterior cervical or lower uterine segment myomas
- Pelvic or bowel adhesions

Difficult Entry into Posterior Cul-de-Sac:

- Traction and counter-traction
- Incision with deep “V” into posterior cul-de-sac
- Digital rectal exam
- Sharp dissection
- Extraperitoneal pedicle ligation
- Palpation of cul-de-sac via anterior colpotomy
- Division of posterior cervix

Steps in Difficult Vaginal Hysterectomy:

- Attach posterior peritoneum to posterior vaginal epithelium
  - Run incision if bleeding present
- Place long weighted retractor into peritoneal cavity
- Traction and counter-traction
- Anterior entry
Difficult Entry into Anterior Cul-de-Sac can be caused by:

- Long cervix
- C-section history
- Myomectomy history
- Anterior cervical or lower uterine segment myomas
- Pelvic or bowel adhesions

Difficult Entry into Anterior Cul-de-Sac

- Try to see the peritoneum before cutting
- Traction and counter-traction
- Sharp dissection
- Extraperitoneal pedicle ligation
- Digital palpation of anterior reflection via the posterior cul-de-sac
- Uterine sound in bladder; retrograde bladder fill

Use sharp dissection to separate the bladder from the cervix until you can see the peritoneal edge

Video Clip for Anterior Entry
Clamp and ligate the pedicles in continuity to help avoid bleeding.

Ideally, prior to morcellation...
- Posterior entry, long weighted retractor to protect rectum
- Anterior entry, long Heaney retractor to protect bladder
- Uterine artery pedicles secured bilaterally
- If this is accomplished, I know I can complete the hysterectomy vaginally

Morcellation Techniques
- Coring technique
- Wedge resection
- Myomectomy
- Bivalve uterus
Figure 16.37. The large, but movable uterine corpus is shown by the dotted line in relationship to the myometrial lesion.

Coring Technique

Video Clip for Coring Technique

Wedge Resection

Video Clip for Wedge Resection
Use of these techniques on all vaginal hysterectomies will make them second nature when you encounter a difficult vaginal hysterectomy.

Step-wise approach is crucial.

Set-up is key
- 2 assistants
- Proper positioning

Review

Anticipate challenges
- Broad uterus vs. limited access vs. cervical elongation

Be patient
- Extraperitoneal ligation, additional bites

Use morcellation techniques in combination
References

Cuff Closure Techniques - Prevention of Dehiscence and Prolapse

Paul Tulikangas, MD
Associate Professor, University of Connecticut School of Medicine and Dentistry
FPMRS Fellowship Program Director, Hartford Hospital

Disclosure
I have no financial relationships to disclose.

Objective
• At the conclusion of this activity, the participant will be able to:
  – describe the technique for prevention of vaginal vault prolapse after hysterectomy
  – compare the vaginal cuff dehiscence rates in different types of hysterectomy
  – list techniques used to prevent vaginal cuff dehiscence

The uterus is out-what now?
Cuff Closure Techniques
Paul Tulikangas, MD

Preview
• Prevention of Prolapse
  – Quick review of why prolapse occurs
  – Review of the evidence for prophylaxis to prevent prolapse
  – Practical suggestions
• Prevention of Dehiscence
  – Colpotomy technique
  – Suture choice

Pelvic Organ Support-Review
Pelvic Organ Support

- Pelvic organ prolapse is usually a result of pelvic floor neuromuscular injury followed by injury to the connective tissue supports.

- In women with no pelvic organ prolapse and good pelvic floor muscle function, their risk for post hysterectomy prolapse is low.

Prophylaxis at the time of vaginal hysterectomy

- Randomized Trial
- 100 women undergoing vaginal hysterectomy for non prolapse indications
- Randomized to three groups:
  - Peritoneal closure
  - Internal Moschcowitz-type closure (internal plication only)
  - McCall’s style culdoplasty (plicate uterosacral ligaments in the midline and reef the posterior peritoneum, attach to the posterior apex)

Prophylaxis at the time of vaginal hysterectomy

- Women were followed for an average of 3 years after surgery
- Recurrent vaginal vault prolapse
  - 13/33 in peritoneal closure group
  - 10/33 in Moschcowitz group
  - 2/32 in the McCall’s culdoplasty group
- McCall’s culdoplasty was significantly more effective (p=.004)

Video-Secure the uterosacral ligaments to the vaginal cuff

- Attach the uterosacral ligaments to the vaginal cuff when they are transected
- Tagging these pedicles will improve exposure
- Superior traction on these pedicles will also you to identify the mid portion of the uterosacral ligament easier

Practical Suggestions for vaginal cuff support after hysterectomy

- Attach the uterosacral ligaments to the vaginal cuff when they are transected
- Tagging these pedicles will improve exposure
- Superior traction on these pedicles will also you to identify the mid portion of the uterosacral ligament easier
**McCalls culdoplasty**

- Simple technique to attach the vagina to the uterosacral ligaments
- Plicates the uterosacral ligaments in the midline
- Reef the posterior peritoneum
- Low rate of ureteral injury

**Prevention of Vaginal Cuff Dehiscence**

- Rates of vaginal cuff dehiscence
  - Abdominal hysterectomy 2/1000
  - Vaginal hysterectomy 1/1000
  - Laparoscopic hysterectomy 6/1000

**Prevention of Vaginal Cuff Dehiscence**

- Colpotomy technique:
  - Mobilize bladder adequately if doing a laparoscopic dissection
  - Ideal to make colpotomy incision with a knife or scissors
  - Most recommend monopolar cut settings if making a colpotomy with an energy device
  - Adequate tissue in each suture bite

- What if I close the cuff vaginally on a TLH?
  - Laparoscopic hysterectomy with laparoscopic sutures: 9/1000
  - Laparoscopic hysterectomy with vaginal sutures: 2/1000

**Prevention of Vaginal Cuff Dehiscence**

- Colpotomy technique:
  - Vaginal closure of colpotomy has lower dehiscence rate than laparoscopic closure
  - Robotic laparoscopic closure has the highest dehiscence rate
  - Some advocate delayed absorbable monofilament sutures or barbed sutures
Vaginal cuff dehiscence

- Clinical presentation
  - Most common presentation is vaginal bleeding and sudden gush of watery vaginal discharge
  - Often occurs after coitus
  - Most occur in the first 6 weeks though it may present as long out as 6 months
  - Repeat dehiscence is possible (14%)

Cuff Closure Techniques

- McCall’s style culdoplasty is a proven method to reduce the risk of post hysterectomy prolapse in women undergoing hysterectomy for non prolapse indications
- Vaginal cuff dehiscence is least common after vaginal hysterectomy
- Vaginal cuff dehiscence is most common after robotic assisted total hysterectomy

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.

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.