6-Hour Didactic/Simulation Lab:
What Is New in Practical Hysteroscopy?

PROGRAM CHAIR
Mark H. Emanuel, MD, PhD

Aarathi Cholkeri-Singh, MD
Matthew R. Hopkins, MD

Justin Clark, MD, MB ChB
Maria Teresa Tam, MD

Martin Farrugia, MD, PhD

AAGL acknowledges that it has received support in part by educational grants and equipment (in-kind) from the following companies:
Bayer HealthCare, Boston Scientific, CooperSurgical, Ethicon US, LLC, Hologic, Inc.,
Olympus America, Inc., Smith & Nephew, Inc., Karl Storz Endoscopy-America, Inc.,
Stryker Endoscopy, Richard Wolf Medical Instruments Corporation
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 6.0 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

DISCLOSURE OF RELEVANT FINANCIAL RELATIONSHIPS
As a provider accredited by the Accreditation Council for Continuing Medical Education, AAGL must ensure balance, independence, and objectivity in all CME activities to promote improvements in health care and not proprietary interests of a commercial interest. The provider controls all decisions related to identification of CME needs, determination of educational objectives, selection and presentation of content, selection of all persons and organizations that will be in a position to control the content, selection of educational methods, and evaluation of the activity. Course chairs, planning committee members, presenters, authors, moderators, panel members, and others in a position to control the content of this activity are required to disclose relevant financial relationships with commercial interests related to the subject matter of this educational activity. Learners are able to assess the potential for commercial bias in information when complete disclosure, resolution of conflicts of interest, and acknowledgment of commercial support are provided prior to the activity. Informed learners are the final safeguards in assuring that a CME activity is independent from commercial support. We believe this mechanism contributes to the transparency and accountability of CME.
# Table of Contents

Course Description................................................................................................................................. 1

Disclosure............................................................................................................................................. 2

Conventional Techniques and Tissue Removal Systems
A. Cholkeri-Singh .................................................................................................................................. 3

Polypectomy
J. Clark .................................................................................................................................................. 17

Myomectomy
M.H. Emanuel ....................................................................................................................................... 24

High Frequency Electrosurgery and Global Ablation
M. Farrugia ............................................................................................................................................. 32

Cultural and Linguistics Competency .................................................................................................... 45
HSC-701
6-Hour Didactic/Simulation Lab: What Is New in Practical Hysteroscopy?

Mark H. Emanuel, Chair
Aarathi Cholkeri-Singh, Lab Chair

Faculty: T. Justin Clark, Martin Farrugia, Matthew R. Hopkins, Maria Teresa Tam

This course provides a combination of information and practical exercises which will help participants to integrate diagnostic and therapeutic hysteroscopy in their daily practice, both in the office and in the OR environment. The expert faculty will guide participants through pathology-based procedures and introduce the latest technical information on new treatments, which they can practice during the lab workshops of the course. Furthermore, an up-to-date overview of what has been proven will be presented.

In order to support AAGL’s tissue extraction statement, this course will provide the following tissue extraction methods: Hysteroscopic tissue extraction will be taught via conventional techniques with scissors/graspers, resectoscopy as well as hysteroscopic tissue removal systems which utilize a disposable morcellator blade.

**Learning Objectives:** *At the conclusion of this course, the clinician will be able to:* 1) Identify and select patients best suited for office- and OR-based hysteroscopic procedures; 2) assess pathology-based specific treatment chances and problems; and 3) integrate new technologies in their daily practice.

**Course Outline**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00</td>
<td>Welcome, Introductions and Course Overview</td>
<td>M.H. Emanuel</td>
</tr>
<tr>
<td>7:05</td>
<td>Conventional Techniques and Tissue Removal Systems</td>
<td>A. Cholkeri-Singh</td>
</tr>
<tr>
<td>7:35</td>
<td>Polypectomy</td>
<td>T.J. Clark</td>
</tr>
<tr>
<td>8:00</td>
<td>Lab introduction, tasks and goals</td>
<td>A. Cholkeri-Singh</td>
</tr>
<tr>
<td>8:05</td>
<td><strong>LAB I:</strong> Forceps and Scissors; Tissue Removal Systems</td>
<td>All Faculty</td>
</tr>
<tr>
<td>10:00</td>
<td>Questions &amp; Answers</td>
<td>All Faculty</td>
</tr>
<tr>
<td>10:15</td>
<td>Myomectomy</td>
<td>M.H. Emanuel</td>
</tr>
<tr>
<td>10:45</td>
<td>Questions &amp; Answers</td>
<td>All Faculty</td>
</tr>
<tr>
<td>11:00</td>
<td>Adjourn/Lunch</td>
<td>All Faculty</td>
</tr>
<tr>
<td>12:30</td>
<td>High Frequency Electrosurgery and Global Ablation</td>
<td>M. Farrugia</td>
</tr>
<tr>
<td>12:50</td>
<td>Questions &amp; Answers</td>
<td>All Faculty</td>
</tr>
<tr>
<td>1:00</td>
<td>Lab introduction, tasks and goals</td>
<td>A. Cholkeri-Singh</td>
</tr>
<tr>
<td>1:05</td>
<td><strong>LAB II:</strong> Electrosurgery and Global Ablation; Tissue Removal Systems</td>
<td>All Faculty</td>
</tr>
<tr>
<td>2:20</td>
<td>Questions &amp; Answers</td>
<td>All Faculty</td>
</tr>
<tr>
<td>2:30</td>
<td>Adjourn</td>
<td></td>
</tr>
</tbody>
</table>
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*
Amber Bradshaw
Speakers Bureau: Myriad Genetics Lab
Other: Proctor: Intuitive Surgical
Erica Dun*
Frank D. Loffer, Medical Director, AAGL*
Linda Michels, Executive Director, AAGL*
Johnny Yi*

SCIENTIFIC PROGRAM COMMITTEE
Arnold P. Advincula
Consultant: Intuitive
Royalty: CooperSurgical
Sarah L. Cohen*
Jon I. Einarsson*
Stuart Hart
Consultant: Covidien
Speakers Bureau: Boston Scientific, Covidien
Kimberly A. Kho
Contracted/Research: Applied Medical
Other: Pivotal Protocol Advisor: Actamax
Matthew T. Siedhoff
Other: Payment for Training Sales Representatives: Teleflex
M. Jonathon Solnik
Consultant: Z Microsystems
Other: Faculty for PACE Surgical Courses: Covidien

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).
Aarathi Cholkeri-Singh
Speakers Bureau: Bayer Healthcare Corp., Ethicon Endo-Surgery
Consultant: Smith & Nephew Endoscopy
Other: Advisory Board Member: Bayer Healthcare Corp., Ethicon Endo-Surgery
T. Justin Clark
Speakers Bureau: Bayer Healthcare Corp., Gynecare, Smith & Nephew Endoscopy
Mark H. Emanuel
Royalty: Smith & Nephew Endoscopy
Consultant: Smith & Nephew Endoscopy
Stock ownership: IQ Medical Ventures
Martin Farrugia
Consultant: Ethicon Endo-Surgery
Matthew R. Hopkins*
Marit Lieng*
Maria Teresa Tam*
Asterisk (*) denotes no financial relationships to disclose.
Conventional Hysteroscopy and Tissue Removal Systems

Aarathi Cholkeri-Singh, M.D., FACOG

Clinical Assistant Professor of Obstetrics and Gynecology at UIC
Associate Director of Minimally Invasive Gynecologic Surgery
Director of Gynecologic Surgical Education at ALGH

• Discuss Indications for Hysteroscopy
• Evaluate Hysteroscopic Instrumentation
• Discuss complications of Hysteroscopy including Management and Prevention

Vaginal or Cervical Examination

• Diagnostic
  – Inadequate speculum exam
  – Vaginal endometriosis
  – Pelvic floor mesh erosions
  – Vaginal fistulas
  – Cervical pathology

• Operative
  – Excision of vaginal or cervical lesions
  – Longitudinal vaginal septums

Evaluation for Abnormal Uterine Bleeding

• Pregnancy
• Infection
• Hormonal
• Hematologic
• Structural
  – Retained products of conception
  – Fibroids
  – Polyps
  – Adenomyosis
  – Endometritis
  – Hyperplasia
  – Cancer

INDICATIONS

HYSTEROSCOPY
Evaluation for Abnormal Uterine Bleeding

- Sampling – EMB, D&C
- Ultrasound
- Sonohysterogram
- Hysteroscopy
- Hysterosalpingogram

Diagnostic Algorithm

Sensitivity of Intracavitary Disease Identification

From ACOG Practice Bulletin 128*

Surgical Procedures

- Biopsy/D&C
- Retrieval of foreign body/IUD
- Insertion of tubal occlusion device
- Metroplasty
- Adhesiolysis

Contraindications

- Viable intrauterine pregnancy
- Active pelvic infection
- Known cervical or uterine cancer

Hysteroscopy

INSTRUMENTATION AND TECHNIQUE
Timing of surgery

- Thin uterine lining
  - Early proliferative phase
  - Oral, transdermal or transvaginal contraceptive medication
  - GnRH agonist
  - Postmenopausal

Analgesia

- Thoroughly discuss experience
  - Setting Expectations
    - What the patient will hear, see and feel
    - Unexpected experience can worsen anxiety
    - Fear can exacerbate pain

Analgesia

- Pre-procedure Medications
  - NSAIDs
    - Ibuprofen
    - Celecoxib
    - Ketorolac – 30 or 60mg IM
  - Narcotic
  - Anxiolytic
  - Anti-emetic

Uterine Local Anesthesia
Sites to Consider

- Vagina
  - Topical
- Cervix
  - Intracervical
  - Topical
- Corpus
  - Paracervical
  - Topical

Paracervical

- RCT’s
  - Inconsistent injection and procedure time
  - Inconsistent outcomes

IV Sedation – Moderate/Deep

- Minimum of 2 staff members present
- Surgeon or Anesthetist
- Need to have ACLS training
General Anesthesia

- Hospital
- Operative hysteroscopy

Diagnostic Hysteroscopy

- Flexible Hysteroscope
  - Fiber-optic
  - 0° lens with 240° range of visual field
  - Single channel
  - 3-4mm diameter
  - IV tubing/cysto tubing or syringe

Diagnostic Hysteroscopy

- Rigid
  - Rod lens – 12°, 25°, 30°
  - Single-flow
    - OD - 2.8 mm, 4.1 mm or 5.2 mm
  - Continuous flow
    - OD - 3.6 mm, 4.5 mm or 6.2 mm
  - Able to proactively flush the uterine cavity

Operative Hysteroscopy

- Rigid scope
  - Rod lens
    - 0°, 12°, 25°, 30°
  - Single sheath
  - OD - 5.5mm
  - 5-7 Fr instrument channel
  - Continuous flow

Scope angle
Operative Hysteroscopy

- **Operative Instruments**
  - 5 Fr or 7 Fr
  - Semirigid
    - Greater stability for direction and cutting

Operative Hysteroscopy

- Bipolar electrodes
  - 5 Fr
  - 40cm in length
  - Flexible
  - Vaporization, Cut and Desiccation
  - Normal saline distension medium

Cervical Dilation

- Typically not necessary for scopes ≤5mm

- Do not over-dilate
  - Leakage of distension fluid leads to poor visualization
  - 4 prong tenaculum (Gimpelson)
  - Vaseline gauze
  - Compare dilator size with scope

Vaginoscopy

- Small caliber scope into vagina without use of a speculum

- Adapted to hysteroscopy in 1997, also called the ‘No-Touch’ Hysteroscopy

<table>
<thead>
<tr>
<th>Procedure</th>
<th>No Discomfort</th>
<th>Mild Pain</th>
<th>Moderate Pain</th>
<th>Severe Pain</th>
<th>Vagal Reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speculum, Tenaculum</td>
<td>71.4% (n = 26)</td>
<td>11.7% (n = 5)</td>
<td>11% (n = 5)</td>
<td>8% (n = 3)</td>
<td>1.2% (n = 1)</td>
</tr>
<tr>
<td>Speculum, Tenaculum, Local anesthesia</td>
<td>68.8% (n = 26)</td>
<td>10.7% (n = 6)</td>
<td>8% (n = 3)</td>
<td>1.2% (n = 1)</td>
<td></td>
</tr>
<tr>
<td>Speculum only</td>
<td>99.1% (n = 204)</td>
<td>31.9% (n = 98)</td>
<td>1.9% (n = 6)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No speculum, No tenaculum, No anesthesia (Vaginoscopic HSC)</td>
<td>96% (n = 40)</td>
<td>4.9% (n = 2)</td>
<td>1.5% (n = 1)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

In 2003 and 2004, Bettocchi and Selvaggi reported over 11,000 vaginoscopic techniques performed

*References for Vaginoscopy Image*:
Vaginoscopy

1. Clean the cervix and vagina with a small diameter swab dipped in Betadine (povidone-iodine) or alternative (chlorhexidine gluconate) if allergic.
2. Spread labia initially and guide scope into posterior fornix of vagina.
3. If leakage fluid causing inadequate distension of the vaginal walls, can gently pinch the labia with gauze.

4. Slowly pull back the scope and manipulate posteriorly to visualize the external cervical os anteriorly.
5. Introduce the scope through the cervix and endocervical canal and into the uterine cavity.
   - The uterine wall lines up with the cervix and vagina.
6. Perform diagnostic or operative hysteroscopy.
7. Fluid monitoring:
   - Nurse watches inflow and outflow amounts because procedure longer than diagnostic to monitor fluid absorption.

Vaginoscopy - Procedure failures
- 0-10%
- No significant difference between Traditional vs. Vaginoscopic Hysteroscopy.

Causes
- Bleeding that obscured view
- Impossibility to pass cervix, usually stenosis

Operative Hysteroscopy
- Electrosurgical Resectoscope

Resectoscope Electrodes
Dessication

Resection

Vaporization

Hysteroscopic Morcellators

- Continuous flow hysteroscopy
- Use of saline
- Regulation of intrauterine pressure and liquid flow
- Cutting device with suction
- Mechanical tissue removal – instant
- Shorter learning curve
- Less risk of perforation

Hysteroscopic Morcellators

- Begin your learning experience with polyps
- Insert the hysteroscope sheath with the obturator in place for larger scopes (curved edge – less cervical trauma)
- Open inflow and outflow valves with insertion of hysteroscope.
  - The saline flow will aid insertion and assist in achieving good visualization quickly.
  - The fluid will flush blood and clots and assist in the exchange of fluid.

Hysteroscopic Morcellators

- Running the morcellator in open cavity for a short time will aid in clearing visual field of debris. Remove clots by activating morcellator.
- Maintain pressure at the lowest setting that maintains adequate distention and provides good visualization. Lower pressure, lower intravasation.
  - Pressure to open tubal ostia > 75 mmHg
Hysteroscopic Morcellators

- Confirm the cutting window has a good "bite" of tissue inside.
- If you can see inside the inner tube, you are only resecting fluid out of the uterine cavity.

Hysteroscopic morcellation cannot be performed below endometrium.

Patient Section
- Hysteroscopic morcellation is best for Type 0, and usually Type 1 myomata.
- Type 2 myomata are not contraindicated.

TRUCLEAR™ Components

The TRUCLEAR Hysteroscopic System includes:
- TRUCLEAR Control Unit
- TRUCLEAR Handpiece
- TRUCLEAR Footswitch
- TRUCLEAR Handpiece with Scope, Sheath, and device
- TRUCLEAR Devices (Rotary and Reciprocating styles)

TRUCLEAR Devices
- TRUCLEAR INCISOR™ Plus Rotary Morcellator 2.9
- TRUCLEAR Rotary Morcellator 4.0
- TRUCLEAR ULTRA Reciprocating Morcellator 4.0

Scope OD:
- 5.6mm
- 9.0mm

TRUCLEAR™ System Advantages

TRUCLEAR Devices are pathology-optimized based on tissue type.

TRUCLEAR System is only indicated for the removal of septum in Canada, UK, EU, Japan and Australia. NOT indicated for septum removal in the US.
Components
- 6.3mm OD hysteroscope
  - Direct intrauterine cavity pressure measurement
- 3.6mm OD disposable bipolar tissue removal device
- Fluid Management
  - Only one 3L saline bag used
  - Recirculates and filters maximum 2.5L of saline

Bipolar tip for cutting
- Tissue suctioned within a canister

Bipolar tip for hemostasis

Complications of Hysteroscopy - Predisposing factors
- Contraindications ignored
- Improper surgical technique
- Improper use of equipment
- Incorrectly chosen patient

Complications of Hysteroscopy - Early
- Cervical trauma
- Uterine perforation
- Hemorrhage
- Distension media complication
- Air or gas embolism

Cervical Laceration & Uterine Perforation - Prevention
- EUA with an empty bladder
- Adequate cervical dilation
- Gentle insertion of instruments
- Introduce under direct visualization or palpation
- Advance only during unobstructed view
Cervical Laceration & Uterine Perforation - Prevention

- Misoprostol
  - Greater initial cervical dilation
  - Dilation required less often
  - Less time required for dilation
  - Less cervical laceration
- 200-400mcg buccal or vaginally prior to procedure
- Abd cramps, diarrhea, bleeding, fever

- Vasopressin
  - RCT – double blinded
  - 20cc of dilute vasopressin 0.05U/mL (4 U in 80 mL NS) vs placebo into the cervical stroma at 4 and 8 o’clock not to exceed 4-6 Units total
  - Less force needed to dilate cervix

Cervical Laceration & Uterine Perforation - Prevention

Uterine Perforation

- Most common complication (~1%)
- Occurs most often during cervical dilation or blind instrumentation

Uterine Perforation - Risk Factors

- Cervical stenosis
- Acutely flexed uterus
- Postmenopausal atrophy
- Lower segment myoma
- Intrauterine adhesions
- Uterine anomaly

Uterine Perforation - Management

- Fundal perforation without RF energy
  - Discontinue case and observe
- Fundal with RF energy/active morcellator blade
  - Laparoscope to inspect for visceral injury
- Lateral perforation
  - Laparoscope to assess for broad ligament hematoma
- Anterior perforation
  - Cystoscopy

Hemorrhage

- Foley catheter
  - 25cc saline-filled balloon
  - Leave in cavity for 4-6 hours, deflate 50%, observe, and then remove if no bleeding
  - If bleeds on deflation, re-inflate and leave in cavity for 24 hours with appropriate antibiotic coverage
  - Consider repeat hysteroscopic examination with directed coagulation if bleeding persists


Hemorrhage

- Intrauterine vasopressin soaked in gauze
- Laparoscopic/Laparotomic evaluation with repair of perforation
- Uterine artery ligation
- Embolization
- Hysterectomy

Distension Media Complications - Intravasation

- Factors
  - Intrauterine pressure
  - Mean arterial pressure
  - Depth of myometrial invasion
  - Partial perforation
  - Length of surgery
  - Venous sinuses
    - Submucous myomata
    - Deep myometrial resection

Distension Media

- Diagnostic hysteroscopy
  - CO₂ gas
  - Normal saline
- Operative non-electrosurgical hysteroscopy
  - Normal saline
- Resectoscopy
  - Bipolar - Normal Saline
  - Monopolar – Glycine, Sorbitol or Mannitol

Distension Media Complications

- Electrolyte-containing and isotonic media
  - Pulmonary edema and CHF
  - Fluid overload
  - Death
- Electrolyte-free media and hypotonic (non-conductive)
  - Free water intoxication
  - Hyponatremia
  - Cerebral edema
  - Hyponatremic encephalopathy more likely in premenopausal women due to Na+/K+ ATPase pump inhibition by female sex steroids
  - Death

Distension Media

- Electrolyte-containing media
  - Saline, LR - Isotonic
    - (electrolytes will disperse monopolar energy)
- Electrolyte-free media
  - 1.5% Glycine - Hypotonic
  - 3% Sorbitol - Hypotonic
  - 5% Mannitol - Isotonic

Uterine Distension Media

- Low-viscous solutions

Distension Media Prevention - Intravasation

- Preoperative
  - GnRH agonists
    - Reduce degree of systemic absorption
    - Reduce impact of hyponatremic, hypotonic encephalopathy

Distension Media Prevention - *Intravasation*

- Intraoperative
  - Vasopressin – 8mL of 0.05U/mL intracervical
  - RCT – double blinded
  - Decreased blood loss
  - Decreased intravasation (448 vs 819 mL)
  - Decreased OR time
- *Avoiding cervical trauma may decrease intravasation*


Fluid Deficit Monitoring

- Automated fluid management highly desirable
  - Removes the human factor
  - Allows for early warning of excess deficit
  - Provides the relative rate of intravasation
- If mechanical monitoring is unavailable, a dedicated person should tally deficit
- Both anesthesiologist and surgeon should be aware of deficit on a frequent basis

Fluid Management Systems

<table>
<thead>
<tr>
<th>Fluid Management Systems</th>
<th>Automated Intravascular</th>
<th>Isotonic</th>
<th>Intermittent</th>
<th>Automated extravascular</th>
<th>Isotonic</th>
<th>Intermittent</th>
<th>Automated extravascular</th>
<th>Isotonic</th>
<th>Intermittent</th>
<th>Automated extravascular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balanced Electrolyte</td>
<td>Yes</td>
<td>NS</td>
<td>NS</td>
<td>Yes</td>
<td>NS</td>
<td>NS</td>
<td>Yes</td>
<td>NS</td>
<td>NS</td>
<td>Yes</td>
</tr>
<tr>
<td>Smaller Volume Intra</td>
<td>Yes</td>
<td>NS</td>
<td>NS</td>
<td>Yes</td>
<td>NS</td>
<td>NS</td>
<td>Yes</td>
<td>NS</td>
<td>NS</td>
<td>Yes</td>
</tr>
<tr>
<td>Other</td>
<td>Yes</td>
<td>NS</td>
<td>NS</td>
<td>Yes</td>
<td>NS</td>
<td>NS</td>
<td>Yes</td>
<td>NS</td>
<td>NS</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Distension Media Complications - *Prevention*

- Electrolyte-free media parameters
  - 750 mL deficit (1000 mL with NS)
    - Signals impending need to complete the procedure
    - Stop surgery for elderly patients +/- comorbid conditions
  - 1000 mL deficit (2500 mL with NS)
    - Stop surgery
    - Check lytes in PACU, consider 10mg Lasix
- Communicate deficit regularly

Distension Media Complications - *Prevention*

- Control of Intrauterine pressure
- Avoid excessive operating time
- Anesthesia to closely monitor / limit IVFs
Air / Gas embolism - Pathophysiology

- Enters venous circulation and either equilibrates with pulmonary clearance or exceeds pulmonary clearance
- Gas diffuses in the alveoli and is exhaled
- A large bolus of air can cause an airlock in the right heart, outflow obstruction, and decreased pulmonary venous return with decreased left ventricular preload and cardiac output

Air/Gas Embolism - Predisposing Factors

- Unpurged fluid in-flow line
- Use of rigid bottle for distention medium
- Inadequate uterine flushing of bubbles
- Piston-like action of repetitive insertions
- Excessive intrauterine pressure

Air/Gas Embolism - Predisposing Factors

- Size of instruments
- Trendelenburg position
- Presence of large intramural venous channels (e.g., vascular myoma)
- Penetration into the myometrium
- Disruption and exposure of vasculature
- Excessive operating times
- Nitrous Oxide

Air / Gas Embolism - Prevention

- Purge and prevent entry of air
- Minimize intrauterine pressure
- Keep outflow port continuously open
- Avoid Trendelenburg position
- Avoid deep myometrial resection
- Minimize reinsertion of instruments
- Ensure awareness by anesthesiologist
- Avoid nitrous oxide anesthesia

Air / Gas Embolism - Detection

- Awareness – early detection and intervention are crucial
  - End title CO2
  - O2 saturation
  - Hypotension or dysrhythmia
  - Heart murmur
- If pt awake, will experience chest pain, SOB, decreased O2 sat, wheezing/rales, heart murmur

Air / Gas Embolism - Treatment

- Stop case – cessation of further air entry
- Cessation of nitrous oxide - prevent bubble expansion
- Left lateral decubitus – prevents air lock in the right heart
- Evacuate embolized air in through CVP or PA line
- Maintenance of cardiac output – raise BP and push air out
- Closed chest cardiac massage
- Respiratory care PEEP for hypoxemia
Complications of Hysteroscopy - Late

- Adhesion formation
- Infection
- Hematometra
- Nerve injuries

Postoperative Adhesions

- Do not resect two opposing fibroids
- Consider postop estrogen/progesterone supplementation
- Consider stent

Infection

- Postoperative endometritis (0.01-1.42%)
- Pain, discharge, fever, tenderness, WBCs
- ACOG does not recommend routine use of prophylactic antibiotics for hysteroscopic procedures

Hematometra

- Due to intrauterine synechiae or cervical stenosis
- Cyclic pelvic pain
- TVUS or MRI diagnosis
- Treat with cervical dilation or hysteroscopic lysis of adhesions, consider ultrasound guidance

Nerve injuries

- Risk to any patient in lithotomy position
- Femoral nerve compression from overflexion of the hip, abduction, and external rotation
- Sciatic and peroneal nerves stretch injury as a result of flexion at the hip with the knee straight or extreme external rotation
- Peroneal nerve compression at the head of the fibula
Polypectomy

What’s New in Practical Hysteroscopy?
[AGL 16 November 2015, Las Vegas, WEC-705 Postgraduate Course]

T. Justin Clark  MD(Hons)
Consultant Obstetrician and Gynaecologist, Birmingham Women’s Hospital
Honorary Professor, University of Birmingham
United Kingdom

Learning Objectives

• Discuss the rationale and evidence for endometrial polypectomy in abnormal uterine bleeding
• Explain contemporary operative hysteroscopic treatments with due consideration of the key:
  — Skill sets, technique and technology
• Cite the evidence-base supporting best practice

Endometrial polypectomy

Considerations

- Uterine polyps are associated with abnormal uterine bleeding in 25% of cases
- The overwhelming majority of gynaecologists advocate removal of endometrial polyps
- However, is universal surgical intervention misplaced
  - Symptoms – cause or association?
  - Natural history – spontaneous regression?
  - Oncogenic potential?
- Is there any robust data supporting the use of uterine polypectomy?
  - Effectiveness (type of bleeding, surgical technique)
  - Cost-effectiveness.

Endometrial polypectomy

Terminology – hysteroscopic diagnosis

POLYP
A discrete outgrowth of endometrium, attached by a pedicle, which moves with the flow of the distension medium. They may be pedunculated or sessile, single or multiple and vary in size (typically 0.5–4cm).

Taken from Clark TJ and Gupta JR. Handbook of Outpatient Hysteroscopy: A complete guide to diagnosis and therapy. Hodder Arnold, London 2005

Disclosure

T Justin Clark MD(Hons) MRCOG

Speakers Bureau: Bayer Healthcare Corp., Gyneecare, Smith & Nephew Endoscopy
Endometrial polypectomy

Polyps

• Most commonly encountered pathology
• Simplest to treat
• Feasibility and Techniques

Assessment of feasibility

• size
• vascularity
• position
• multiplicity
• co-existent medical problems

Techniques

• Blind
  – Hysteroscopic localization
  – Blind avulsion
    • Mechanical (non-hysteroscopic instruments)

• Direct
  – Hysteroscopic vision
    • Mechanical
    • Electrosurgery

Mechanical

• Mechanical
  – Grasping forceps
  – Biopsy forceps
  – Scissors
  – [Morcellation]
    • See later

Electrosurgery

• Bipolar
  – Versapoint
  – Resectoscope

• Monopolar
  – Polyp snare
  – Resectoscope

Office setting: Anaesthesia

• Successful implementation of an Office interventional service requires effective attenuation of anxiety and pain.

• This can only be accomplished if the operator appreciates relevant:
  – Psychological factors
  – Physical factors
  – Uterine neuro-anatomy
  – Action and role of pharmacological aq
    • Anaesthesia
    • Analgesics
    • Sedatives
Office hysteroscopy: Optimising patient experience

Endometrial polypectomy
Operative steps

- Local anaesthetic
- Polypectomy
- Retrieval of specimen
  - direct (piecemeal)
  - blind (requires cervical dilatation)
- Recovery (30 mins)

Endometrial polypectomy
Versapoint techniques – en bloc

Endometrial polypectomy
Versapoint techniques – piecemeal

Endometrial polypectomy
Video 1

Endometrial polypectomy
Video 2
Endometrial polypectomy

EVIDENCE

Objectives

• Primary Objective:
  – To test whether outpatient polyp treatment (OPT) achieves as good, or no more than 25% worse, alleviation of bleeding symptoms compared to standard inpatient treatment at 6 months.

• Secondary Objectives:
  – To assess patient acceptability and impact on health related quality of life.
  – To perform an economic evaluation for cost-effectiveness.

Primary outcome - Comparison with margin of non-inferiority

Conclusion – Evidence for office polypectomy

• Grade A evidence from the OPT Trial supports the notion that outpatient polyp treatment is safe, feasible, acceptable, effective and cost-effective

• The OPT trial showed that ongoing work is needed to optimise the success of outpatient polypectomy and enhance the patient experience in terms of pain control and acceptability.

• BMJ 2015;350:h1398

Office polypectomy

• Office hysteroscopic removal of polyps shown to be feasible using miniature mechanical and bipolar electrosurgery

• BUT………………not widely adopted because technically challenging especially retrieval of specimens in a conscious patient

• In the OPT Trial complete (successful) removal:
  • Office 81% vs. OR 92%
Endometrial polypectomy

Hysteroscopic Morcellation

• Simultaneous tissue cutting and retrieval offers a solution to the limitations on feasibility.

Hysteroscopic morcellation - Truclear system (Smith & Nephew)

Endometrial polypectomy

Video 3

Endometrial polypectomy

MERT

Morcellation versus Endometrial Resection of uterine polyps: A Randomised Controlled Trial

Vs.

MERT - Results

• Total operation time: defined as insertion to removal of vaginal instrumentation

MERT - Results

<table>
<thead>
<tr>
<th>Electrical Resection</th>
<th>Hysteroscopic Morcellation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number: 10</td>
<td>6x2</td>
</tr>
<tr>
<td>Mean: 5min25sec</td>
<td>7min1sec</td>
</tr>
<tr>
<td>Difference: -1min45sec</td>
<td>-1min14sec</td>
</tr>
<tr>
<td>p value: 0.02*</td>
<td>&lt;0.001*</td>
</tr>
</tbody>
</table>

* = student t-test, ** = Mann-Whitney U test, CI = confidence interval
MERT - Results

• Pain scores measured on a 100mm visual analogue scale (0 for no pain and 100 for worst pain imaginable.

<table>
<thead>
<tr>
<th>Electrical Resection</th>
<th>Hysteroscopic Resection</th>
<th>Mean diff</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean (SD)</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>median (IQR)</td>
<td>5.1 (9.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(min, max)</td>
<td>(0, 90)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>30.9 (23.1)</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>(min, max)</td>
<td>(7, 130)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post procedure mean</td>
<td>21.0 (23.9)</td>
<td></td>
<td></td>
<td>0.089</td>
</tr>
<tr>
<td>(min, max)</td>
<td>(5, 150)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MERT - Results

• Surgical Technique and Complications

<table>
<thead>
<tr>
<th>Side effects</th>
<th>Electrical Resection</th>
<th>Hysteroscopic Resection</th>
<th>OR, p value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenoma reactions (%)</td>
<td>6 (1.8)</td>
<td>1 (0.3)</td>
<td>0.30</td>
<td>0.02 to 1.24</td>
</tr>
<tr>
<td>Adenocarcinoma (per cervical tumor, atelectasis perforation, uterine myoma)</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrauterine perforation (%)</td>
<td>3 (0.9)</td>
<td>1 (0.3)</td>
<td>0.31</td>
<td>0.10 to 0.93</td>
</tr>
<tr>
<td>Cervical perforation (%)</td>
<td>24 (7.0)</td>
<td>3 (0.9)</td>
<td>0.34</td>
<td>0.14 to 0.88</td>
</tr>
<tr>
<td>Cervical amputation (%)</td>
<td>24 (7.0)</td>
<td>3 (0.9)</td>
<td>0.34</td>
<td>0.14 to 0.88</td>
</tr>
<tr>
<td>Total perforation (%)</td>
<td>47 (13.8)</td>
<td>4 (1.1)</td>
<td>0.34</td>
<td>0.14 to 0.88</td>
</tr>
<tr>
<td>Failed removal (%)</td>
<td>2 (0.6)</td>
<td>1 (0.3)</td>
<td>0.31</td>
<td>0.10 to 0.93</td>
</tr>
<tr>
<td>Failed resection (%)</td>
<td>16 (4.5)</td>
<td>3 (0.9)</td>
<td>0.31</td>
<td>0.10 to 0.93</td>
</tr>
<tr>
<td>Retent disconnection (%)</td>
<td>3 (0.9)</td>
<td>1 (0.3)</td>
<td>0.31</td>
<td>0.10 to 0.93</td>
</tr>
<tr>
<td>Uterine perforation (%)</td>
<td>2 (0.6)</td>
<td>0 (0.0)</td>
<td>0.00</td>
<td>0.00 to 1.00</td>
</tr>
<tr>
<td>Uterine fibromyoma (%)</td>
<td>4 (1.2)</td>
<td>0 (0.0)</td>
<td>0.00</td>
<td>0.00 to 1.00</td>
</tr>
</tbody>
</table>

MERT - Results

• Acceptability measured on a 4 point Likert scale

<table>
<thead>
<tr>
<th>Electrical Resection</th>
<th>Hysteroscopic Resection</th>
<th>OR</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totally acceptable</td>
<td>33</td>
<td>44</td>
<td>1.03</td>
<td>0.96 to 1.09</td>
</tr>
<tr>
<td>Somewhat acceptable</td>
<td>22</td>
<td>19</td>
<td>1.25</td>
<td>0.95 to 1.68</td>
</tr>
<tr>
<td>Fairly unacceptable</td>
<td>12</td>
<td>2</td>
<td>0.13</td>
<td>0.08 to 0.21</td>
</tr>
<tr>
<td>Unacceptable</td>
<td>1</td>
<td>0</td>
<td>0.01</td>
<td>0.01 to 0.81</td>
</tr>
</tbody>
</table>

MERT - Results

• Conclusion

- The hysteroscopic morcellator is a pioneering technology designed to overcome the main limitations of office uterine polypectomy and myomectomy, namely:
  - Reduced failure because of access to pathology, visualisation and inability to remove the specimen
  - Prolonged duration of operating inducing pain and reduced acceptability

- In the outpatient setting, the MERT trial showed that compared to the Versapoint bipolar electrosurgical system, morcellation was:
  - More successful
  - Quicker, less painful & more acceptable

- There is thus a strong case to support (i) office polypectomy and (ii) the use of hysteroscopic morcellation

References

Endometrial polypectomy

Conclusions

- The general consensus is that the primary therapeutic role of hysteroscopy is to remove focal or structural pathologies

- Endometrial polypectomy is one of the commonest procedures in gynaecology
  - Utilising increasingly innovative technologies
    - Better systems
    - Miniaturisation and portability
    - Office setting should be default

- Strong evidence to support the safety and effectiveness of endometrial polypectomy, especially hysteroscopically conducted and in the office setting

Thank you for your attention

Any Questions?
Hysteroscopic management of Uterine Fibroids

Mark Hans Emanuel MD PhD
Sparne Gasthuis Haarlem/Hoofddorp
Amsterdam Ob/Gyn Medical School
University of Amsterdam / Free University
The Netherlands

OBJECTIVES

- Describe the challenges and concerns of Hysteroscopic Myomectomy
- Recognize pathology that can be treated in the OR or in the office
- Be able to choose the optimal technique for Hysteroscopic Myomectomy

Surgery for Fibroids

Indications

- Heavy Menstrual Bleeding
- Dysmenorhea
- Subfertility
- Abdominal Discomfort
- Lower back pain
- Pressure/size related symptoms

Surgery for Fibroids

Indications Submucous Myomas

- Heavy Menstrual Bleeding
- Dysmenorhea
- Subfertility

Nomenclature
Myomectomy

- Lack of evidence
- Poor consensus
- Recurrence risk
- Technical skills

The lack of evidence is currently insufficient evidence from randomised controlled trials to evaluate the role of myomectomy to improve fertility.

Cochrane Database Syst Rev. 2012 Nov 14;11
Recurrence

• The probability of myoma recurrence increases steadily during the follow-up period:
  – approx. 10% after 1 year, 30% after 3 years, 50% at 5 years, and reaches 80% at 8 years.

• The probability of reoperation for recurrent myoma is much lower:
  – approx. 15% at 5 years and 20% at 8 years.

Predictors of recurrence

• Significant risk factors that are independently associated with reoperation:
  – age
  – preoperative number of myoma
  – preoperative uterine size by pelvic examination
  – presence of associated pelvic disease


Technical Skills

H. Betjes, M.H. Emanuel and E.A. Stewart

Hysteroscopic Myomectomy and Case Volume Hysteroscopic Myomectomy Performed by High- and Low-Volume Surgeons The Journal of Reproductive Medicine. 09/15/2009

High-volume surgeons resected more tissue than low-volume surgeons (p = 0.01), had shorter operating department times (p = 0.018) and resected more tissue per time (p = 0.015).


Myomectomy

• hysteroscopic
• strongest consensus
• HMB
• Subfertility

– minimal access
– fast recovery
– limitations
  • size
  • number
  • intramural extension
  • skills
  • recurrence

Intracavitary Resection

• hysteroscopic
• strongest consensus
• HMB
• Subfertility

– minimal access
– fast recovery
– limitations
  • size
  • number
  • intramural extension
  • skills
  • recurrence
Tissue Removal Systems

Operating time (min)

Volume of intrauterine lesion (cm³)

Convenience with technique (VAS)

Number of procedures

p<0.001 van Dongen et al. JMI 2008 Jul-Aug:15(4):466-71
Intramural Resection type 2 myoma

Myometrial Vascular Architecture

Duffy S. Academic Thesis, University of Leeds UK 1993

Hysteroscopic Surgery

is the removal of

volume

volume = $\frac{4}{3}\pi r^3$

• first 10 cm$^3$ diameter 0-2.7 cm
• second 10 cm$^3$ diameter 2.7-3.4 cm
• third 10 cm$^3$ diameter 3.4-3.9 cm
• fourth 10 cm$^3$ diameter 3.9-4.2 cm

diameter vs. surgery-time

0.5 cm$^3$/min

• ‘not too large’
• 0.5 cm$^3$/min

2 cm ~ 4.2 cm$^3$ 8.4 min
3 cm ~ 14.1 cm$^3$ 28.2 min
4 cm ~ 33.5 cm$^3$ 67.0 min

Figure 3: (A) Hysteroscopic polypectomy versus hysteroscopy and hysteroscopy vs. hysteroscopy in a subacute (serum) hysterectomy. (B) Objective: To determine whether hysteroscopic polypectomy versus hysteroscopy and hysteroscopy in a subacute (serum) hysterectomy. (C) Objective: To determine whether hysteroscopic polypectomy versus hysteroscopy and hysteroscopy in a subacute (serum) hysterectomy.
Hysteroscopic Myomectomy

long term results

no further surgery

Magos et al.
4 years (n=194) 79%

Neuwirth et al.
9 years (n=94) 84%

Emanuel et al.
10 years (n=282) 74%

Interventions to reduce bleeding/intravasation during myomectomy

- Eighteen RCTs with 1250 participants.
- Moderate-quality evidence that
  - misoprostol may reduce bleeding/intravasation
- No evidence that
  - oxytocin or vasopressin reduce blood loss/intravasation

Cochrane Database Syst Rev. 2014 Aug 15;8

Ulipristal Acetate) SPRM

Effects of mifepristone on uterine leiomyoma in premenopausal women: a meta-analysis

Fertil Steril 2013;100:1722-6
Discussion
Take to work message

- classification FIGO PALM-COEIN
- consensus about hysteroscopic myomectomy being the first choice treatment of submucous myomas
- tissue removal systems seem easier to learn and easier to handle
- beware of volume
- new compounds (SPRM’s) reduce size and soften myomas

Thank You
m@emanuel.nl
High Frequency Electrosurgery and Global Ablation

Martin Farrugia

Queen Elizabeth the Queen Mother Hospital
East Kent Hospitals University NHS Foundation Trust
Kent, UK

Consultant: Ethicon Endo-Surgery

Modern Electrosurgery

Utilises a high frequency (300kHz or higher) electrical current that creates an effect on tissue dependent on the temperatures reached in the target tissue.

OBJECTIVES

- Discuss Electrical current pathways in hysteroscopy, mode of action, vaporisation, cutting and coagulation, fluids and type of instruments needed
- Review endometrial ablation
- Discuss Long term results of EA

Monopolar Electrosurgery

Bipolar Electrosurgery

• Monopolar Electrosurgery

• Bipolar Electrosurgery
Uses of Electrosurgery in Hysteroscopy

- Coagulation (less than 100ºC)
  - Vessel sealing for haemostasis
  - Tissue destruction to prevent regeneration (ablation)
- Vaporisation (over than 100ºC)
- Cutting is a special form of vaporisation

Coagulation to stop bleeding

- Pressure for vessel wall coaptation.
- Temperature less than 100ºC
- Time for collagen sealing to take place.
Monopolar Hysteroscopic Electrosurgery

High Power Density due to poor-conducting Fluid

- 100W pure cutting (unmodulated)
- 100W coagulation (modulated)
Bipolar Hysteroscopic Surgery

- Creates a plasma vapour pocket at the active electrode.
- The very high temperature vapour pocket destroys cells on contact.
- Generation of a vapour pocket is necessary before achieving a vaporizing effect.

Bipolar Vapour Pockets

- Physical size is dependent on Voltage.
- Easier to create if active electrode is in contact with tissue.
- Power setting is irrelevant once its established.
- With smaller electrodes, cold saline and high flow rates affect its stability.

Power Setting for Bipolar Instruments

- Versapoint – default automated settings
- Storz – settings 5 and 5
- Olympus – 280W cutting 80W coag
Adjusting Power Settings
Versapoint Twizzle in Office Setting

- Default VC1 and 100W cutting
- Change to VC3 and reduce output to 60W
### Versapoint Electrodes: ZTN during Vaporisation/Cutting

<table>
<thead>
<tr>
<th>Electrode Type</th>
<th>Mean Depth of ZTN (mm)</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball</td>
<td>0.81</td>
<td>0.16</td>
<td>0.41</td>
<td>1.24</td>
</tr>
<tr>
<td>Spring</td>
<td>2.70</td>
<td>0.16</td>
<td>2.27</td>
<td>3.14</td>
</tr>
<tr>
<td>Twizzle</td>
<td>0.98</td>
<td>0.11</td>
<td>0.50</td>
<td>1.31</td>
</tr>
<tr>
<td>Loop</td>
<td>0.35</td>
<td>0.06</td>
<td>0.23</td>
<td>0.51</td>
</tr>
<tr>
<td>Zero Degree</td>
<td>0.49</td>
<td>0.04</td>
<td>0.42</td>
<td>0.57</td>
</tr>
</tbody>
</table>

### Versapoint Electrodes: ZTN during Coagulation

### Monopolar vs Bipolar: ZTN during Vaporisation/Cutting

<table>
<thead>
<tr>
<th>Electrode Type</th>
<th>Median Depth (mm)</th>
<th>IQR (mm)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono Loop</td>
<td>0.41</td>
<td>0.35-0.40</td>
<td></td>
</tr>
<tr>
<td>Bi Loop</td>
<td>0.35</td>
<td>0.33-0.36</td>
<td>0.10</td>
</tr>
<tr>
<td>Mono Ball</td>
<td>1.30</td>
<td>1.27-1.34</td>
<td></td>
</tr>
<tr>
<td>Zero Degree</td>
<td>0.44</td>
<td>0.43-0.49</td>
<td>0.04</td>
</tr>
</tbody>
</table>
A randomized trial comparing monopolar electrodes using glycine 1.5% with two different types of bipolar electrodes (TCRIs, Versapoint) using saline, in hysteroscopic surgery

Aagot Berg, M.D., \*Leiv Sandvik, M.S.C., Ph.D., \*Asla Langeslev, M.D., \*and \*Olav John, M.D., Ph.D., \*

*Department of Gynecology and Obstetrics, and \*Section of Urology and Epidemiology, Ulleval University Hospital Oslo, Oslo, Norway

Objectives: To compare three types of equipment during hysteroscopic resection.

Design: A randomized study.

Setting: Women’s Clinic at Ulleval University Hospital, Oslo, Norway.

Patient(s): Twenty-six premenopausal women with myomas caused by dysfunctional bleeding, fibroids, or polyps.

Intervention: Hysteroscopic resection was performed either with monopolar electrodes using glycine 1.5% as irrigant or with two different types of bipolar electrodes (TCRIs, Olympus, Hamburg, Germany) and Versapoint (Gynecare, Meda, Paris, CA) using saline as irrigant.

Main Outcome Measure: The amount of irrigant solution as a result of irrigant consumption, operating time, an amount of tissue removed.

Results: A statistically significant reduction in mean serum sodium from 139.7 mmol/L to 131.8 mmol/L was seen in the monopolar group, compared with the control (saline group) with no induction. The amount of resected tissue in the monopolar and TCRIs group was approximately 140 grams, compared with 95 grams in the saline group. The amount of fluid during the procedure was significantly higher in the non-bipolar groups.

Blood Vessel Morphometry of the Myometrium (Adapted from Duffy, 1993)

Endometrial Ablation - Current Status

Serum sodium before and at the end of surgery. Error bars indicate SD. P<.01: monopolar electrode vs. TCRIs and Versapoint, at the end of operation.

Berg, Glycine 1.5% or saline in hysteroscopic surgery. Fertil Steril 2009.
• Failed medical therapy
• No desire for future fertility (regret)
• One-off, irreversible procedure
• Cavity size – and shape
• Endometrial biopsy and unexpected pathology

First Generation Techniques

• Effective
  • Amenorrhoea 15-50%
  • Hypomenorrhoea 30-50%

• Complications
  • Fluid Absorption related 0.4 – 1.5%
  • Bleeding 0.2 – 1.0%
  • Uterine Perforation 0.8 – 1.5%
  • Visceral damage 0.1 – 0.3 %
  • Infection, septicaemia 0.4 – 1.0%
  • Death 0.2/1000

FDA Approved Devices

Thermachoice balloon ablation
Novasure bipolar electrocoagulation
HTA HydroThermAblation – free-circulating heated saline
HerOption - cryoablation
Surgical Procedures over time for HMB in England and Wales

- Affects 20-30% of women of reproductive age
- Referral rates vary between 24 – 54%
- 240,000 referrals concern HMB (20% of 1.2 million)
- Median age is 41 years
- Impacts on physical, emotional and social wellbeing
- A major cause for absence from work

The Management of HMB Patients in Secondary Care in England and Wales

Respondents were asked to estimate the approximate percentage of women with HMB who had the following management options after their initial appointment in the gynaecology clinic:
- Refer and send back to GP
- Offer medical treatment and send back to GP for follow-up
- Insert LNG-IUS
- Put on waiting list for endometrial ablation
- Put on waiting list for hysterectomy.

Treatment in Secondary Care

- 20% of patients report no treatment
- 30% oral medication or IUS
- 30% reported surgery
- 10% other treatments
- 10% no information

Impact of Surgical Treatment

- Surgical treatment resulted in the least severe symptoms and higher QoL
  - 15 point reduction in symptom severity score compared to non-treated group
  - 18 point increase in QoL compared to non-treated group

- Oral medication/IUS also resulted in improvement
  - 2 point reduction in symptom severity score compared to non-treated group
  - 3 point increase in QoL compared to non-treated group
Complications: MAUDE analysis

<table>
<thead>
<tr>
<th>Type of complication</th>
<th>Hysterec. (n = 10)</th>
<th>Reversal (n = 5)</th>
<th>ThermoCure (n = 4)</th>
<th>HystroSoft (n = 7)</th>
<th>Modavate (n = 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major complications</td>
<td>7 (70%)</td>
<td>3 (60%)</td>
<td>2 (50%)</td>
<td>2 (29%)</td>
<td>2 (67%)</td>
</tr>
<tr>
<td>Events</td>
<td>9 (90%)</td>
<td>2 (40%)</td>
<td>2 (50%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Bladder injury</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Gyne infection</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Intrauterine device failure</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Gynecomastia</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Leading to hysterectomy</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Benign findings on laparoscopy</td>
<td>4 (40%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Minor complications</td>
<td>1 (10%)</td>
<td>0 (0%)</td>
<td>1 (25%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td>8 (80%)</td>
<td>3 (60%)</td>
<td>3 (75%)</td>
<td>2 (29%)</td>
<td>2 (67%)</td>
</tr>
</tbody>
</table>


How good is EA in avoiding Hysterectomy?

Fig. 1. Probability of hysterectomy by endometrial ablation technique: life-table method. Log rank test, \( P = .63. \)

Fig. 2. Probability of hysterectomy by age group: life-table method. Log-rank test, \( P < .001. \)

Patient Satisfaction or Dissatisfaction with treatments for HMB
Patients’ Choice

- Higher dissatisfaction rates with 1st and 2nd generation ablation procedures compared to hysterectomy.
- Second generation preferred to first generation.
- Dissatisfaction with treatment of HMB results in lower QoL.
Risk of Endometrial Cancer post-EA

- Between 1989 and 2006, 37,112,99 Scottish women had EA as a primary surgical procedure for HMB.
- Risk of developing endometrial cancer was low at 0.02 % (2 patients).
- Other cancers – breast 1.15% (130 pts)
  - ovary 0.04% (5 pts)
  - cervix 0.04% (4 pts)

Hysteroscopic appearance of the endometrial cavity following thermal balloon endometrial ablation

Pui Ling Leung, M.R.C.O.G., Weng Hong Tam, M.R.C.O.G., and
Pang Mei Yuen, M.R.C.O.G.
Department of Obstetrics and Gynaecology, Prince of Wales Hospital, New Territories East Cluster, The
Chinese University of Hong Kong, Hong Kong, SAR, China

Objective: To assess the appearance of the endometrial cavity after thermal balloon endometrial ablation.

Design: Prospective study.

Setting: University teaching hospital.

Participants: Twenty-two women who had undergone thermal balloon endometrial ablation and who were followed up for at least 6 months.

Interventions: Transcervical balloon endometrial ablation.

Main Outcomes Measures: Appearance of the endometrial cavity and presence of intrauterine adhesions on hysteroscopy.

Results: Periablation intermenstrual bleed was noted in eight women (36%) who had had adhesions in the interval and two had complete obliteration of the cavity. Four women (18%) had slight bleeding post-ablation, while one woman had no bleeding post-ablation. Of the 10 women who had not had adhesions in the interval, seven had normal cavity views, one had a retained cavity view, and two had intrauterine adhesions.

Conclusions: The hysteroscopic appearance of the endometrial cavity after thermal balloon endometrial ablation varies considerably. Minimal adhesions were associated with balloon ablation (leed & Stallard 2003; 72: 125-9). (Hoye, Novashe, DeRosa. Obstetrics and Gynecology Medicine.)

Key Words: Thermal balloon ablation, intrauterine adhesions, hysteroscopy

Post- Balloon EA Cavities

- 45% appear normal at hysteroscopy
- Fibrotic, contracted cavities still possible to examine and biopsy 18%
- Adhesions - focal fundal 27%
  - complete 9%
- >90% can be examined satisfactorily and the cavity examined it its entirety

Cavity distortion and hematometra with RFA

REFERENCES


Conclusions

• EA helps reduce hysterectomy rates.
• Second generation devices are preferred by patients.
• Costs drive use of EA and Mirena.
• More patients’ preference data required.

Thank You
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.

~