Office Hysteroscopy from Basic to Advanced

MODERATOR
Ted L. Anderson, MD

FACULTY
Gary N. Frishman, MD & Stefano Bettocchi, MD
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 1.0 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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Surgical Tutorial 2  
Office Hysteroscopy from Basic to Advanced

Moderator: Ted L. Anderson

Gary N. Frishman & Stefano Bettocchi

This course provides a review of office hysteroscopy from the basics and how to get started through advanced operative office procedures. It is ideal for providers who are thinking of starting an office hysteroscopy program and physicians wishing to take their skills to the next level. The course will include an evidence based approach for office hysteroscopy with practical tips utilizing video clips.

**Learning Objectives:** At the conclusion of this course, the participant will be able to: 1) Review best practices for entering and visualizing the uterus during office hysteroscopy; 2) identify indications and contraindications for office hysteroscopy along with categorizing appropriate patients for office based procedures; 3) discuss which operative procedures are appropriate for their practice; and 4) recognize the value of and be able to integrate an office hysteroscopy program into their practice.
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*
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Consultant: Conceptus Incorporated
Kimberly A. Kho*
Frank D. Loffer, Executive Vice President/Medical Director, AAGL*
Linda Michels, Executive Director, AAGL*
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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).
Ted L. Anderson*
Gary N. Frishman*
Stefano Bettocchi
Consultant: Karl Storz

Asterisk (*) denotes no financial relationships to disclose.
Office Hysteroscopy

Prof. Stefano Bettocchi
Dept. of Ob./Gyn. & Neonatology, University of Bari, Italy
Chief: Prof. Luigi Selvaggi

Disclosure

Consultant: Karl Storz

REMEMBER!

WE ARE THE TECHNICIAN OF THE UTERUS

REMEMBER!

ANY TECHNOLOGICAL IMPROVEMENT, TO BE SUCCESSFUL, MUST BE FOLLOWED BY MODIFICATION OF THE CORRELATED PROCEDURES

Hysteroscopy has taken the place of D&C and HSG in the gynecological practice

Fertil. Steril. 78, 3: 628-31, 2002
REMEMBER...

No Anesthesia nor Analgesia
No drugs
No speculum nor Teneculum
Operative procedures

REMEMBER...

Hysteroscopy it’s a SURGICAL, INVASIVE procedure.

REMEMBER...

It will be SAFE and EASY to perform only if you respect some basic RULES

The Ambulatory
Create a comfortable ambulatory where the patients feels relaxed

WHAT DOES IT MEAN DIAGNOSTIC HYSTEROSCOPY TODAY?

Office Hysteroscopy is performed, in terms of discomfort, preparation and patient’s compliance, as Trans-Vaginal U.S.

Office Hysteroscopes

- The "Size 5" Based on the 2.9 mm lens
- The "Size 4" Based on the 2.0 mm lens
- The B.I.O.H. Based on the 1.4 mm lens

WHICH DISTENTION MEDIA?
- CO₂
- Saline Solution

HOW CAN WE REDUCE THE PATIENT'S DISCOMFORT?

RESPECT THE UTERINE PHYSIOLOGY
- Correct I. U. pressure (max 40 mm Hg)
- Do not touch Myometrium

SENSITIVE INNERVATION IS RELATED TO THE MYOMETRIUM

WHICH "DISTENTION DEVICE"?

Physic's Laws
- Hydrodynamics (Leonardo and Bernoulli Laws)
- Fluid Resistance (Poiseuille law)
- Superficial tension (Laplace law)

The Intrauterine Pressure
- It's the result of a flow and of an aspiration rate
Scopes are different in terms of Fluidodynamics

Resectoscope
• Large Irrigation canal = less resistance for the fluid to pass through
• Large Aspiration canal = less vacuum to aspirate the liquid

Office Hysteroscope
• Narrow Irrigation canal = high resistance for the fluid to pass through
• Narrow Aspiration canal = high vacuum to aspirate the liquid

Scopes are different in terms of Fluidodynamics

Pressure can be influenced by
• The amount of liquid in the sac
• The diameter of the irrigation tubing set
• The diameter of the irrigation canal of the Hysteroscope
• The diameter of the aspiration canal of the hysteroscope

Atmosferic pressure / Compressive cuff
• Cheap
• No control of the pressure
• No control of the flow
• No suction
• No standard tubes set
Too many variables we cannot control manually !!

Electronic Suction/Irrigation Device
• Expensive
• Control of the pressure
• Control of the flow
• Suction (on some dev.)
All the variables are controlled electronically !!

The existing Pump (Endomat, 1990)
Design to work with the Resectoscope
Totally manual set-up
If we change the scope, connecting an Office Hysteroscope, the pump still work as a Resectoscope was connected.

The 100 mm/Hg reported on the front panel are those if a 26 Fr Resectoscope is connected, but reduce to 40 mm/Hg if we connect a modern Office Hysteroscope.

To work SAFELY we need a device that recognize the fluidodynamics characteristic of each scope!

THE NEW PUMP
E.A.S.I.
Endoscopic Automatic Suction Irrigation device

HOW CAN WE REDUCE THE PATIENT’S DISCOMFORT?

DIFFERENT APPROACH
Avoid Speculum and Tenaculum

Basic Rules
Patient's selection
MANDATORY immediately after the menstrual cycle
Basic Rules

Carefully check “the history” of the patient regarding vaginal infections

Basic Rules

Any pathology visible into the uterine cavity must be eliminate, if possible

DIAGNOSIS

INFERILITY

Our study

(938 infertile patients)

<table>
<thead>
<tr>
<th>Pathology</th>
<th>Hysteroscopy</th>
<th>Diagnosis accuracy</th>
<th>TVS</th>
<th>Histology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal cavity</td>
<td>327 (62.7%)</td>
<td>100%</td>
<td>327 (62.7%)</td>
<td></td>
</tr>
<tr>
<td>Polyp</td>
<td>206 (22.0%)</td>
<td>100%</td>
<td>205 (22.0%)</td>
<td></td>
</tr>
<tr>
<td>Submucosal myoma</td>
<td>191 (20.4%)</td>
<td>100%</td>
<td>191 (20.4%)</td>
<td></td>
</tr>
<tr>
<td>Atrophic endometrium</td>
<td>15 (1.6%)</td>
<td>100%</td>
<td>15 (1.6%)</td>
<td></td>
</tr>
<tr>
<td>Irregular/thick endometrium</td>
<td>6 (0.6%)</td>
<td>100%</td>
<td>6 (0.6%)</td>
<td></td>
</tr>
</tbody>
</table>

No pathol. Cervic. Endom. Fibroid Low Grade/Hi Grade Polyp Polyp (*) Pol. Hyp. Hyp./Ca. Prolif./Secret./Atrof. 757 (100%) - - 480 (96.8%) 44 (22.2%) 6 (10.2%)

* Direct biopsies before myoma resection

(Hysteroscopy '97)

HYPERPLASIA

Histologic patterns

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Hysteroscopic patterns</th>
<th>Low Grade/</th>
<th>Hi Grade/</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pathol.</td>
<td></td>
<td>757</td>
<td>225</td>
</tr>
<tr>
<td>Cervical Polyp</td>
<td>-</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Endometrial Polyp</td>
<td>-</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Fibroid</td>
<td>-</td>
<td>59%</td>
<td>59%</td>
</tr>
<tr>
<td>Simple Hyperplasia</td>
<td>-</td>
<td>56%</td>
<td>56%</td>
</tr>
<tr>
<td>Complex Hyperplasia</td>
<td>-</td>
<td>53%</td>
<td>53%</td>
</tr>
<tr>
<td>Atypical Hyperplasia</td>
<td>-</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>-</td>
<td>47%</td>
<td>47%</td>
</tr>
</tbody>
</table>

* Direct biopsies before myoma resection

(Hysteroscopy '97)

Infertility

Perform Hysteroscopy Before ART

You must look inside the uterus for focal abnormalities
SIMPLYFIED PROCEDURE

No Operating Room
No Anesthesia / Analgesia
No discomfort
No additional instruments

The most difficult part of the procedure...?

TO GET INTO THE UTERINE CAVITY...!!

Anatomical Impediments

NO uterine cavity? NO Party!

5 Fr. = 1.6 mm

Less than 0.5 mm!

E.U.O

I.U.O.
MOST OF THE IMPEDIMENT TO THE CORRECT EXECUTION OF THE HYSTEROSCOPIC PROCEDURE CAN BE SOLVED IN THE OFFICE

- Stenosis / Occlusion E.C.O.
- Stenosis / Adh. Cervix
- Stenosis / Occlusion I.C.O.

I.U.O. Anatomical Impediments

THE LIMITS OF OFFICE "MECHANICAL" SURGERY WITHOUT ANESTHESIA or ANALGESIA (4,863 cases) JANUL, Feb. 2004

OPERATIVE PROCEDURES

OFFICE HYSTEROSCOPY & RESECTOSCOPY

You cannot apply the rules and the technique of Resectoscopy to Office Hysteroscopy

YOUR TOOLS

Is excellent and convenient:
- Synechiolysis/ Metroplasty
- Anatomical Impediments
- Endom. polyps up to 1 cm

OPERATIVE OFFICE HS

NEUWEST PROCEDURES

OFFICE MYOMECTOMY & LARGE POLYPECTOMY

Using a 5 Fr. bipolar VersaPoint electrode
**VP INSTRUMENT'S SETTINGS**

**TO REDUCE:**
- Patient discomfort
- Saline solution's heating
- Gas bubbles

- VC3 instead of VC1
- 50 Watts instead of 100/150
- Pulsate activation instead of continuous

- Use small diameter scopes
- Use a pump to distend the uterus

**Human Reprod.** (September 2002)

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**BIOPSIES**

Can we get enough material with E.D. biopsies?

- *Punch* tech. 377 (64.8%) / 0.8 mm²
- *Grasp* tech. 204 (35.2%) / 1.7 mm²

**J.A.A.G.L.** (August 2002)

<table>
<thead>
<tr>
<th>Spoon forceps</th>
<th>Crocodile forceps</th>
</tr>
</thead>
<tbody>
<tr>
<td>581 pts.</td>
<td>695 pts.</td>
</tr>
</tbody>
</table>

**Anatomical Impediments**

**POLYPECTOMY**
**Operative Technique by Using 5 Fr. Bipolar Electrodes**

- Submucous Myoma
- Endometrial Polyp

**Efficacy of Surgery**

5,364 patients treated in an office setting (follow-up: 3 months)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Mechanical (x100)</td>
<td>14.7 %</td>
<td>4.5 %</td>
<td>1 %</td>
</tr>
<tr>
<td>Versapoint (x10)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Septate Uterus**

- Thickness of the septum
- Angle of the cornua

In combination with T.V. ultrasound and manual examination or laparoscopy

**“Classic” Diagnosis**

**“Classic” Treatment’s Technique**

Start the resection in the middle of the septum and then alternatively on both sides until the tubal ostiae are on the same level of the fundus

**Leave a Fundal Knotch**

Sierosal fundus in a normal uterus
Sierosal fundus in a septate uterus

Respect Anatomy!
OUR TECHNIQUE
The three “diagnostic signs”

Using scissors on an Office Hysteroscope, you should stop the procedure when:
1. the myometrial blood vessels are visible
2. the myometrial fibres are visible
3. in presence of patient’s pain

OUR LAST STUDY
Reliability of “the 3 signs”

242/260 cases (93.1%)
Sensitivity 98.8%
Specificity 100%
Positive P.V. 100%
Negative P.V. 83.3%

MYOMAS

The Myoma’s diagnosis with Ultrasound

One of the most common “mistake” is to classify any myoma, with a part of it involving the myometrium, as an “INTRAMURAL” myoma

The “DESTINY” of the Myoma

Courtesy of Dr. Ivan Mazzon, Rome, Italy
Distinguish between Myomas moving from the original intramural position to the submucosal one or to the subsierosal one.

The “Volume” of the Myoma

The “Surface” of the Myoma

2.5 cm Myoma

-> Subsierosal

Baby Myoma
No symptoms
No need for surgery
No fertility implications
Patient should wait

-> Submucosal

Very big myoma
Symptoms
Urgent need for surgery
Fertility implications

Which Technique?

OFFICE with bipolar electrode (Versapoint®)
- Max. dimension: 1.5 cm
- “One Step” treatment
- “Two Step” treatment

RESECTOSCOPY with monopolar/bipolar electrode
- Total Resection
- Resection + “Cold Electrode”
- “Two Step” resection

By using the available technology
You should perform
Office Hysteroscopic Miometomy
On myomas with a submucosal mass NOT bigger than 1.5 cm
OUR EXPERIENCE
Operative Technique on Myomas using Twizzle VersaPoint®

Which Techniques?

OFFICE with bipolar electrode (Versapoint®)
- Max. dimension: 1.5 cm
- “One Step” treatment
- “Two Step” treatment

RESECTOSCOPY with monopolar/bipolar electrode
- Total Resection
- Resection + “Cold Electrode”
- “Two Step” resection

QUESTION
What could you do, with your Office Hysteroscope, in front a big G1/G2 myoma (>1.5 cm) to facilitate the future resectoscopic surgery?

INTRAMURAL MYOMAS

“OFFICE” PREPARATION OF PARTIALLY INTRAMURAL SUBMUCOUS MYOMAS (OPPIuM) >1.5-2 cm

LATEST IMPROVEMENT
Female Ambulatory Tubal Sterilization
ESSURE SYSTEM OVERVIEW:
MICRO-INSERT DESIGN

Fibers (Polyethylene terephthalate)
Dynamic Expanding Super Elastic
Outer Coil

Wound Down Diameter 0.8 mm
Expanded Diameter 1.5–2.0 mm

Micro-insert Length = 4 cm

CAN WE WORK BETTER AND FASTER?
CAN WE IMPROVE THE RESULTS?

New Energies
Measurement of the I.U.P.

Hysteroscopy is your FERRARI
BUT . . .

Don’t go “too fast” if you don’t have the right license...
Office Hysteroscopy: From Basic to Advanced

Gary Frishman, MD
Professor
Department of Ob/Gyn
Brown Medical School
Women & Infants Hosp
Providence, RI

Disclosures
• I have no financial relationships to disclose.

Learning Objectives:
• Review best practices for entering and visualizing the uterus during office hysteroscopy
• Identify indications & contraindications for office hysteroscopy along with categorizing appropriate patients for office based procedures

Learning Objectives:
• Discuss which operative procedures are appropriate for your practice
• Recognize the value of and be able to integrate an office hysteroscopy program into your practice.

Indications
• Bleeding
• Infertility
• Recurrent Pregnancy Loss
• Intrauterine pathology
  – e.g. IUD, retained products
• Intrauterine adhesions
• Sterilization

Progression in Technique
• Distension media
• Size hysteroscope
  – Outer diameter
• Vaginoscopic technique
Progression of Technique

- Distension media
  - Hyskon
  - CO2
  - Saline
    - Continuous flow hysteroscope

CO2 vs. NS

- Retrospective comparison
  - CO2 (n 3625)
  - NS (n 2498)
- Adequate study
  - 92.4% vs. 98.3%  \( P < 0.05 \)

Perez-Medina Int J Gyn Obstetr 2000;71:33

CO2 vs. NS

- Prospective randomized trials
  - Majority conclude NS
    - Faster (bubbles slow down)
    - Better tolerated (including shoulder pain)
    - Better visualization
    - Ability to do operative procedure

Shankar BJOG 2004;111:57
Brusco Fertil Steril 2003;79:993
Pellicano Fertil Steril 2003;79:416
Litta Hum Reprod 2003;18:2446

Progression in Technique

- Decrease outer diameter size
  - 5.0 mm vs. 3.5 mm
    - Pain
    - Visualization
    - Easier to learn???

5.0 mm vs. 3.5 mm OD

- Prospective randomized trial
  - 5.0 mm (n 240) vs 3.5 mm (n 240)
  - Speculum
    - No tenaculum or anesthesia
  - Variables
    - Parity, scope size & surgeon experience

Campo Hum Reprod 2005;20:258

5.0 mm vs. 3.5 mm OD

- Endpoints:
  - Visualization, pain, success
- If 5.0 mm-
  - Experience and parity matter
- If 3.5 mm-
  - Findings are minimized

Campo Hum Reprod 2005;20:258
Progression in Technique

- Traditional
  - Speculum
  - Possible tenaculum
- Vaginoscopic
  - No speculum
  - No tenaculum

Vaginoscopic vs. Traditional

- No difference in
  - Time
  - Overall pain
- More pain with traditional:
  - Insertion of scope to external os
  - Associated with speculum

Technique

- Ancillary equipment
  - MVA or suction equipment
- Operative instruments
  - Scissors, biopsy, grasper
  - Bipolar cautery
Accuracy

• Misses < 0.5% of serious disease (Ca)

Clark JAMA 2002;228:1610
Progression of Technique

• NS
  – Faster, better visualization, operative ability, less pain
• Instrumentation
  – 5 mm scope; 7 mm with operative channel
  – ≤4 mm scopes including operative channel
• With smaller scope
  – Continuous flow sheath
  – Ability to pass operative instrument

Progression of Technique

• Viewing procedure
  – Large bulky monitors, videotape
  – Flat screen display, DVD; photo printers
• Insertion of hysteroscope
  – Speculum, tenaculum, possible block
  – "Vaginoscopic"
Technique and Tips

• Shortly after menses
  – Key
  – OCP prep ok
• Pre-procedure medication
  – NSAID
  – NO Misoprostol
• Verbal anesthesia
• Vaginal Prep: No routine
  – Antibiotics only if indicated

Technique and Tips

• No routine block
• Consider block and/or anxiolytics
  – ≥ 1 prior c-section
  – Chronic Pelvic Pain
  – Anxiety
  – Menopause
  Cicinelli et al JMG 2007;14:485-8
• Intrauterine/topical agents unclear benefit

Technique and Tips

• Distension media
  – NS
    • Warmed
    • Pressure cuff (avoid high pressure)
    • Let NS distend canal and open up path
    • Rare more than 1 liter NS needed
    • Consider large syringe if mainly diagnostic cases
• Fluid management system
  – Large red bag

Technique and Tips

• Infrequent tips
  – Hold labia together for seal
  – Guide scope to cervix with finger
  – Fundal pressure to stabilize uterus

References

• Perez-Medina Int J Gyn Obstetr 2000;71:33
• Shankar BJOG 2004;111:57
• Nagel Fertil Steril 1996;65:305
• Brusco Fertil Steril 2003;79:993
• Litta Hum Reprod 2003;18:2446
• Pellicano Fertil Steril 2003;79:418
• Campo Hum Reprod 2005;20:258
• Garbin Hum Reprod 2006;21:2996
• Guida Hum Reprod 2006;21:3253
• Clark JAMA 2002;228:1610
• Cicinelli et al JMG 2007;14:485-8
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.