New Developments in Hysteroscopy and Instruments

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TİTANİK DELUXE HOTEL, BELEK ANTALYA
HİSTEROSKOPİ KURSU 30 NİSAN 2014
Where?

OR

Office
Size and Shape

Resectoscope

Office Hysteroscopy

BEFORE 1998

A

<table>
<thead>
<tr>
<th>Mechanical instr.</th>
<th>Resectoscope</th>
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<tbody>
<tr>
<td>Biopsies</td>
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<tr>
<td>Adhesions</td>
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<tr>
<td>Sepsis</td>
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<td>Small</td>
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<tr>
<td>Medium</td>
<td>Polyps</td>
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<tr>
<td>Large</td>
<td>Myomas</td>
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<tr>
<td>&gt; 2 cm</td>
<td>&gt; 2 cm</td>
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<tr>
<td>Myomas</td>
<td>E-Resect</td>
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</tbody>
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AFTER 1998

B

<table>
<thead>
<tr>
<th>Mechanical instr.</th>
<th>Bipolar Instruments</th>
<th>Resectoscope</th>
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(___________: Correct indication  - ........: Possible but inconvenient)
Hysteroscopes and Sheaths

- The most widely used optical hysteroscopes have an outer diameter of 3–4 mm.
- Thinner rigid scopes with fibre optics and an outer diameter of 1.9 mm have been developed.
  - Lower contrast and resolution of the images.
  - Both optical and fibre-optic hysteroscopes are monocular and provide little depth perception, different viewing angles, from 0–70 degrees.
- Thirty-degree scopes are most commonly used for diagnostic procedures.
- Diagnostic sheaths generally have an outer diameter between 2.5–5.5 mm.
- Operative sheaths have an outer diameter between 5.5 and 9.0 mm.
- Working channels have diameter between 5 and 7 Fr (1 french is exactly 1/3 millimeters).
New developments in Hysteroscopes and sheaths

- Generally dominated by decreasing outer diameter without losing the quality of the image.
- Newer hysteroscopes provide separate in and outflow channels
- Invisio Digital Hysteroscope
  - Digital camera system housed in distal tip of the hysteroscope
Office Hysteroscopy

BETTOCCHI® Hysteroscopes with semirigid instruments
Figure 2–30. The Gyrus ACMI Invisio hysteroscope. This is a fully integrated, all-digital endoscope containing a miniature 3-mm complementary metal oxide semiconductor (CMOS) video color sensor and digital camera system housed in the distal tip of the hysteroscope.
The BETTOCCHI® Integrated Office Hysteroscope (B.I.O.H.®)
For diagnostic and operative hysteroscopy
Intrauterin Insemination and Embryo Transfer Using KILANI Sheath

A soft catheter (Wallace 1816 N, HG Wallace Ltd, Colchester, UK)
Operative Instruments and Catheters

- The rigid and semi-rigid instruments include scissors, grasping forceps, and biopsy forceps.
- Flexible can also be inserted through the hysteroscopic sheath for tubal cannulation, selective chromopertubation, or for tubal sterilisation.
  - Essure: two micro-inserts for intraluminal tubal occlusion. Effectiveness at 5 years above 99.7% (data Conceptus, Mountain View CA, USA)
  - Adiana (Hologic, Bedford MA, USA) based on silicon ingrowth in the intramural tubal lumen after electrocautery.
- New developments in instruments and catheters are mainly related to hysteroscopic sterilisation.
Instruments and Catheters

- **Instruments**
  - Forceps, scissor
  - Monopolar instruments
  - Bipolar instruments
  - Lasers

- **Catheters**
  - Essure, Adiana
  - Tubal catheterisation
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>26159 BE</td>
<td>Bipolar Dissection Electrode, semirigid, 5 Fr., length 36 cm</td>
</tr>
<tr>
<td>26158 BE</td>
<td>Bipolar Dissection Electrode, semirigid, needle electrode angled 90°, 5 Fr., length 36 cm</td>
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<tr>
<td>26159 GC</td>
<td>GORDTS/CAMPO Bipolar Ball Electrode, semirigid, 5 Fr., length 36 cm</td>
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<tr>
<td>26176 LE</td>
<td>Bipolar High Frequency Cord, length 300 cm</td>
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</table>
Resectoscope

- The sheath has an outer diameter of 7–9 mm, and includes both inflow and outflow ports for distending media.
- If surgical debris or the so-called ‘chips’ block the operative field, the resectoscope can be removed while the sheath is left in place.
- In cases of monopolar high-frequency electrosurgery, the woman must be grounded and a nonelectrolyte, non-conducting, distending medium must be used.
- The more modern bipolar resectoscopes are used with saline-distending media.
- New developments in resectoscopy are based on smaller outer diameter and bipolar electrosurgery.
- About 1000 ml as the upper limit of non-electrolyte solutions intravasation.
- About 2500 ml as the upper limit of saline intravasation.
Electrocautery and Laser

- Electrocautery instruments, such as a loop or needle electrode, roller ball, and button (or ‘mushroom’) electrode, have been adapted for the hysteroscope or resectoscope.

- Lasers (e.g. neodymium: yttrium–aluminum–garnet; potassium-titanyl-phosphate, and argon) offer no advantages over electrocoagulation.

- No new significant developments have taken place in electrocautery instruments or lasers.
Energy

- Monopolar current
- Bipolar current
- Mechanic
  - ‘cold loop’ technique
- Laser
Morcellation

The TRUCLEAR (Smith and Nephew, Andover MA, USA) technique, which is based on an instrument that consists of a set of two metal hollow rigid tubes that fit into each other.

The 4.0-mm morcellator is introduced in the uterine cavity through a straight-forward working-channel of a continuous flow 8–9 mm rigid hysteroscope.

A new development in hysteroscopic morcellation is the recent availability of a smaller outer diameter TRUCLEAR system, with a 2.9-mm cutting-blade and a 5.0-mm hysteroscope for office or ambulatory use with no or local anaesthesia.

A new morcellator system MyoSure was recently introduced by Hologic (Bedford MA, USA).

Intra-uterin BIGATTI Shaver (IBS) (Karl Storz)
Intra-uterin BIGATTI Shaver (IBS)
Distension and Irrigation

Carbon dioxide (CO2) is rapidly absorbed and easily cleared from the body by respiration.
Pumps are available to monitor pressure and volume for liquid media.
Normal saline and lactated Ringer solution are isotonic, conductive, low-viscosity fluids, which can be used for diagnostic hysteroscopy and for mechanical and bipolar operative procedures.
The hypotonic, non-conductive, low-viscosity fluids mannanol (5%), sorbitol (3–5%), and glycine (1.5%), should be used only with monopolar operative procedures.

- falls to 5 mmol/l (this relates to an intravasation of 500ml of electrolyte-free fluids).

New developments are the availability of newer fluid-management systems that are more reliable and precise in measuring in- and outflow fluids, and therefore improve patient safety.
Virtual Hysteroscopy

- TV USG
- SIS
- GIS
- 3/4D USG and GIS=VHS

The latest development in this field is the method to change the gel during dilution into a stable foam that is fluid enough to pass patent tubes and can be observed as a white echodense contrast during transvaginal ultrasonography in cases of a fertility work-up (hysterosalpingo-foam sonography [HyFoSy]).

Methods and Procedures

- Preoperative preparation and basic introduction of the hysteroscope
- Operative procedures
- Postoperative care
Preoperative Preparation and Basic Introduction of the Hysteroscope

The woman is placed in the lithotomy position; skin, intravaginal or intracervical antiseptical measures are not required. Without the need of a speculum and a tenaculum, the hysteroscope can be inserted vaginoscopically into the cervix.

- a metaanalysis of six RCTs (n ¼ 1321)
- They found that vaginoscopic approach to hysteroscopy was less painful than using the traditional technique (standardised mean difference (SMD) 0.44, 95% CI from 0.65 to 0.22).

No evidence was found to recommend the routine administration of mifepristone or misoprostol to women before outpatient hysteroscopy.

Cervical priming with vaginal prostaglandins may be considered in postmenopausal women if using hysteroscopic systems greater than 5 mm in diameter.

Preoperative Preparation and Basic Introduction of the Hysteroscope

- Meta-analysis (nine RCTs, 1296 participants) revealed a significant reduction in the mean pain score for the use of local anaesthetics during the procedure compared with placebo (SMD 0.45, 95% CI 0.73 to 0.17).
- No significant reduction was found in the mean pain score more than 30 mins after the procedure.
- No significant reduction was reported in the mean pain score with the use of non-steroidal anti-inflammatory drugs or opioid analgesics compared with placebo during, within, or more than 30 mins after the procedure.
- Transcervical and topical application did not show a statistical difference compared with placebo.
Conclusion
teşekkür ederim…