

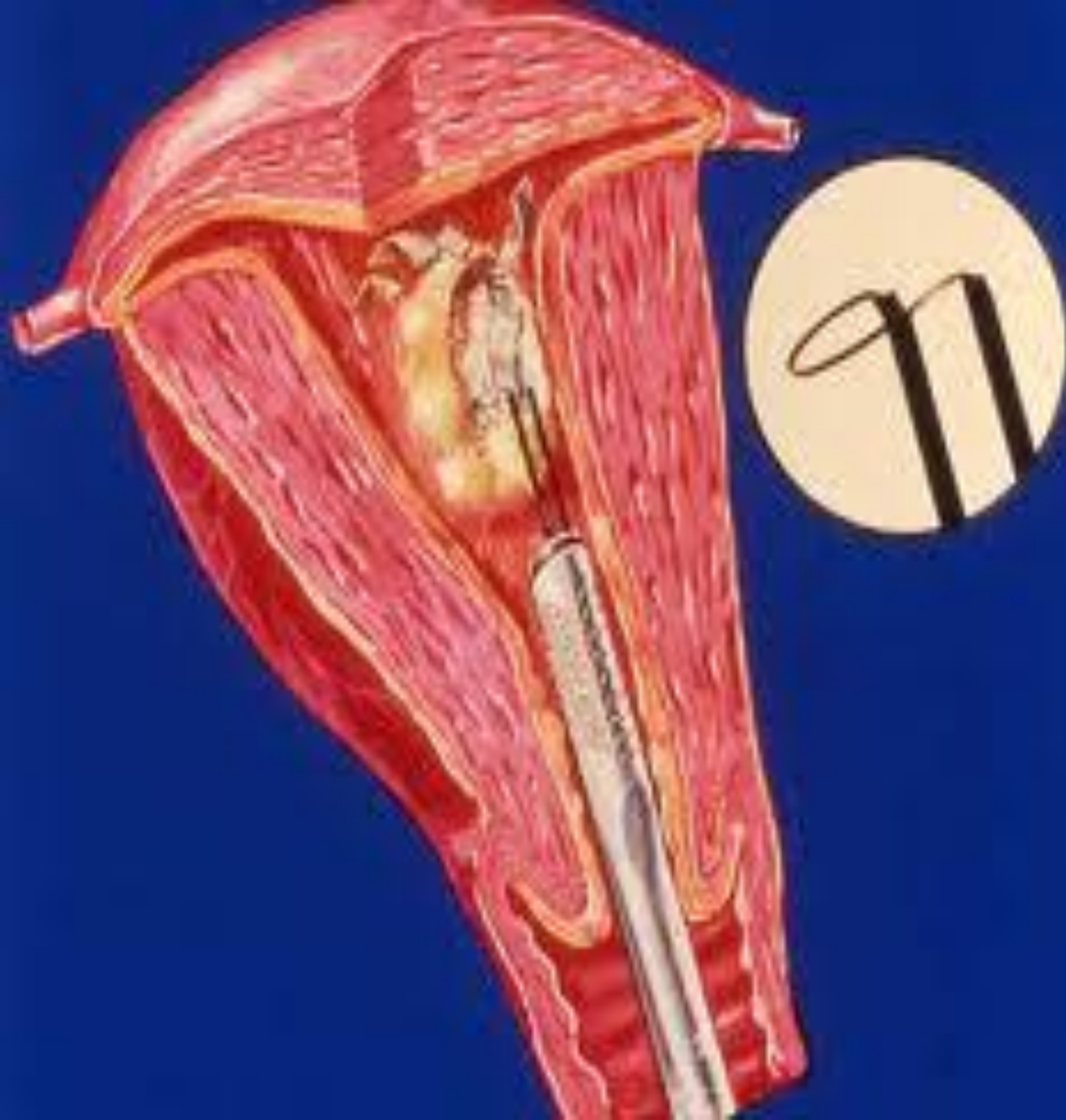


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3<sup>RD</sup> ANNUAL COMPREHENSIVE WORKSHOP  
ON  
MINIMALLY INVASIVE GYNECOLOGY  
FOR  
RESIDENTS AND FELLOWS

*December 3<sup>rd</sup> – 4<sup>th</sup>, 2014  
Toronto, Ontario*



# Operative Hysteroscopy

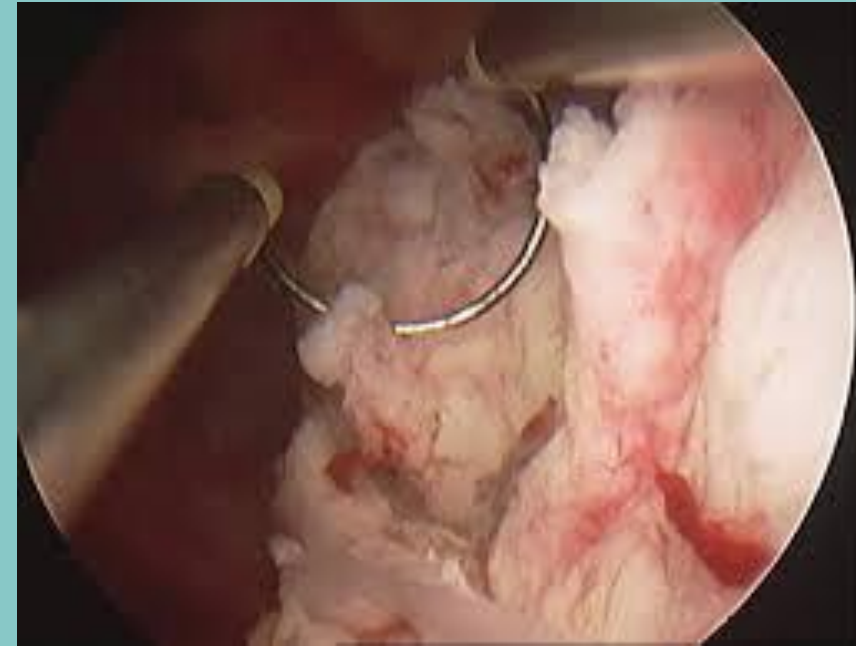
- 1 Resection of endometrium/polyps/fibroids using energy;
- 2 1st versus 2nd generation global endometrial ablative techniques
- 3 Tubal cannulation: fertility vs sterility;
- 4 Uterine anomalies/septae and division of adhesions.

# Endometrial Ablation

- More than 3 decades ago, endometrial ablation was conceived as a less invasive alternate option to hysterectomy for heavy menstrual bleeding.
- Early techniques employed sclerosing chemicals or ionizing radiation – too toxic for general use.
- First effective method of global endometrial ablation was in 1981 with hysteroscopy and Nd:YAG laser
  - equipment costly
  - dangerous energy by unskilled surgeons
- Urology resectoscope was first approved for use in gynecology in 1989; transcervical resection of endometrium (TCRE).

# TCRE

- Monopolar energy sends electrical current from the operating tip, thru the pt, to a return electrode.
  - Nonconductive distension media is used to distend uterine cavity – glycine solution. Electrolyte solution (saline or lactated ringers) would conduct and increased potential for electrical injury.
- Videoendoscopy allows manipulation of operating tip seen thru scope in 3-dimensional space; need to maintain orientation and depth of horizon.



# TCRE

- Management of visualization:
  - In addition to proper orientation of scope, uterine cavity requires distension to visualize – we use 3L bags of glycine, at height. Gravity alone is often sufficient, with no need for pressure bags.
    - Be cautious to avoid too much pressure, as this will increase fluid absorption and may lead to fluid balance problems
  - Balance of proper cervical dilatation and suction is key to maintaining clear operative field and enough cavity distension to safely operate.
    - Some authors advocate dilatation to exact scope diameter and use suction channel only, to balance debris and distension.
    - We dilate to an 11/12 Hegar when using 10mm resectoscope, understanding that some free flow around the scope works better than the suction channel alone to clear light debris, blood and smoke plume.

# TCRE

- Glycine fluid balance
  - Glycine is an amino-acid and when there is a significant fluid deficit, the assumption has to be that there was an intravascular bolus. As the glycine will be metabolized immediately, there is a net free water bolus which may cause hyponatremia
    - Hyponatremia can cause cardiac conduction problems, seizure and significant other CNS effects if not appropriately managed
    - 500cc deficit – caution and evaluate where you are in the case
    - 1000cc deficit should be a hard stop – usually occurs in TCRE/F for larger fibroids...counsel pt before and after that a fibroid could take 2-3 visits to the OR to completely resect
      - In cases of 1000cc or more deficit, I usually place a Foley catheter, give furosemide 40mg IV in the OR and check electrolytes ~1-2 hours later. If  $\text{Na}^+$  is  $<130$  (N is 135-145), pt is admitted for observation and recheck in the AM
      - Never give hypertonic saline; the pt will resolve the imbalance naturally in a few hours with supportive care only

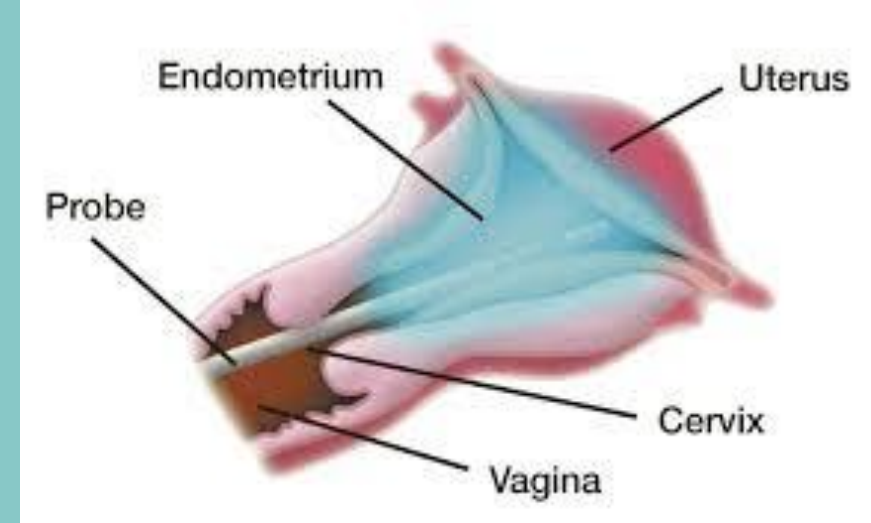
# 2<sup>nd</sup> generation GEA devices currently available

- Thermal hotwater balloon (ThermaChoice<sup>®</sup>)
- Circulated hot fluid (Hydro Thermablator<sup>®</sup>)
- Radiofrequency electrosurgery (Novasure<sup>®</sup>)
- Microwave energy (Microsulis<sup>®</sup>)
- Cryotherapy (HerOption<sup>®</sup>)
  - Subjective satisfaction rate is high, with variable amenorrhea rate from 14-55%
  - Complication rates are generally quite low when used by physicians who are appropriately trained in use of the device

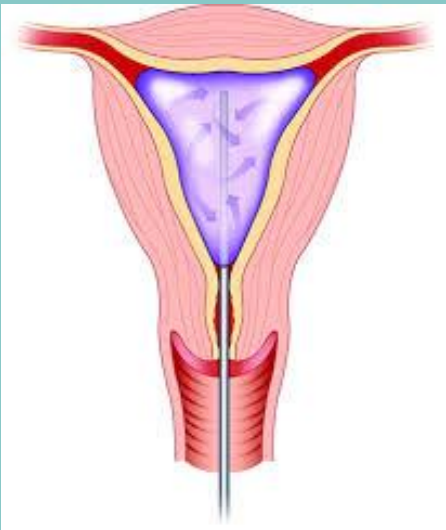


# 2nd generation GEA devices

## Novasure<sup>®</sup>



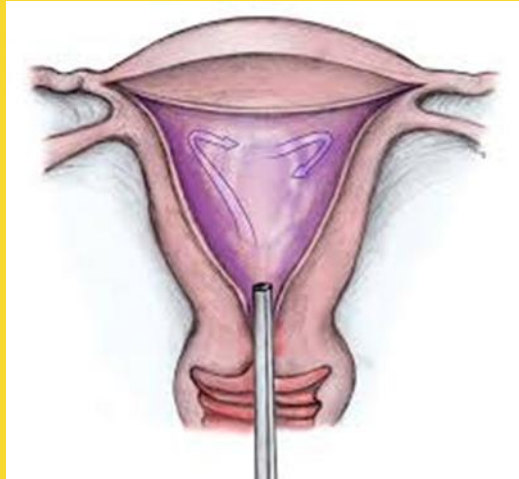
## Thermachoice<sup>®</sup>



## HerOption<sup>®</sup>



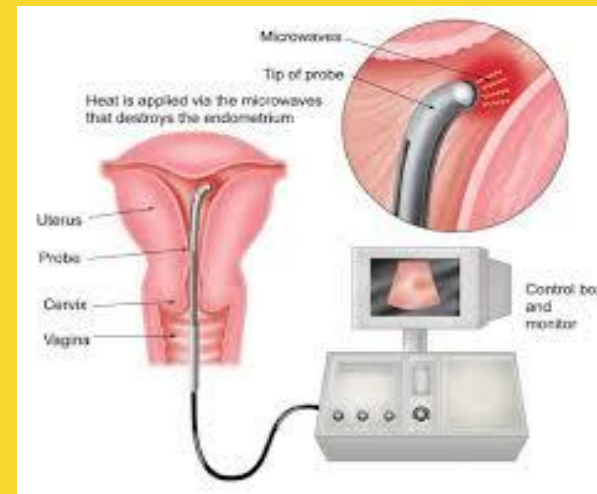
# 2nd generation GEA devices



HydroThermablate®



MEA Microsullis®



# Contrasting GEA techniques

## 1<sup>st</sup> generation

- Endometrium treated under direct visualization
- Requires operative skills for use of energy, fluid management and dexterity
- May be used with irregular cavity, polyps, fibroids
- Tissue sample for histology
- Could be used as repeat procedure for initial failed GEA

## 2<sup>nd</sup> generation

- Blind technique, so irregular cavity, polyps, fibroids, septae not recognize unless hysteroscopy is undertaken previously
- Less useful for imperfect cavity
- Built-in checks/balances to avoid activation if unrecognized perforation
- No sample collected at time of procedure
- Repeat procedures usually not advised

# C/I's to GEA

- Current pregnancy or desire for future fertility
- Known or suspected carcinoma or hyperplasia
- Active infection or PID
- IUCD in place
- Anatomic weakness of the myometrium
  - E.g., previous full thickness myomectomy or classical C-section
- \*\*\*Pre-existing placement of Essure sterilizations inserts\*\*\*



*Women's Health*

NETWORK



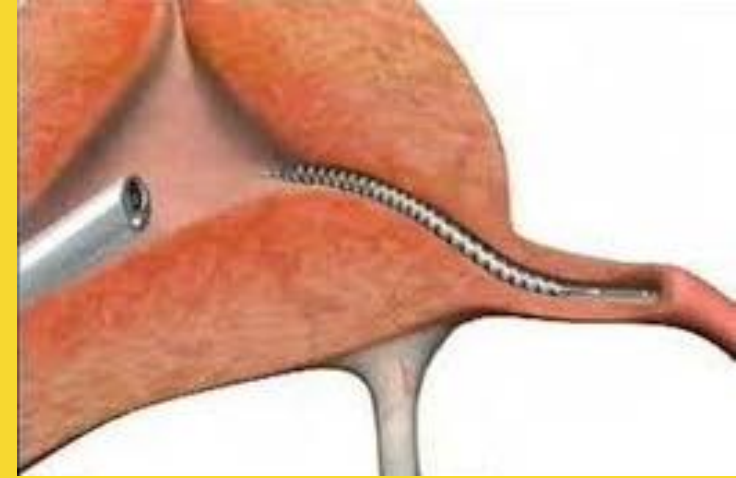
# Tubal Cannulation

- Sterilization

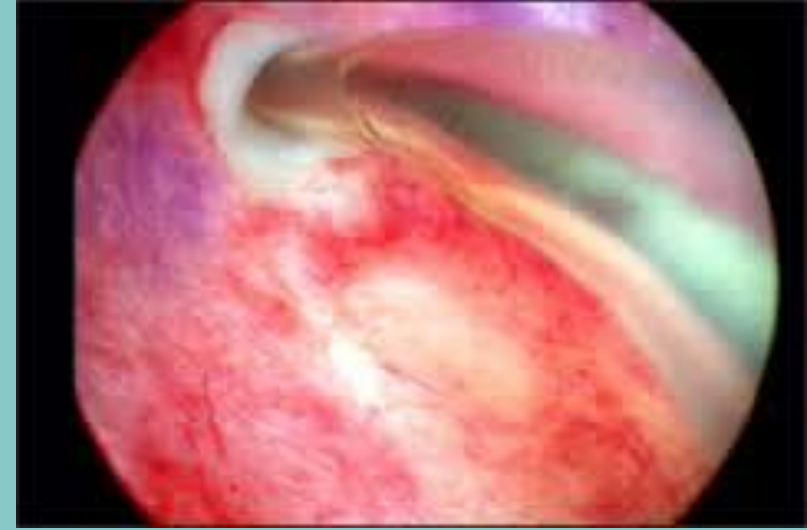
- Essure – micro-insert using a stainless steel inner coil and nickel-titanium outer coil, a PET (polyethylene terephthalate) fibre which will gradually induce luminal fibrosis and occlusion.

- Minimally invasive, thru natural orifice, with no skin incision;
- Can be done in same setting as diagnostic hysteroscopy;
- Occlusion is not immediate, so contraception still advised;
- Pt should be counselled this is completely irreversible;
- Effect on a future IVF pregnancy not fully explored.

- Adiana – no longer on market



# Tubal Cannulation



- Tubal infertility
  - Using a hysteroscope with operating channel under laparoscopic control;
  - Novy<sup>®</sup> cornual cannulation kit may be used to selectively cannulate tubal orifice with a larger diameter catheter and pass guide wire, then dye thru a smaller inner catheter which is advanced into proximal tube.
  - May increase fertility in cases of proximal tubal occlusion.

# “Cold knife” hysteroscopy

- Uterine anomalies such as septum can be divided with scissors or energy
- Intrauterine adhesions can be sharply divided using scissors or energy





# Videos

- TCRE/polyp +/- myoma
- Hysteroscopic sterilisation – Essure
- Tubal cannulation with guidewire
- Septum division with scissors

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