Tubal Sterilization
(Minilaparotomy Approach, Posterior Colpotomy Approach, Hysteroscopic Approach, Laparoscopic Approach)
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Relative Anatomy...

- Each tube is located in the mesosalpinx of the broad ligament. The tubes are attached to and opened into the uterus os in the area called cornu; each open end is near an ovary located in the infundibulum.
- The Fallopian tubes are divided into 4 sections: Fimbria (also called infundibulum), ampulla, isthmus, and intramural.
  - The fimbria are finger like projections at the terminal end of the tube that guide oocytes released by the ovaries into the tube’s lumen.
  - The ampulla is the largest and longest portion of the tube.
  - The isthmus is heavily muscled, acting as a “sphincter”; this effect is important in preventing endometriosis.
  - The isthmus opens to the intramural portion of the tube, which is located within the wall of the uterus at the *cornu.*
- The muscularis of the tube consist of external longitudinal and internal circular layers of smooth muscle.
- The outer serosal layer of the tubes is continuous with the broad ligament.
- The tubes are lined with simple ciliated and secretory epithelium.
  - The lining provides motility and lubrication for the captured oocytes as they travel down to the uterus.
- The blood supply to the tubes is the ovarian and uterine arteries and veins.
Pathophysiology:

Diagnostic Exams:

- No pathology - this is an elective procedure. This is done to make the female sterile.

- History and physical

“Any history of physical activity in your family?”
Surgical Intervention:

- Tubal sterilization, also referred to as tubal ligation, can be accomplished by resection, cauterization, luminal obstruction device (e.g. Essure), clip application, silicone banding, or ligation of the fallopian tubes. Puerperal sterilization is best performed 24 to 36 hours after vaginal delivery, although it may be performed at other times; i.e., immediately following a C-section or as an elective procedure. This elective procedure is a safe and especially effective means of performing sterilization.
Special Considerations:

- Tubal sterilization is performed as an outpatient or inpatient procedure.
- Careful patient counseling is necessary to make sure the patient definitely wants and is psychologically prepared for a tubal sterilization.
- Patients need to be aware that the procedure may sometimes be reversed by tuboplasty, but the possibility of reversal cannot be guaranteed.

- Several techniques are used by the surgeon for performing the tubal portion of the procedure including Irving, Pomeroy, Parkland, Madlener, and Kroener fimbriectomy. *The Pomeroy technique is most often used since it provides the best potential for tuboplasty in case the patient changes her mind as to wanting more children.*

Tubal occlusion techniques:
A. Irving  
B. Pomeroy  
C. Parkland  
D. Madlener  
E. Kroener fimbriectomy
Anesthesia:

Positioning:

- Local or general

- Trendelenburg position
- Opened procedure - supine
- Laparoscopic procedure - modified lithotomy with the buttocks positioned just over the lower break in the table, legs bent at the knees, with the feet placed in padded stirrups. Arms may be extended on padded armboards.
Skin Prep:

- Minilaparotomy Approach: Being at site of intended incision and extend area prepared from nipples to mid-thighs.

- Posterior Colpotomy and hysteroscopy: Begin at pubic symphysis and extend downward to the labia. Cleanse each inner thigh. Use three sponge sticks to cleanse vaginal vault and cervix. The perineum and anus are cleanse with the remaining sponges; discard each sponge after cleaning the anus.
Draping:

- Open procedure - laparotomy drape
- Laparoscopic procedure - laparoscopic drapes with leggings
- Laparoscopy and Posterior Colpotomy and Hysteroscopy - Drape sheet under buttocks, folded towels (optional), and laparoscopy sheet, or drape sheet under buttocks, leggings, and a laparotomy sheet.

Incision:

- Minilaparotomy Approach: pfannenstiel
Equipment:

- Basic or minor laparotomy set and/or GYN. Laparoscopy instrument set
- Depending on the surgeon preference: Hemoclip applicators with hemoclips of various sizes; ligature; Silastic bands or clips

  ● Minilaparotomy
    ○ ESU
    ○ Suction
    ○ Padding shoulder brace

  ● Laparoscopy:
    ○ Padded stirrups (e.g., Allen)
    ○ Fiber-optic light source (e.g. Xenon 300W)
    ○ Monitor
Supplies:

- Suction tubing
- Perineal pad
- Sanitary napkin belt or T-binder
- Basin set
- Needle magnet or counter

For Minilaparotomy and Colpotomy Approaches, Add

- Electrosurgical pencil and cord with holder and scraper
- Water-soluble lubricant
- Blades, (2) #15 (minilaparotomy) (1) #10 (posterior colpotomy)

For Hysteroscopy and Laparoscopic Approaches, Add

- Electrosurgical cord
- Antifog agent
**Instruments:**

- **Minilaparotomy**
  - Basic / Monitor procedures tray
  - Abdominal self-retaining retractor
  - Bivalved speculum
  - Uterine manipulator (e.g. Cohen Cannula)
  - Tenaculum

- **Posterior Colpotomy and hysteroscopy:**
  - Cervical Cone Tray
  - D&C tray
  - Coagulation electrosurgical forceps, Babcock forceps (2)
  - Hemoclip or similar clip appliers

- **Laparoscopy**
  - D&C tray
  - Uterine manipulator
  - Verres needle
  - Trocar (5mm, 10 or 11mm, 12mm, or Hasson)
  - Fiber optic laparoscopes, 30 degrees and 0 degrees, and a cord
  - Camera and coupler or laparoscopy with built in camera
  - Reducers and connectors, as necessary
  - Laparoscopic irrigating handpiece (e.g., HydroFlex)

- **Laparoscopic instruments:**
  - Electrosurgical dissector, Babcock forceps (2)
  - Scissors (blunt and sharp), electrosurgical suction-irrigator
  - Electrosurgical cord
  - Multifire ligating clip applier with clips
  - Loop suture (e.g., Endoloop)
Minilaparotomy Approach:

- The pt’s legs are placed in frog-leg position and a bivalved vaginal speculum (e.g. Graves) is employed to place a uterine manipulator. A small incision is made supraubically and is extended into the peritoneal cavity. Each fallopian tube is individually divided grasped with a Babcock forceps, and the tubal procedure is performed (excision of, desiccation or cauterization of, silicone banding of, or application of suture or clip, on a section of the fallopian tube). The peritoneum is approximated. The wound is closed in layers. The wound is dressed and a perineal pad is placed.
Posterior Colpotomy Approach:

- A weighted speculum is placed in the vagina. The cervix is retracted anteriorly with a tenaculum. A transverse incision is made into the vagina mucosa posterior to the cervix and extended through the peritoneum to enter the cul-de-sac. Each tube is grasped individually with a long Babcock forceps, and the tubal procedure is performed. The colpotomy site is closed with through-and-through sutures, including vaginal mucosa and peritoneum. A perineal pad is placed.
The Essure procedure may be performed in a doctor's office without anesthesia. It may also be performed as a hospital outpatient procedure. Hysteroscope is done using a flexible hysteroscope. A thin tube like instrument is threaded into each fallopian tube and the tiny inert Essure device is inserted. This device causes scarring that creates a barrier preventing sperm from traveling through the fallopian tube. Upon completion of the procedure, the distending medium is evacuated from the uterus and the hysteroscope is removed. A perineal pad dressing is placed.
Counts:

Specimen Care:

- Beginning count
- Ending count
- Minilaparotomy:
  - instrument count

- The right and left sections of tube that are excised must be kept as separate specimens. The separate containers must be labeled right and left fallopian tube and sent to pathology.
Complications:

- Postoperative SSI
- Intraabdominal bleeding
- Pelvic pain that resolves in short period of time
- Complications are rare due to limited intervention

No Complications:

- Released from the health care facility on same day of surgery; return to normal activities in 2-4 weeks
Wound Class:

Class II: Clean Contaminated

Citations:

- Frey, Kevin B., and Tracey Ross. Surgical technology for the surgical technologist: a positive care approach. Boston, MA