HEALTH TECH ACADEMY

Gynecological and Obstetric Surgery

Surgical Techniques and Considerations

Lesson Objectives:

1. Identify key anatomical structures of the female reproductive system
2. Discuss common diagnostic procedures of the female reproductive system
3. Discuss specific elements of case planning for gynecological and obstetrical surgery
4. Discuss surgical techniques used in gynecological and reproductive surgery
5. List and describe common gynecological and obstetrical procedures

Introduction to Obstetrical and Gynecological Surgery

- Combined medical-surgical specialty.
- Gynecology focuses on the treatment and prevention of diseases affecting the female reproductive system
- Obstetrics relates to the process of pregnancy and birth (parturition).
- STs provide routine surgical assistance in gynecological procedures
- STs are employed in the obstetrical department or free-standing childbirth center

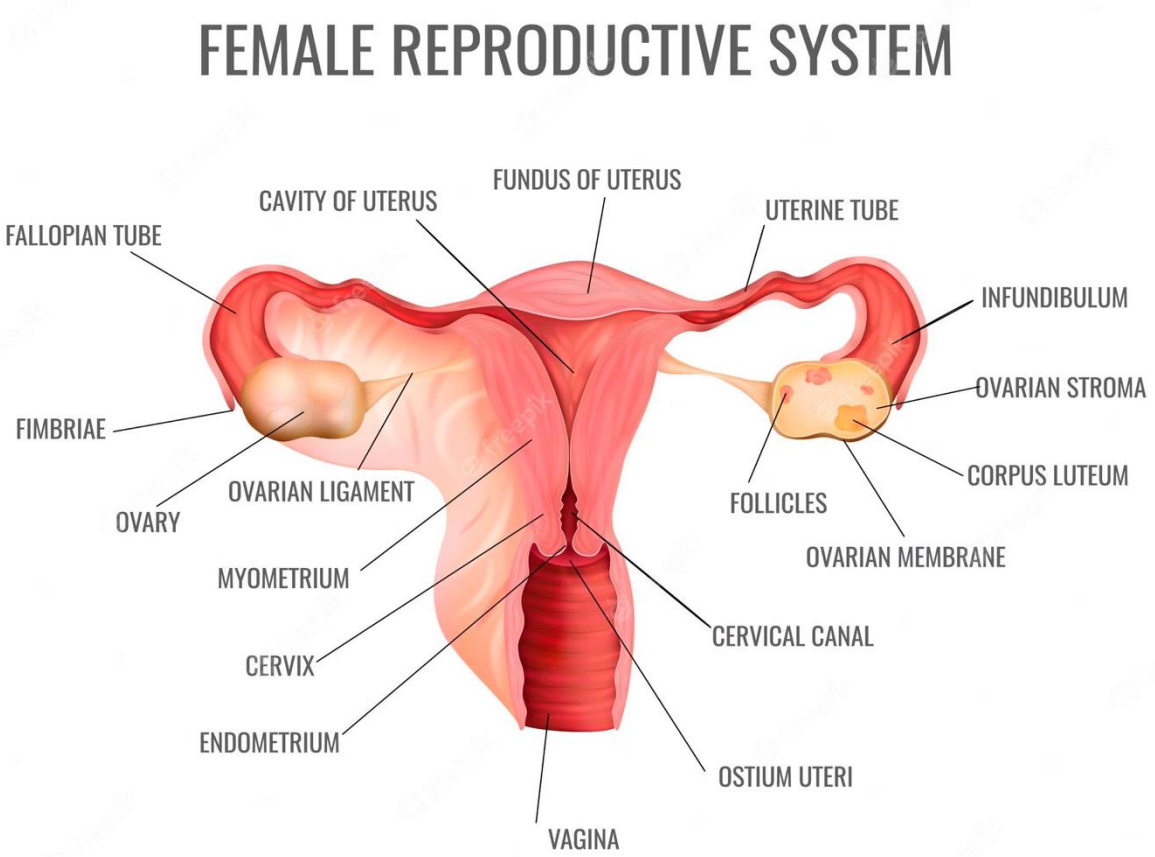
More on the Distinction

- Obstetric and gynecologic surgery
  - Focuses on females after the beginning of menstruation
- Obstetricians
  - Focus on pregnant patient and issues concerned with
  - fertility
- Gynecologists
  - Focus on female reproductive system and related
  - problems outside pregnancy

Surgical Anatomy of the Female Reproductive System

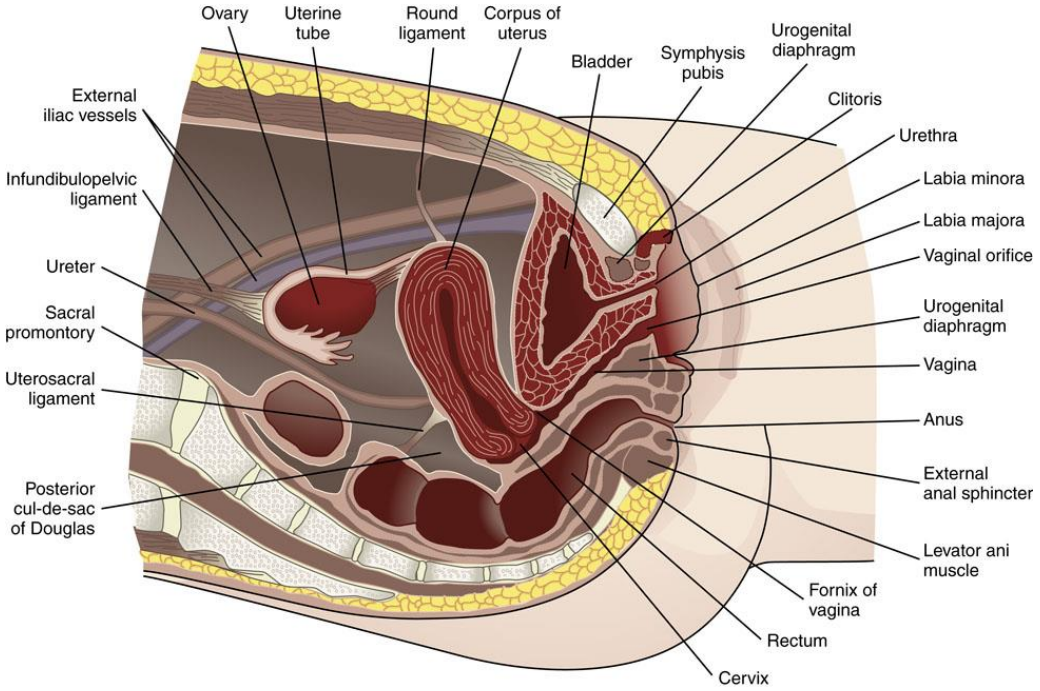
Uterus:

- The muscular organ that holds the fetus and the placenta during pregnancy.



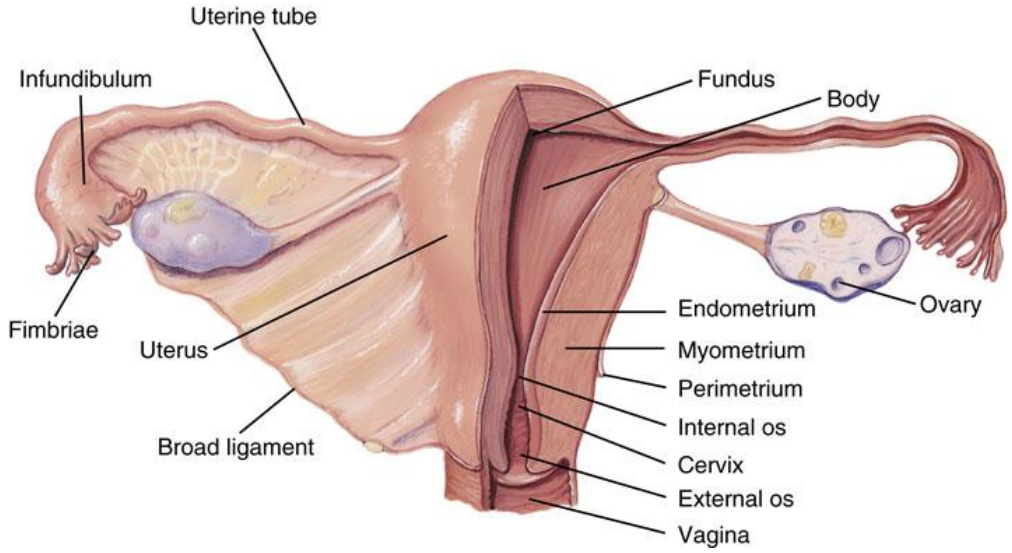
Uterus

- **Uterus**
  - Pear-shaped organ in anterior pelvic cavity.
  - Composed of thick muscular tissue.
  - Fundus, body, and cervix are its main parts.
  - Functions: houses and protects fetus during pregnancy.
- **Structure**
  - Endometrium, myometrium, and perimetrium.
  - Cervix: lower neck of uterus with external and internal os.



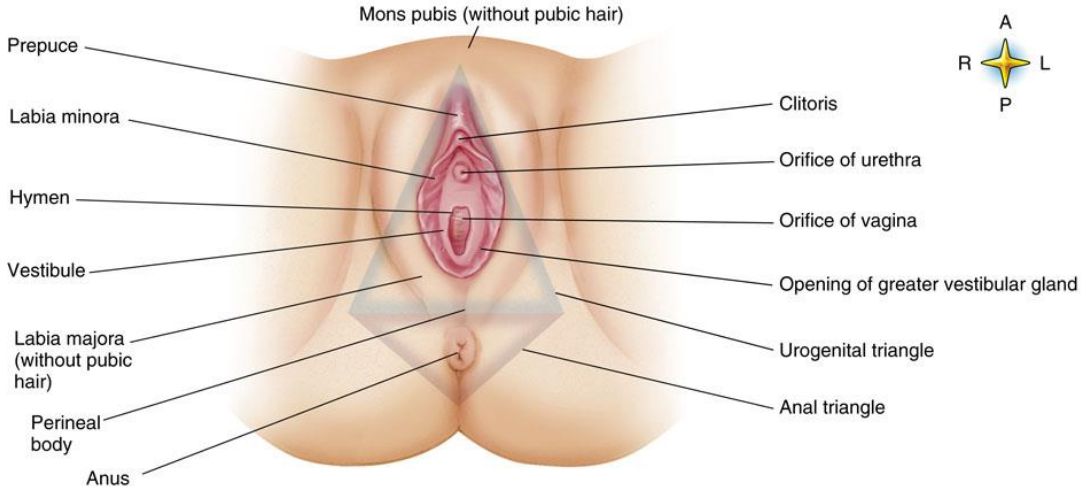
Structure of Uterus

- **Uterine Ligaments**
  - Broad, round, cardinal, and uterosacral ligaments.
- **Fallopian Tubes**
  - Four sections: interstitial, isthmus, ampulla, infundibulum.
  - Fimbriae direct ovum towards infundibulum.
- **Ovaries**
  - Secrete estrogen and progesterone.
  - Suspended by mesovarium.
  - Cortex contains follicles; medulla has connective and vascular tissue.



Anatomy of Vulva

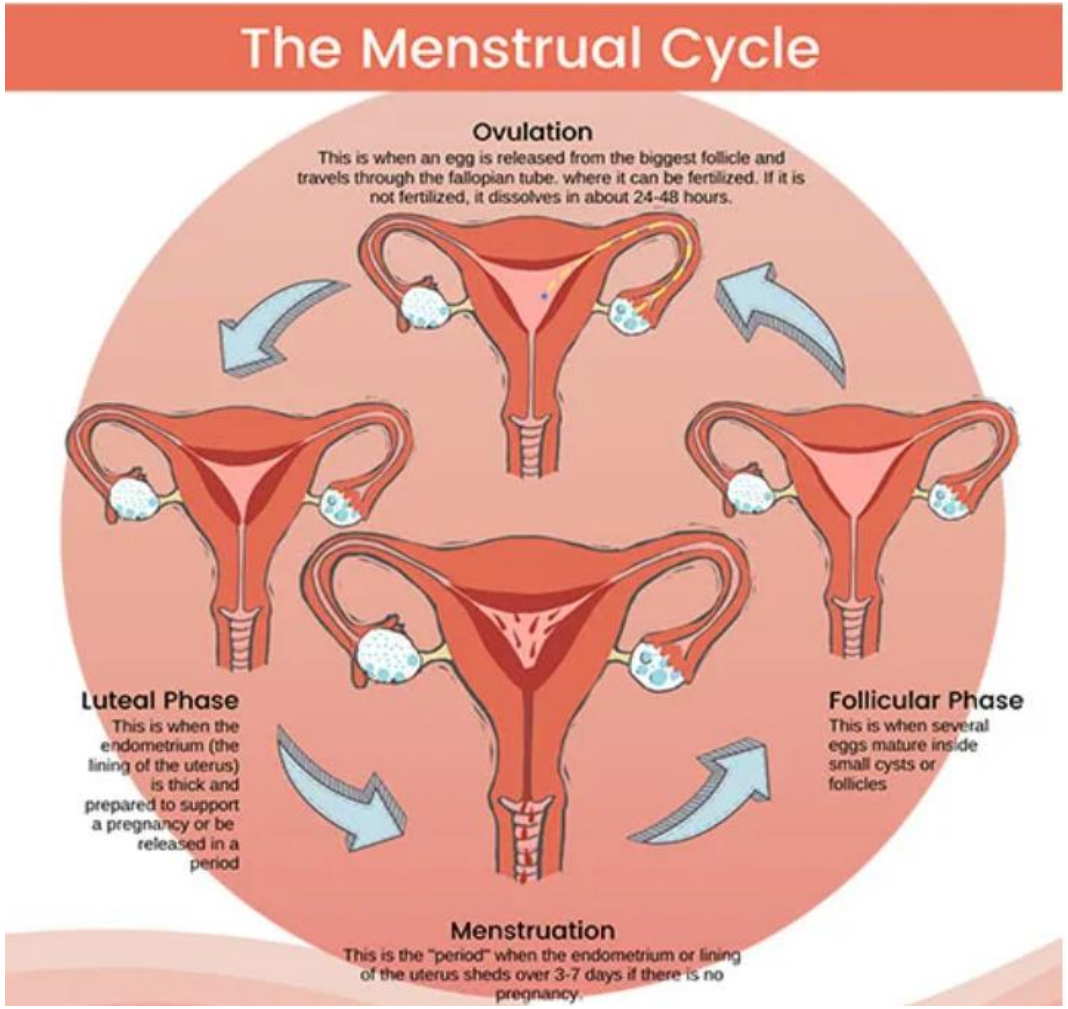
- **Vagina**
  - Muscular passageway extending from vestibule to cervix.
  - Lined with epithelium and rugae.
- **Vulva**
  - Composed of mons pubis, labia majora, labia minora, clitoris, vestibule, hymen.
- **Perineum**
  - Located between posterior vaginal wall and anus.
  - May undergo episiotomy during childbirth to prevent tearing.



The Menstrual Cycle

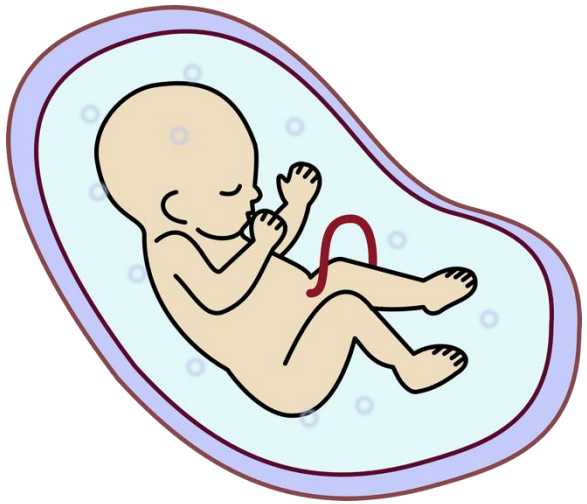
- The ovarian cycle is characterized by hormonal and physical changes that occur regularly from menarche (the onset of menstrual periods) until menopause (cessation of natural childbearing)

- **Phases of Cycle**
  - Follicular phase
  - Ovulatory phase
  - Luteal phase



Stages of Pregnancy

- Begins at fertilization of the ovum by sperm
- Embryonic stage begins at implantation of the embryo into the endometrium
- At about 8 weeks of gestation, the fetal period begins
- Parturition, or birth, normally occurs at about 40 weeks gestation



Complications of Pregnancy

- **Placental abruption**
- **Placenta previa**
- **Pregnancy-induced hypertension**
- **Preeclampsia**
- **Nuchal cord**
- **Lack of labor progress**
- **Cord prolapse**
- **Breech presentation**

Complications of Pregnancy

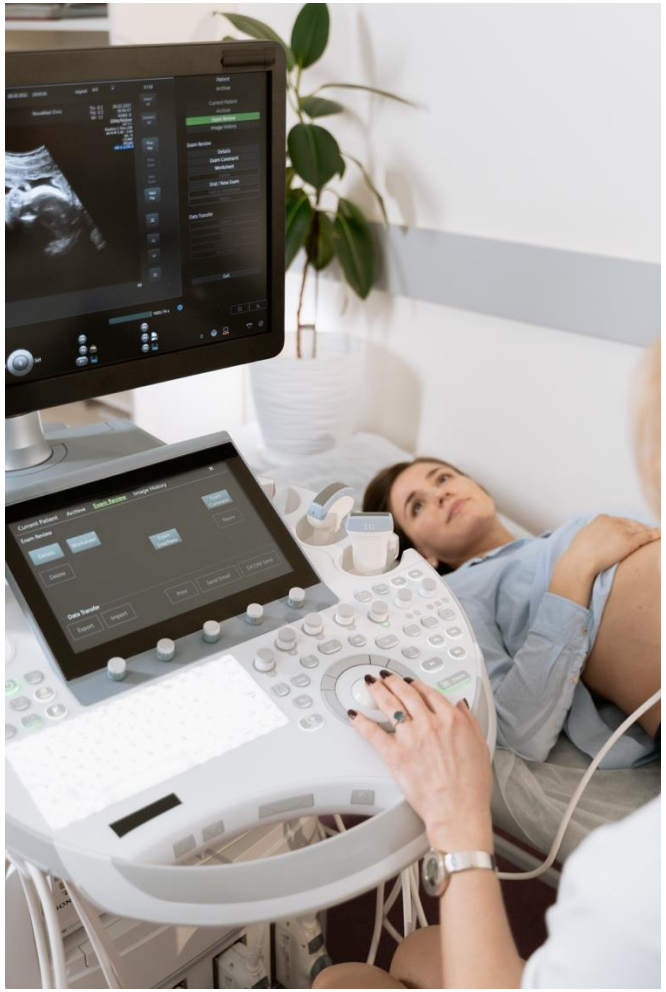
- **Placental abruption**: The premature separation of the placenta from the uterine wall after 20 weeks' gestation, potentially causing vaginal bleeding and requiring a cesarean section if delivery is not imminent.
- **Placenta previa**: When the placenta implants completely or partly over the cervical os, leading to life-threatening hemorrhage during labor and necessitating an immediate cesarean section.
- **Pregnancy-induced hypertension**: High blood pressure occurring only during pregnancy after 20 weeks' gestation, which can range from mild to severe, potentially affecting other organs and leading to preeclampsia.
- **Preeclampsia**: A severe form of pregnancy-induced hypertension that can involve proteinuria, elevated liver enzymes, and low platelets, possibly leading to maternal seizures (eclampsia).

Complications of Pregnancy

- **Nuchal cord**: An umbilical cord wrapped around the baby’s neck, which can cause a marked decrease in the baby's heart rate during contractions and might necessitate a cesarean section if labor is prolonged.
- **Lack of labor progress**: A situation where the baby does not make steady progress through the birth canal due to various issues, potentially requiring a cesarean section if position changes or manual manipulations fail.
- **Cord prolapse**: When the umbilical cord precedes the baby's head in the birth canal, compressing the cord and reducing oxygen flow to the baby, requiring an emergency cesarean section.
- **Breech presentation**: When the baby’s feet, knees, or buttocks enter the birth canal before the head, often requiring a cesarean section unless the baby can be rotated or safely delivered vaginally.

Diagnostic Procedures

- Patient History and Physical Examination:
  - Menstrual history
  - Obstetrical history
  - Use of contraceptives
  - History of previous infection
  - Signs and symptoms
  - Current medications
  - Family history
  - Social history



Preoperative Malignancy Screening

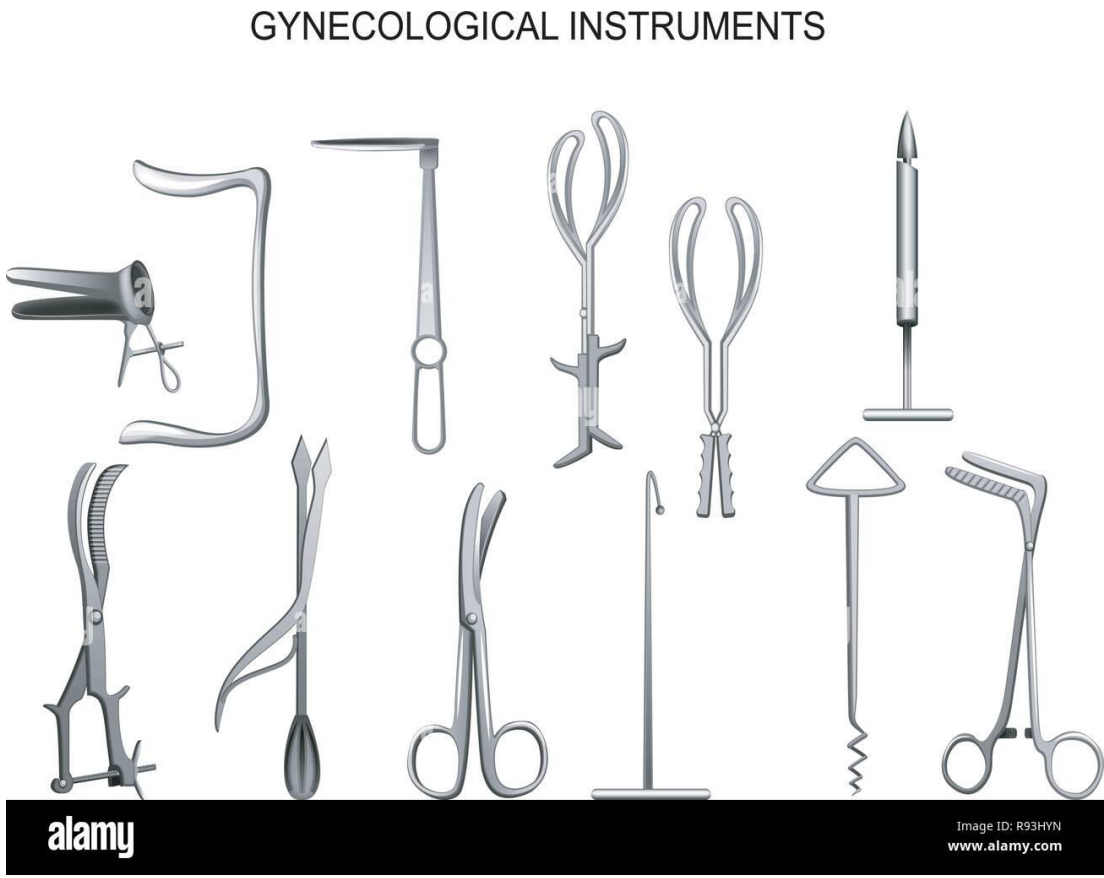
- Involves combination of tests to estimate risk of malignancy before surgical intervention.
- Ultrasound
- **Sonohysterography**: In this process, normal saline, lactated Ringer solution, or 1.5% glycine is injected into the uterine cavity through a small transcervical (through the cervix and into the uterus) catheter before ultrasound testing.
- **Hysterosalpingography:** In hysterosalpingography, a radiological contrast medium is injected into the uterus and fallopian tubes. Fluoroscopy is then used to visualize the uterus and tubes.
- Magnetic resonance imaging
- Cervical and endometrial biopsy
- Culture
- **Cone biopsy of the cervix**: Epithelial carcinoma of the cervix or severe dysplasia (abnormal cells) may be treated with cone biopsy. This involves the removal of a circumferential core of tissue around the cervical canal. The cone biopsy encompasses the abnormal cells for a conclusive diagnosis of invasive carcinoma.

Psychosocial Considerations

- Younger patients may perceive genital surgery as violating privacy and social taboos.
- Encountering embarrassment, fear, and confusion requires empathy and tact from caregivers.
- Reassurance pre-surgery to alleviate fear.
- Patients of childbearing age may fear loss of reproductive ability.
- Particularly impacts women of childbearing age grieving reproductive loss.
- Integral to body image and identity.

Case Planning

- **Positioning**
  - Lithotomy
- **Team positioning**
  - Surgeon on either side of the patient
  - ST on right of patient
- **Skin prep and draping**
  - Abdominal and perineal prep with insertion of Foley Catheter
- **Instruments**
  - bipolar electrosurgical unit (ESU)
- **Equipment and supplies**
- **Drugs**
  - Dye and stains
  - Uterotropic drugs



Watch the "Operative Vaginal Prep" Video for a summary of this process

Operative Vaginal Prep Video

Operative Vaginal Prep Video

Summary of Video:

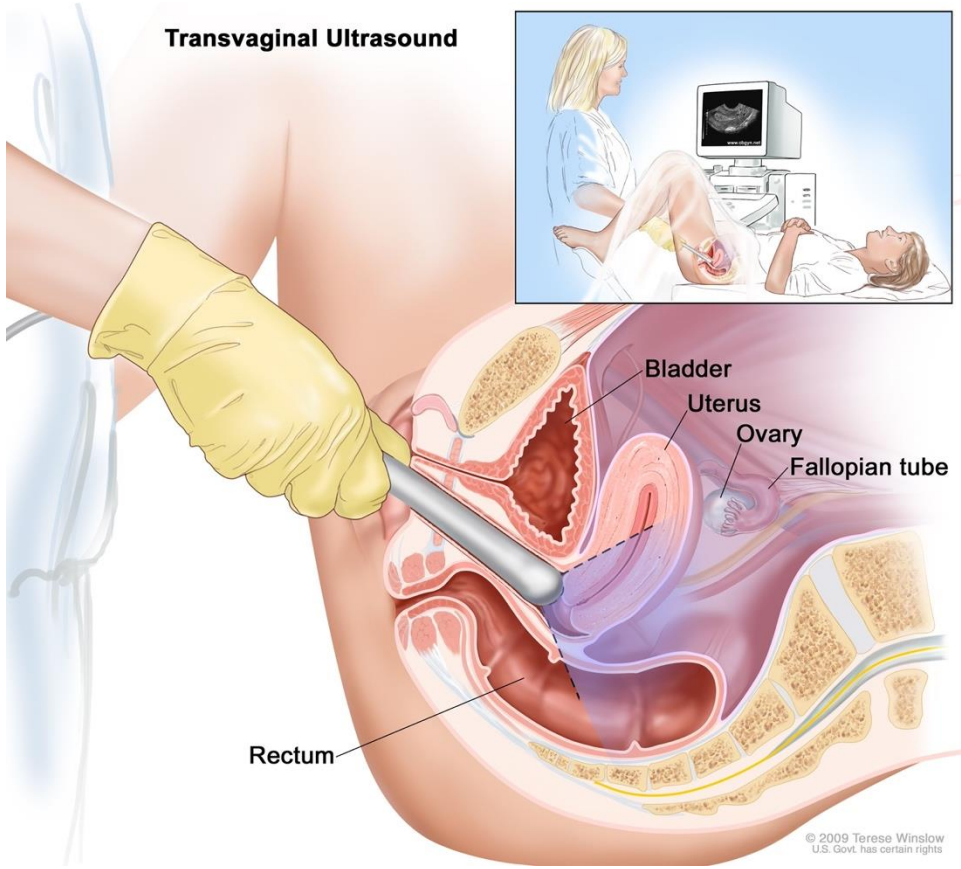
- Position in Lithotomy
- Prep Vaginal/Pubic area prior to prepping the abdomen
- Biohazard/Impervious drape (such as mayo) under buttocks
- CHG based solution

Sutures

- Uterine ligaments and vessels: Absorbable synthetic 0 to 2-0 taper needle
- Bladder reflection: Absorbable synthetic 2-0 to 3-0 small taper needle
- Ovary: Absorbable synthetic 3-0 to 4-0 small taper needle
- Fallopian tube repair or anastomosis: Inert monofilament or braided 5-0 to 7-0
- Vaginal vault: Absorbable synthetic size 0 medium taper needle
- Plastic procedures of the vulva: Nylon, Prolene, or other monofilament, 3-0, 4-0; ⅜ circle cutting needle

Transvaginal Procedures

- Hysteroscopic endometrial ablation
- Myomectomy
- Dilation and curettage
- Vaginal hysterectomy
- Repair of
  a cystocele and rectocele (anterior-posterior repair)
- Repair of a vesicovaginal fistula
- Cervical cerclage



Hysteroscopic endometrial ablation

- **Hysteroscopy**
  - Technique using lighted fiberoptic endoscope for diagnostic and operative procedures

Watch the "Hysteroscopy" Video in the next slide for detailed overview

Hysteroscopy Video

- Click Here to watch the Video
- Start at 0:15

Hysteroscopy Video

Summary of Video:

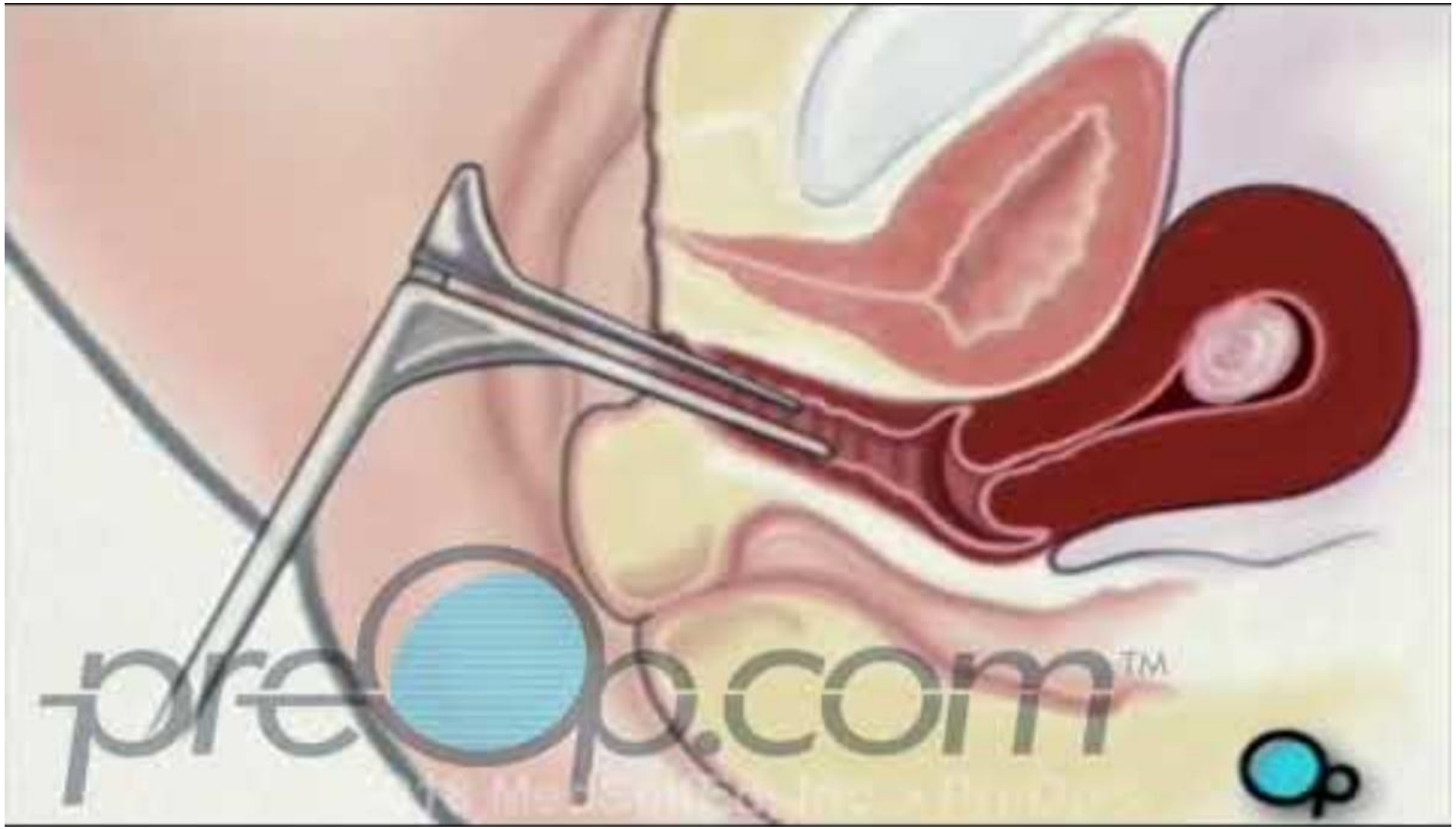
- Diagnostic vs Operative
- Types of Scopes

Myomectomy

- Removal of benign leiomyoma (fibroid) from the myometrium to control bleeding and alleviate pressure on pelvic structures.
- **Technical Points and Discussion:**
  - **Patient Preparation:** Hysteroscopy readiness.
  - **Cervical Dilation:** Insertion of double-sheath resectoscope.
  - **Distention Fluid:** Irrigation and infusion into the uterine cavity.
  - **Tissue Manipulation:** Shaving and coagulation using resectoscope loop.
  - **Tissue Removal:** Flushing out sectioned tumor pieces with outer sheath removal.
  - **Bleeding Control:** Utilization of ball electrode attachment.
  - **Specimen Collection:** Retrieval of all tissue pieces for pathological examination.

Watch the "Vaginal Fibroid Removal Myomectomy Surgery" Video for procedure!

Vaginal Fibroid Removal Myomectomy Surgery

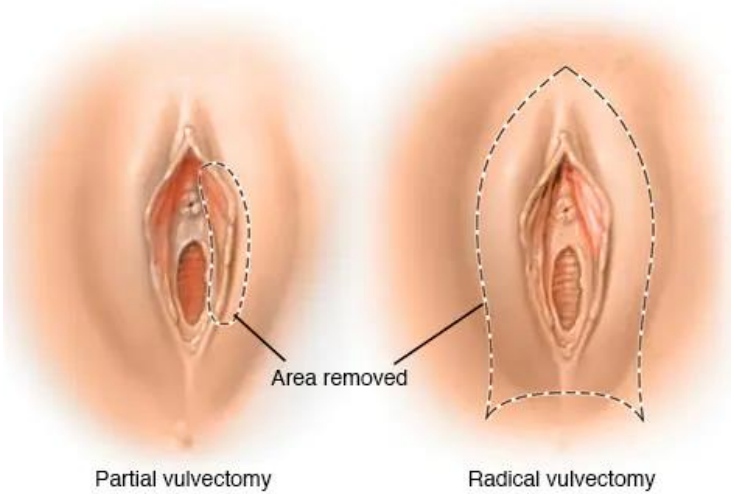


Vaginal Fibroid Removal Myomectomy Surgery

- **Summary of the Video**
  - Fibroids are non-cancerous tumors that can grow on the inner or outer wall of the uterus, affecting up to 20% of women over 30.
  - Although often asymptomatic, fibroids can lead to complications such as pressure on the urinary system, intestines, interference with reproductive system, or infection.
  - Surgery is typically recommended for large fibroids to restore health and protect the uterus.
  - The surgical procedure involves prepping the patient, opening the vagina with a retractor, inserting a hysteroscope to remove fibroid tissue using a wire loop, and concluding by allowing the uterus to return to its normal shape.

Procedures of the Vulva

- Removal of a Bartholin gland cyst
- Simple vulvectomy
- Removal of condyloma acuminata



Removal of Bartholin Gland Cyst

- Surgical removal of cyst and gland to prevent future infections

Technical Points and Discussion

- **Positioning**: Lithotomy position, perineal incision
- **Retraction**: Labia minora retracted
- **Incision**: Curved incision over cystic gland, extended with Metzenbaum scissors, bleeders coagulated
- **Removal**: Cyst and gland removed together or dissected apart with scissors, wound edges secured for secondary closure

Watch the video "**Bartholin's Gland Cyst and Abscess Management**" to gain insights into post-procedure management.

Bartholin's Gland Cyst and Abscess Management

https://www.youtube.com/watch?v=94OLq1h91Rw

Bartholin's Gland Cyst and Abscess Management

- **Summary of the Video!**
  - **Anatomy**: Bartholin's glands, located in the vulvar vestibule, secrete mucus to lubricate the vagina.
  - **Cysts and Abscesses**: Develop due to duct obstruction (cysts) or infection (abscesses), requiring drainage for larger or infected cases.
  - **Drainage Methods**: Word catheter insertion or marsupialization effectively manage cysts and abscesses.
  - **Procedure Overview**: Involves cleansing, incision, drainage, and either word catheter insertion or marsupialization, with follow-up for both techniques.

Simple Vulvectomy

- Surgical removal of labia and other vulvar structures based on pathology

- **Technical Points and Discussion:**
  - Prepping and draping for vulvar excision; skin graft site prepped
  - Incision lines drawn on skin; extent depends on biopsy; incision made with knife blade
  - Incision carried into fatty tissue; use of retractors, ligatures, and clamps; en bloc specimen removal
  - Attempt at primary closure with cutaneous sutures; Penrose drain may be inserted
  - Split-thickness skin graft from lateral thigh used if primary closure not possible
  - Foley catheter placed, wound dressed with Xeroform gauze, fluffed gauze squares, and abdominal pad

Removal of Condyloma Acuminata

- Can be performed in outpatient clinic or physician’s office.
- May require admission for excessive lesions under general anesthesia.
- **Technical Points**
  - Procedure done under microscope with CO2 laser.
  - Shallow incision made around excision area.
  - Lesions vaporized to skin level with laser fiber.
  - Vaginal and anal lesions vaporized with laser speculum.
  - Treated with silver sulfadiazine cream post-procedure.

Abdominal Procedures

- Laparoscopic tubal ligation
- Laparoscopic management of an ovarian mass
- Tuboplasty
- Surgical management of an ectopic pregnancy
- Laparoscopic-assisted vaginal hysterectomy
- Total abdominal hysterectomy with bilateral salpingo-oophorectomy
- Robotic-assisted hysterectomy
- Radical hysterectomy with lymphadenectomy
- Pelvic exenteration

Watch the "C-Section with Hysterectomy" Video

C-Section with Hysterectomy Video

https://youtu.be/mcNKaiqDAVs

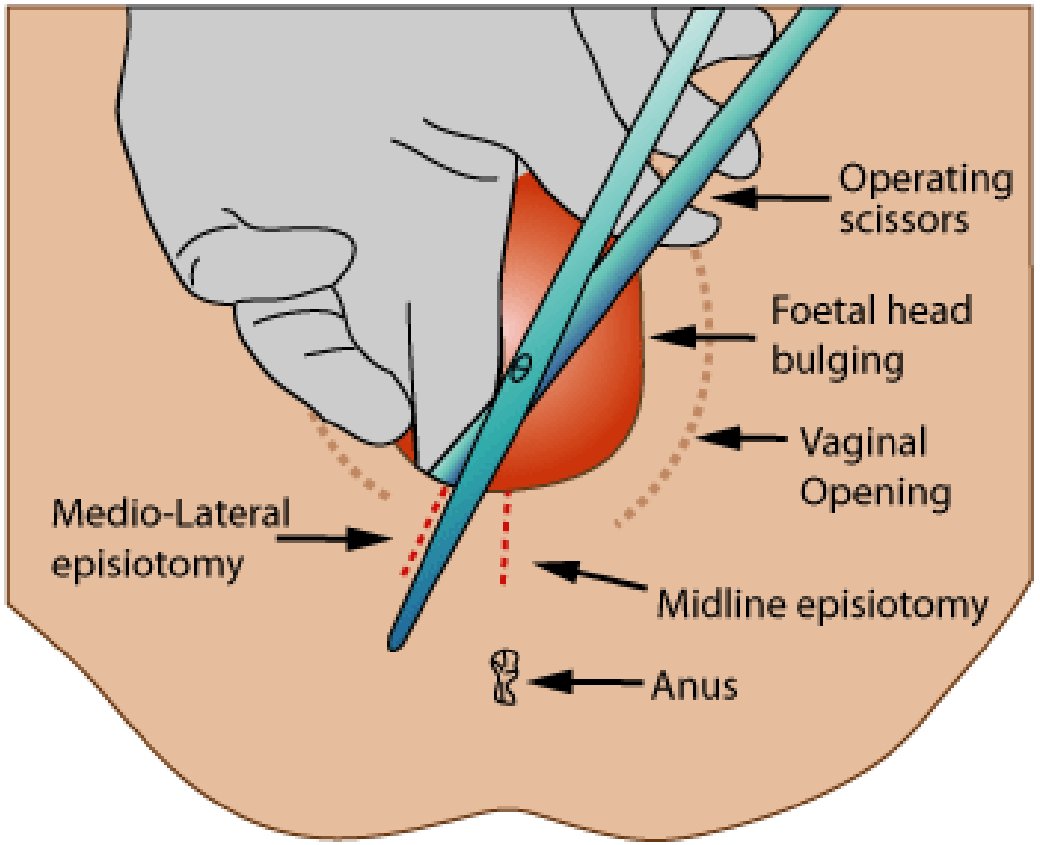
C-Section with Hysterectomy Video

Summary of Video:

- Combination of C-Section and Abdominal Hysterectomy
- Two surgical services working in tandem
- C-Section done for high-risk pregnancies and those where vaginal delivery is not possible or too high risk

Obstetrical Procedures

- **Normal vaginal delivery**
  - Done in delivery room
- **Episiotomy**
  - Cutting of the vagina to aid in delivery during childbirth to avoid rupture
- **Cesarean delivery**
  - In Operating Room



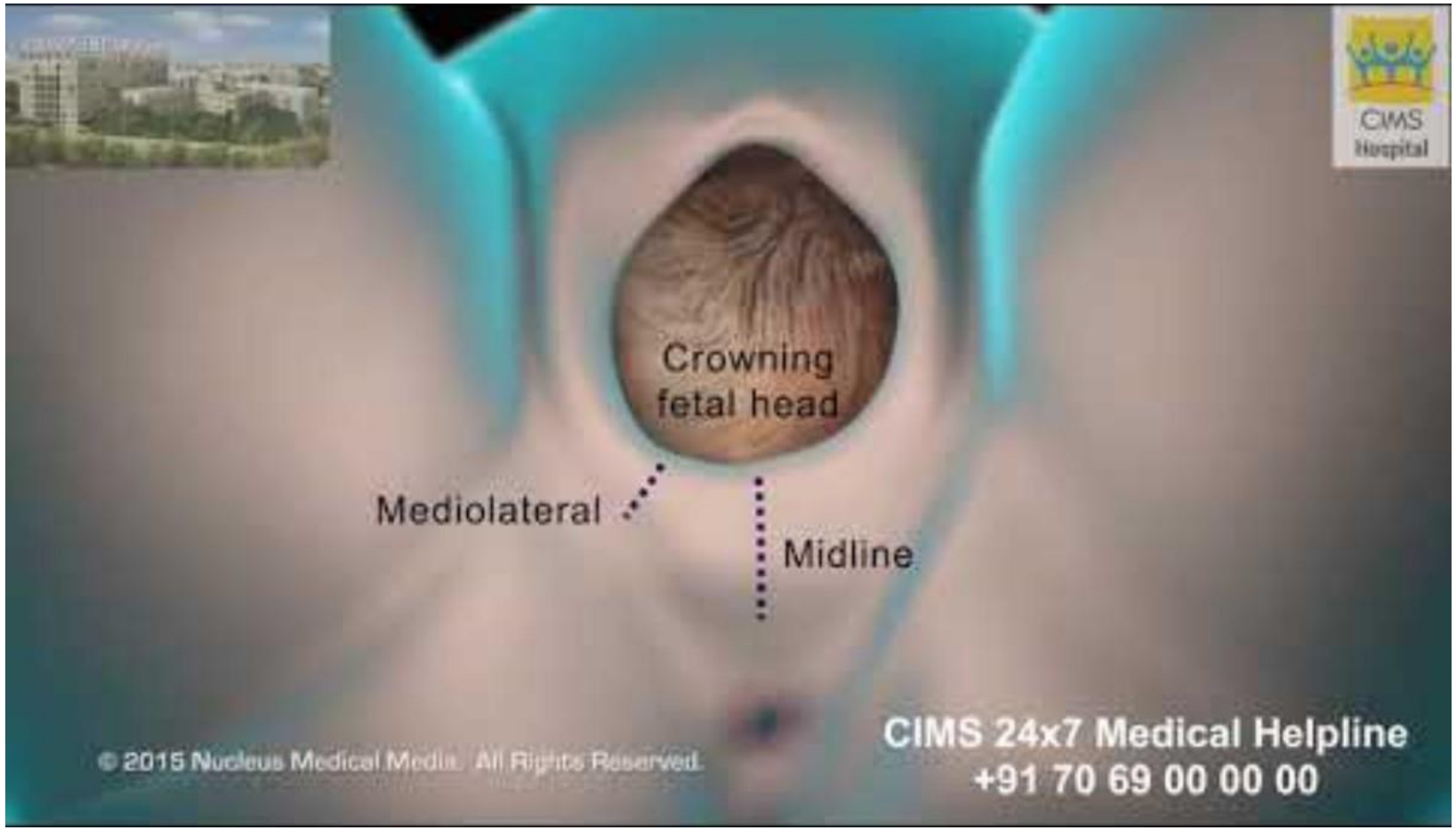
Episiotomy

- Incision in perineum during second-stage labor
- Prevents tearing of tissues during childbirth
- Routine episiotomy's effectiveness inconclusive
- Selective episiotomy recommended
- Mediolateral incision preferred
- Discussion includes repair for third- and fourth-degree lacerations

Watch the video on "Episiotomy" to gain insights into the procedure and uses

Episiotomy Video

https://www.youtube.com/watch?v=1MZFQCYRYms



Episiotomy Video

- **Summary of the Video**
  - Episiotomy: Enlarges vaginal opening during delivery.
  - Indications: Prevent tearing, aid delivery in specific cases.
  - Procedure: Anesthesia, incision (midline or mediolateral), stitches.
  - Recovery: Stitches absorb, healing takes weeks; ice packs for pain initially.

Episiotomy and Perineal Lacerations

- Episiotomy
  - Intentional midline surgical incision in the vulva
  - Eases the birth process or protects the mother from uncontrolled perineal lacerations
  - Classified according to the depth
  - Closed using absorbable sutures

Cesarean Delivery
(Slide 1 of 2)

- **Surgical Goal:**
  - Surgical removal of fetus via abdominal incision
  - Scheduled or emergency procedure
  - Administer spinal/epidural (scheduled) or general (emergency) anesthesia
  - Quick setup for emergencies, various instruments used
- **Technical Points and Discussion:**
  - **Patient Preparation:** Modified left lateral position, wedge pad under right hip, Foley catheter, full prep and drape, physiological monitoring.
  - **Emergency Preparation:** ST readies essential instruments like laparotomy drape, scalpels, clamps, scissors, retractors, suction.
  - **Incision:** Low transverse or midline incision to rectus muscle level.
  - **Peritoneal Entry:** Elevate peritoneum, make incision, extend with scissors.
  - **Bladder Flap:** Divide from uterus, displace bladder downward.

Cesarean Delivery
(Slide 2 of 2)

- **Uterine Entry:** Small transverse incision, extend, suction amniotic fluid, rotate baby's head.
- **Baby Delivery:** Suction nose/mouth, clamp/sever umbilical cord, collect cord blood, hand baby to resuscitation team.
- **Placenta Removal:** Manual removal, examine for integrity, suction wound, sponge count.
- **Uterine Closure:** Control bleeders, close in layers with absorbable sutures, reattach bladder flap.
- **Tubal Ligation:** Optional procedure post-delivery.

Cesarean Section Video

Cesarean Section Video

- **Summary of the video**
- **Cesarean Section (C-Section):**
  - Surgical delivery method via abdomen.
  - Determined safer by physician for mother, baby, or both.
  - Can be elective, scheduled around 39 weeks.
  - Often recommended for subsequent births after previous C-section.

Read Chapter 23 from the E-Book

Read Chapter 23 from your E-Book to pass the upcoming quiz from **Surgical Technology - Elsevier eBook on VitalSource, 8th Edition.**

Click Here to access Chapter 23!

Thank you!

Get ready for your quiz and rest of the activities now. Best of luck!

Congratulations!

Lesson 23 is complete.