

External female Genitalia

Lecture for the Academic Year 2018 – 2019
Defined Learning Objectives

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Disclosure



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Learning Objectives

- Regional and Functional anatomy of external genitalia
 - Vulva, Vagina, Labia, urethra, anus, - pelvic diaphragm
- Changes and adaptation in
 - teenage
 - labour and delivery
 - menopause
- Clinical manifestations
 - Bartholine cyst, Nuck cyst
 - Lichen sclerosus
 - Vulva Ca

Vulva and erectile structures

The borders of the Bony pelvis are

- Anteriorly by ischiopubic rami
- Posteriorly by coccyx and sacrotuberous Ligs
- Divided into anterior and posterior triangles
- Sharing a common base along a line between the ischial tuberosities

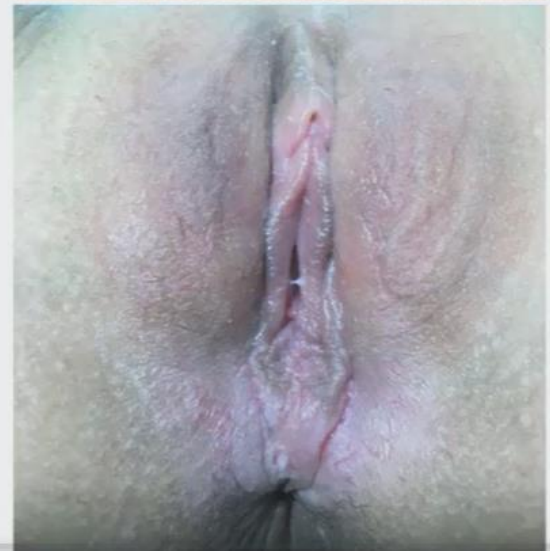
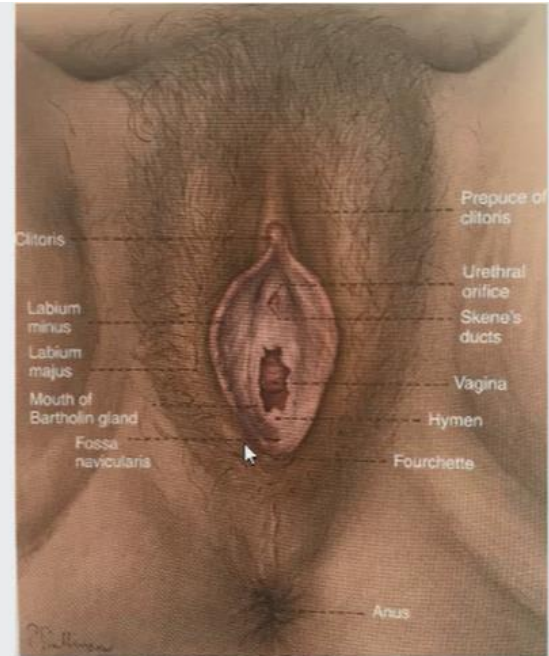
Anterior triangle

Has layered structure (*similar to abdominal wall*)

- Skin and adipose tissue (vulva)
- Fascial layer (perineal membrane)
- Muscular layer (levator ani mm)

Layers of the anterior Triangle of the Perineum

- Skin
- Subcutaneous tissue
 - Campers fascia
 - Colles Fascia
- Superficial space
 - clitoris and its crura
 - Ischiocavernosus muscle
 - Vestibular bulb
 - Bulbocavernosus muscle
 - Greater vestibular gland
 - Superficial transverse perineal muscle
- Deep Space – perineal membrane
 - Compressor urethrae
 - Urethrovaginal sphincter



Labia

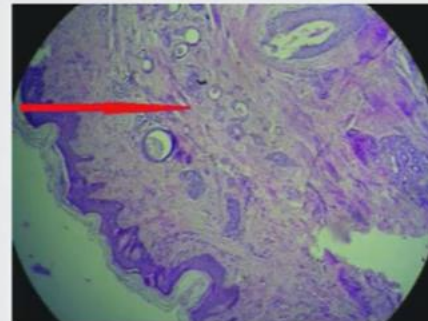
- **Labia majora** contain the termination of the Round ligaments and the obliterated processus vaginalis (canal of Nuck)
- The cutaneous structures of the **Labia minora and vestibule** do not lie on an adipose tissue layer but on a connective tissue stratum that is loosely organized and permits mobility of the skin during intercourse



Vulva Skin Glands

- Labia majora *sebaceous glands associated with hair shafts*
 - premenstrual Secretory activity
 - hidradenitis suppurativa
 - hidradenoma
- Laterally there are sweat glands
 - Rarely form syringomas (palpable masses)

Syringoma is a benign eccrine sweat gland tumour affecting mostly females at puberty as multiple soft papules usually 1-2 mm in diameter. The sites of predilection are lower eyelids, cheeks. Syringoma of the vulva is a rare disorder. vulvar syringoma should be kept in differential diagnosis with vulvar pruritus



numerous small ducts lined by two layers of epithelial cells embedded in a fibrous stroma

Vulva Subcutaneous tissues

- Camper fascia = Superficial fat layer (*continuation of the anterior abdominal wall fat layer*)
- Colles Fascia = Deeper layer (*Interlacing fibrous connective tissue septa attach laterally to ischiopubic rami and fuse posteriorly with the posterior edge of the perineal membrane – urogenital diaphragm*)
- *It's Importance:* Limits the spread of haematoma or infection in this compartment postero-laterally but allows spread into the abdomen

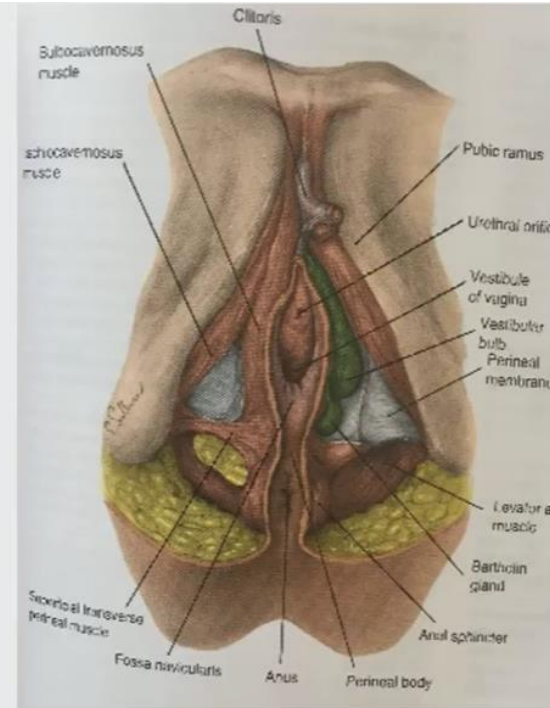
Perineum superficial compartment

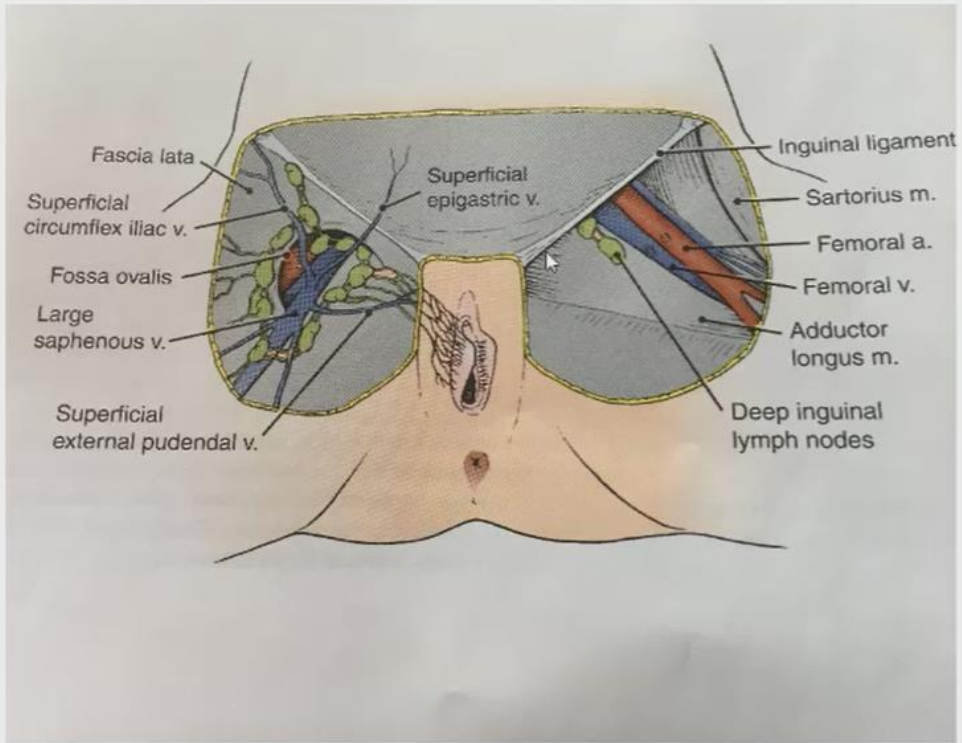
Consists of the
clitoris and its crura,
Ischiocavernosus muscle
Vestibular bulb
Bulbocavernosus muscle
Superficial transverse perineal muscle

Bartholin - Greater vestibular gland found at the tail end of the bulb of the vestibule connected to the vestibular mucosa with a canal lined with squamous cells epithelium

The gland lies on the perineal membrane beneath the bulbocavernosus mm

- blockage of the canal dilatation of the gland
- infection causes abscess
- Treatment : Drainage and marsupilization



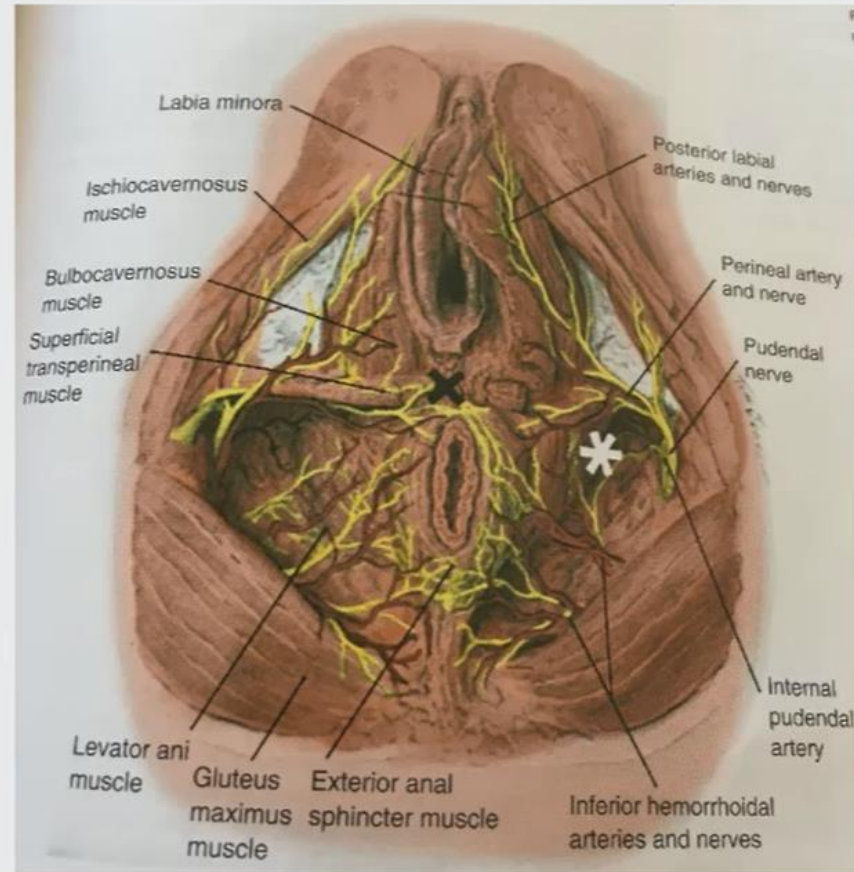


Pudendal Nerve and Vessels

- Sensory and motor nerve of the perineum
- Course and distribution parallels the pudendal artery and veins that connect to internal iliac vessels
- Originate from **sacral plexus S2-S4** and vessels from the **anterior division of the internal iliac artery**
- They leave the pelvis through the greater sciatic foramen by hooking around the ischial spine and sacrospinous ligament to enter the pudendal canal through the lesser sciatic foramen

Pudendal Nerve & vessels have 3 branches

- **Clitoral** supplies the clitoris
- **Perineal** supplies the bulbocavernosus ischiocavernosus and transverse perineal mm and the skin of the inner portions of the labia majora - minora and vestibule
- **Inferior haemorrhoidal** supplies the external anal sphincter and perianal skin

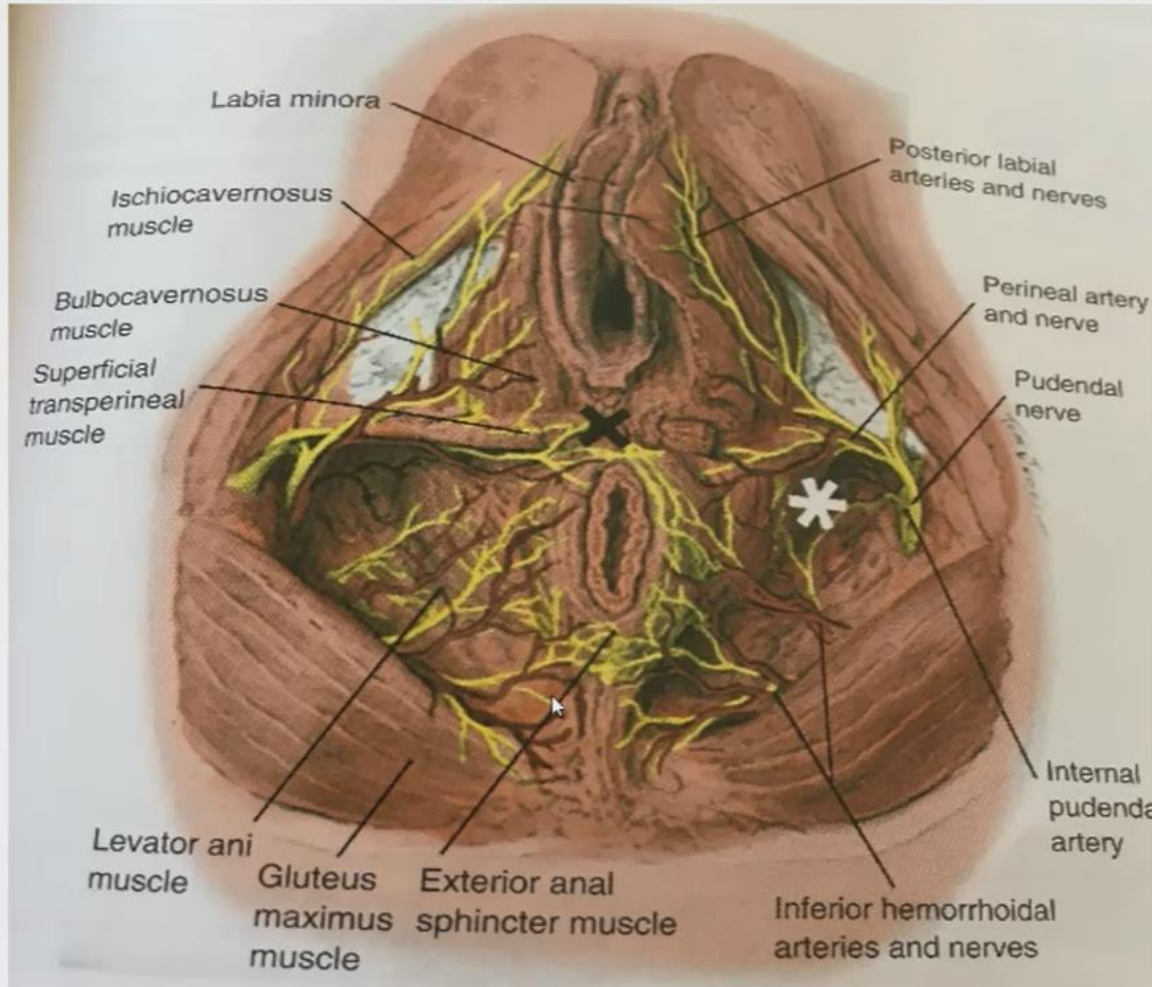


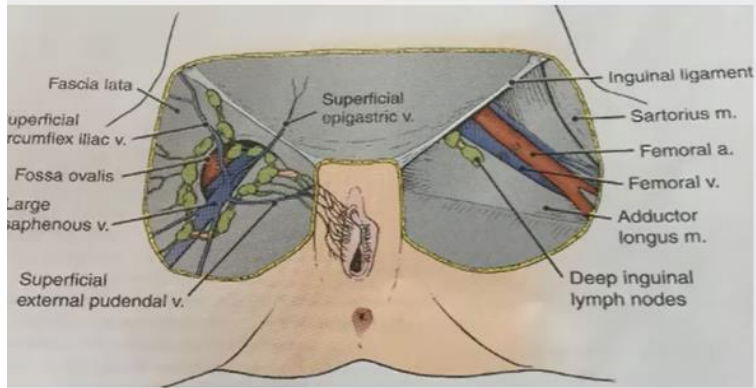
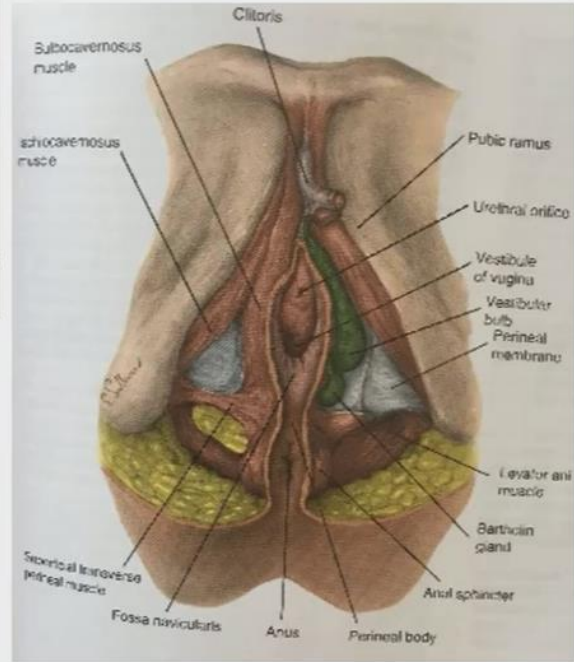
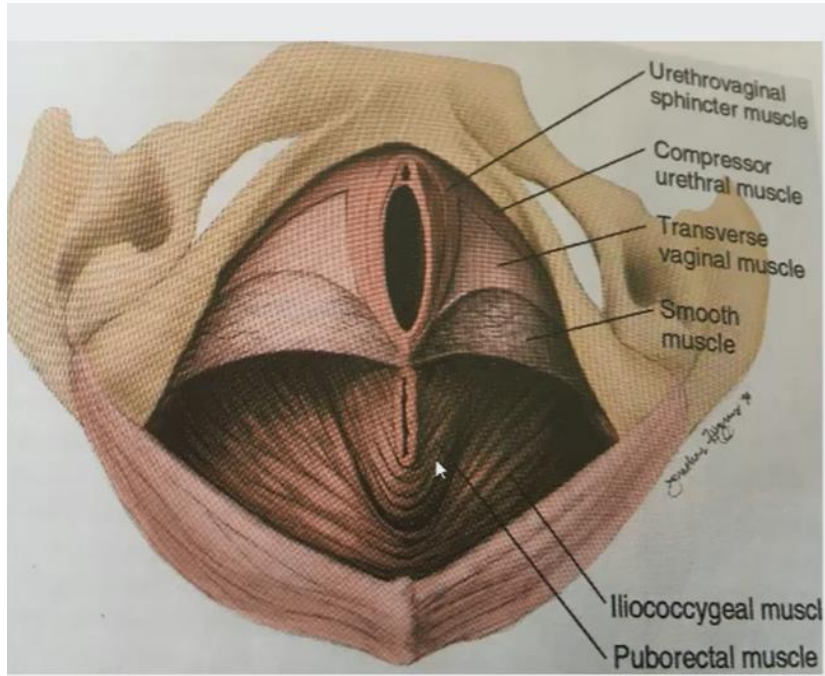
Lymphatic drainage

- Tissues external to the hymenal ring are supplied by an anastomotic series of vessels in the superficial tissues that coalesce to a few trunks lateral to the clitoris and proceed laterally to the superficial inguinal lymph nodes
- The vessels draining the labia majora also run in an anterior direction, lateral to those of labia minora and vestibule
- Clitoris have some direct drainage to deep pelvic Lymph nodes

Inguinal Lymph nodes

- Superficial 12-20 lie in T shape distribution parallel to and 1cm below the inguinal lig
- Divided in 4 quadrants center is the saphenous opening
- Vulvar drainage goes primarily to the medial nodes of the upper quadrant
- The large saphenous vv joins the femoral vv through the saphenous opening they include the superficial epigastric vessels that supply the subcutaneous tissue of the lower abdomen the superficial circumflex iliac vessels and the superficial external pudental vessels that supply mons labia majora and clitoris
- Lymphatics from the superficial nodes enter the fossa ovalis and enter into 1 to 3 deep inguinal LNs which lie in the femoral canal of the femoral triangle





Vulvovaginal candidiasis

infection caused by *Candida*

Candida normally lives in the mouth, throat, gut, and vagina and on skin without causing any problems.

Sometimes *Candida* can multiply and cause an infection if the vulvovaginal environment changes in a way that encourages its growth



Recommended Regimens

Over-the-Counter Intravaginal Agents:

Clotrimazole 1% -2% cream 5 g intravaginally daily for 3 or 7–14 days

Miconazole 2% cream 5 g intravaginally daily

Miconazole 4% cream 5 g intravaginally daily

Miconazole 100 or 200 or 1.200 mg vaginal sup

Tioconazole 6.5% ointment 5 g intravaginally

Prescription Intravaginal Agents:

Butoconazole 2% cream (single dose bioadhesive product), intravaginally

Terconazole 0.4% - 0.8% cream 5 g intravaginally

Terconazole 80 mg vaginal suppository

Oral Agent:

Fluconazole 150 mg orally in a single dose

Condylomas accuminata



Lichen planus



is the most common chronic erosive vulvar dermatosis, often presenting in the peri- and postmenopausal period.

Lichen planus is an inflammatory, mucocutaneous disorder that exhibits a wide range of morphologies. The most common, most morbid, and most difficult to treat is the erosive form.

The differential diagnosis of vulvovaginal lichen planus includes other inflammatory disorders such as cicatricial pemphigoid, bullous pemphigoid and pemphigus vulgaris, as well as atrophy, infection with herpes simplex, severe vulvovaginal candidiasis and vulvar intraepithelial neoplasia.

the first-line treatment for lichen planus is topical corticosteroids.



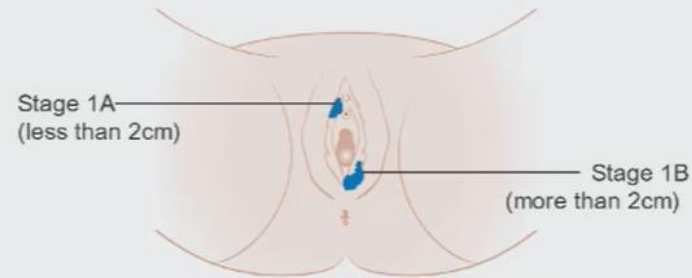
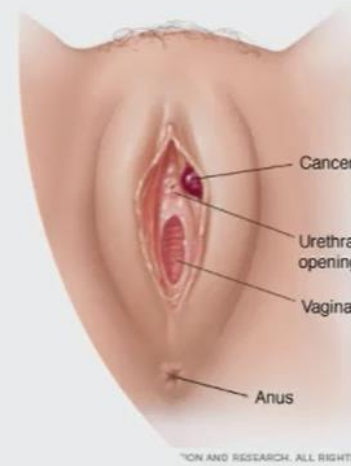
Vulvar cancer

- commonly forms as a lump or sore on the vulva that often causes itching
- most commonly diagnosed in old women
- **Vulvar squamous cell carcinoma:** begins in the thin, flat cells that line the surface of the vulva. Most vulvar cancers are squamous cell Ca
- **Vulvar melanoma:** begins in the pigment-producing cells found in the skin of the vulva.
- Vulvar cancer treatment usually involves surgery to remove the cancer and a small amount of surrounding healthy tissue. When extensive disease then vulvectomy has to be performed and entire vulva to be excised
- earlier vulvar cancer is diagnosed, the less likely an extensive surgery is needed for treatment

Basal cell carcinoma



An uncommon type of vulvar cancer, this tumor rarely metastasizes.



Bartholin abscesses and cysts

account for 2% of all gynecological visits per year

The Bartholin glands are a pair of pea-sized, vulvovaginal, mucous-secreting vestibular glands that are located in the labia minora in the 4- and 8-o'clock positions, beneath the bulbospongiosus muscle

A Bartholin cyst is a fluid-filled sac that develops in one of the Bartholin glands or ducts when the duct that drains the fluid from the gland becomes blocked and causes the duct and gland to swell.

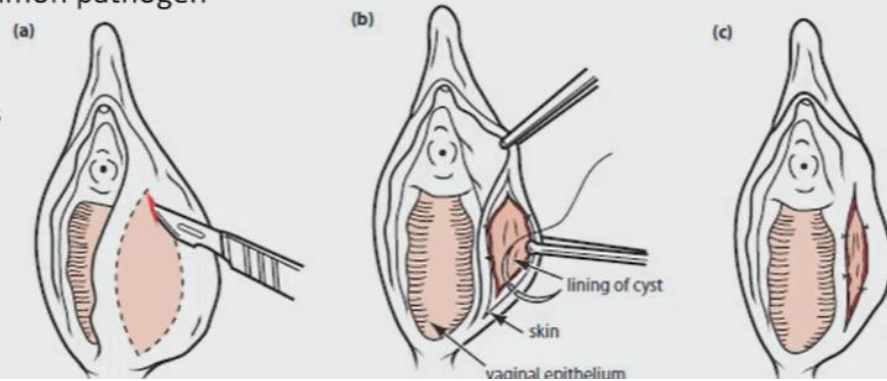
A Bartholin gland abscess develops either when a Bartholin cyst becomes infected or when the Bartholin gland itself becomes infected.



Escherichia coli is the single most common pathogen

Different techniques exist for the treatment of Bartholin cysts and abscesses but there has been no proven superiority between surgical and conservative management strategies.

The most commonly used approaches are:
(1) fistulization using a Word catheter and
(2) [marsupialization](#)



Hydrocele of the Canal of Nuck developmental disorder that occurs during fetal development in utero



due to partial remnant of a structure called processus vaginalis (peritoneal pouch)

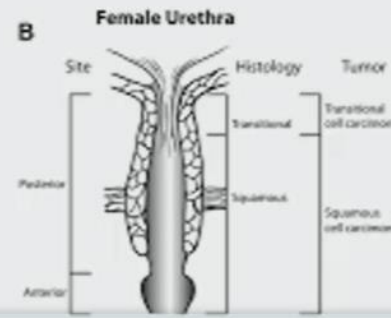
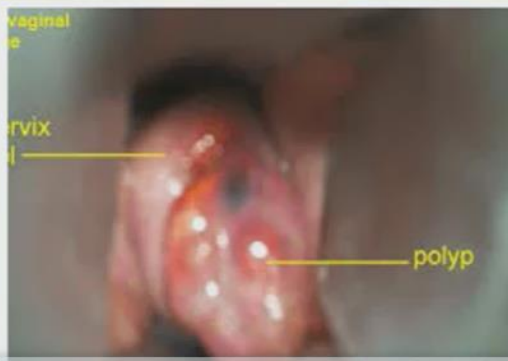
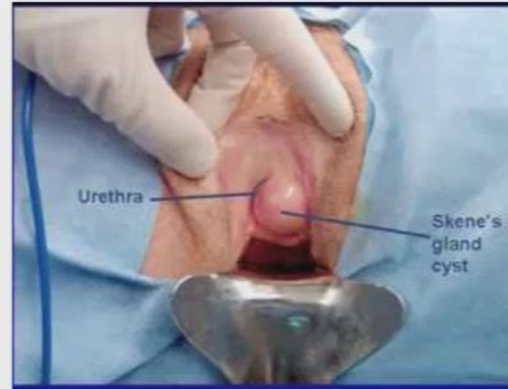
that forms finger-like projections from the peritoneal layers of the abdominal cavity into the groin (inguinal) area



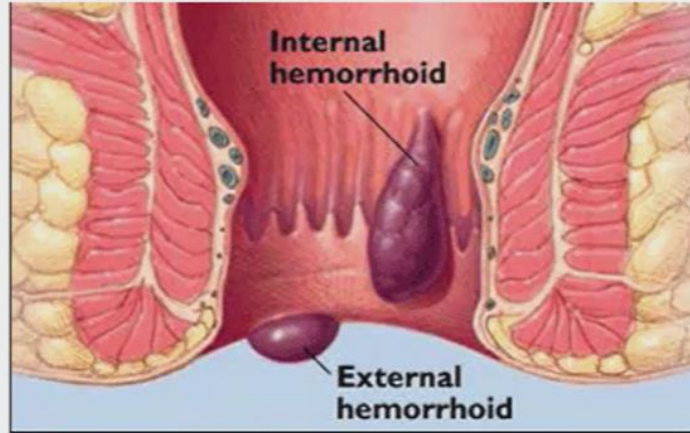
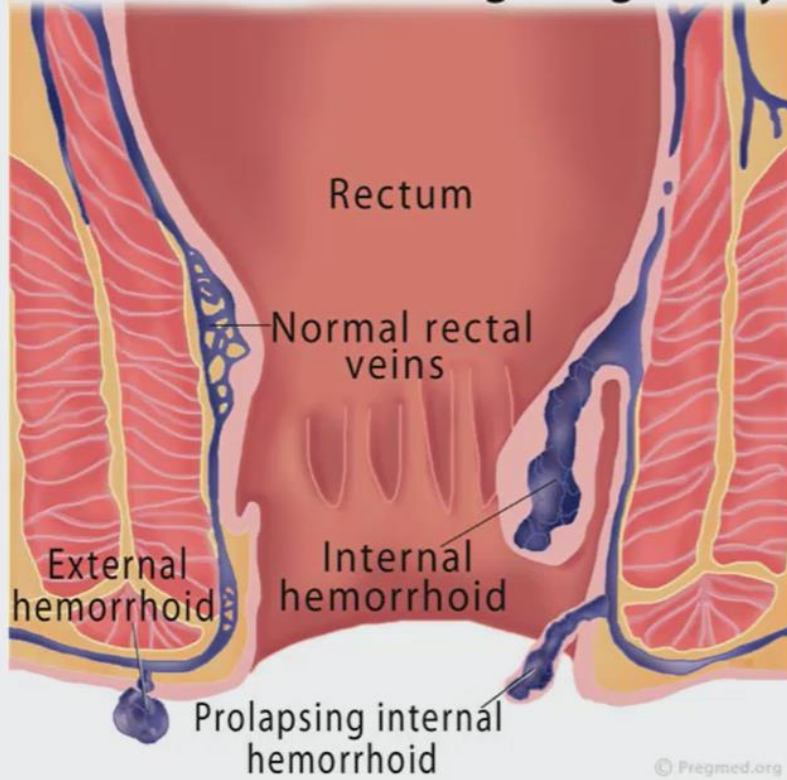
Abnormalities and diseases of the female urethra

caruncle, diverticula, cysts, carcinoma, urethritis, trigonitis, venereal infections, and the unusual conditions of polyps and congenital valves

urethral caruncle



Hemorrhoids during Pregnancy



Imperforated Hymen



Huge volume of blood is accumulated
Hysteroscopy can identify CUA
Follow up is mandatory

Identify the anatomy
Notice the distance between
rectum and urethra



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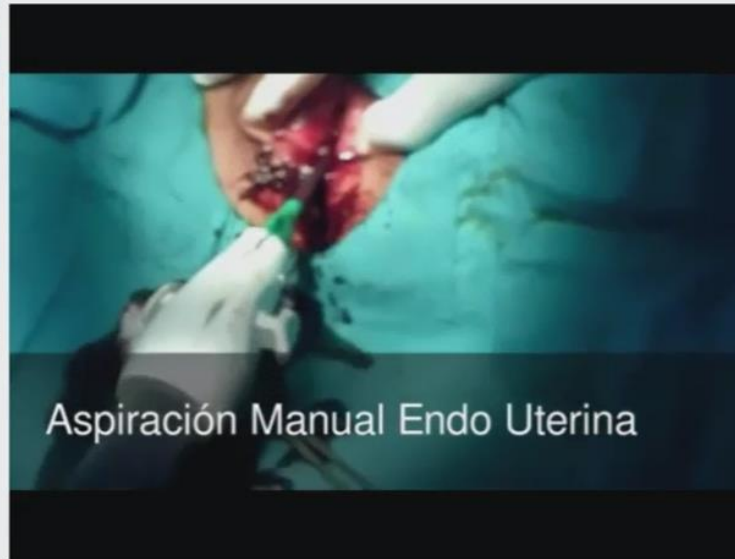


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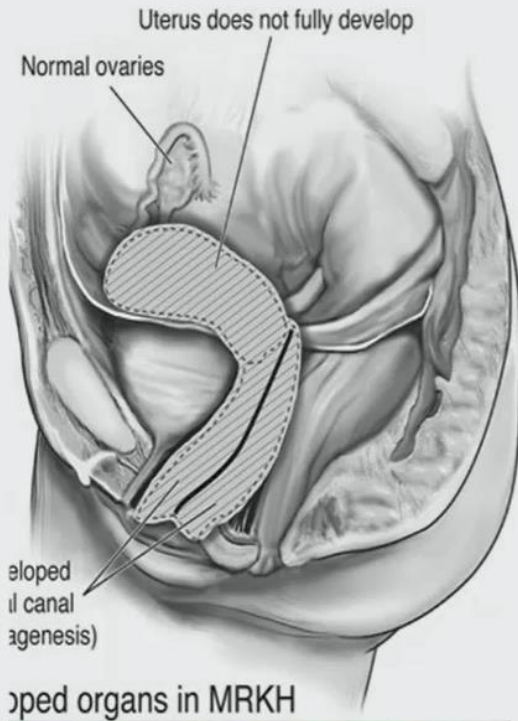


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Aspiración Manual Endo Uterina



Müllerian Duct anomalies

Agenesis, Hypoplastic, Atresia

11-year-old female

XX chromosome

Mayer-von Rokitansky-Küster-Hauser Sy

Sonography and MRI of the pelvis
rudimentary / absent uterus

Occasionally an ectopic kidney or other anomalies

confirm the diagnosis with laparoscopy