ANATOMY OF THE FEMALE GENITAL TRACT AND ITS ABNORMALITIES

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INTRODUCTION

• The female genital tract is made up of the external and internal genitalia separated by the pelvic diaphragm.

• The external genitalia is commonly referred to as the vulva and includes the mons pubis, labia majora, labia minora, clitoris, the vestibule and the vestibular glands.

• The internal genitalia consists of the vagina, uterus, two fallopian tubes and a pair of ovaries.
EXTERNAL GENITALIA

MONS PUBIS
- It’s a fibro-fatty pad covered by hair-bearing skin which covers the body of the pubic bones.

LABIA MAJOR A
- Represents the most prominent feature of the vulva. They are 2 longitudinal skin folds, which contain loose adipose connective tissue and lie on either side of the vaginal opening.
- They contain sebaceous and sweat glands and a few specialized apocrine glands.
- Engorge with blood if excited
EXTERNAL GENITALIA

LABIA MINORA

- Two thin folds of skin that lie between the labia majora, contain adipose tissue, but no hair.

- Posteriorly, the 2 labia minora become less distinct and join to form the fourchette.

- Anteriorly, each labium minus divides into medial and lateral parts. The lateral parts join to form the prepuce while the medial join to form the frenulum of the glans of the clitoris.

- Darken if sexually aroused
EXTERNAL GENITALIA

CLITORIS

- An erectile structure measuring 0.5-3.5cm in length, it projects in the midline and in front of the urethra. It consists of the glans, body and the crura.
- Paired columns of erectile tissues and vascular tissues called the corpora cavernosa.
- Solely to provide sexual pleasure, primarily via indirect stimulation

VESTIBULE: is the cleft between the labia minora

- It contains openings of the urethra, the Bartholin’s gland and the vagina.
- Urethral Meatus is between clitoris and vagina while the
- Perineum is between the anus and vagina
EXTERNAL GENITALIA

VESTIBULAR GLANDS

- Greater vestibular gland (The Bartholin’s gland): are bilateral and about the size of a pea, lying deep on either side of the vaginal orifices. They open via a 2cm duct into the vestibule below the hymen.

- Minor vestibular gland (skene gland): small paraurethral glands that surrounds the urethra orifices.
INTERNAL GENITALIA

- Vagina
- Uterus
- Fallopian tubes
- Ovaries

Internal genital organs
VAGINA

- A thin-walled accordion-like fibromuscular tube, tilted backwards

- Lined with stratified squamous epithelium

- Fornices- 2 lateral, an anterior and a posterior fornix.

- Anterior wall related to the bladder and urethra while posterior wall to the rectum and rectouterine pouch (POD)

- 2 layers of smooth muscles- inner circular and an outer longitudinal.
organ of intercourse and canal for menses and babies;

lubricant secreted from vaginal wall openings when engorged;

first 1/3 contains many nerve endings,

inner 2/3 has little nerves

It is a potential space
Grafenberg Spot (G-spot)

- Dime to quarter sized spot in the lower third of anterior vaginal wall, just past the pubic bone;

- sensitive area

Controversy:

- Female ejaculation – powerful orgasms and expulsion of fluid (up to 4 ounces) due to stimulation of the G-spot in some women;
  - may be Skene’s glands fluid or urine

- NOTE:
Any area can be arousing depending on the type of stimulation and the perceptions of the recipient e.g ........
• **Walls**
  - Ant : 7.5 cm
  - Post : 9cm
  - 2 lateral walls

• **Fornices:**
  - Ant : shallow
  - 2 lateral
  - Post : deep
INTERNAL GENITALIA

UTERUS

- Shaped like an inverted pear tapering inferiorly to the cervix and in its non pregnant state is situated entirely within the pelvis.
- It is hollow and has a thick muscular wall.
- 7.5cm long, 5cm wide and 2.5cm thick.
- Adult uterus weighs 70g.
- 3 parts-body(4.5cm), isthmus(0.5cm) and cervix(2.5cm)
- The upper part of the uterus is the body or “corpus”.
- The area of insertion of fallopian tube is the “cornu”.

INTERNAL GENITALIA

• The part of the body above the cornu is called the “fundus”.

• The uterus tapers to a small constricted area, the isthmus and below is the cervix which projects obliquely into the vagina.

• 3 layer: outer serous layer (perimetrium), the middle muscular layer (myometrium) and an inner mucous layer (endometrium).

• protects fetus, contracts to expel menses and fetus
INTERNAL GENITALIA

- Fallopian Tube
- Dome (fundus)
- Body
- Ovary
- Isthmus
- Endometrium
- Cervix
- Vagina

Front view of healthy uterus
INTERNAL GENITALIA

CERVIX

- Narrower than the body of the uterus and its approximately 2.5cm in length.
- The narrow, central cervical canal runs along its entire length, connecting the uterine cavity and the lumen of the vagina.
- The opening into the uterus is called the internal os and the opening into the vagina is the external os.
- The lower part of the cervix, known as the vaginal portion of the cervix, bulges into the top of the vagina.
INTERNAL GENITALIA

FALLOPIAN TUBES

- Extends outward from the uterine cornu to end near the ovary.
- A fold of the broad ligaments called mesosalpinx suspends them.
- The opening of the tube into the peritoneal cavity is called abdominal ostium which is therefore in communication with the exterior of the body via the vagina and uterus.
Parts of fallopian tube

Intramural/interstitial
- Within uterine myometrium
- 1.25 cm

Isthmus
- Straight & narrowest
- 2.5 cm

Ampulla
- Tortuous & widest
- Site of fertilisation
- 5 cm

Infundibulum
- 1.25 cm long
- Abdominal ostium surrounded by fimbriae
- Ovarian fimbria
INTERNAL GENITALIA

OVARIES

- Almond shaped structures which lie on depressions (ovarian fossae) on either side of the pelvic lateral wall.
- 3-4cm long, 1.5cm wide and 1cm thick.
- Attached by a fold of peritoneum (mesovarium) to the broad ligament.
- Only intra-abdominal structure not covered by peritoneum.
- Medial pole: attached to uterine cornua by ovarian ligament.
- Laterally to the pelvic wall by infundibulopelvic ligament.
- Fimbrial end of oviduct close to ovary and attached to it via fimbria ovarica.
• Structure: 2 parts

- **Cortex**
  - Lined single layer of germinal epithelium of Waldeyer (cuboidal epi.)
  - Tunica albuginea: stromal cells thickened beneath germinal epithelium
  - Contain primordial follicles
  - Corpus albicans/atretic follicles

- **Medulla**
  - Loose connective tissues, blood vessels, nerves, muscles
  - Hilus cells: homologous to interstitial cells of testes
ASSIGNMENT

- Group A - Arterial supply of the female genital tract
- Group B - Venous drainage of the female genital tract
- Group C - Lymphatic drainage of the female genital tract
- Group D - Nervous supply of the female genital tract

NOTE:
1. Microsoft word not more than 5 pages; Arial 12; double spacing
2. Send to draworinde@yahoo.com and a hard copy to be submitted to the class rep.
3. Submit within 48 hours
ABNORMALITIES OF THE OVARSIES

• Agenesis or complete absence.

• Gonadal dysgenesis "streak gonads" as in Turner syndrome. There is progressive loss of germ cells on the developing gonads leading to underdeveloped and dysfunctional gonads.

• Failure of descent into the pelvis.

• Ovotestis “true hermaphrodite” In which combined ovarian and testicular tissues seen.
ABNORMALITIES OF THE FALLOPIAN TUBES

• Absent, on one or both sides.

• Partially, or completely, duplicated on one or both sides.

• Atresia of the tubes.
ABNORMALITIES OF THE UTERUS

Class I: Müllerian agenesis (absent uterus).
- Uterus is not present, vagina only rudimentary or absent.

Class II: Unicornuate uterus (a one-sided uterus). 6-25%
- Only one side of the Müllerian duct forms. The uterus has a typical "penis shape" on imaging systems.
- It is associated with renal abnormality on the same side.
- Recognized by the absence of round ligament and fallopian tube on the opposite side
- Can cause abortion, preterm labor and IUGR
Unicornuate

a. communicating

b. non-communicating

c. no cavity

d. no horn
• **Class III: Uterus didelphys**, also **uterus didelphis (double uterus)**. 5-11%

  - Both Müllerian ducts develop but fail to fuse, thus the patient has a "double uterus". This may be a condition with a double cervix and a vaginal partition.

• **Class IV: Bicornuate uterus** (uterus with two horns). 10-39%

  - Only the upper part of that part of the Müllerian system that forms the uterus fails to fuse, thus the caudal part of the uterus is normal, the cranial part is bifurcated. The uterus is "heart-shaped".
- **Class V: Septated uterus** (uterine septum or partition). 34-55%

- The two Müllerian ducts have fused, but the partition between them is still present, splitting the system into two parts. With a complete septum the vagina, cervix and the uterus can be partitioned.

- Usually the septum affects only the cranial part.

- A uterine septum is the most common uterine malformation and a cause for miscarriages.

- It is diagnosed by medical image techniques, e.g. ultrasound or an MRI.
• **Class VI: DES uterus.**
  ✓ The uterine cavity has a "T-shape" as a result of fetal exposure to diethylstilbestrol.

• **Class VII: Arcuate uterus. 7%**
  ✓ Instead of the usual dome-shaped convexity of the fundus, there is a shallow concave depression
  ✓ where there is a concave dimple in the uterine fundus within the cavity.

(American Society of Reproductive Medicine Classification)
ABNORMALITIES OF THE VAGINA

• **Duplicated** vagina; associated with duplicated uterus

• **Lumen** subdivided *longitudinally*, or *transversely* by a **septum**

• **Absence** of vagina

• **Imperforate hymen**

• **Rectovaginal** fistula or **Vesicovaginal** fistula
ABNORMALITIES OF THE EXTERNAL GENITALIA

• Absent, bifid or double clitoris

• Enlarged clitoris in cases of hermaphroditism and congenital adrenal hyperplasia

• Labia minora may show partial fusion

• Urethra open on the anterior wall of the vagina
CLASS WORK

- Mention the sequelae of congenital uterine anomalies
- Mention the sequelae of congenital vaginal anomalies
- Discuss the embryological origin of the female genital tract
- Discuss the differentials of the figure below. What are the options of management?
THANK YOU!