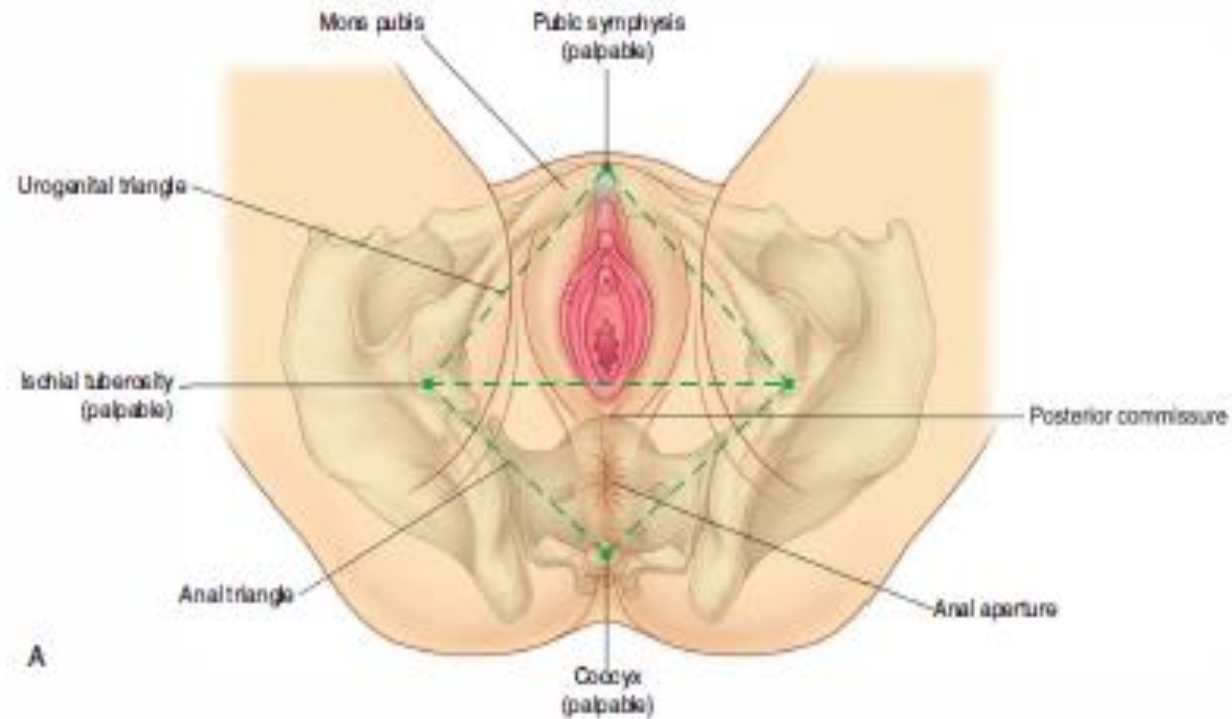


Perineal Triangles, Perineal Pouches and Ischio-rectal (Ischio-anal) Fossa

Mr. M. Banda

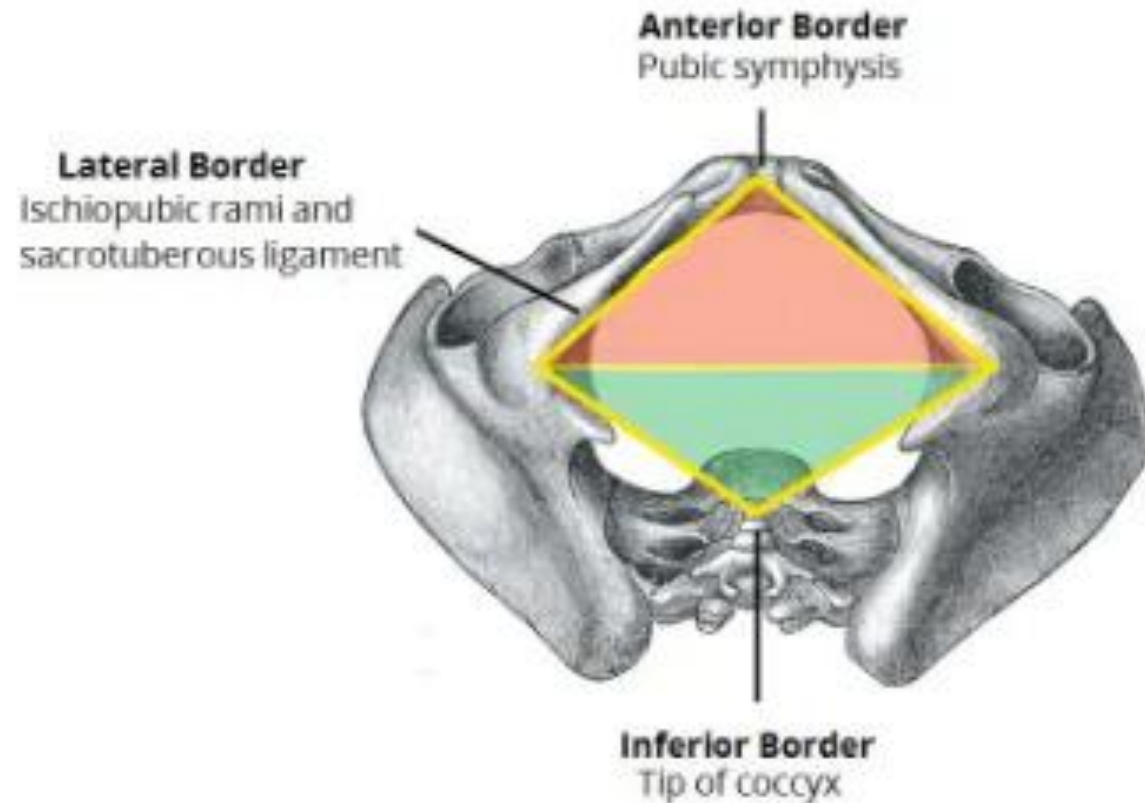
The Perineum

- **In anatomical position**
– is a position between the thighs
- When the thighs are abducted, it is diamond-shaped and extends from the pubic symphysis to the tip of the coccyx



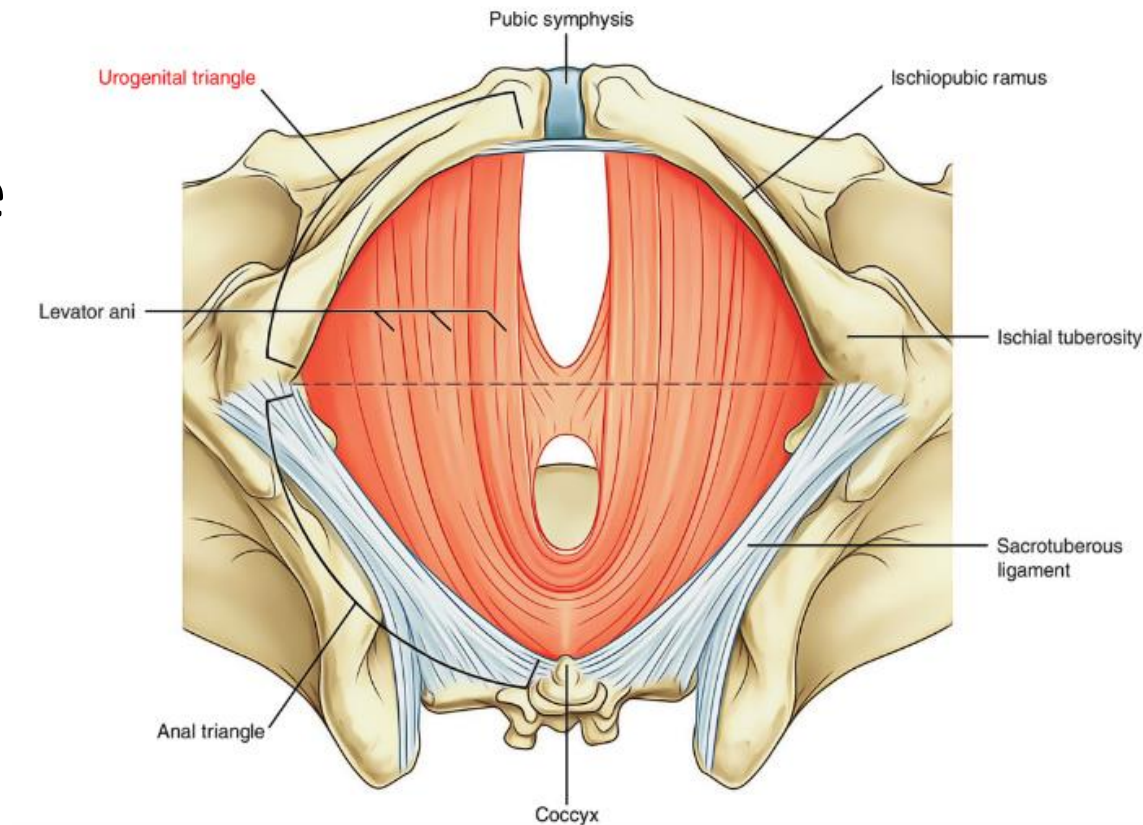
Boundaries

- Pubic symphysis
- Inferior pubic rami
- Ischial tuberosities
- Sacrotuberous ligaments
- coccyx



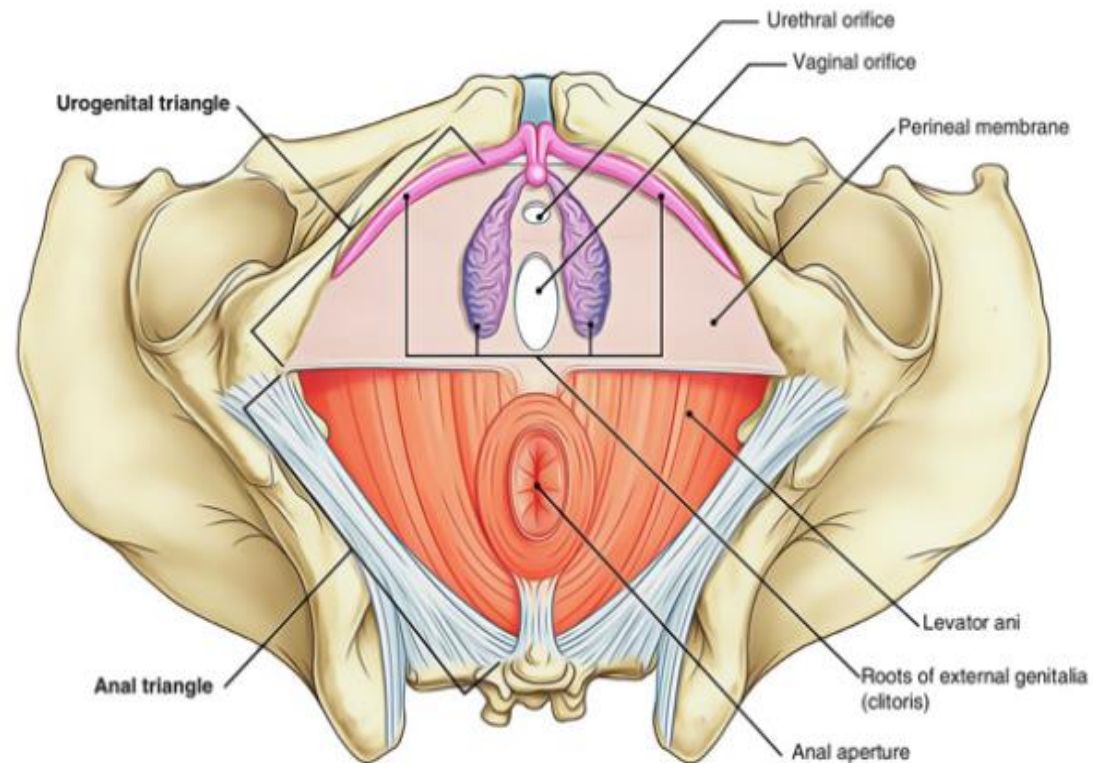
Divisions of the Perineum

- Divided by an imaginary transverse line joining the anterior ends of the ischial tuberosities into two unequal triangles:
- **Urogenital triangle** anteriorly
- **Anal triangle** posteriorly

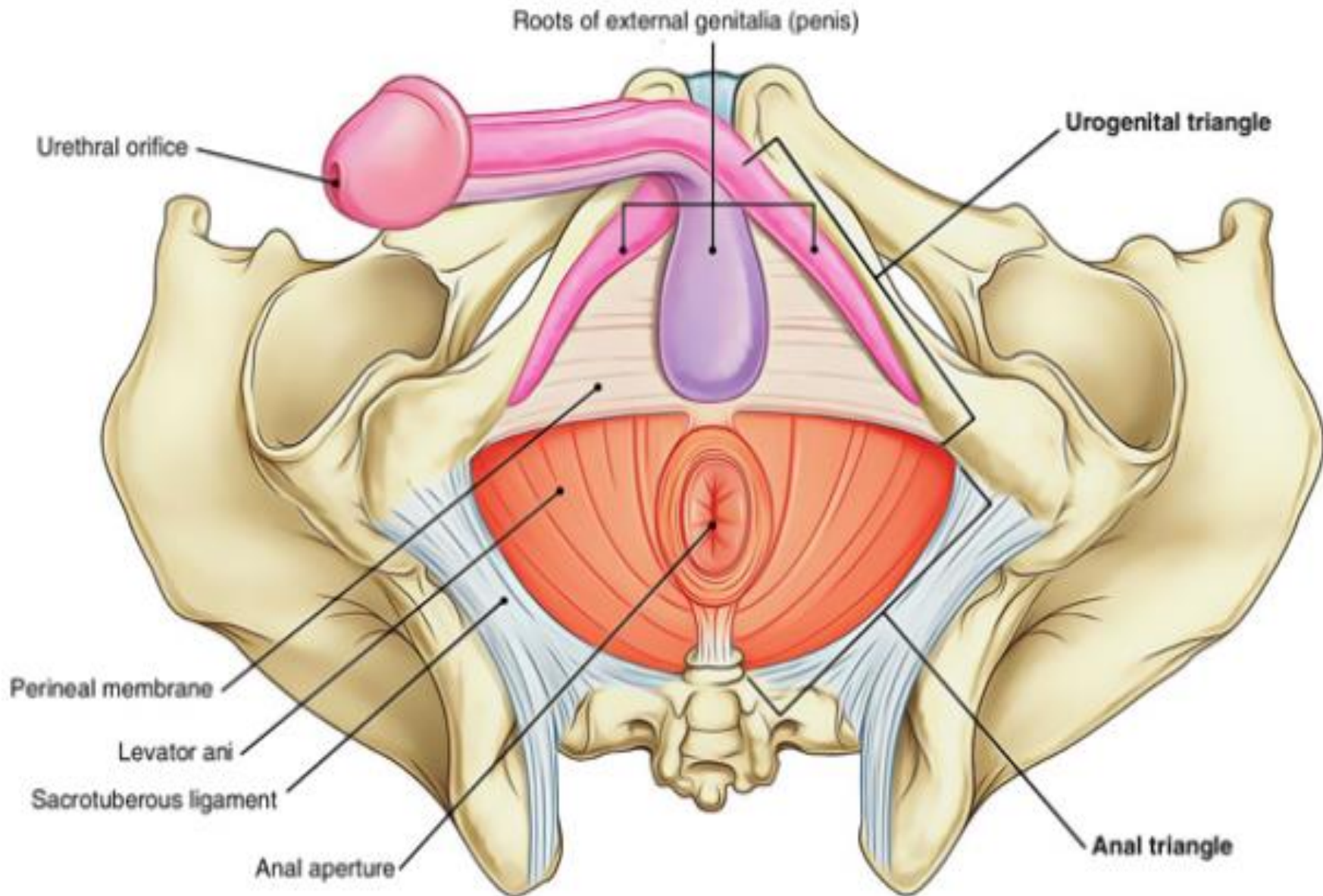


Urogenital Triangle

- Is the anterior half of the perineum
- **Laterally** – Ischiopubic rami
- **Posteriorly** – by an imaginary line between the ischial tuberosities
- **Anteriorly** – by an inferior margin of the pubic symphysis



Urogenital Triangle



Superficial Fascia

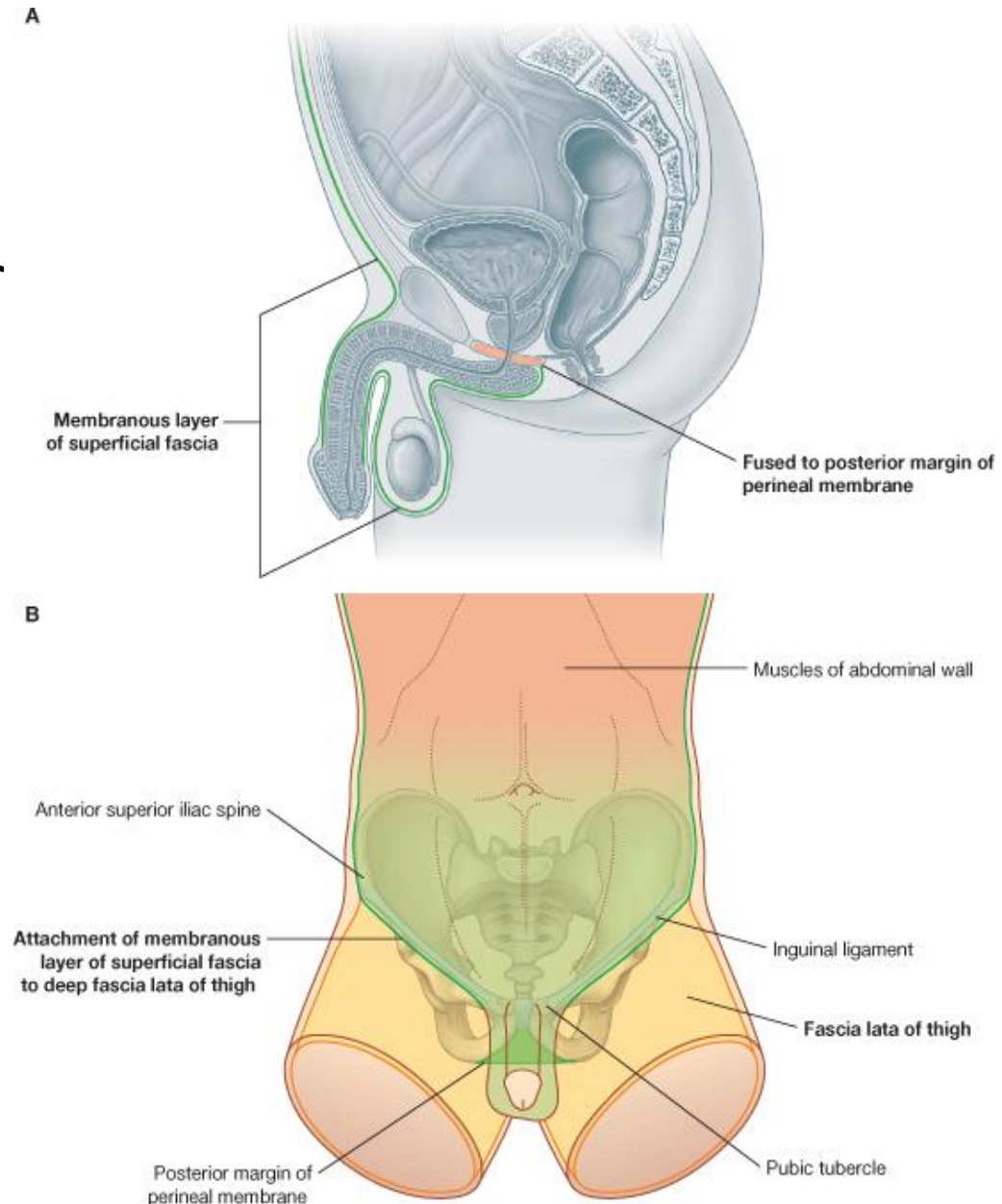
- Superficial fascia of the urogenital triangle is divided into a fatty layer and membranous layer.
- **Fatty layer (camper`s fascia)** – is continuous with the fat of the ischiorectal fossa and the superficial fascia of the thighs.
- Scrotum – fat is replaced by smooth muscle (dartos muscle)

Cont`

- **Membranous layer** (Colles' fascia)

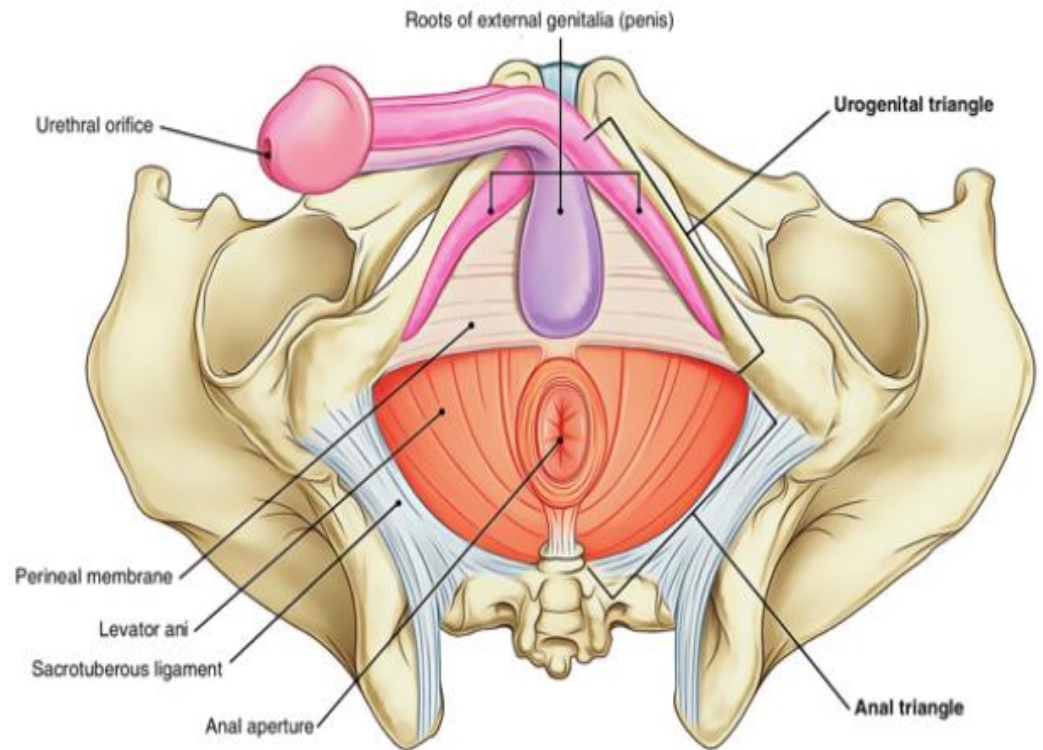
Attachment

- **Posteriorly** - posterior border of the urogenital diaphragm
- **Laterally** - margins of the pubic arch
- **Anteriorly** it is continuous with the membranous layer of superficial fascia of the anterior abdominal wall (Scarpa's fascia).
- The fascia is continued over the penis (or clitoris) as a tubular sheath.



Contents of the Male Urogenital Triangle

- **Penis** – has a root and a body
- **Root**
- Root is made up of 3 erectile tissue called the bulb of the penis. (paired corpora cavernosa dorsally & single corpora spongiosum ventrally)



Cont`

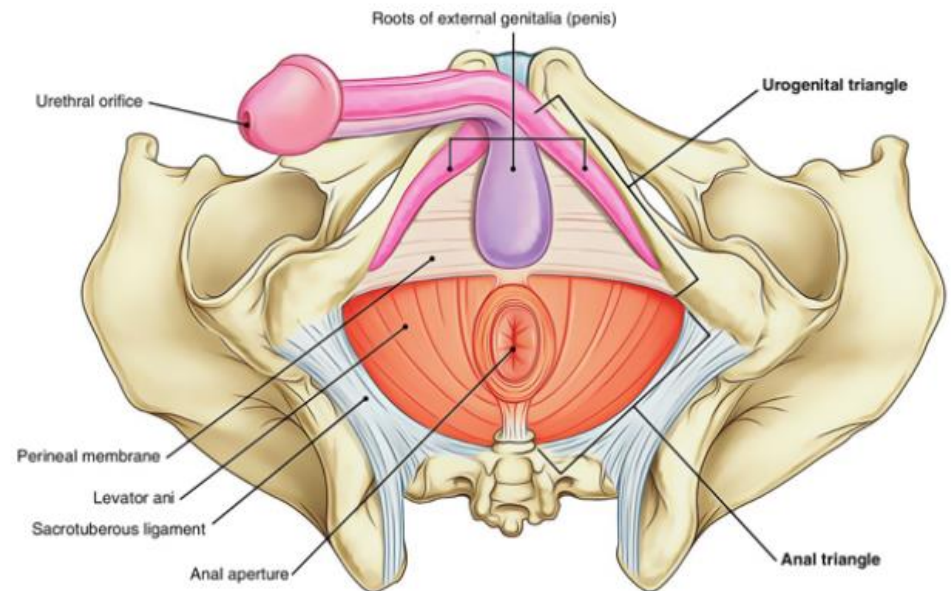
- **Bulb**

- The bulb is attached to the undersurface of the urogenital diaphragm, traversed by the urethra and is covered on its outer surface by the **bulbospongiosus muscles**
- The bulb is continued forward into the body of the penis and forms the **corpus spongiosum**.

Cont`

Crura

- Each crus is attached to the side of the pubic arch and is covered on its outer surface by the **ischiocavernosus muscle**.
- The two crura converge anteriorly and come to lie side by side in the dorsal part of the body of the penis, forming the **corpora cavernosa**.



Scrotum

Location and Description

- The scrotum is an outpouching of the lower part of the anterior abdominal wall and contains the testes, the epididymides, and the lower ends of the spermatic cords.
- The wall of the scrotum has the following layers:
 - **Skin**
 - **Superficial fascia**; the **dartos muscle**, which is smooth muscle, replaces the **fatty layer** of the anterior abdominal wall, and **Scarpa's fascia** (**membranous layer**) is now called **Colles' fascia**.

Cont`

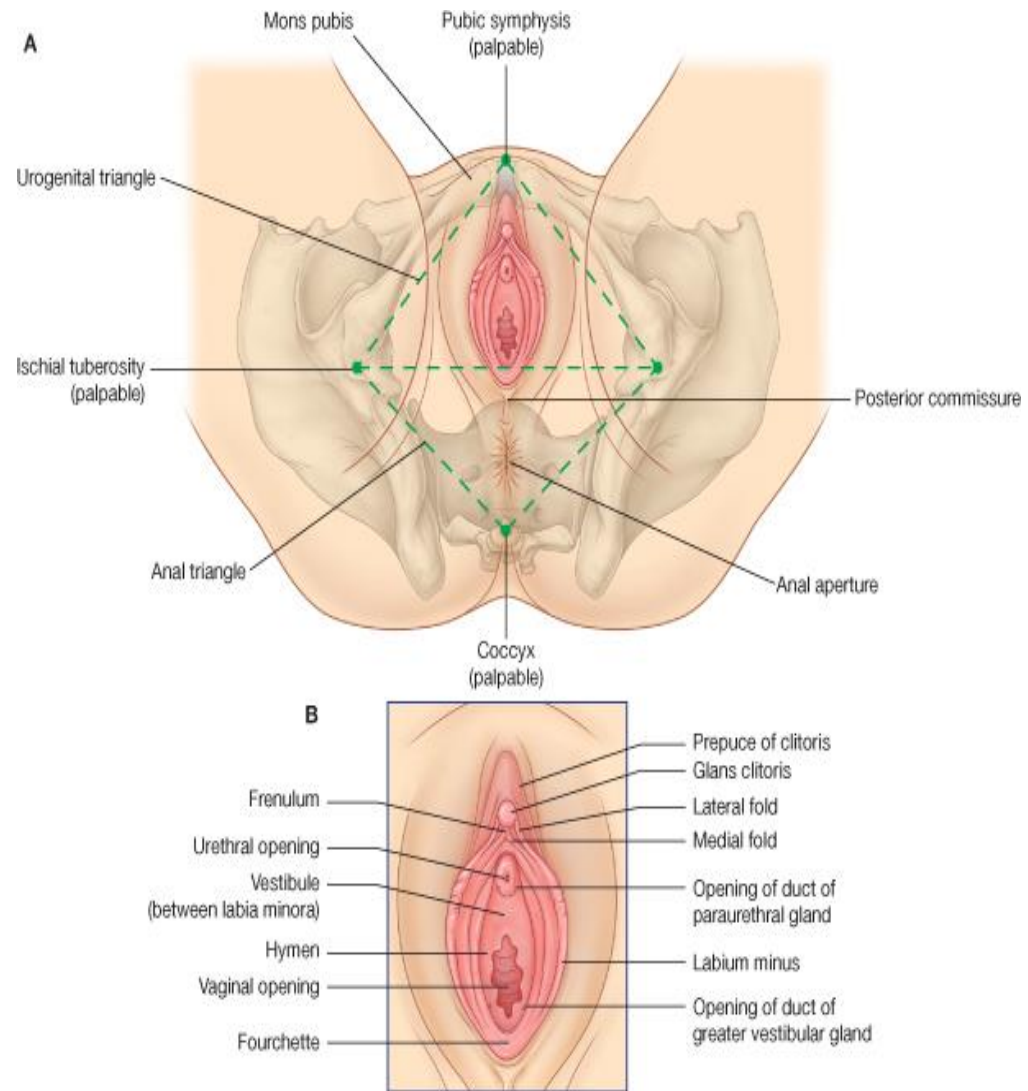
- **External spermatic fascia** derived from the **external oblique**
- **Cremasteric fascia** derived from **the internal oblique**
- **Internal spermatic fascia** derived from the fascia **transversalis**
- **Tunica vaginalis**, which is a closed sac that covers the anterior, medial, and lateral surfaces of each testis

Contents of the Female Urogenital Triangle

- External genitalia
- Orifices of the urethra and the vagina.

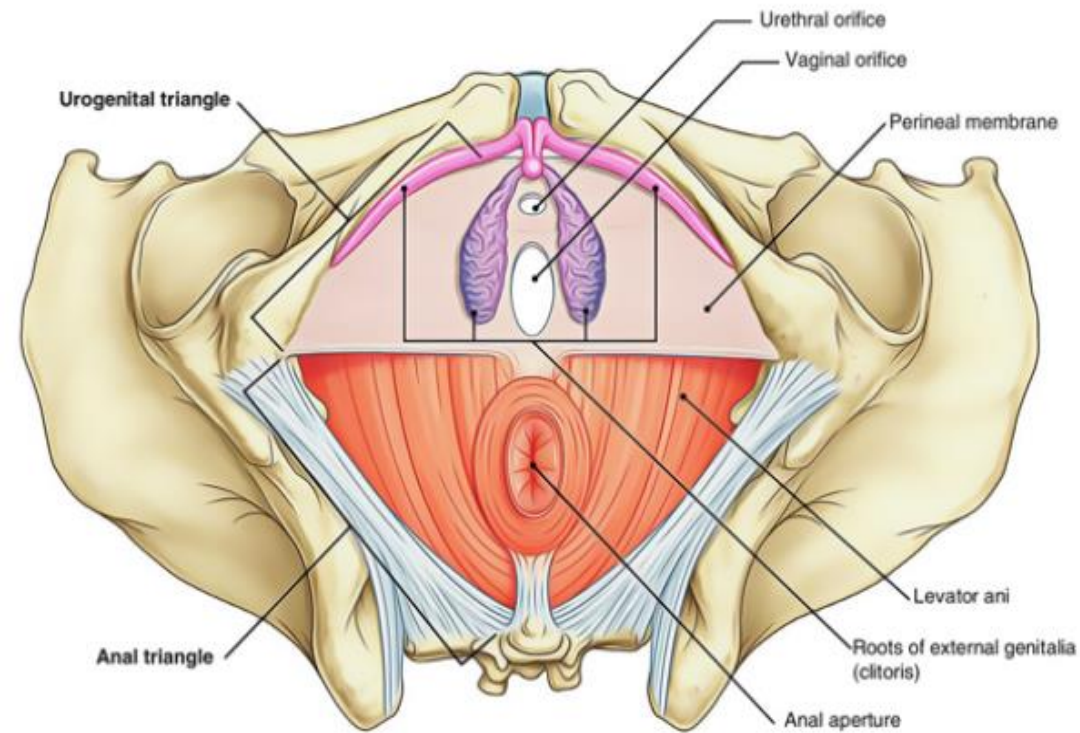
Clitoris

- **Location and Description**
- Corresponds to the penis in the male
- Situated at the apex of the vestibule anteriorly.
- The glans of the clitoris is partly hidden by the prepuce.



Root of the Clitoris

- Right and left crura covered by ischiocavernosus muscle
- The **bulb of the vestibule** corresponds to the bulb of the penis, but because of the presence of the vagina, it is divided into two halves.
- It is attached to the undersurface of the urogenital diaphragm and is covered by the **bulbospongiosus muscles**.



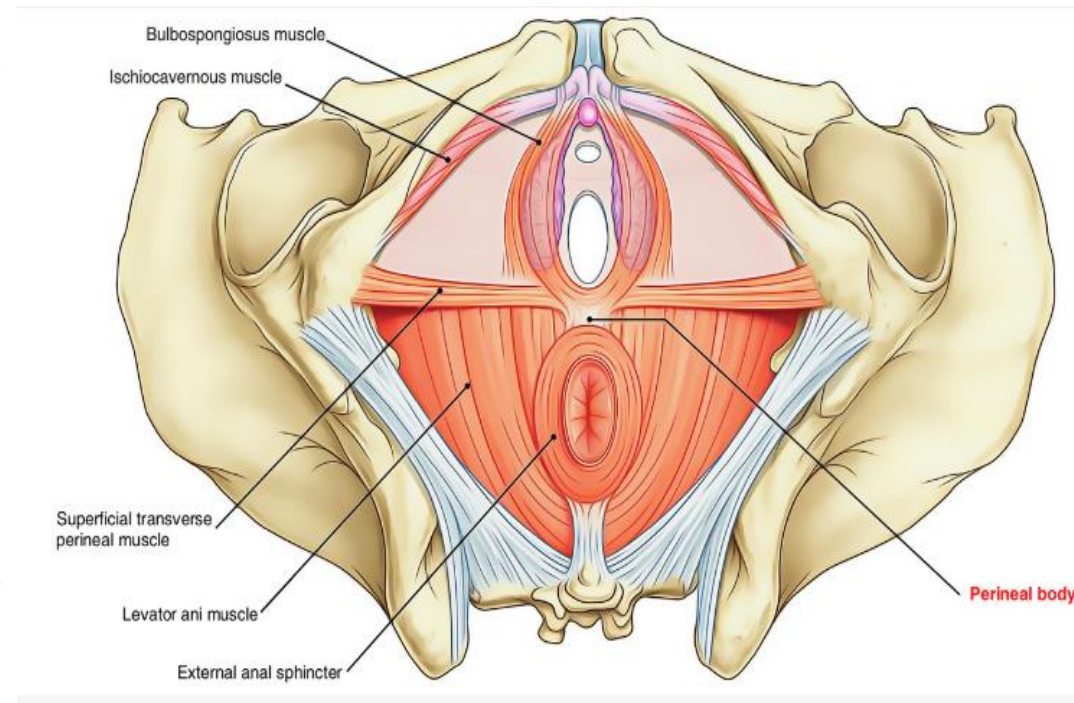
Cont`

Body of the Clitoris

- Consists of the two **corpora cavernosa** covered by their **ischiocavernosus muscles**.
- The **corpus spongiosum** of the male is represented by a small amount of erectile tissue leading from the vestibular bulbs to the glans.

Glans of the Clitoris

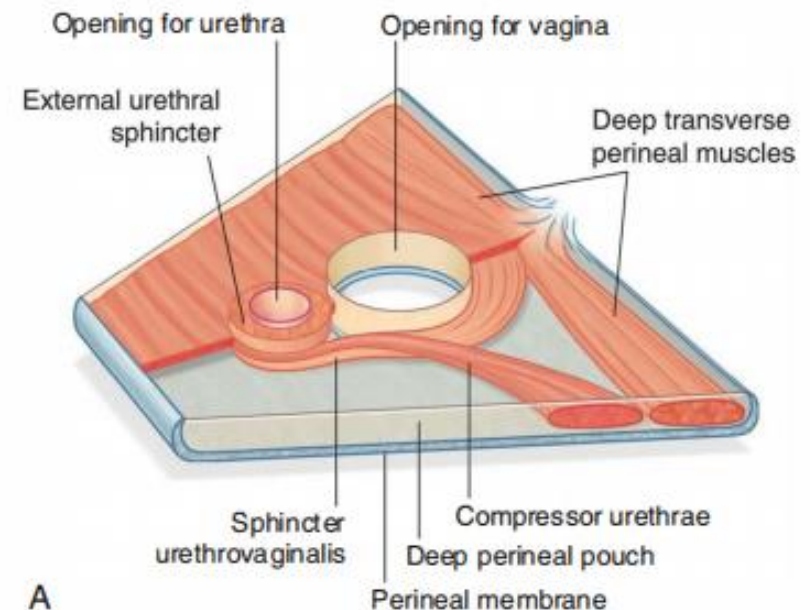
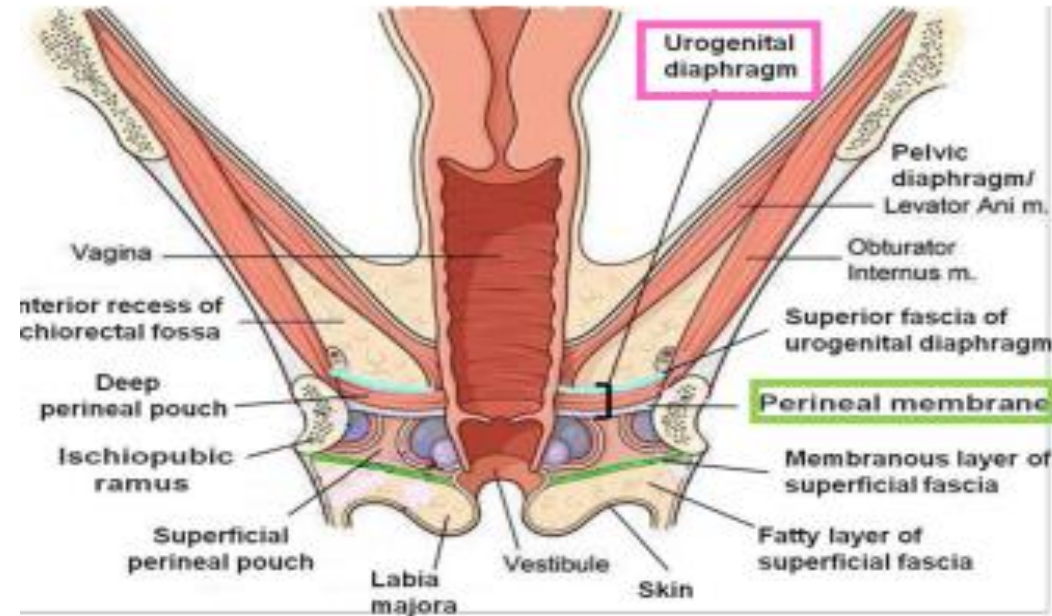
- Is a small mass of erectile tissue that caps the body of the clitoris.
- Has numerous sensory endings.
- The glans is partly hidden by the **prepuce**.



Perineal Pouches

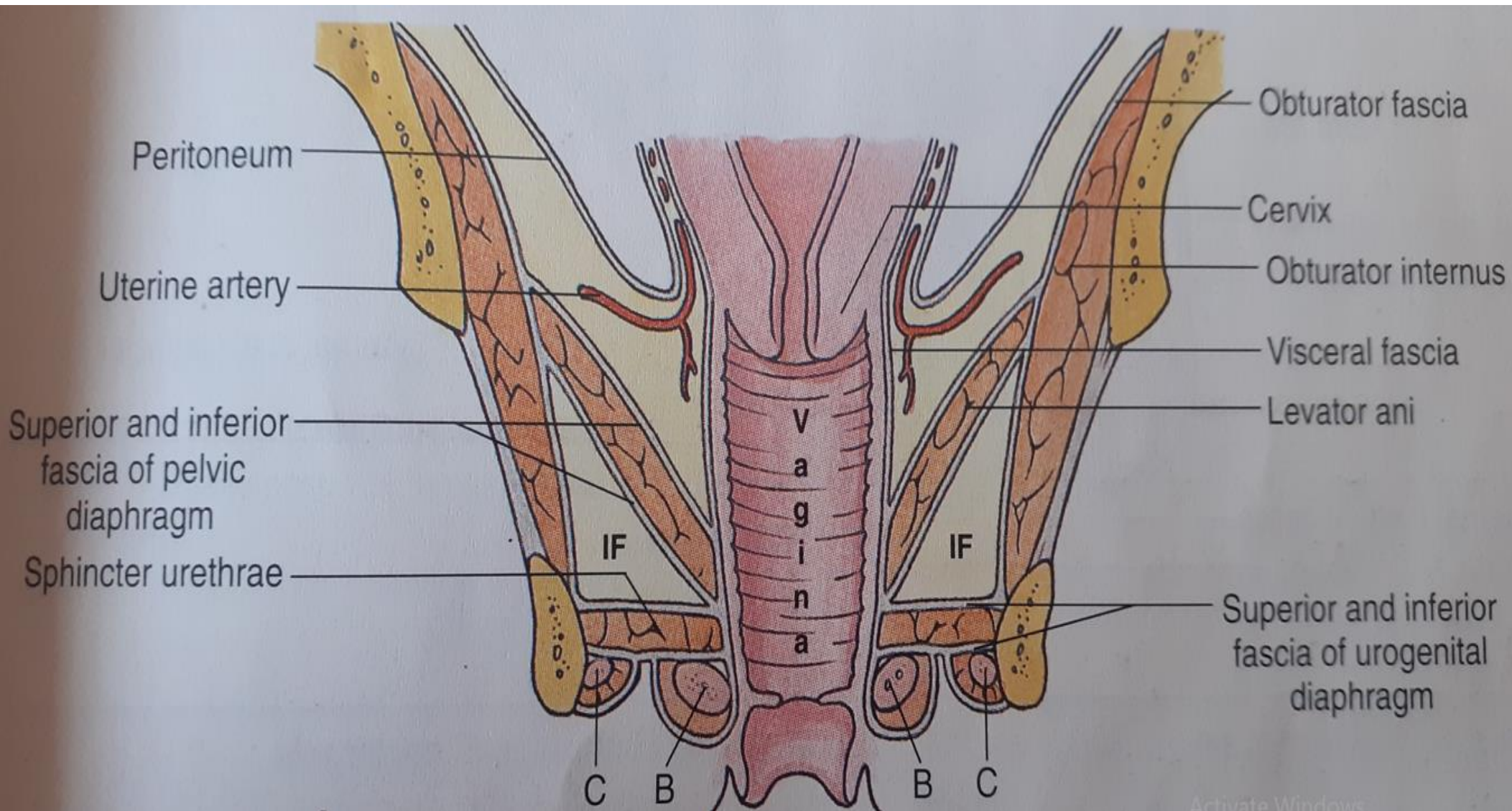
Superficial Perineal Pouch

- Is a potential space between the membranous layer of perineal fascia and the perineal membrane.
- **Boundaries**
- **Inferiorly** – membranous layer of the superficial fascia
- **Superiorly** – inferior fascia of the urogenital diaphragm
- **Laterally** – closed by attachment of the membranous layer of superficial fascia and the urogenital diaphragm to the margins of the pubic arch
- **Anteriorly** - space communicates with the potential space lying between the superficial fascia of the anterior abdominal wall and the anterior abdominal muscles

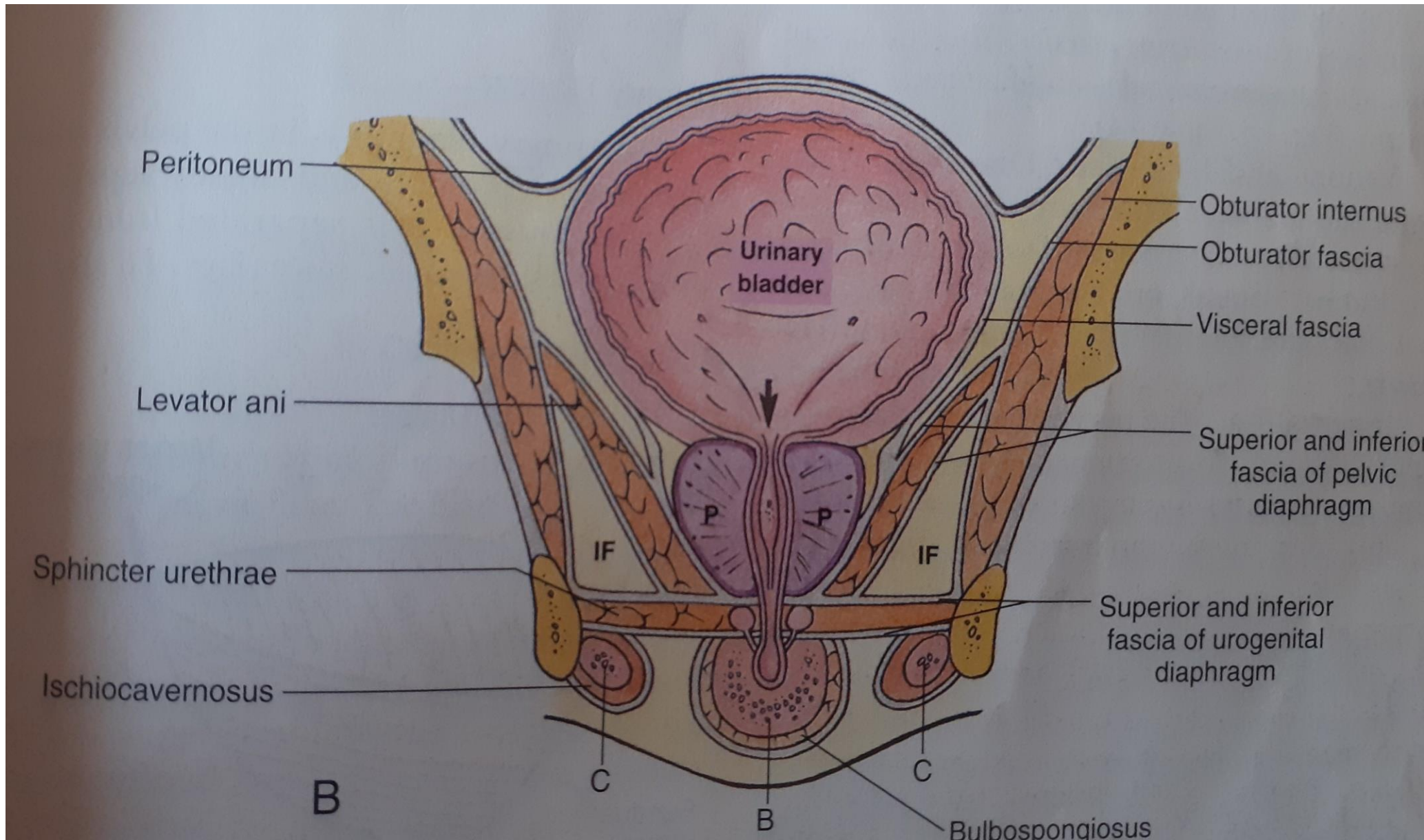


A

Female Perineal Pouches

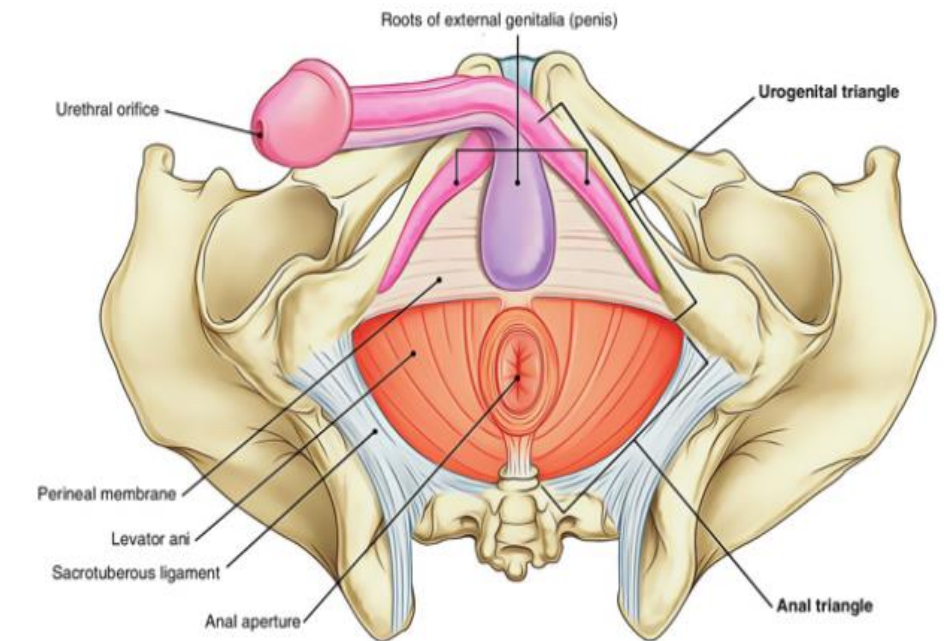


Male Perineal Pouches



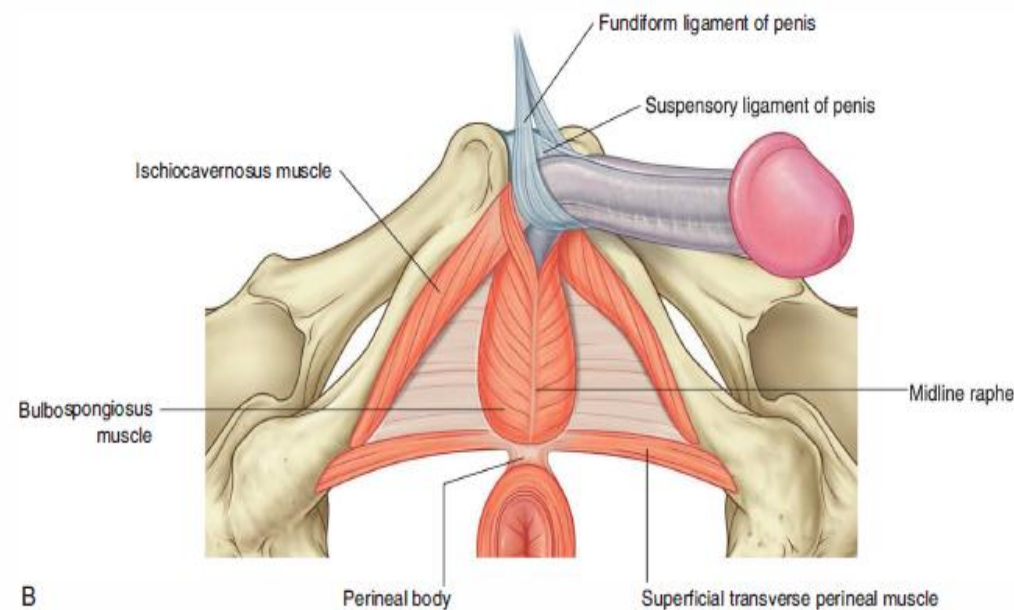
Contents of the Superficial Perineal Pouch – Male

- Root (bulb and Crura) of the penis
- Ischiocavernosus
- Bulbospongiosus
- Superficial transverse perineal muscles
- Posterior scrotal artery
- Perineal artery
- Posterior scrotal nerve
- Perineal branch of posterior cutaneous nerve of thigh



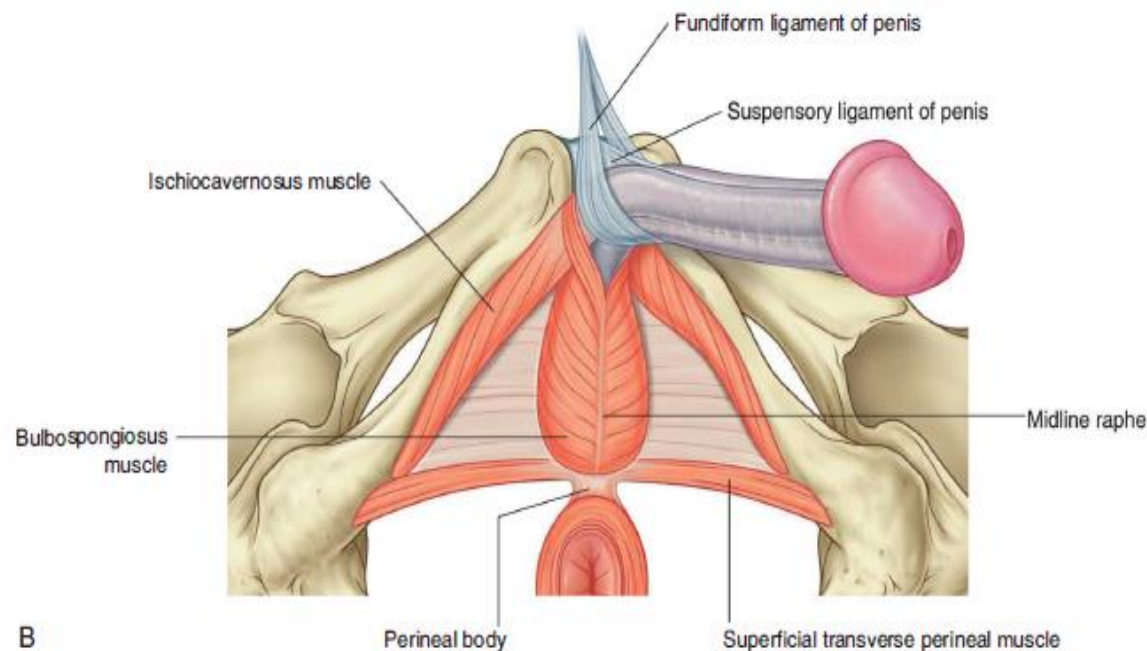
Cont`

- **Superficial Transverse Perineal Muscles**
- Lie in the posterior part of the superficial perineal pouch
- **Origin** - ischial ramus, **insertion** - perineal body
- **Function** - to fix the perineal body in the center of the perineum
- **Nerve Innervation** - perineal branch of the pudendal nerve



Cont`

- **Perineal Body**
- Small mass of fibrous tissue is attached to the center of the posterior margin of the urogenital diaphragm
- **Function** - point of attachment for the **external anal sphincter**, **bulbospongiosus muscle**, and **superficial transverse perineal muscles**



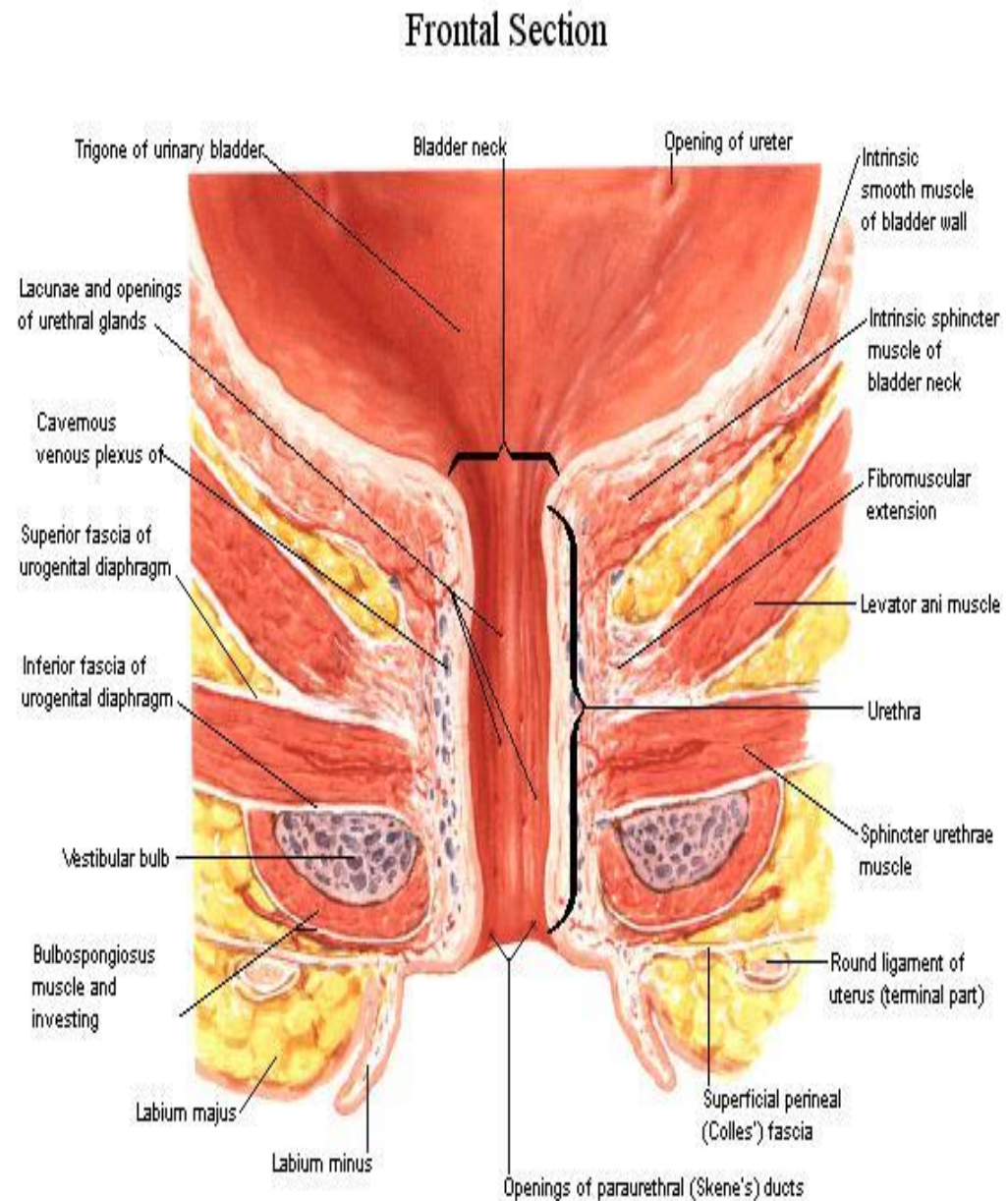
Contents of the Superficial Perineal Pouch - Female

- The root (crura) of the clitoris
- Bulbospongiosus muscles
- The ischiocavernosus muscles
- Superficial transverse perineal muscles
- Perineal branch of posterior cutaneous nerve of thigh
- Posterior labial artery
- Transverse perineal branches of the perineal branch
- Posterior labial branch of Perineal branch of the pudendal nerves
- Greater vestibular glands
- Part of the urethra

Cont`

Female Urethra

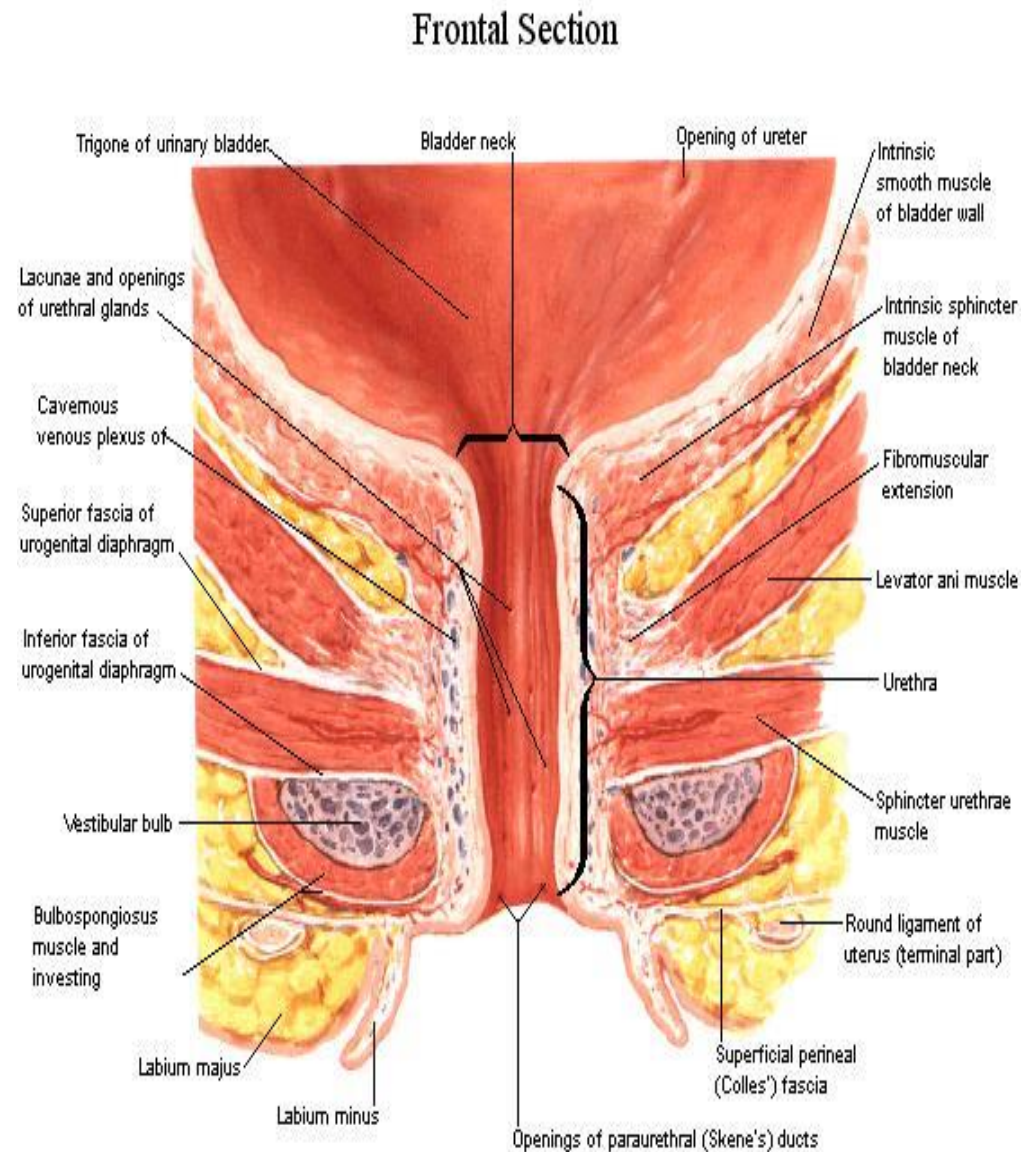
- About 3.8 cm long
- Extends from the neck of the bladder to the external meatus
- It opens into the vestibule about 2.5 cm below the clitoris
- It traverses the sphincter urethrae and lies immediately in front of the vagina
- At the sides of the external urethral meatus are the small openings of the ducts of the **paraurethral glands**



Cont`

Paraurethral Glands

- The paraurethral glands correspond to the prostate in the male
- Open into the vestibule by small ducts on either side of the urethral orifice



Cont`

Greater Vestibular Glands

- Pair of small mucus-secreting glands that lie under cover of the posterior parts of the bulb of the vestibule and the labia majora
- Each drains its secretion into the vestibule by a small duct which opens into the groove between the hymen and the posterior part of the labium minus
- These glands secrete a lubricating mucus during sexual intercourse

Deep perineal pouch

Contents:

1. Part of urethra

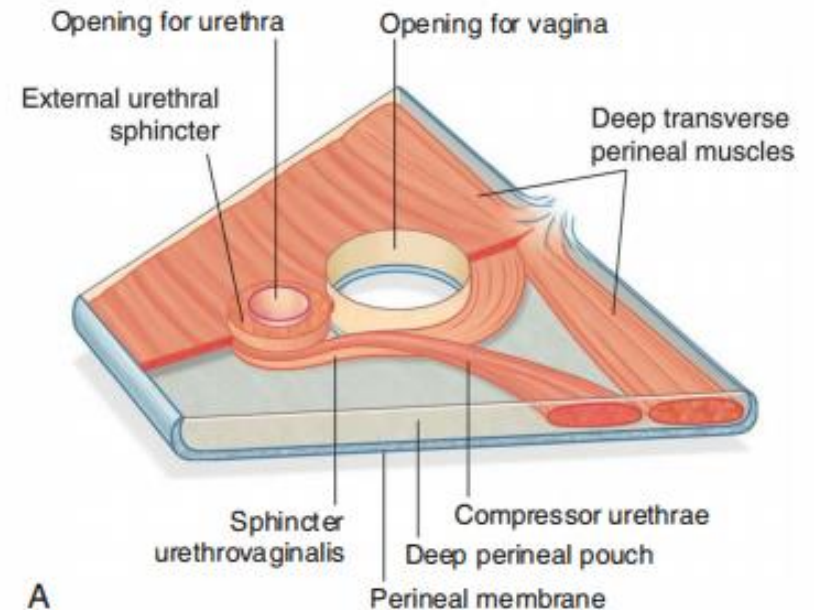
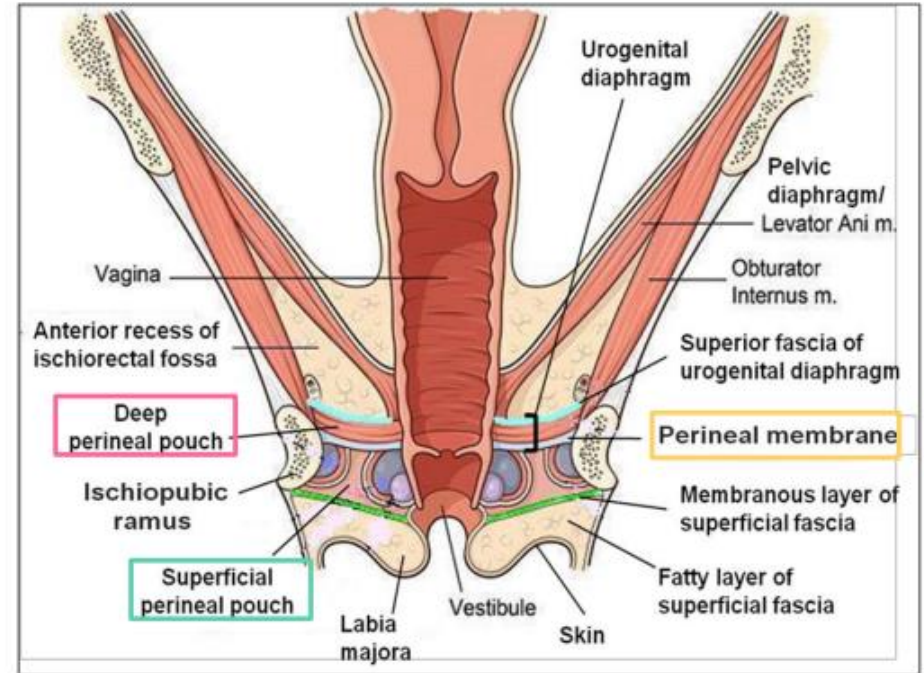
2. Part of vagina

3. Sphincter urethrae and Sphincter vaginae muscles; which is pierced by urethra & vagina.

4. Deep transverse perineal muscles

5. Internal pudendal vessels

6. Dorsal nerve of clitoris



A

Deep Perineal Pouch

- Space between the superior and inferior layers of fascia of urogenital diaphragm

Contents – Male

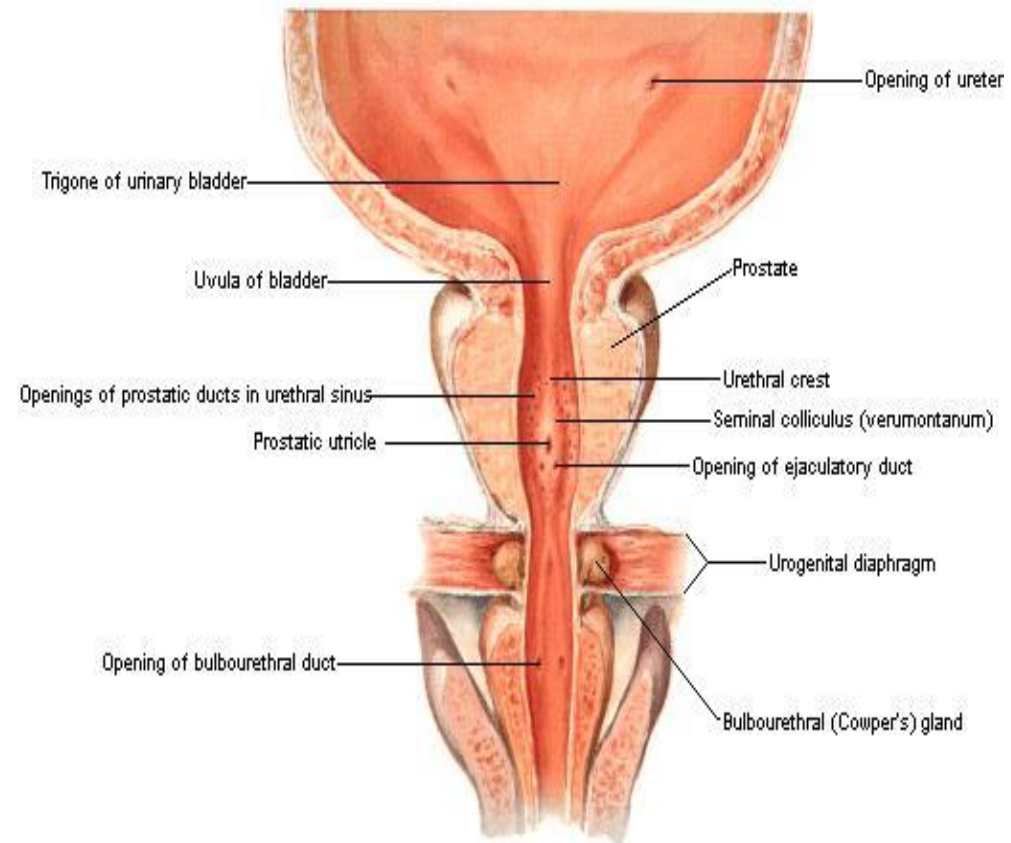
- The membranous part of the urethra
- The sphincter urethrae muscle
- The bulbourethral glands
- The deep transverse perineal muscles
- The internal pudendal vessels and their branches
- The dorsal nerves of the penis

Cont`

Membranous Part of the Urethra

- 1.3 cm long and lies within the urogenital diaphragm
- Surrounded by the sphincter urethrae muscle
- continues above with the prostatic urethra and below with the penile urethra
- Shortest and least dilatable part of the urethra

Prostate and Seminal Vesicles
Frontal Section



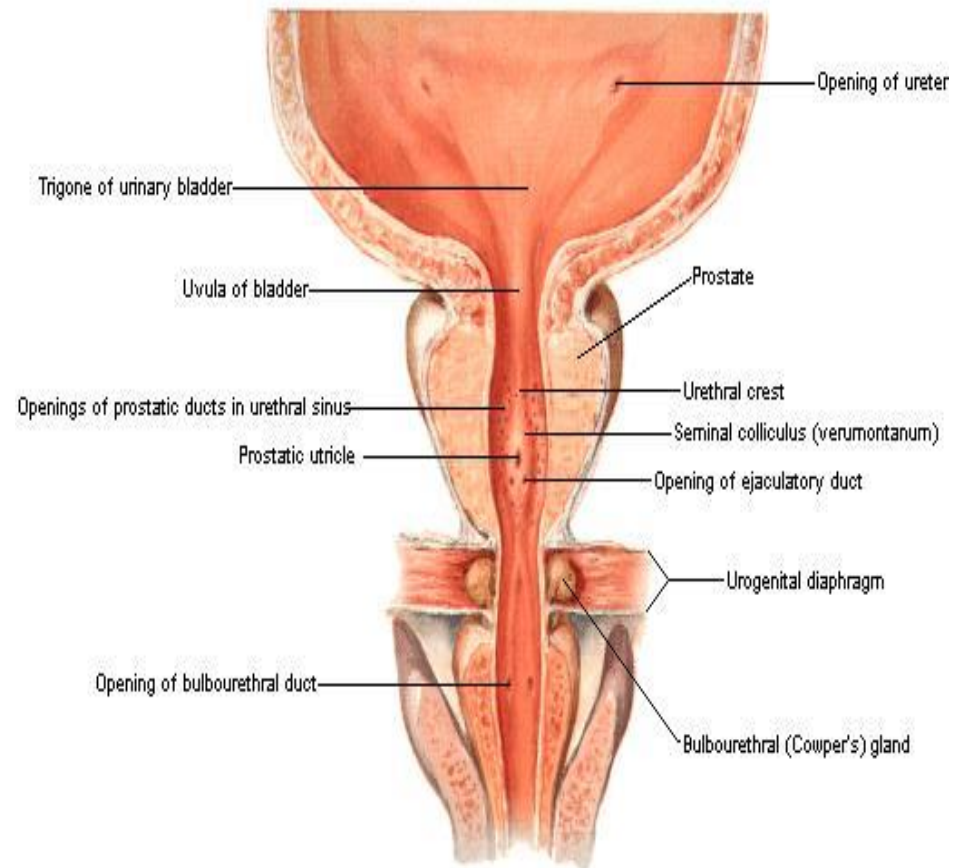
Urethral bulb schematically extended

Cont`

Sphincter Urethrae Muscle

- Surrounds the urethra in the deep perineal pouch
- Arises from the pubic arch on the two sides and passes medially to encircle the urethra
- The perineal branch of the pudendal nerve supplies the sphincter
- The muscle compresses the membranous part of the urethra and relaxes during micturition
- Means by which micturition can be voluntarily stopped

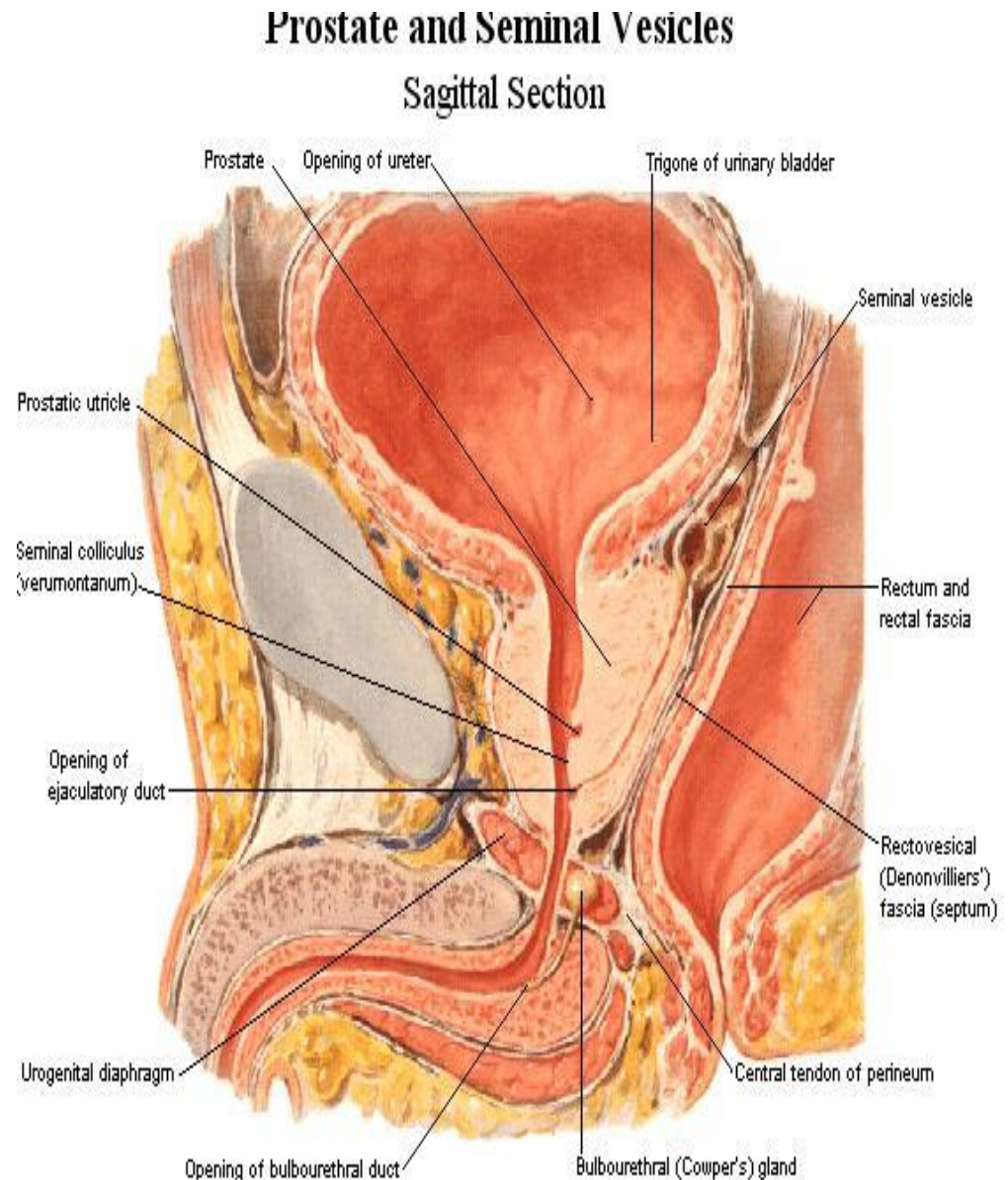
Prostate and Seminal Vesicles
Frontal Section



Urethral bulb schematically extended

Cont`

- **Bulbourethral Glands**
- The bulbourethral glands are two small glands that lie beneath the sphincter urethrae muscle
- Their ducts pierce the perineal membrane and enter the penile portion of the urethra
- The secretion is poured into the urethra as a result of erotic stimulation



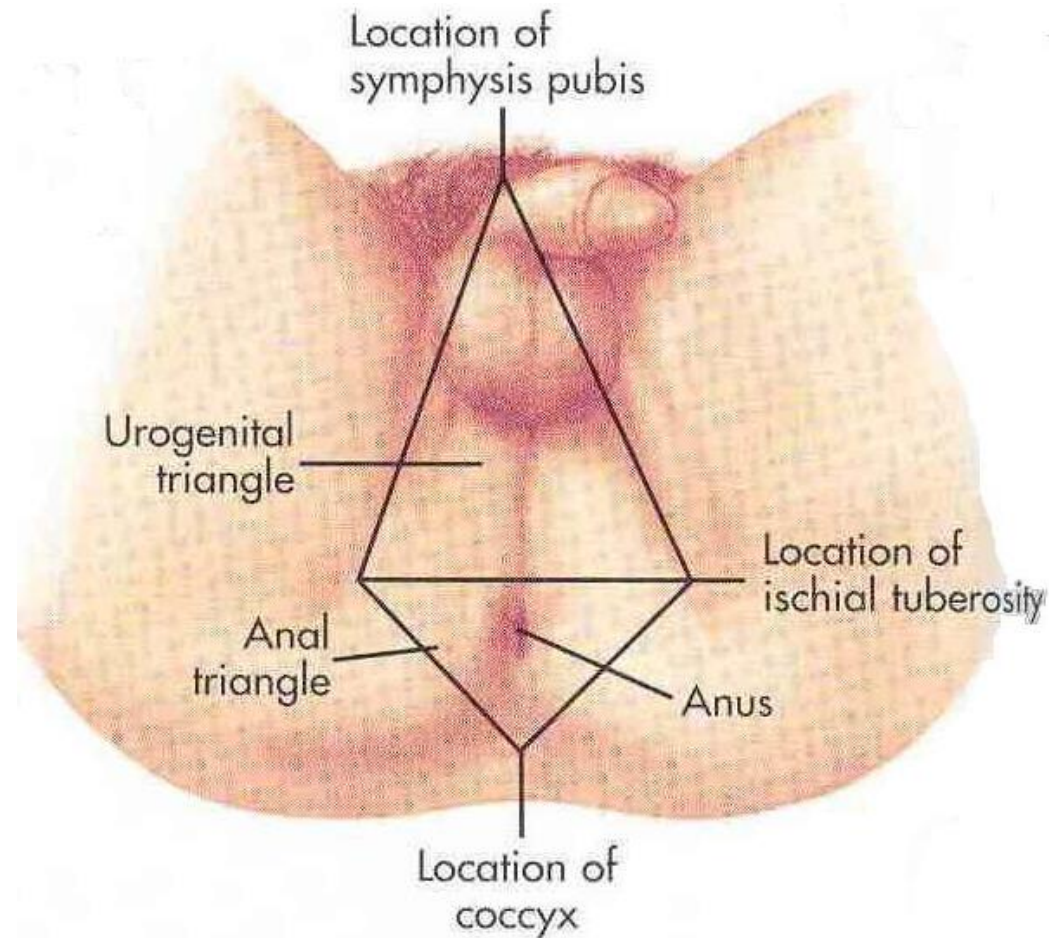
Cont`

- **Deep Transverse Perineal Muscles**
- Lie posterior to the sphincter urethrae muscle
- Arises from the ischial ramus and passes medially to be inserted into the perineal body

Anal Triangle

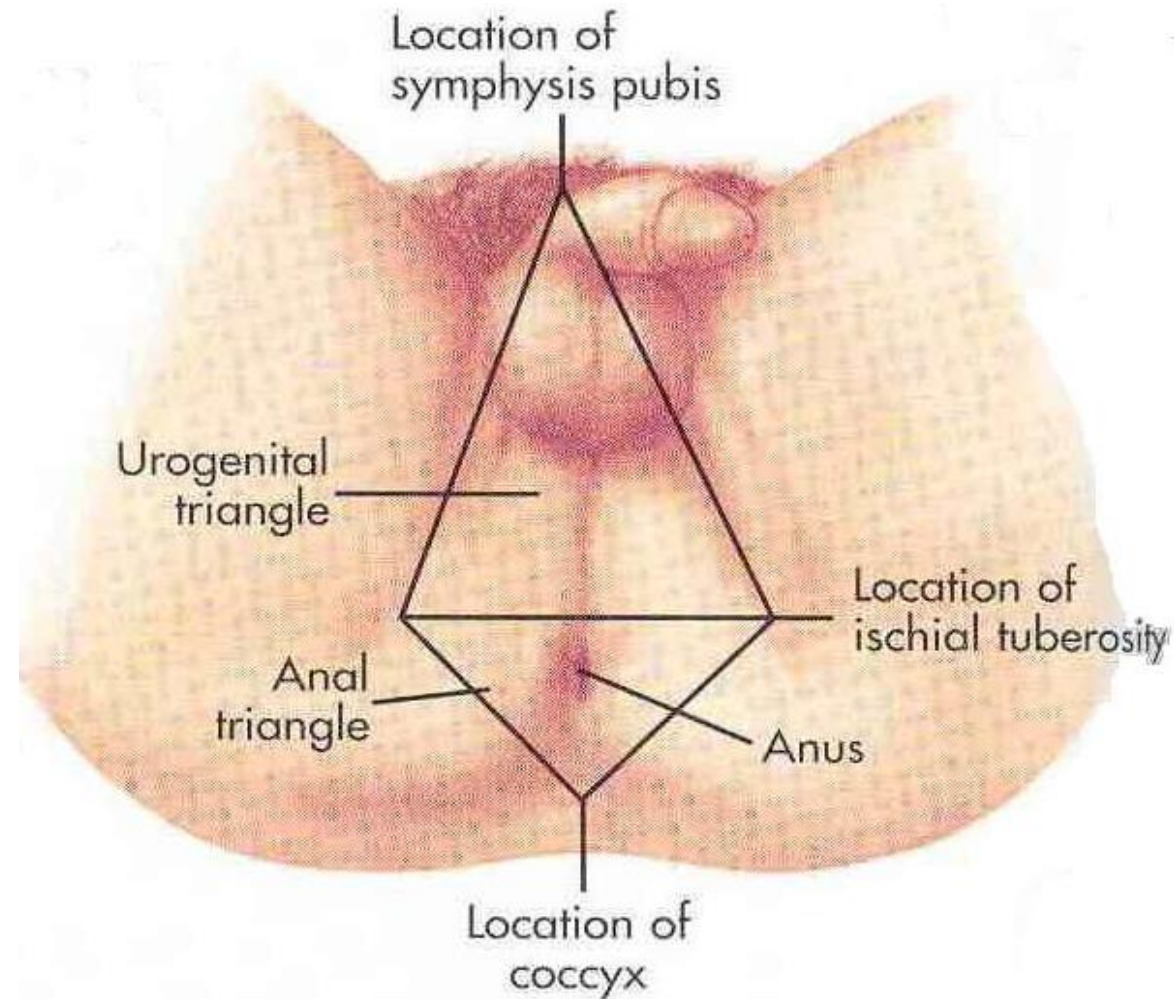
Boundaries

- **Anteriorly:** by the imaginary line
- **Posteriorly** - tip of the coccyx
- **Laterally:** by the ischial tuberosity and the sacrotuberous ligament, overlapped by the border of the gluteus maximus muscle



Anal Triangle

- **Contents**
- The **anus**, or anal canal, external anal sphincter
- Ischioanal (ischioanal) fossa.



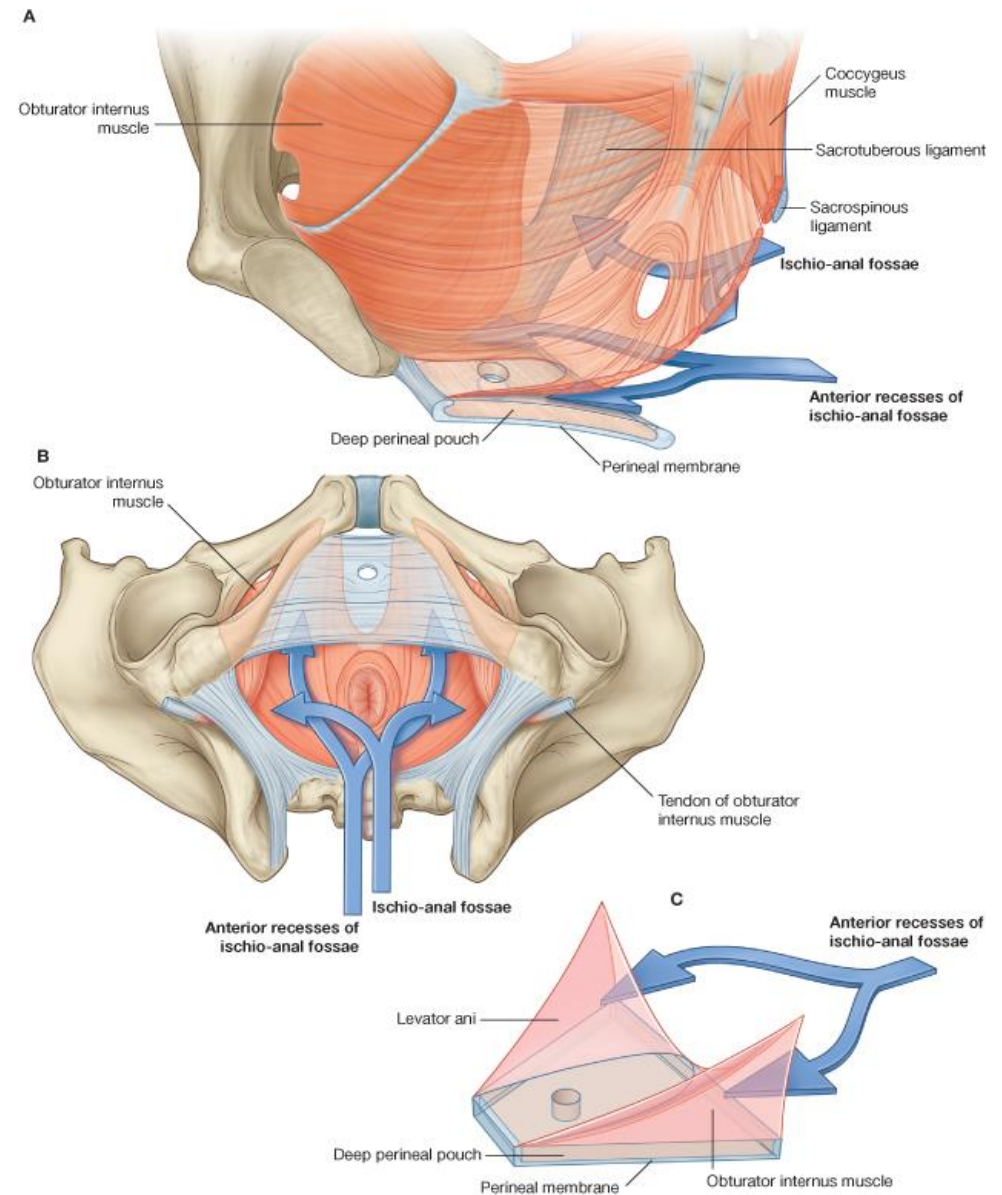
Cont`

External anal sphincter

- Skeletal muscle
- Has 3 parts
 - 1. Deep Part** – surrounds superior aspect of anal canal
 - 2. Superficial part** – surrounds lower part of anal canal
 - 3. Subcutaneous part** – surrounds anal aperture

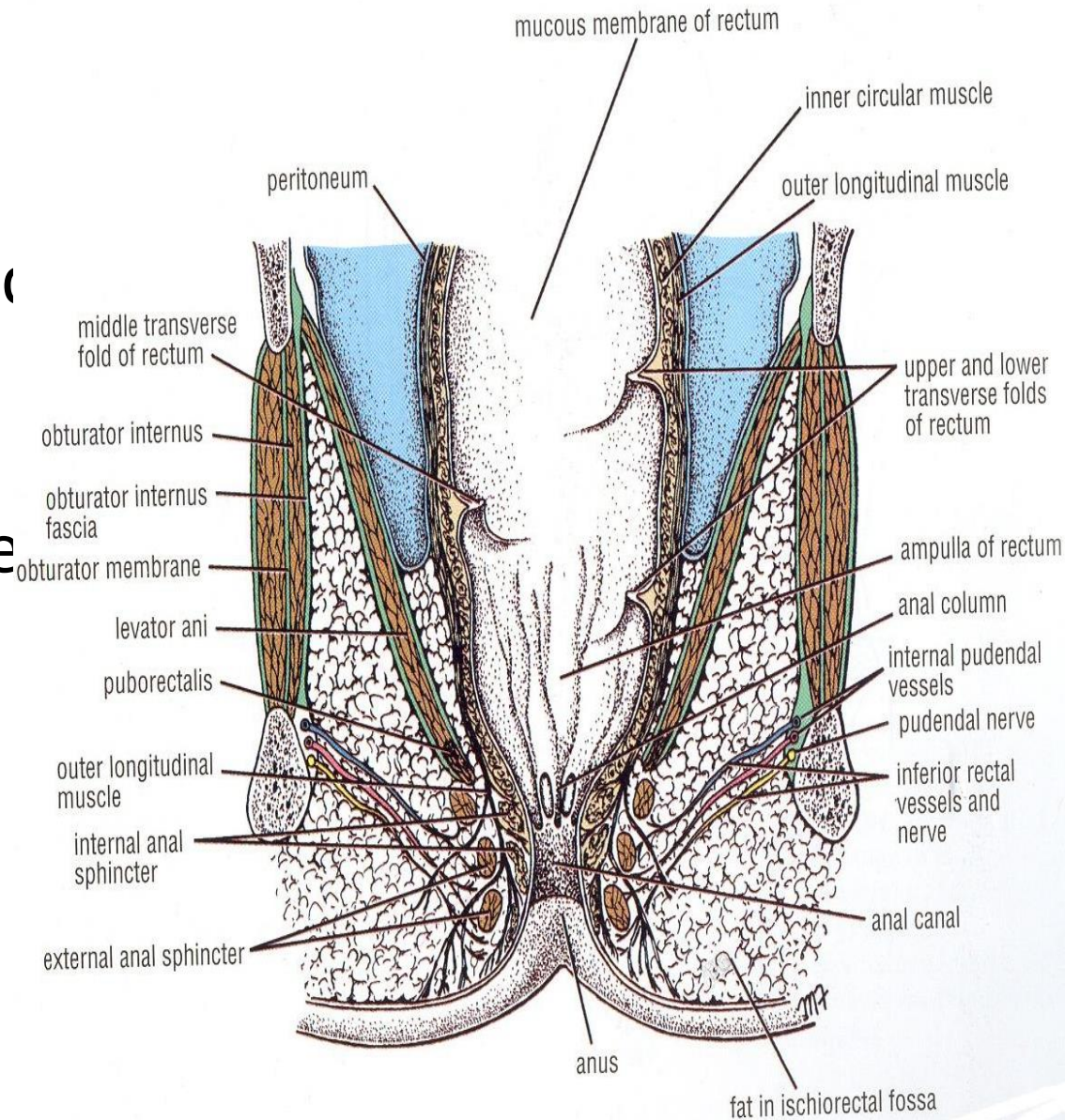
Ischio-rectal (Ischio-anal) Fossa

- A large fascia-lined wedge shaped space on each side of the anal canal
- Located between the skin of the anal region and the pelvic diaphragm
- The two fossae are communicated with each other behind the anal canal



Boundaries

- **Base** - is superficial and formed of skin and fascia
- **Apex** lies superiorly, at the junction of medial and lateral walls
- **Medial wall** is formed by sloping levator ani muscle and the anal canal
- **Lateral wall** is formed by ischial tuberosity and the lower part of obturator internus muscle and its fascia

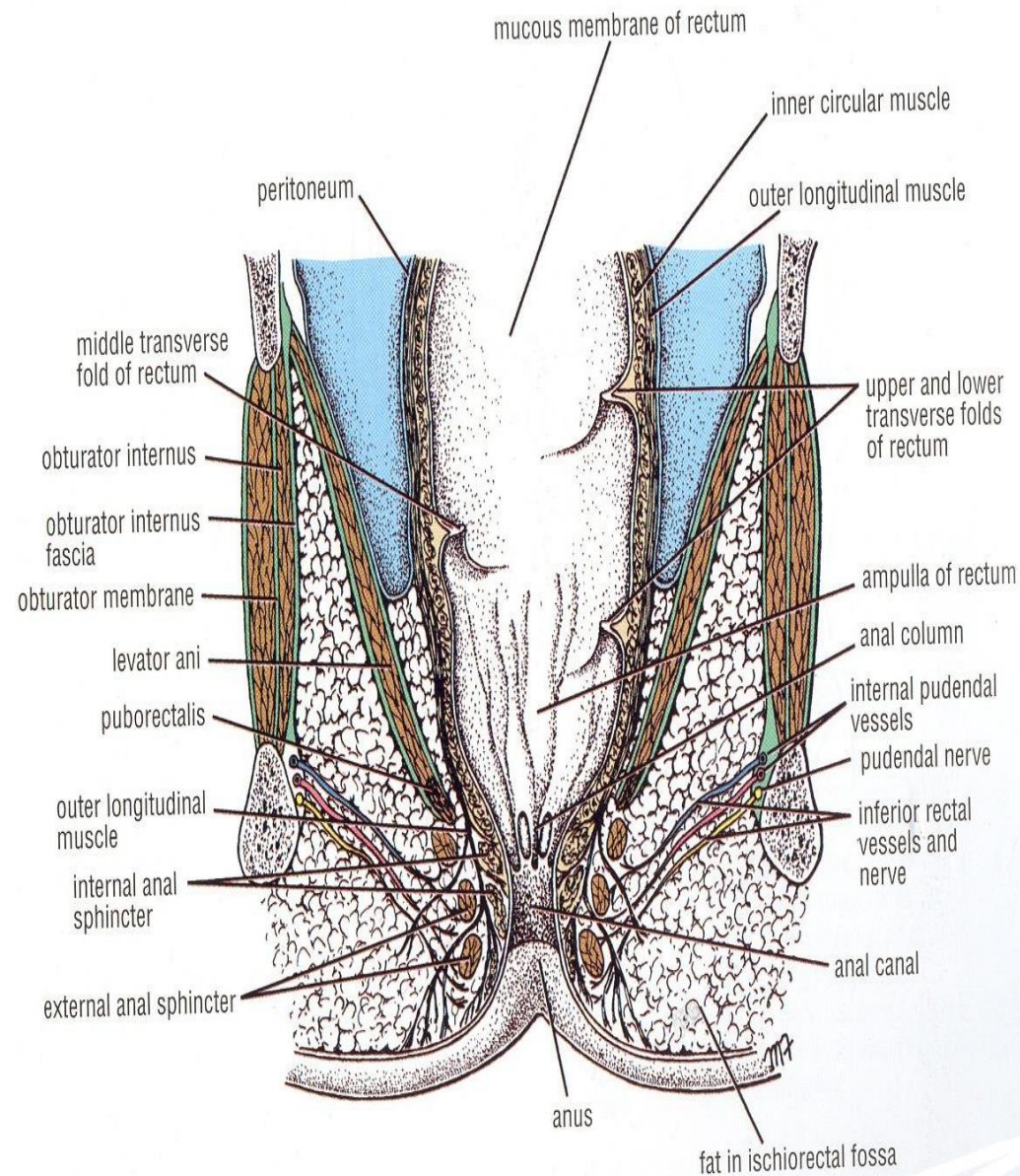


Contents

- Dense fat
- Pudendal canal and its contents (internal pudendal vessels and nerves)
- Inferior rectal vessels and nerve
- Perforating branches of S2-S3
- Perineal branch of S4

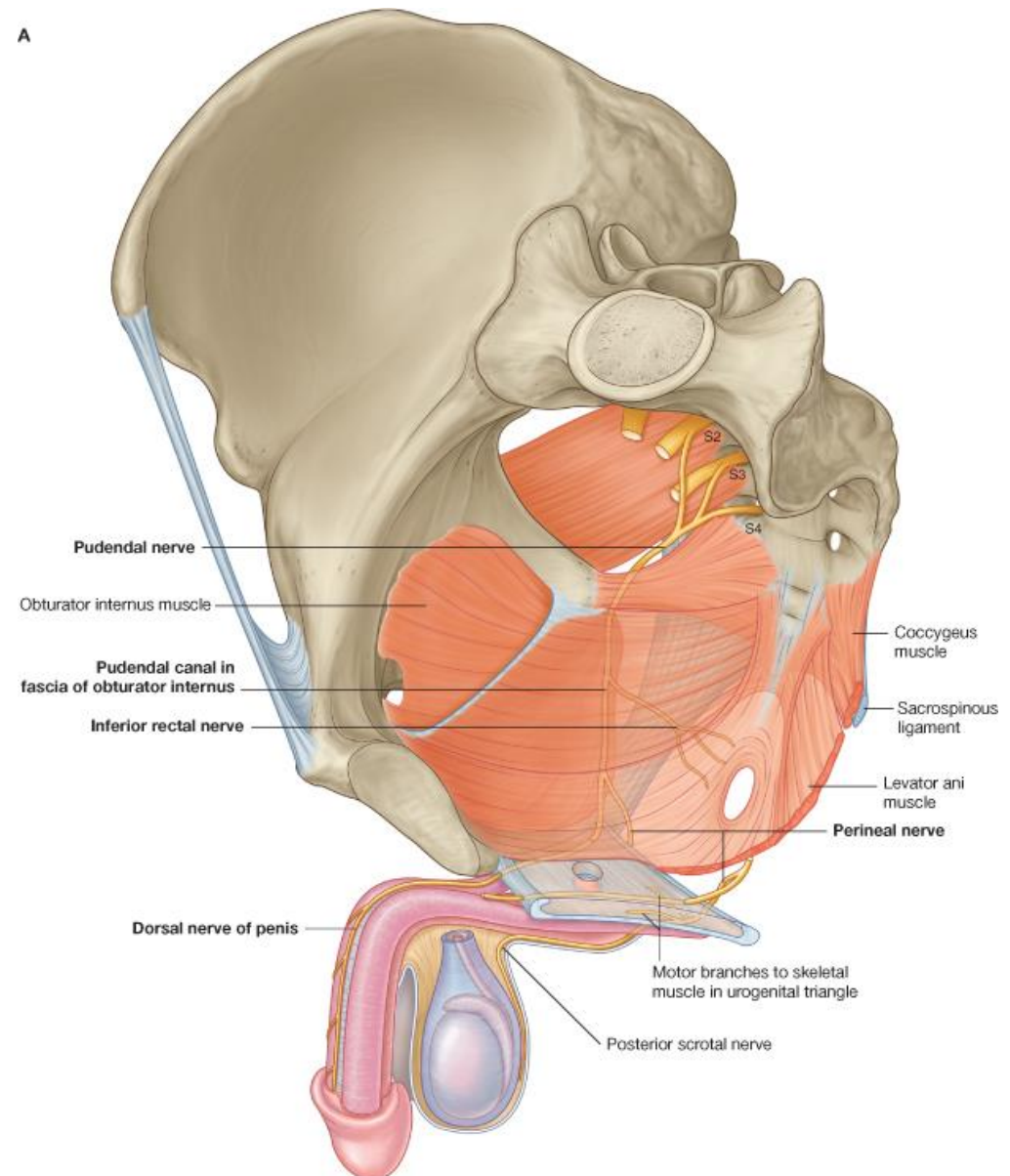
Pudendal canal

- A fascial canal formed by the splitting of the **obturator fascia**
- **Location:** on the lateral wall of the ischiorectal fossa, on the medial side of the ischial tuberosity
- **Contents:** pudendal nerve and internal pudendal vessels



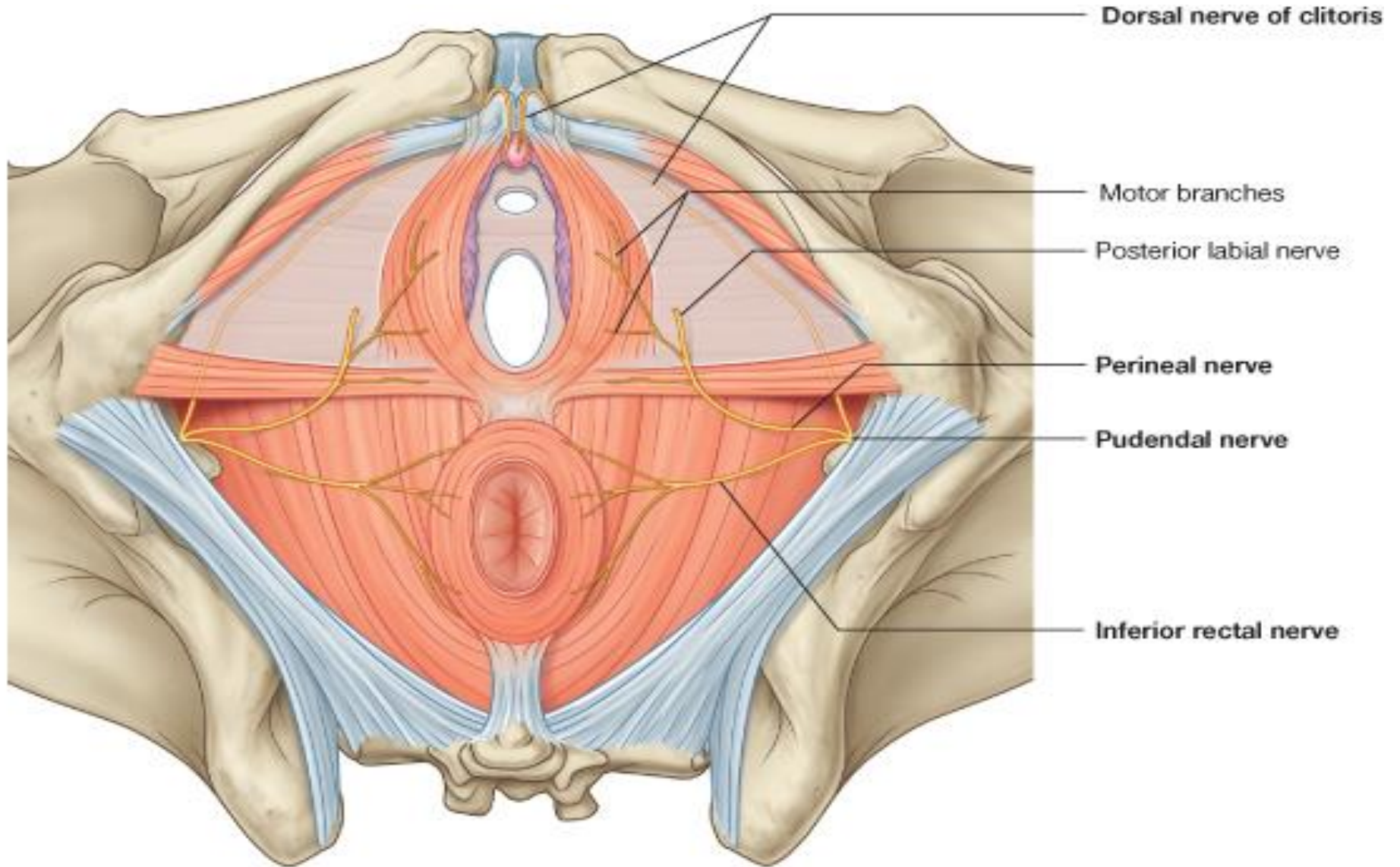
Pudendal Nerve

- Branch of sacral plexus
- Leave pelvic cavity through the greater sciatic foramen
- Enters perineum through the lesser sciatic foramen
- Passes forward in the pudendal canal
- **Branches:** inferior rectal nerve, dorsal nerve of penis or clitoris, perineal nerve



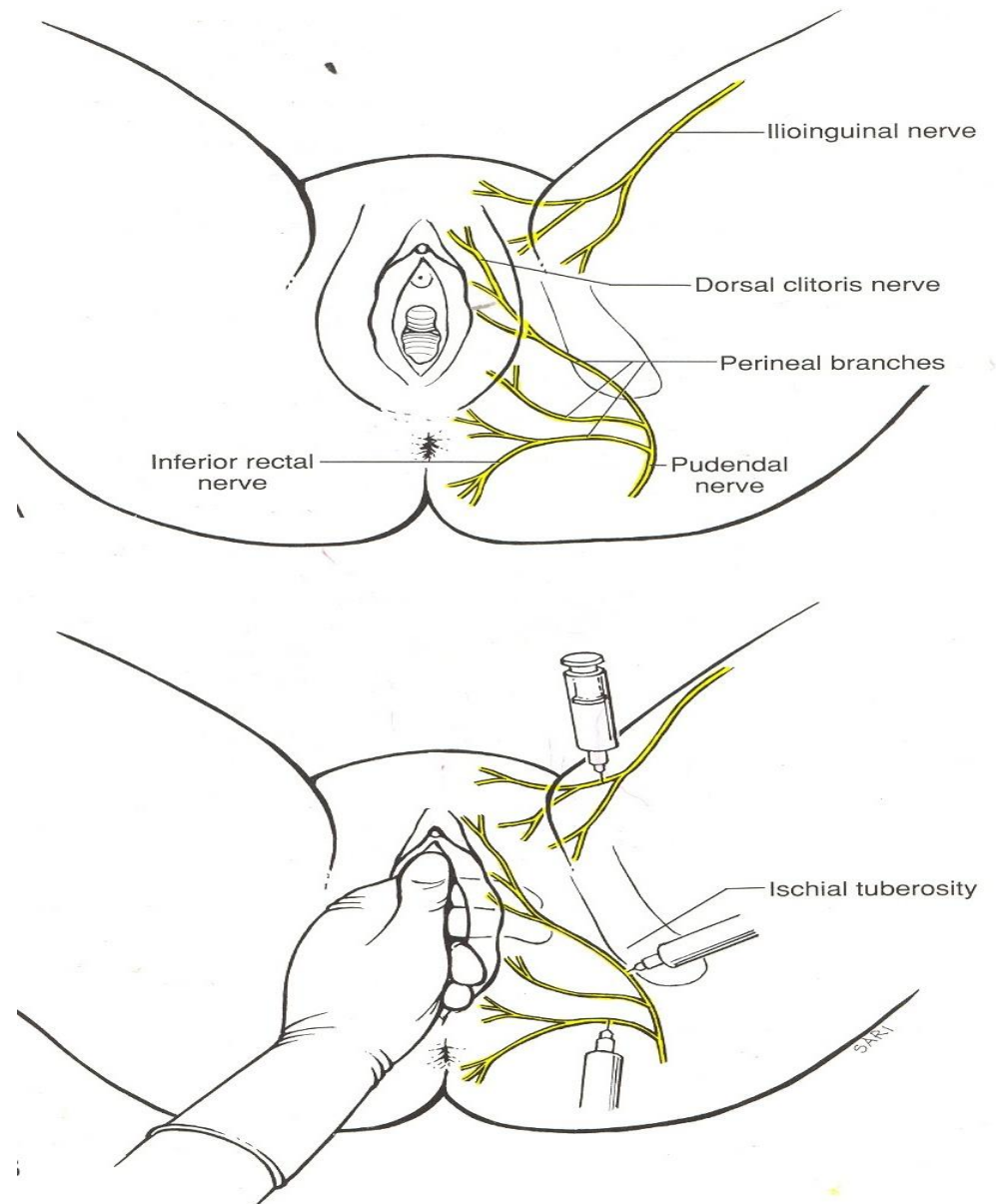
Cont`

B



Applied Anatomy

- **Pudendal Block**
- Pudendal nerve as it runs in the pudendal canal, is blocked by an anaesthetic to produce analgesia of the perineum in forceps delivery
- The anaesthetic can be injected around the nerve by:
 - Transvaginal method
 - Perineal method



Applied Anatomy

- Perianal abscesses
- Ischio-rectal abscess
- Haemorrhoids

Thank You!