

ANATOMY OF THE ANAL CANAL

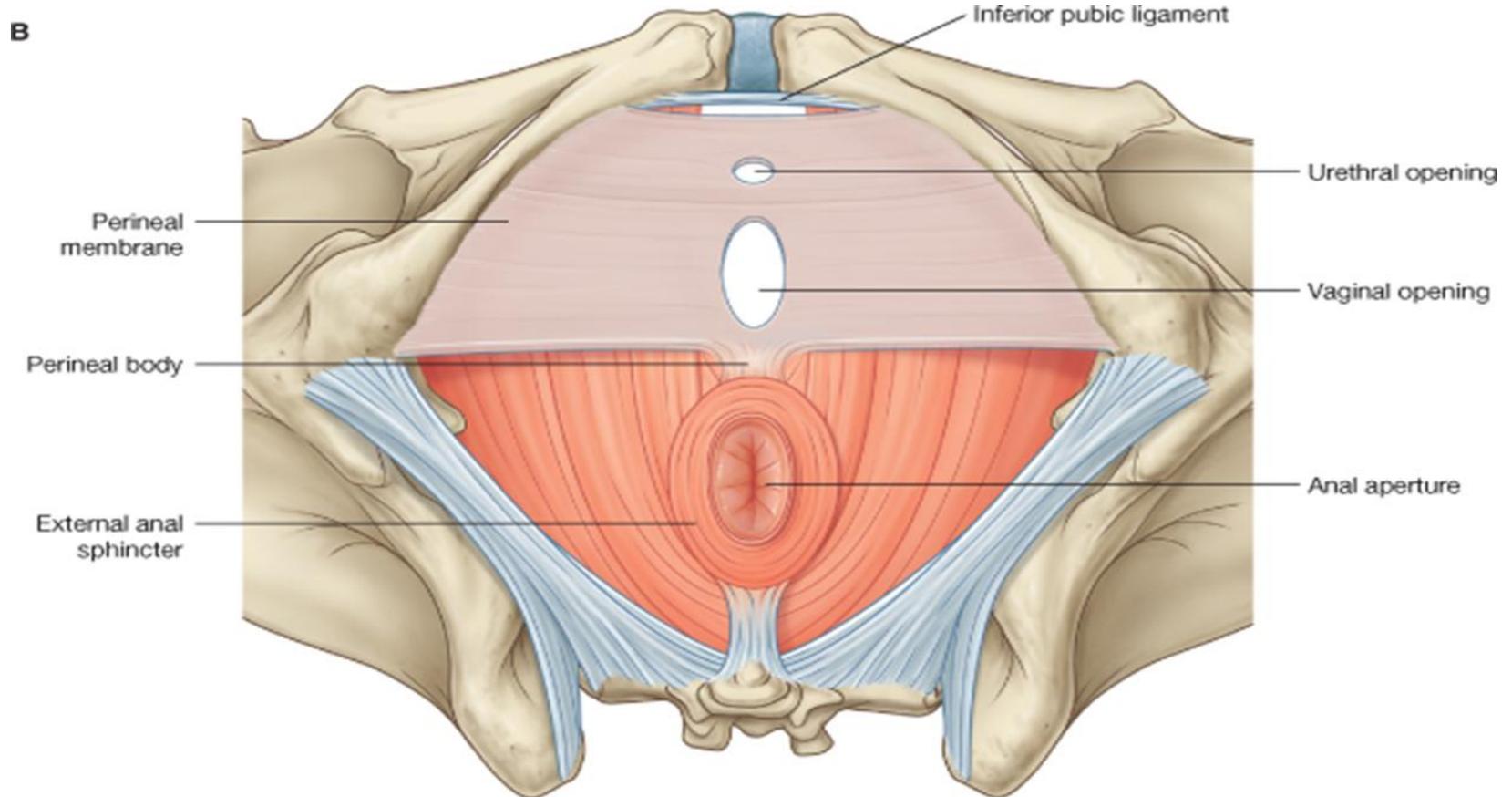
Dimosthenis Chrysikos

Surgeon

Assistant Professor

Department of Anatomy, School of Medicine, NKUA

Pelvic floor



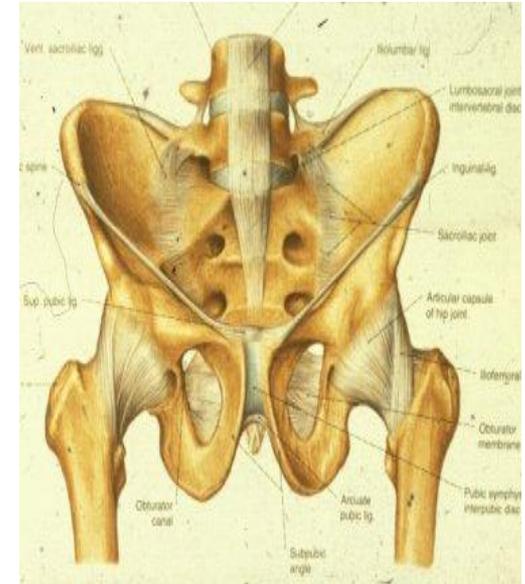
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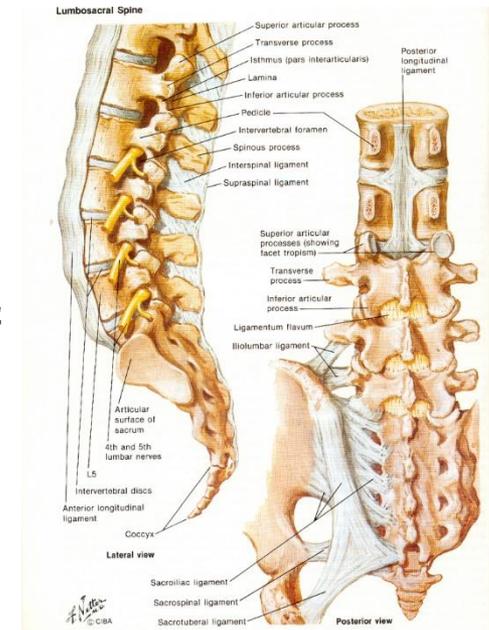
Sacroiliac Joint

- Modified synovial plane joint
- Articular surfaces are rough
- The capsule is attached just beyond the articular margin
- The interosseous sacroiliac ligament is one of the strongest ligaments in the body and is posterior to the joint
- This articulation is almost immobile, except during pregnancy



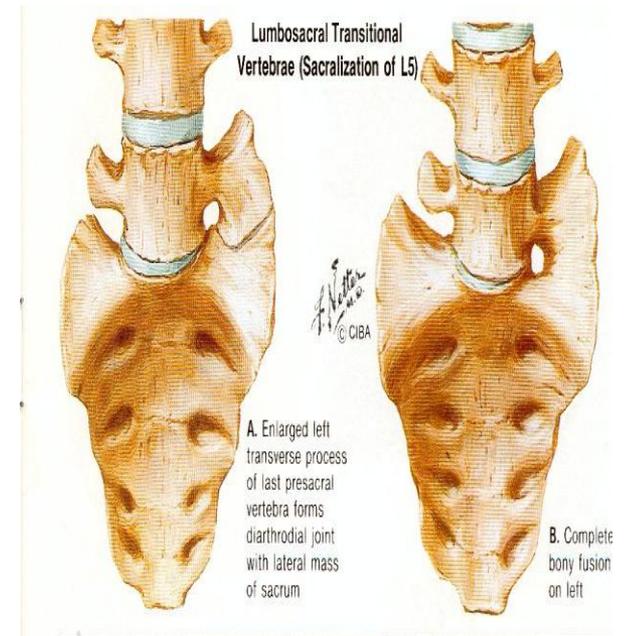
Sacroiliac Joint Accessory Ligaments

- Sacrotuberous ligaments
- Sacrospinous ligaments
- Iliolumbar ligaments
- Posterior superior iliac spine is middle of the joint posteriorly at the level S2
- S2 is end of dura, arachnoid mater and subarachnoid space
- During gait, the amount of accessory movement at the sacroiliac joint helps to protect the lumbar intervertebral discs



Abnormalities of Pelvis

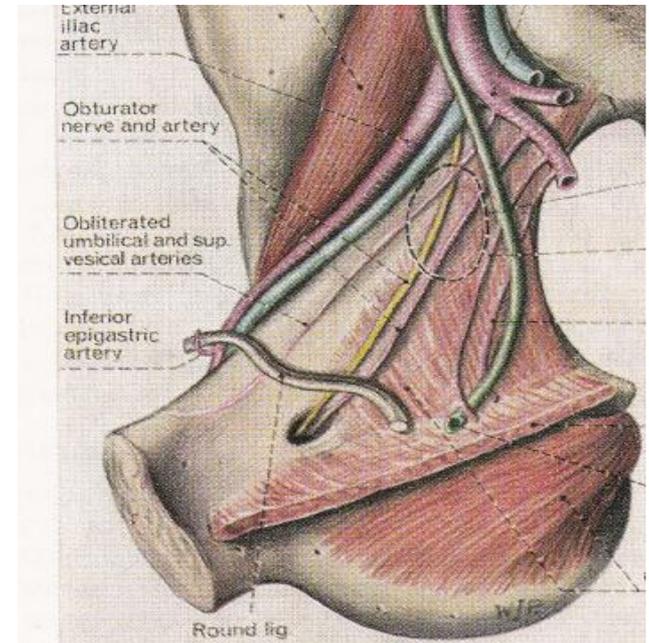
- Spina bifida occulta
- Unilateral lumbarisation
- Unilateral sacralisation
- Stress fractures of the sacrum, pubic arch and neck of femur may be first signs of osteoporosis



Walls of Pelvis

- Sacrum and coccyx posterior
- Os coxae below pelvic brim
- Piriformis covers middle three pieces of sacrum
- Passes out of the pelvis through the greater sciatic foramen
- Muscles
 - Obturator internus muscle
 - Origin of levator ani
 - Coccygeus

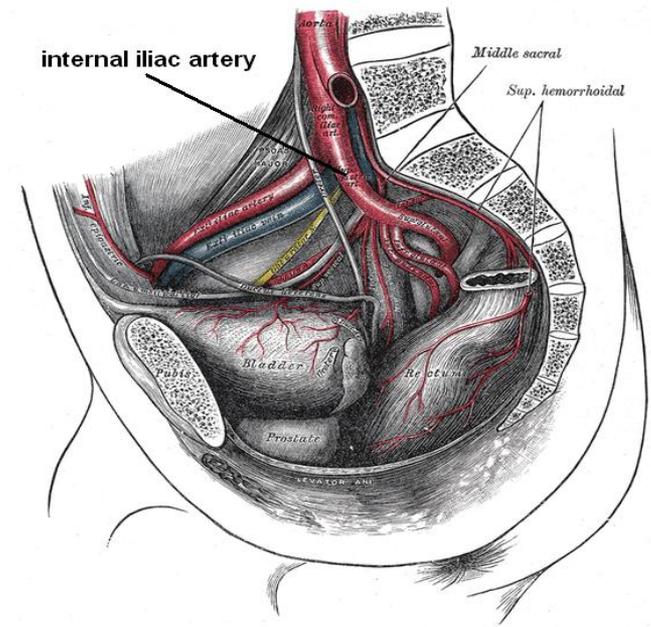
Smout et al., 1969



Lateral Walls of Pelvis

- Obturator nerve
- Obturator artery and vein
- Parietal peritoneum supplied by the obturator nerve
- Pain may be referred to hip or knee joints
- Common iliac divides into external and internal iliac
- Internal divides into anterior and posterior division branches

Smout et al., 1969



Pelvic Fascia

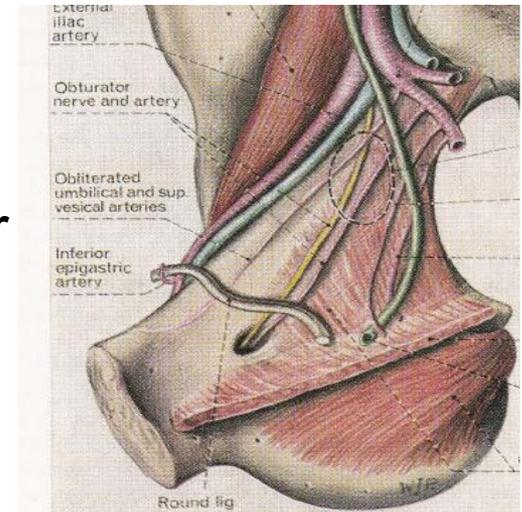
Pelvic fascia can be divided into three:

1. Pelvic wall

- Pelvic fascia is a strong membrane over the piriformis and obturator internus
- Fuses with the periosteum at their margins

2. Pelvic floor

- Fascia is covered with loose areolar tissue
- Loose areolar fat tissue lies in the extraperitoneal space between peritoneum and the viscera forming a dead space

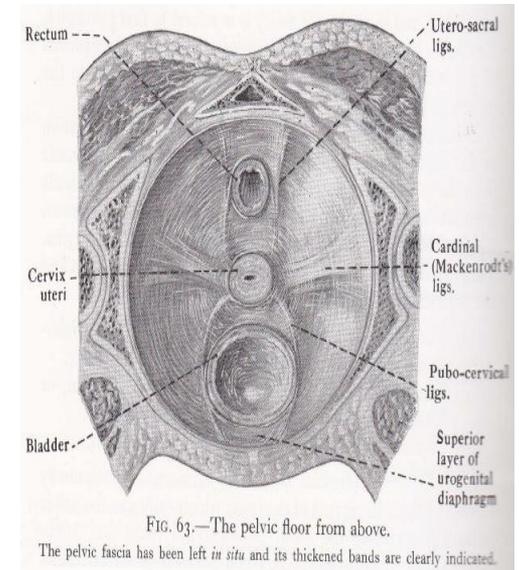


Pelvic Fascia

3. Pelvic viscera

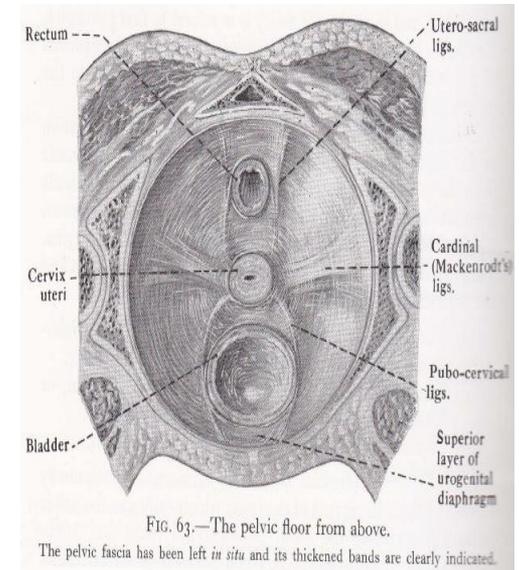
- Fascia of pelvic viscera is loose or dense depending on dispensability of organ

Smout et al., 1969



Pelvic Ligaments

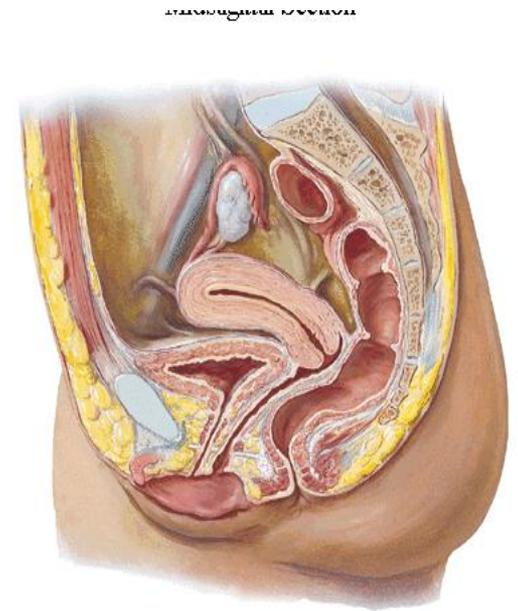
- Condensation around vessels form ligaments in the pelvis
- Cardinal ligament condensation of fascia around uterine artery
- Lateral ligament of the rectum is a condensation of fascia around the middle rectal vessels and branches of the hypogastric plexus
- Waldyer's fascia suspends the lower part of the ampulla of the rectum to the hollow of sacrum
- Contains the superior rectal vessels and lymphatics



Smout et al., 1969

Pelvic Floor

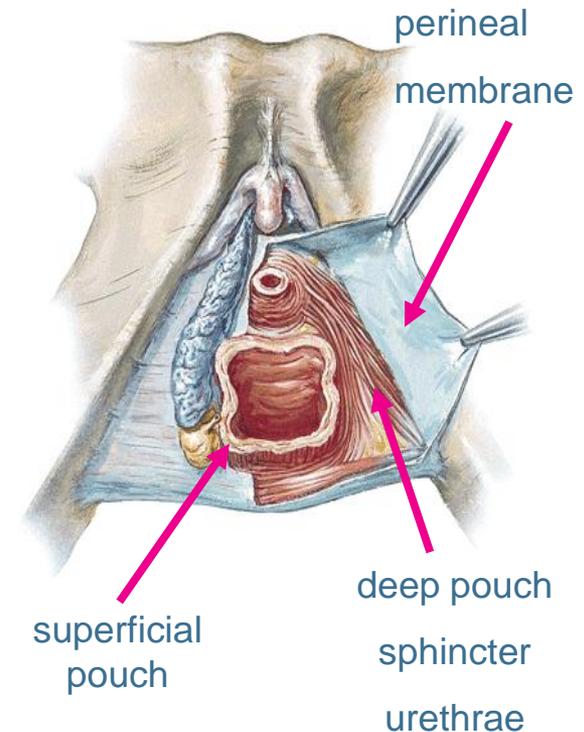
- Urogenital diaphragm
- Perineal membrane and the superficial transverse perineii
- The pelvic floor is a dome-shaped striated muscular sheet
- The levator ani is made up mainly of the pubococcygeus, the puborectalis and the iliococcygeus
- It encloses the bladder, uterus and rectum
- Together with the anal sphincters, has an important role in regulating storage and evacuation of urine and stool



Stoker, 2009

Deep Perineal Pouch: Urogenital Diaphragm

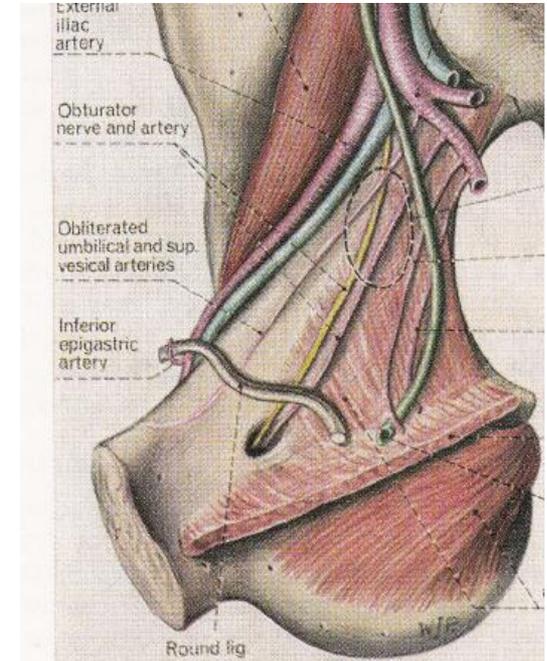
- Superior is the areolar tissue on the under surface of the levator ani
- The sphincter urethrae around urethra and transverse perineii in the deep pouch
- Perineal membrane fills in pubic arch below the muscles
- Muscles are supplied by perineal branch of pudendal nerve
- In lateral portion of the deep pouch, run dorsal nerve of clitoris and internal pudendal artery and vena comitans



Levator Ani

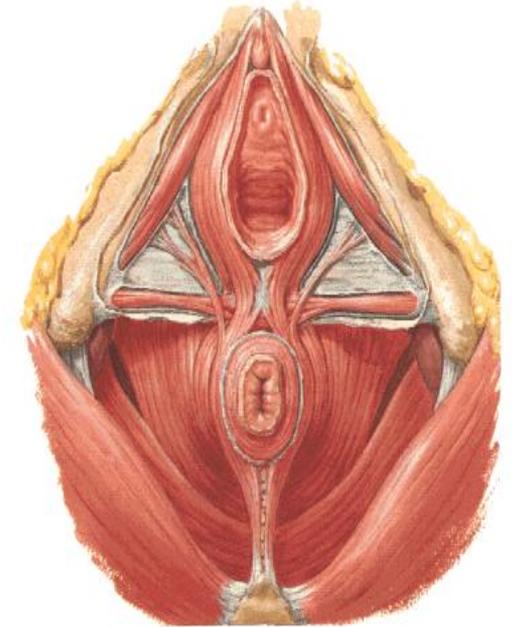
- Arises, anteriorly, from the posterior surface of the body of pubis lateral to the symphysis
- Posterior from the inner surface of the spine of the ischium
- Between these two points, from a tendinous arch called the white line (arcus tendineus) adherent to the obturator fascia

Last, 1984



Levator Ani

- Unites with the opposite side to form most of the floor of the pelvic cavity
- The fibres pass downward and backward to the middle line of the floor of the pelvis
- Inserted from before backwards, into perineal body
- Side of the rectum and anal canal
- Anococcygeal raphe
- The side of the last two segments of the coccyx

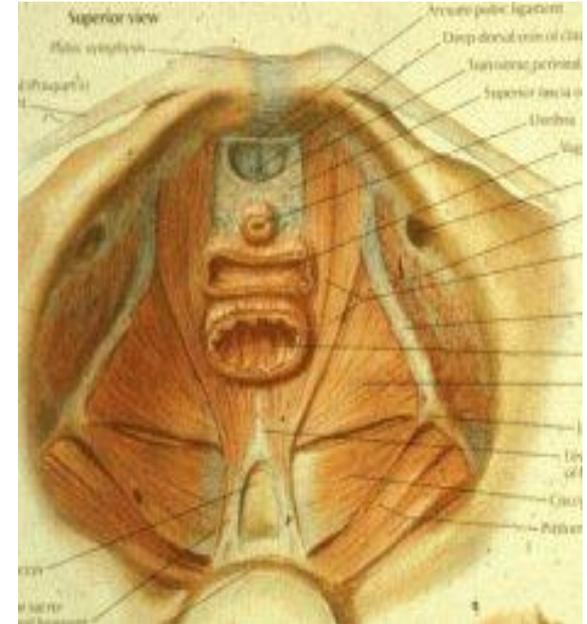


Last 1984

Levator Ani

- The anterior fibres, pubovaginalis, pass behind the vagina, unites with the opposite side
- Inserted into the perineal body, the central point of the perineum
- Joining the fibres of the sphincter ani externus and transversus perineii

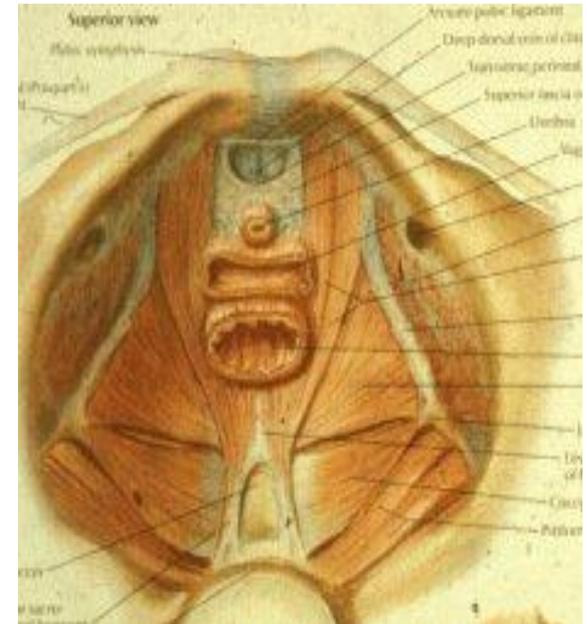
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Levator Ani

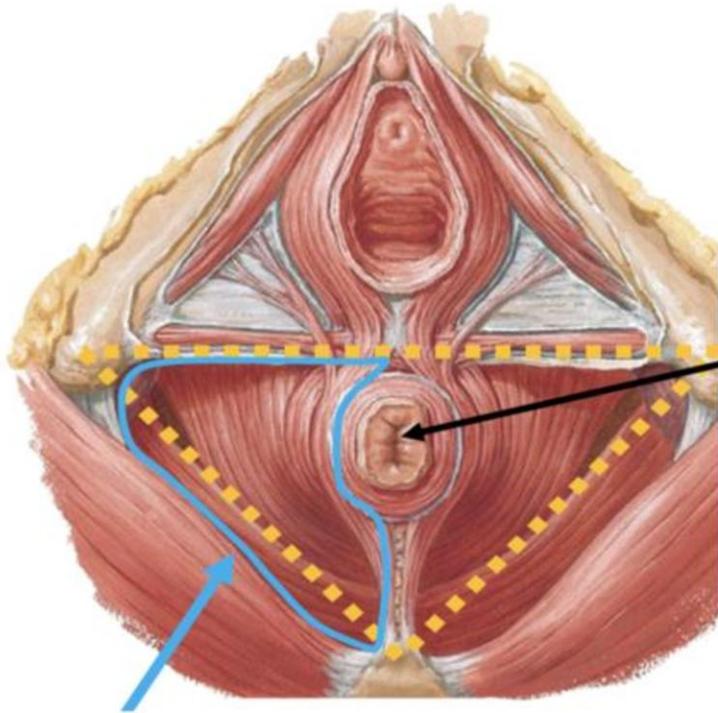
- The puborectalis forms a U-shaped sling, holding the anorectal anteriorly, blending with the deep fibres of the external anal sphincter
- Anococcygeal raphe lies between the coccyx and the margin of the anus
- Nerve supply, inferior rectal nerve and perineal branch fourth sacral

Last 1984

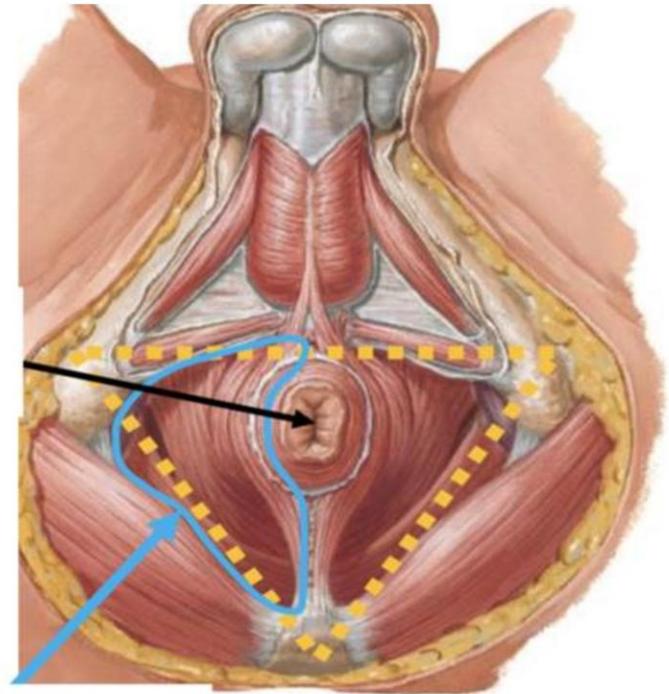


Subdivisions of the perineum

- Transverse line joining the anterior part of ischial tuberosities divides perineum into:
 1. Urogenital region / triangle- ANTERIORLY
 2. Anal region / triangle - POSTERIORLY



Female



Male

Anal canal may be affected by many conditions that are not so rare, not necessarily serious and endangering to life but on the contrary very INCAPACITATING

Haemorrhoids

Anal fistula

Anal fissure

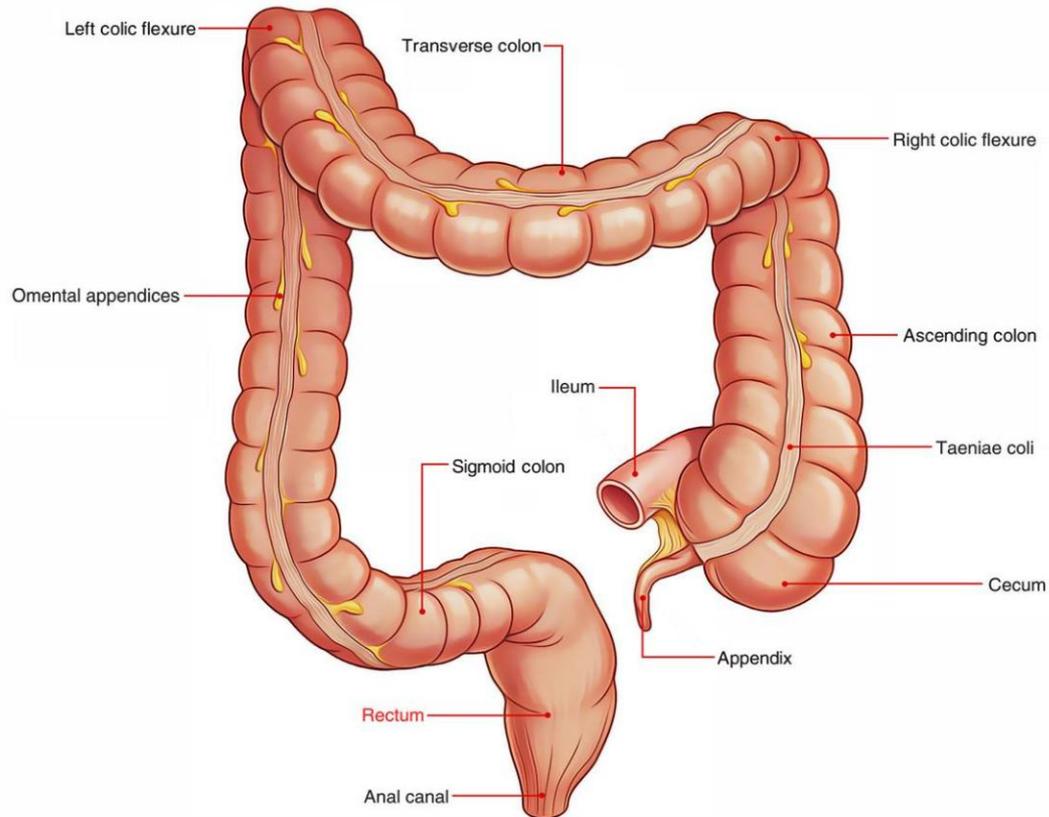
Perianal abscess

Learning objectives

At the end of this teaching session on anatomy of Anal canal all the MBBS 1st Year students must be able to correctly:

- Describe the location, extent and dimensions of the anal canal
- Enumerate the relations of the anal canal
- Enumerate the subdivisions of anal canal
- Describe & Diagrammatically display the special features on the interior of the anal canal
- Discuss the importance of pectinate / dentate line
- Write a short note on the arterial supply, venous drainage, nerve supply & lymphatic drainage
- Write a short note on the sphincters of the anal canal
- Describe the anatomical basis of internal & external hemorrhoids & anal fistula, anal fissure, perianal abscess
- Enumerate the structures palpable on per rectal examination

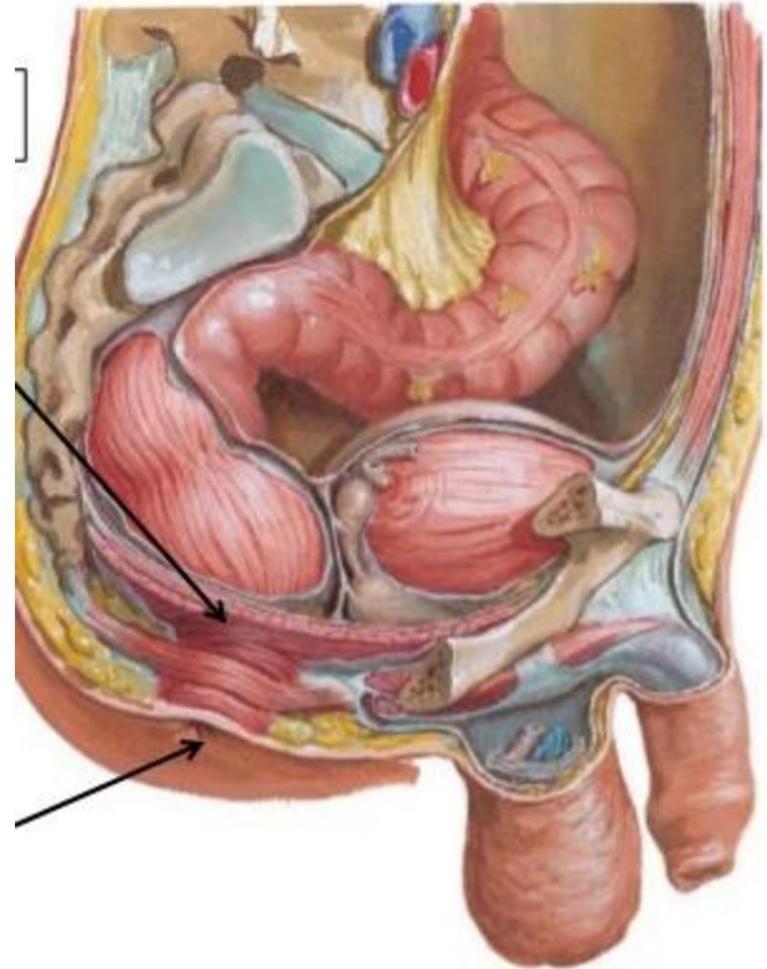
Anal Canal



- Anal canal forms the lowest part of the gastrointestinal tract
- Gross Cardinal features of large intestine absent

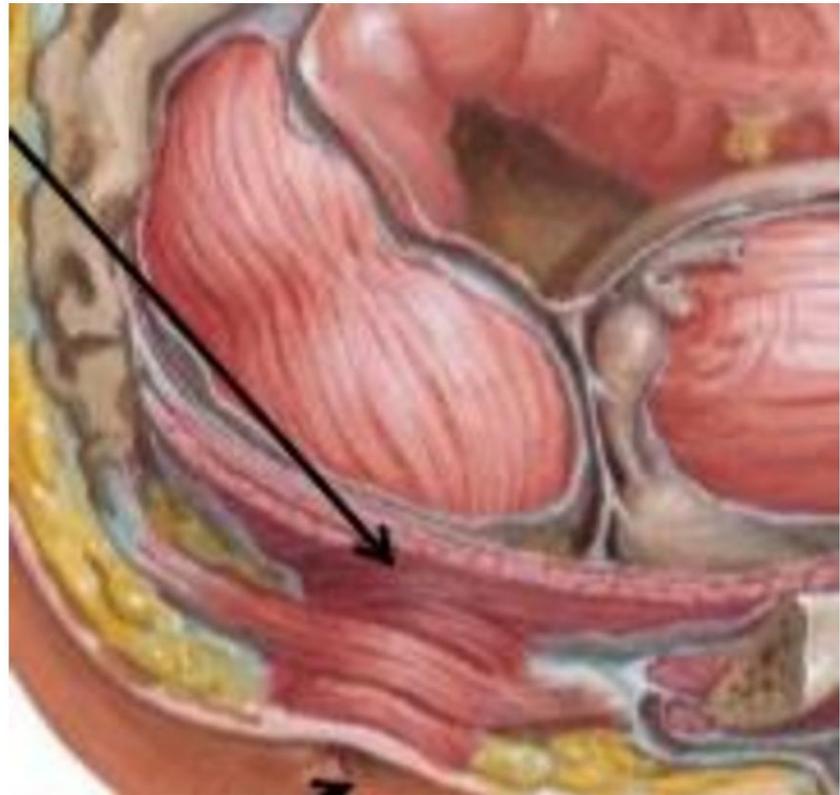
Location & Extent of anal canal

- Situated below levator ani muscle
- It lies in the anal region/ triangle
- From – anorectal junction to anus
- Anorectal junction-
 - 2-3 cm in front and little below tip of coccyx
- Anus –
 - Surface opening of canal
 - 4 cm in front & below tip of coccyx

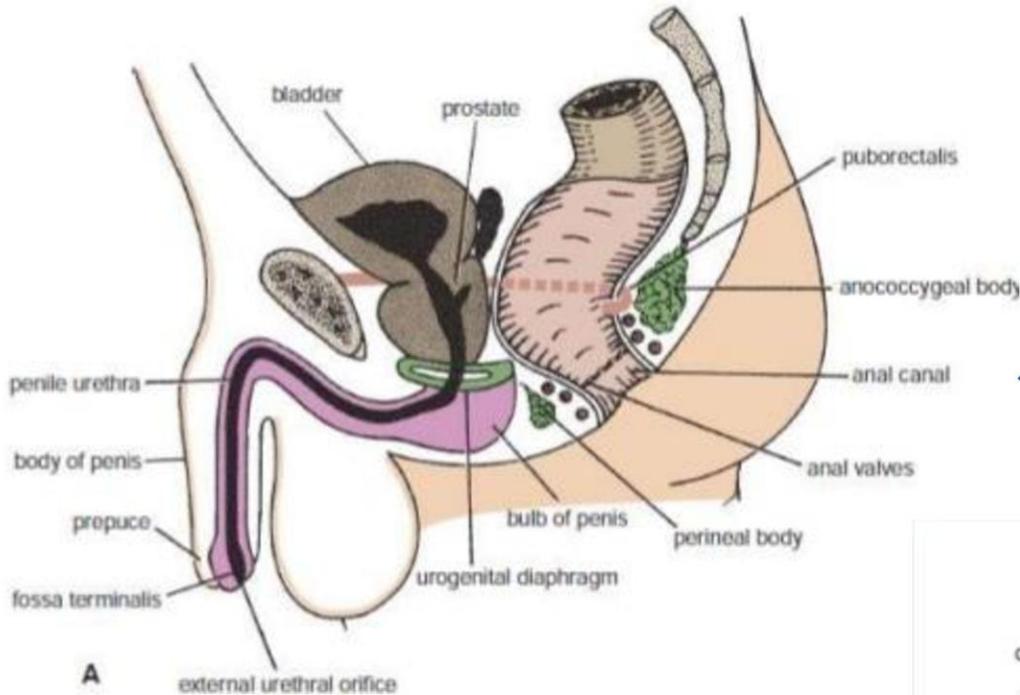


Direction & Dimensions

- Directed downwards & backwards
- Length – 3.8- 4 cm
- Closed side to side – anteroposterior slit



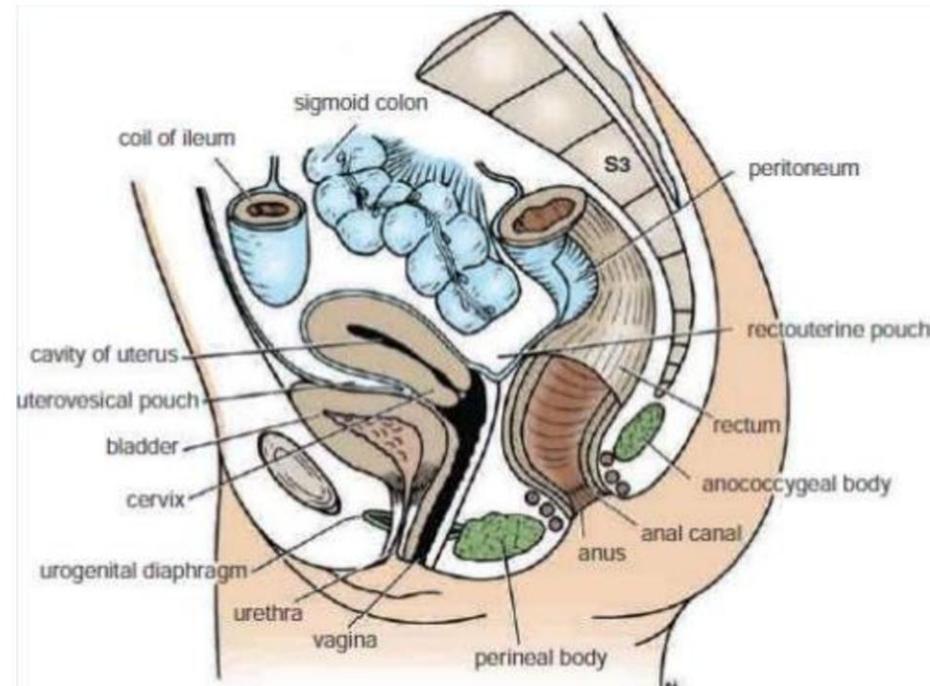
Relations of anal canal



**Anterior & posterior
Relations of anal canal in
males**

Sagittal Sections of male & female pelvis

**Anterior & posterior
Relations of anal canal in
females**



Relations of anal canal

ANTERIORLY-

Perineal body &

In Males- membranous urethra

& bulb of penis

**In Females – Lower part of
vagina**

POSTERIORLY –

Anococcygeal ligament

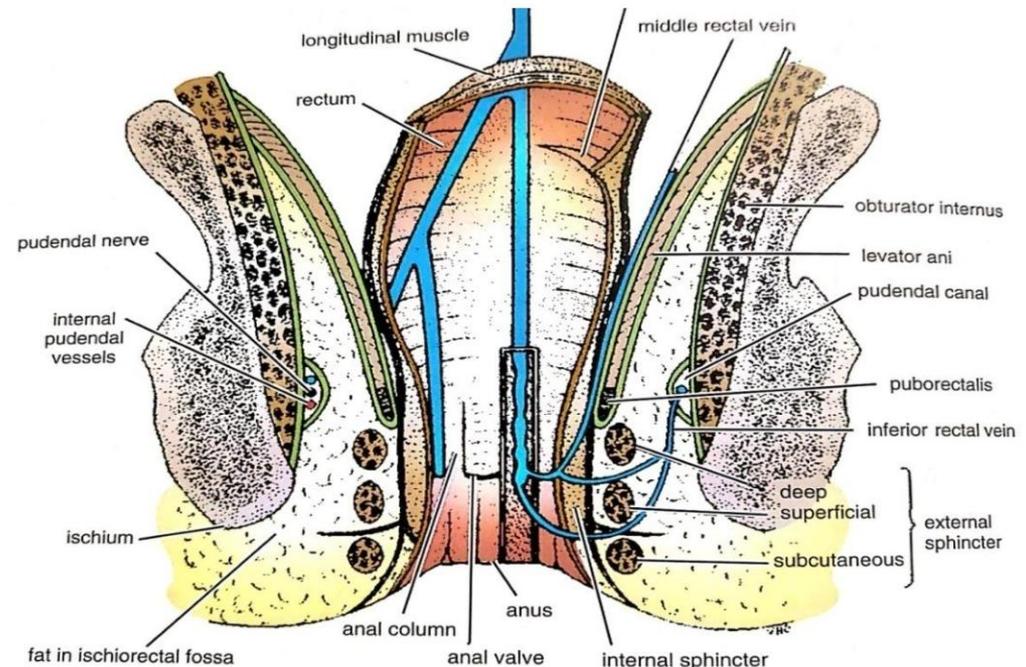
Tip of coccyx

LATERALLY –

Ischioanal fossa

ALL AROUND –

Sphincter muscles



Coronal section of pelvis & perineum

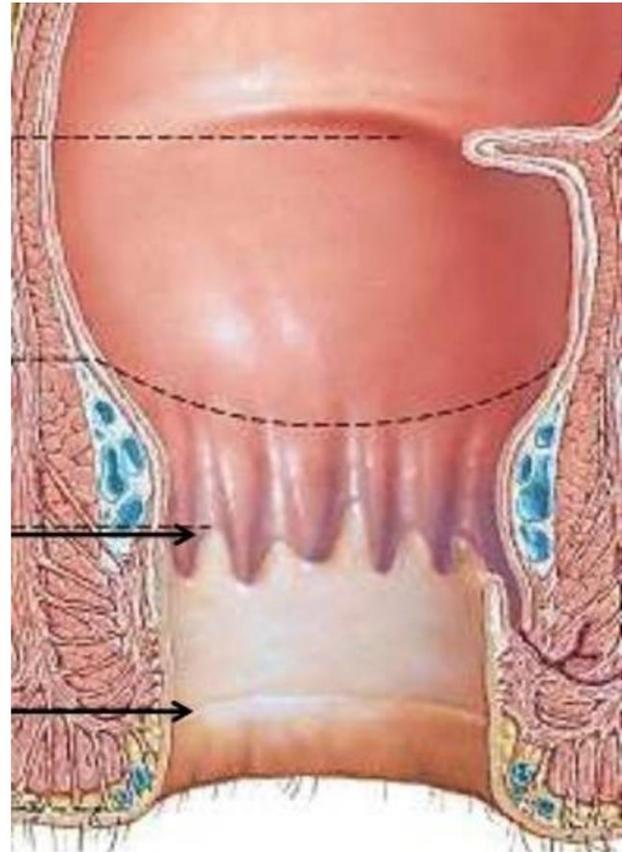
Interior of Anal Canal (Subdivisions)

Subdivided into 3 parts:

Upper part- 15mm

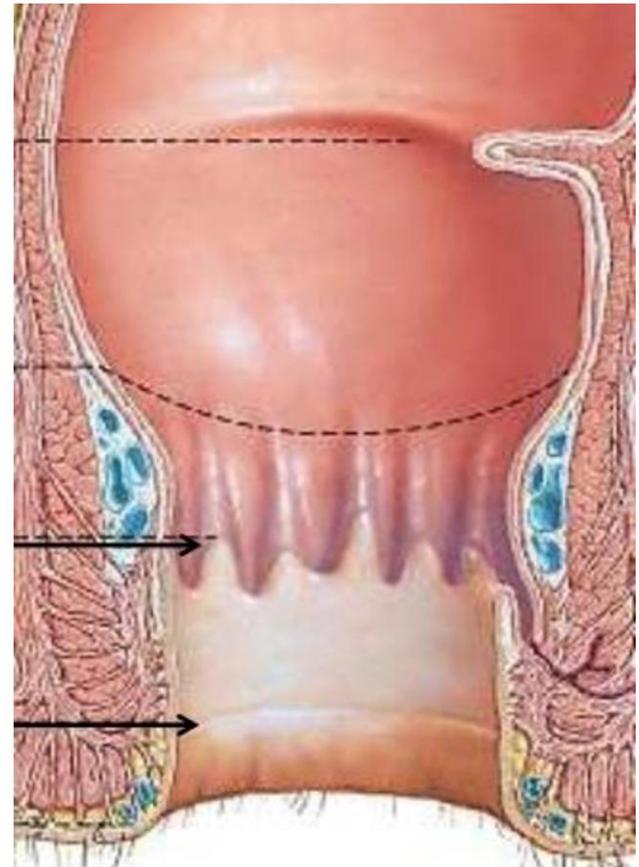
Middle part- 15 mm

Lower part – 8 mm



Upper part

- 15 mm long
- Endodermal in origin- primitive anorectal canal
- Lining – mucus membrane
- Epithelium – simple/ stratified columnar
- Colour - Plum red
- Special features –
 - Anal columns
 - Anal valves
 - Pectinate / dentate line
 - Anal papillae



Special features of upper part

ANAL COLUMNS

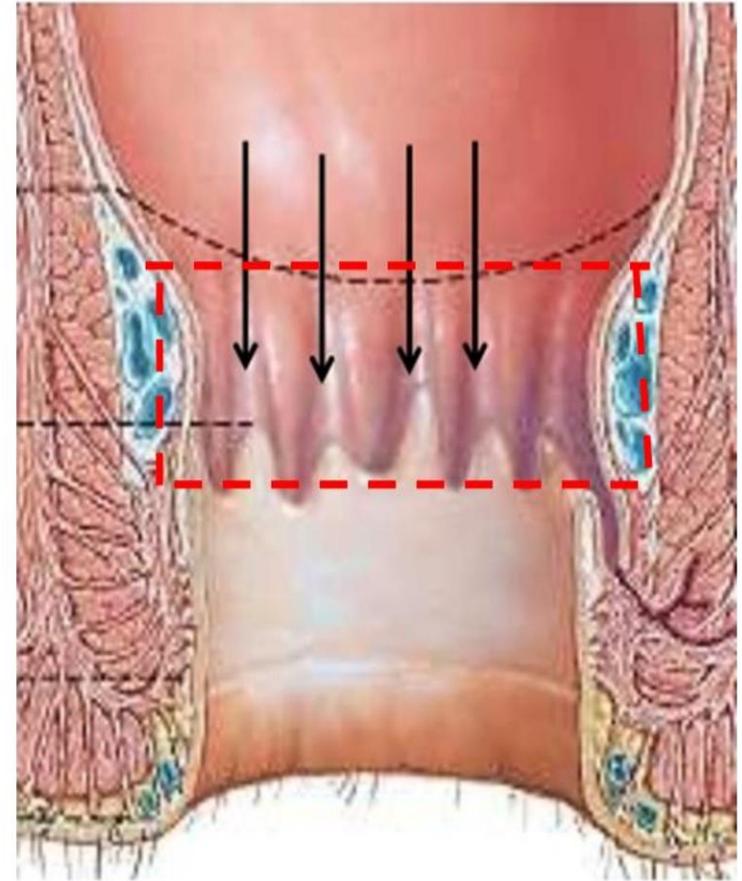
- 6-10 vertical mucosal ridges
- Permanent mucosal folds
- Contain radicals of superior rectal vein

ANAL VALVES

- Semilunar mucosal folds uniting lower end of anal column
- Form – PECTINATE LINE

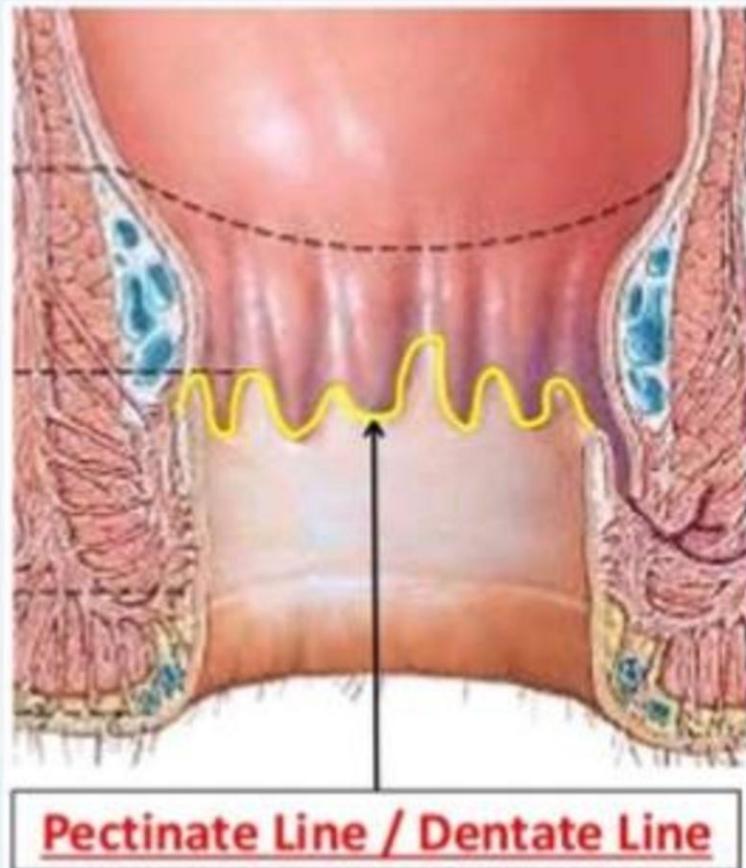
ANAL SINUS

- Depression above anal valve
- Floor contains openings of anal glands



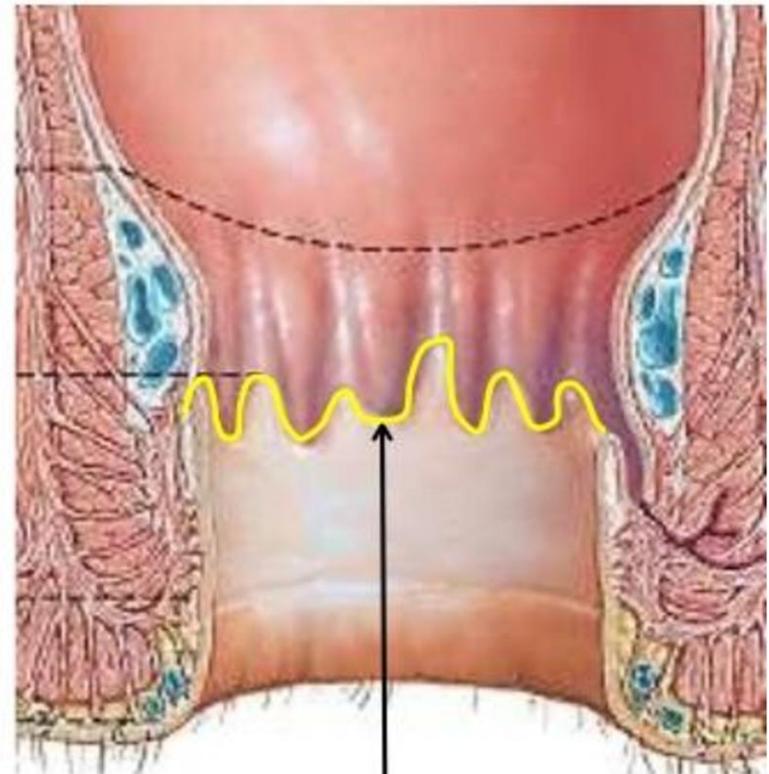
The pectinate line

- The pectinate line is **not seen** on inspection in **clinical practice**, **but under anesthesia** the anal canal descends down, and the pectinate line can be seen on slight retraction of the anal canal skin.



Importance of pectinate line

- Divides canal into 2 parts that are different:
 - In **development**
 - In **arterial supply**
 - In **venous drainage**
 - In **lymphatic drainage**
 - In **nerve supply**



Pectinate Line / Dentate Line

Middle part/ Pecten

Length -15 mm

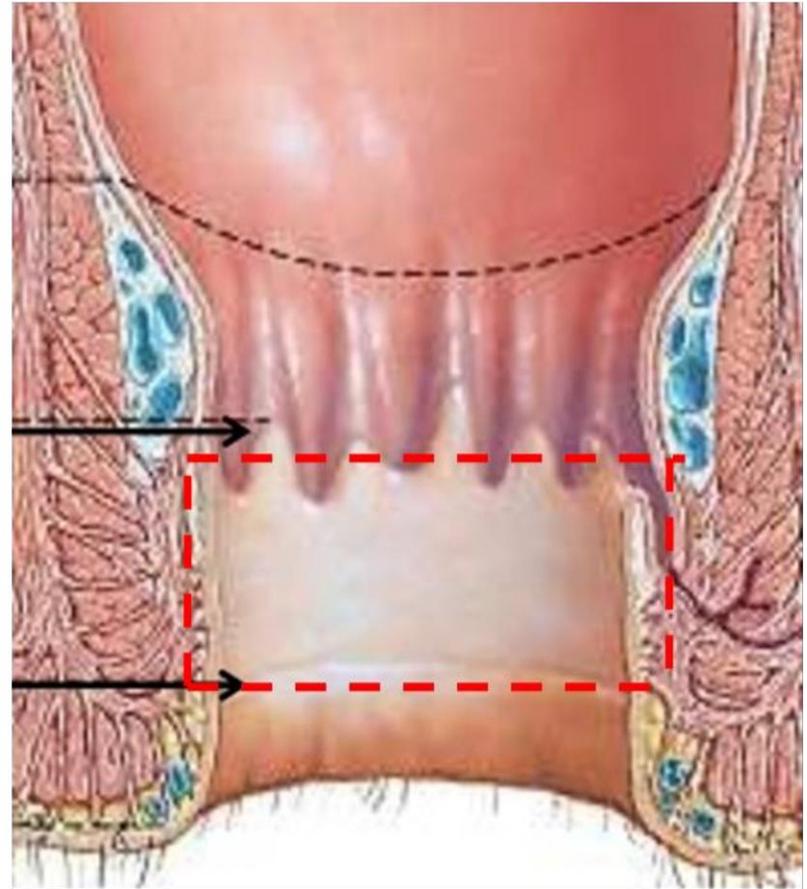
Ectodermal origin- proctodeum

Epithelium- stratified squamous

Bluish pink in appearance

- Due to presence of dense venous plexus between mucosa and muscle coat

No glands – sweat/ sebaceous



Lower part

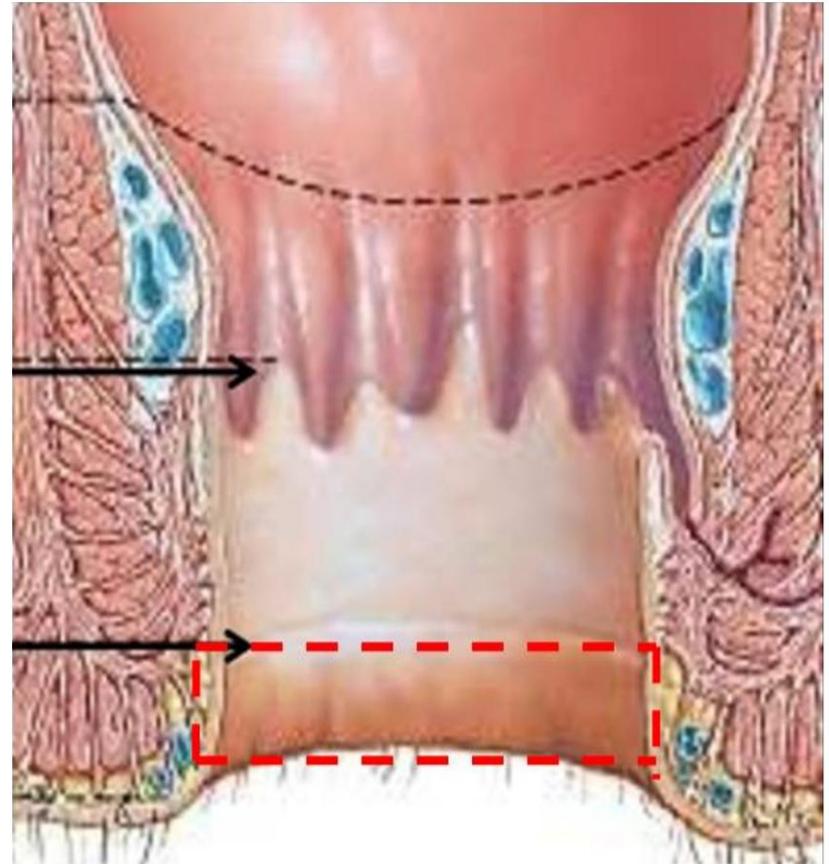
Length -8 mm

Ectodermal origin-
proctodeum

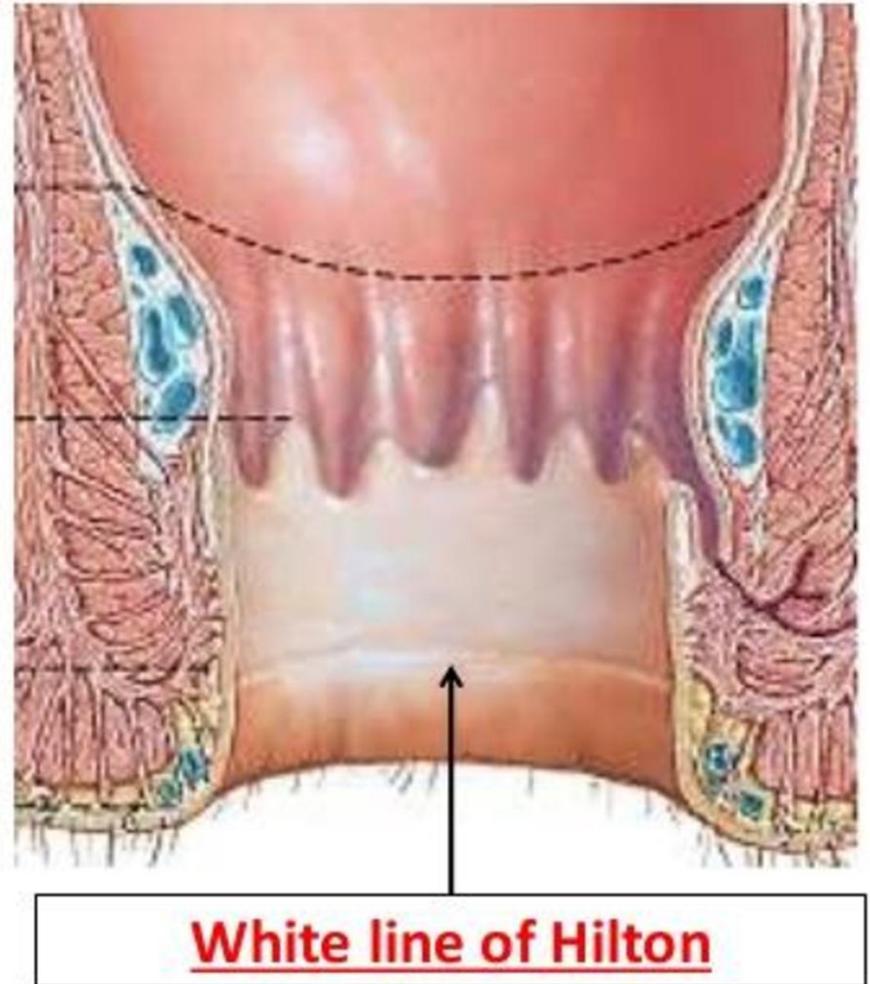
Epithelium- stratified
squamous keratinized
(true skin)

Pigmented skin

Glands present – sweat/
sebaceous & hair



- **Contrast between bluish pink mucosa and black skin**
- **WHITE LINE OF HILTON**
- **At the level of lower end of internal anal sphincter/ intersphincteric groove**

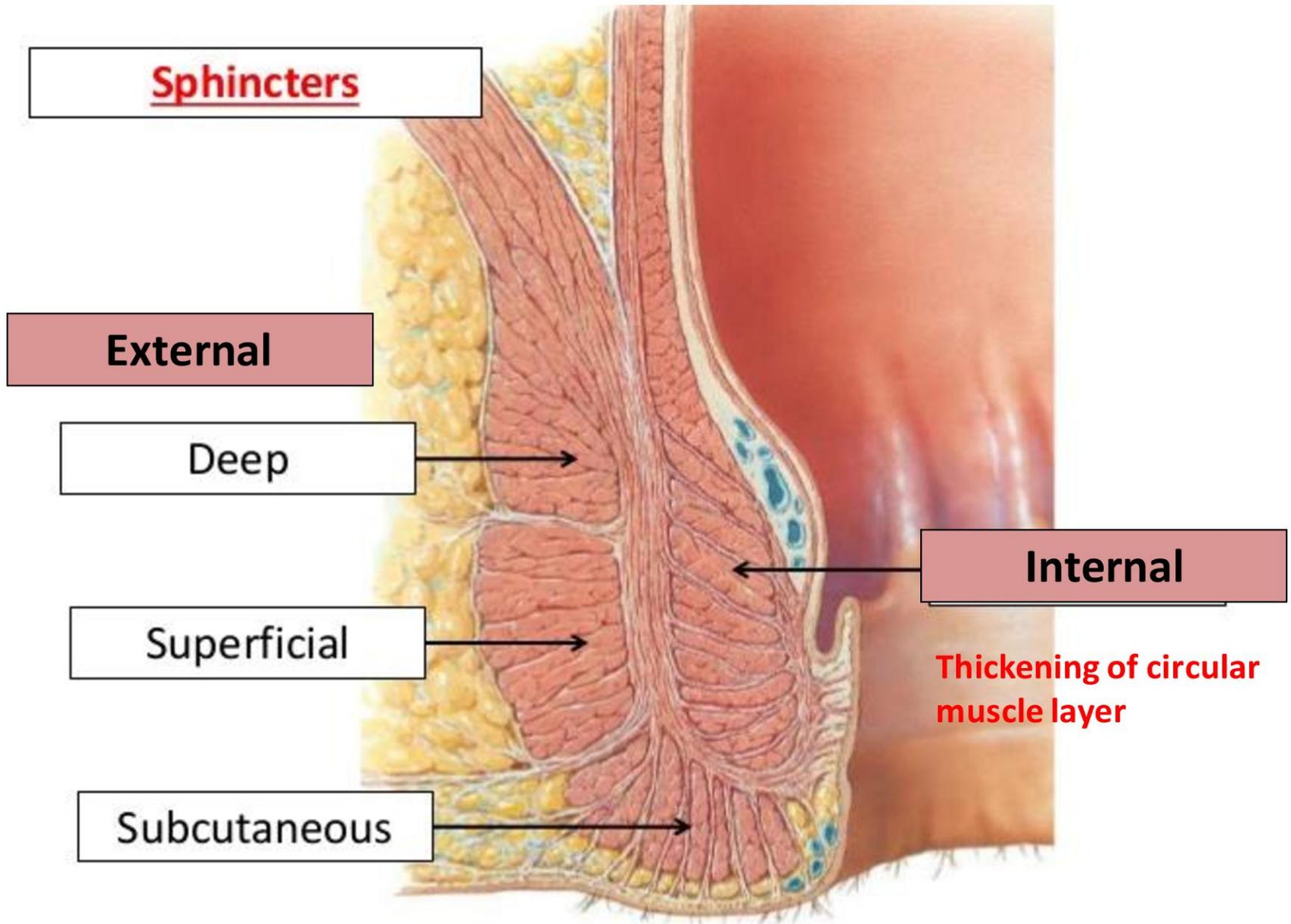


Musculature of Anal Canal

- **Anal Sphincters**
- **Conjoint longitudinal coat**
- **What is the Anorectal ring ?**

**Circular layer &
Longitudnal layer**

Anal Sphincters



Anal Sphincters

Internal anal sphincter

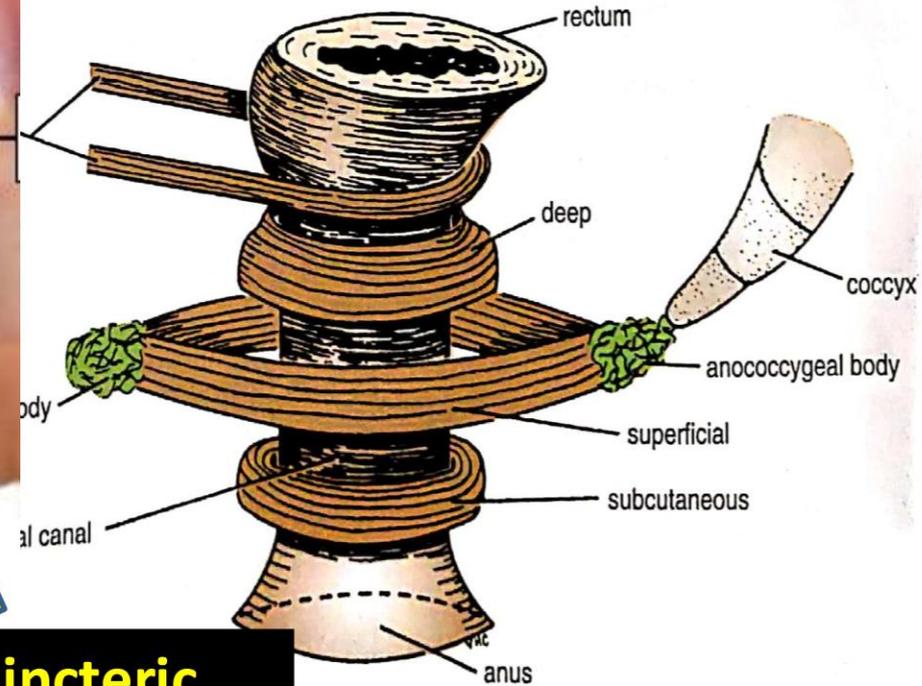
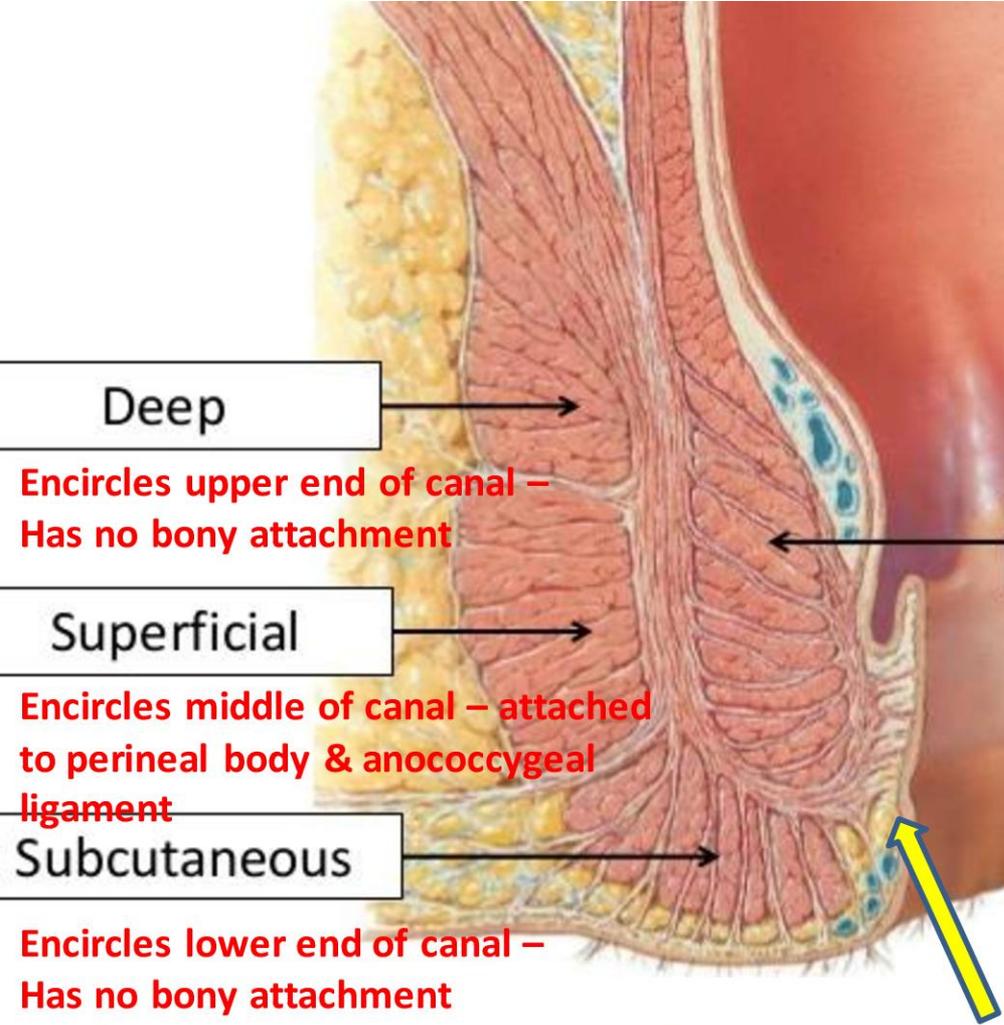
- Smooth muscle- Thickened circular muscle layer
- Involuntary
- Surrounds upper 3/4th of canal
- Ends at white line of Hilton
- Intersphincteric groove between it and subcutaneous part of external sphincter

External anal sphincter

- Skeletal muscle
- Voluntary
- Surrounds whole length of canal
- 3 parts-
 - Deep
 - Superficial
 - Subcutaneous

Sphincters allow defecation & maintain continence

External Anal Sphincter

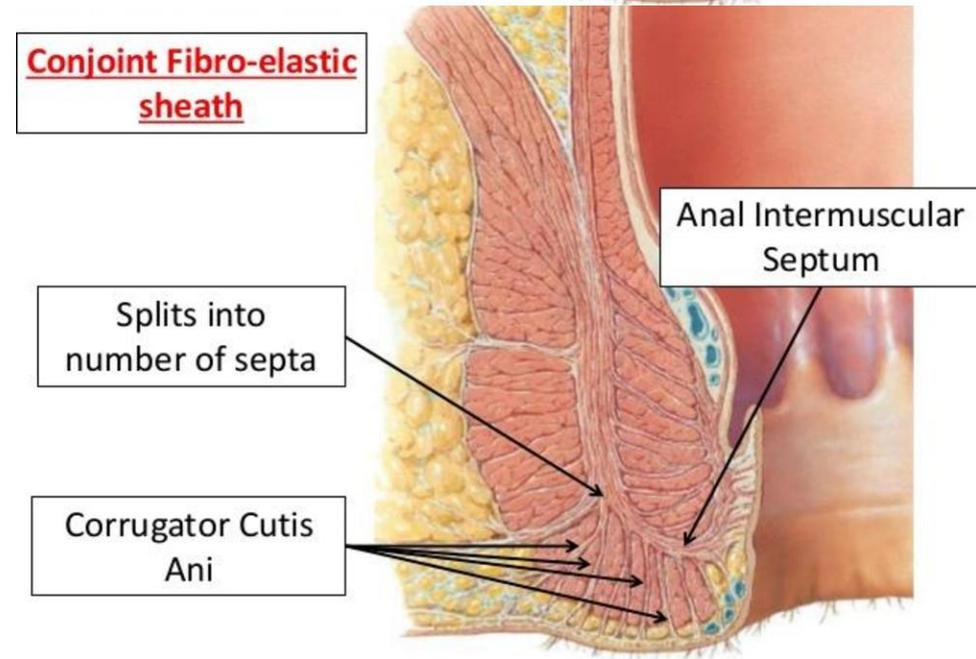
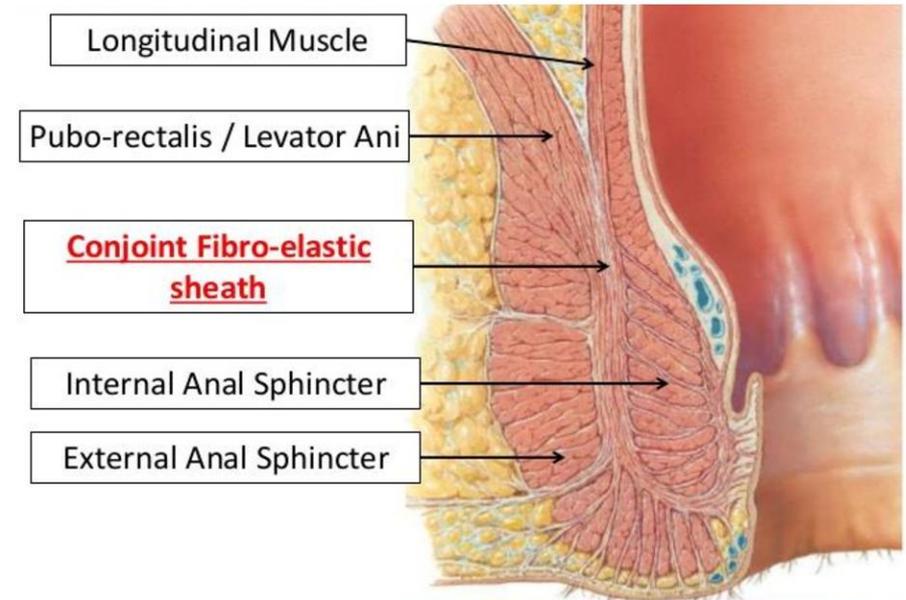


Single
Functional & Anatomic
entity

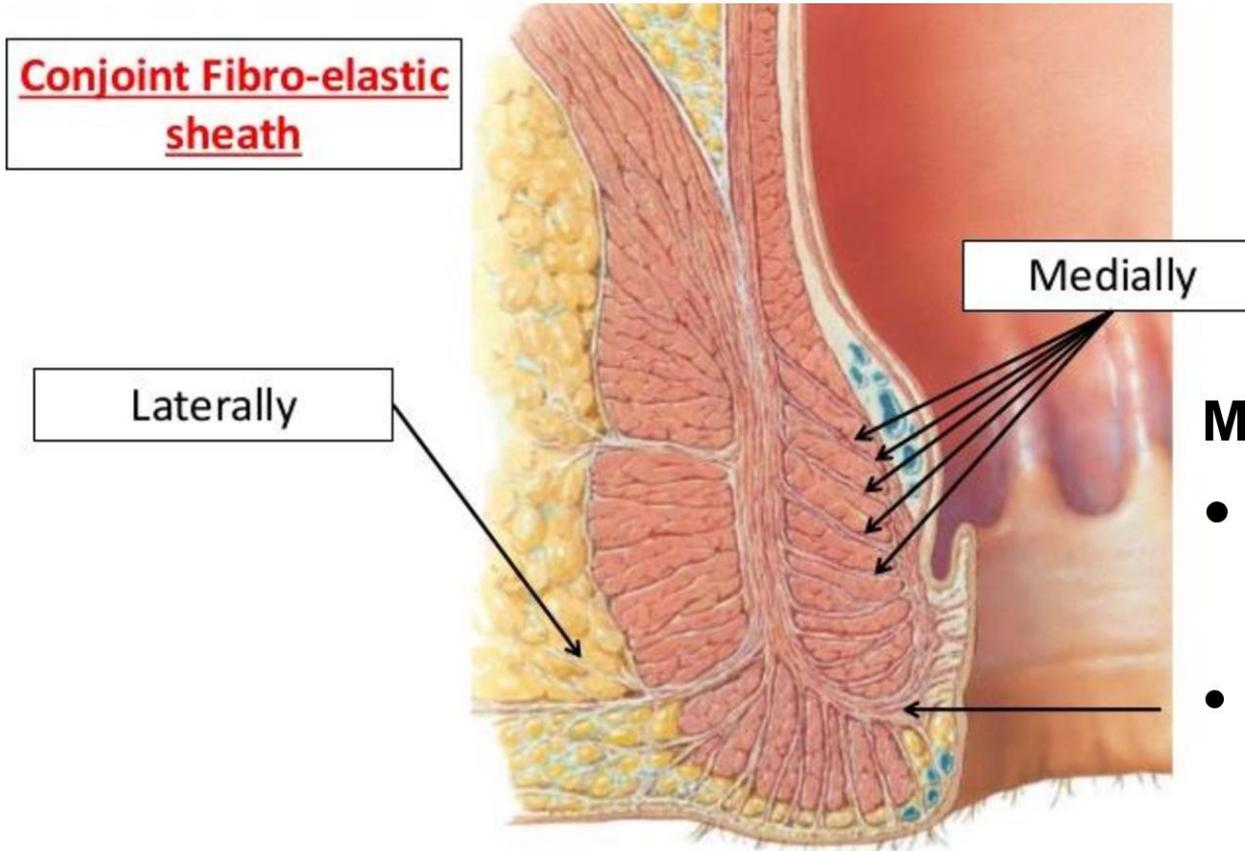
Intersphincteric
groove

Conjoint Longitudnal coat

- Formed by fusion of puborectalis with longitudinal muscle of rectum
- Lies between Internal & external sphincter
- Forms a fibroelstic sheath that breaks lower down into septa in a fanwise manner



Conjoint Longitudnal coat

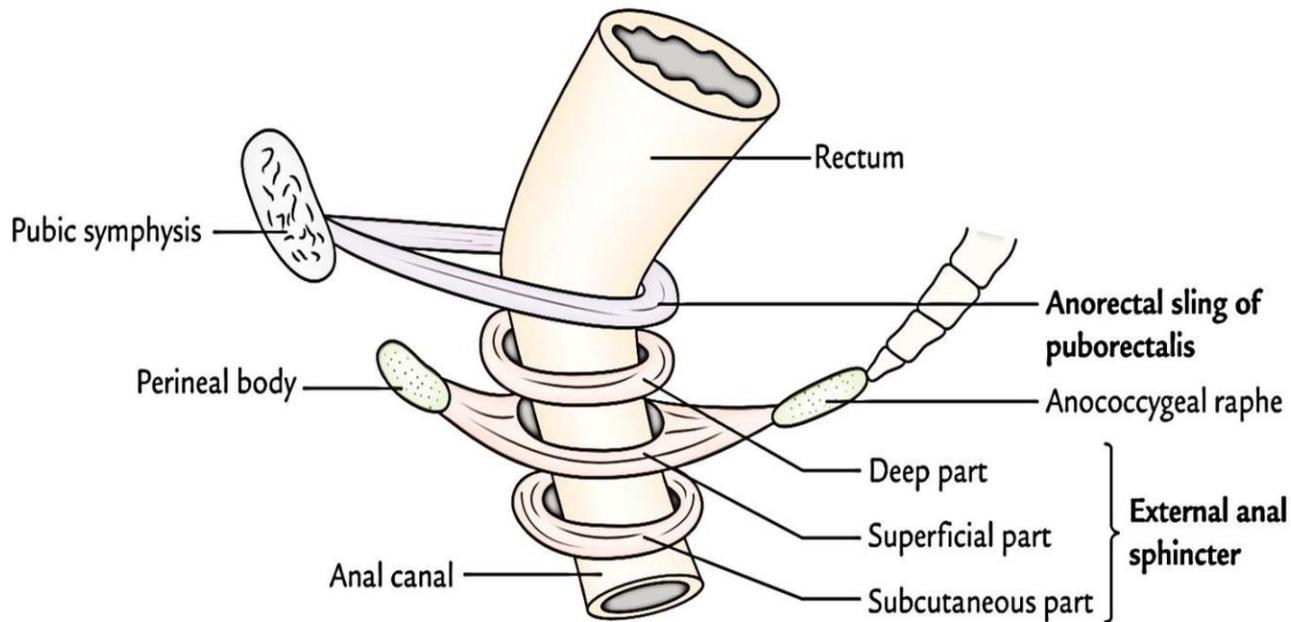


Medially –

- Forms **anal intermuscular septum**
- Some pass through internal sphincter and end in submucosa

- **Laterally** – most lateral forms **perianal fascia**
- **Inferiorly** – pierce subcutaneous External sphincter attached to skin – forms **corrugator cutis ani**

Anorectal ring

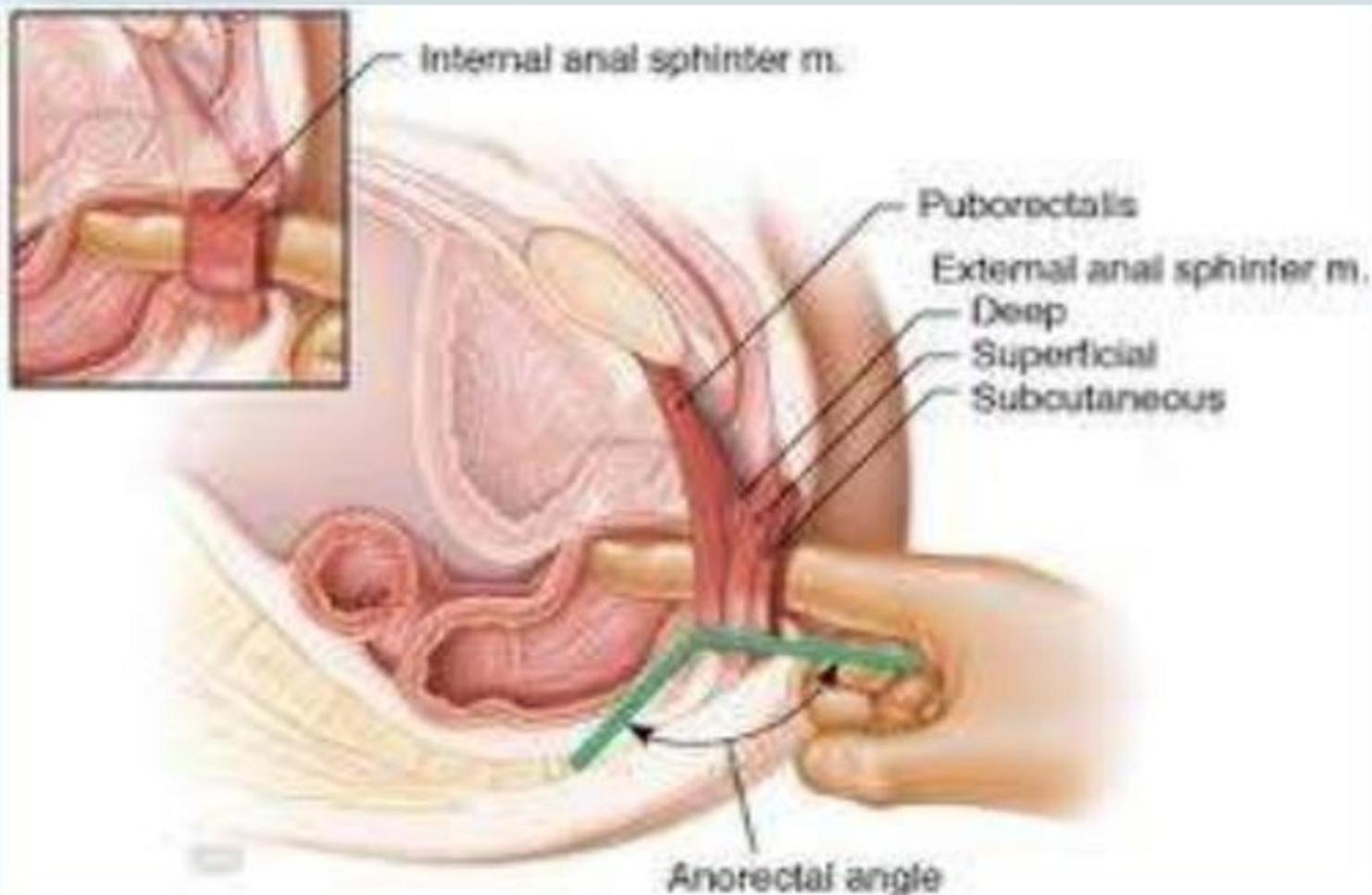


It is formed by the joining of :

- the puborectalis muscle
- the deep external sphincter,
- conjoined longitudinal muscle
- the highest part of the internal sphincter

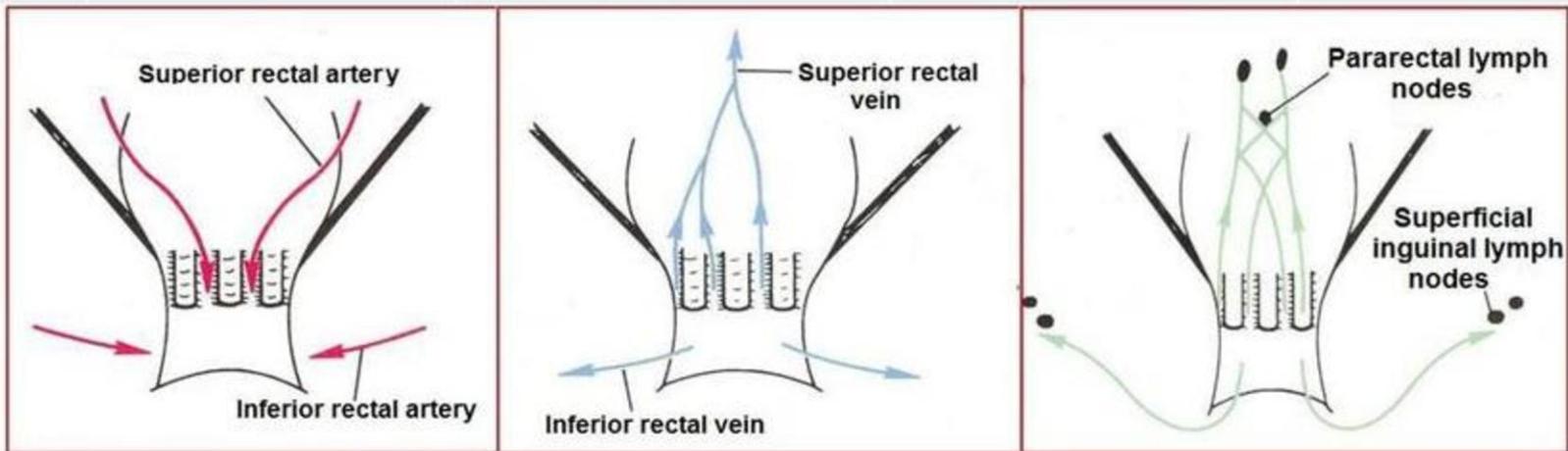
**Damage of the ring
results in
Incontinence**

- **The anorectal ring**



- The anorectal ring can be clearly **felt digitally**, as a **thickened ridge**, especially on its posterior and lateral aspects.

Anal canal	Arterial supply	Venous drainage	Lymphatic drainage	Nerves
Upper half	Superior rectal artery (continuation of the inferior mesenteric artery)	Superior rectal vein drained into the inferior mesenteric vein (portal circulation)	Para-rectal nodes drained into inferior mesenteric lymph nodes	Visceral motor (sympathetic & parasympathetic) & sensory nerves Through inferior hypogastric plexus
Lower half	Inferior rectal a. (branch of internal pudendal artery)	Inferior rectal vein drained into the internal pudendal vein (Systemic circulation) (site of portal-systemic anastomosis)	Superficial inguinal lymph nodes	Somatic motor & sensory nerves Through inferior rectal nerve



Clinical & surgical anatomy

- **Hemorrhoids**
 - **Internal**
 - **External**
- **Anal Fissure**
- **Anal Fistula**
- **Anal / Perianal abscess**

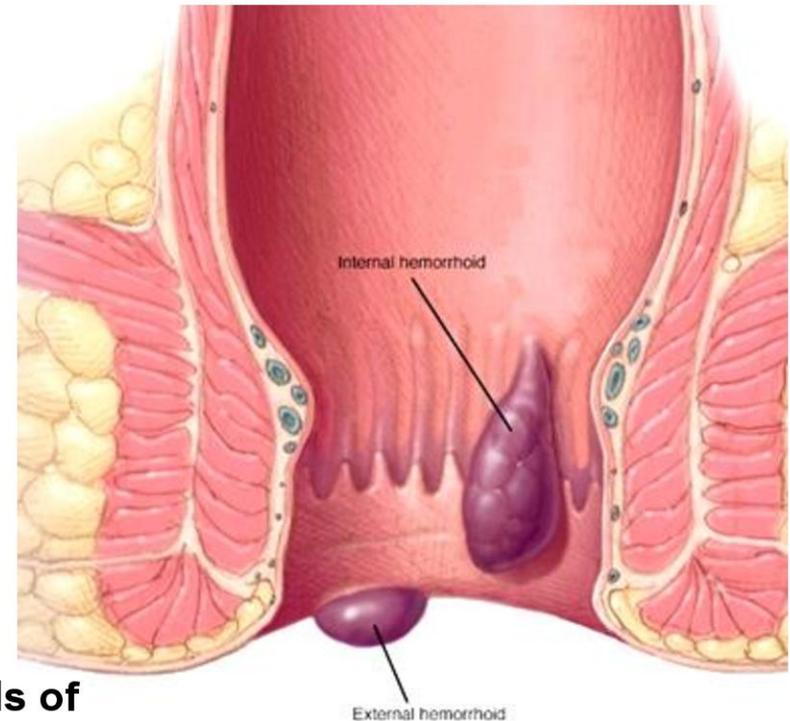
Hemorrhoids

- **Fold of mucous membrane and submucosa with varicose venous tributary**

INTERNAL

EXTERNAL

caused by increased straining or intra-abdominal pressure (e.g., due to constipation, pregnancy or extended periods of sitting).

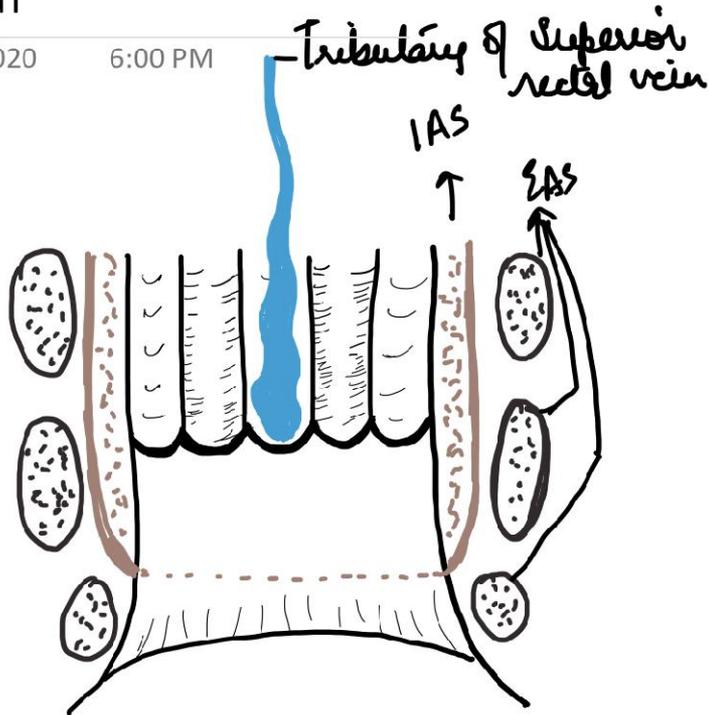


Patients may present with prolapse, rectal bleeding, pain, and pruritus.

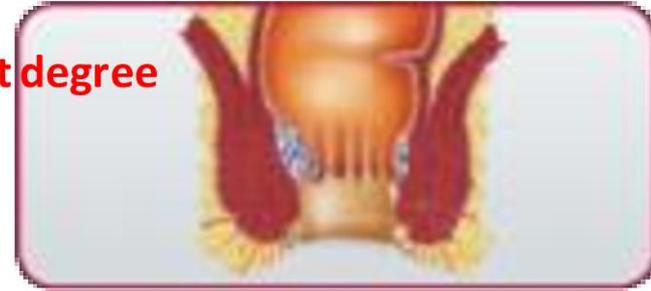
Internal Hemorrhoids

11

120 6:00 PM



First degree



Second degree



Third degree

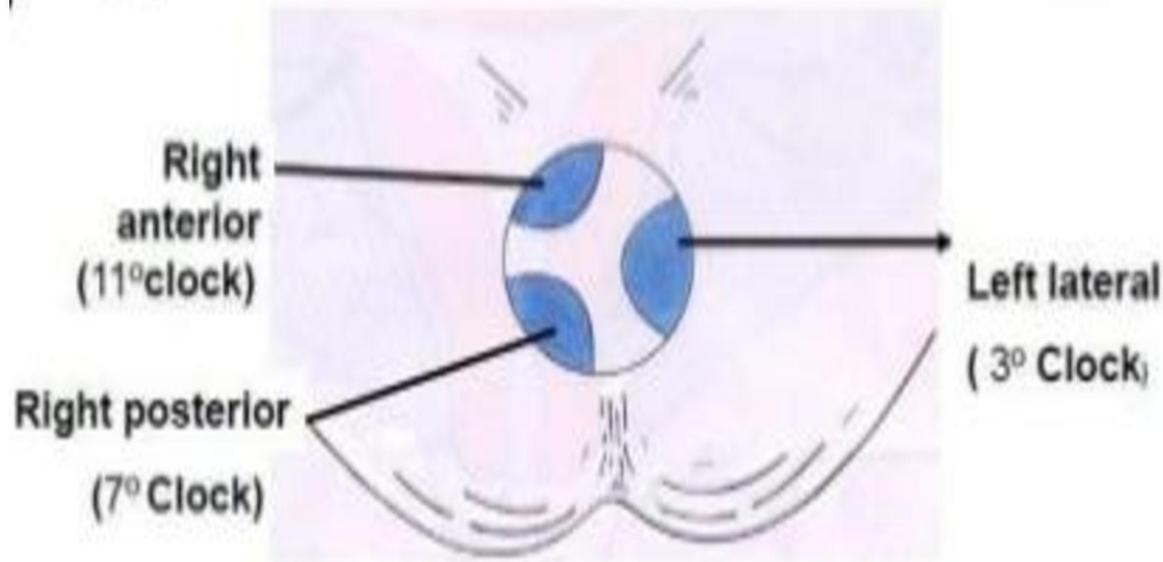


- Tributaries of superior rectal vein, covered by mucosa
- Protrusion from anal columns in upper half of canal
- Commoner is certain specific locations
- Sensitive only to stretch so may cause non specific aching pain/ painless

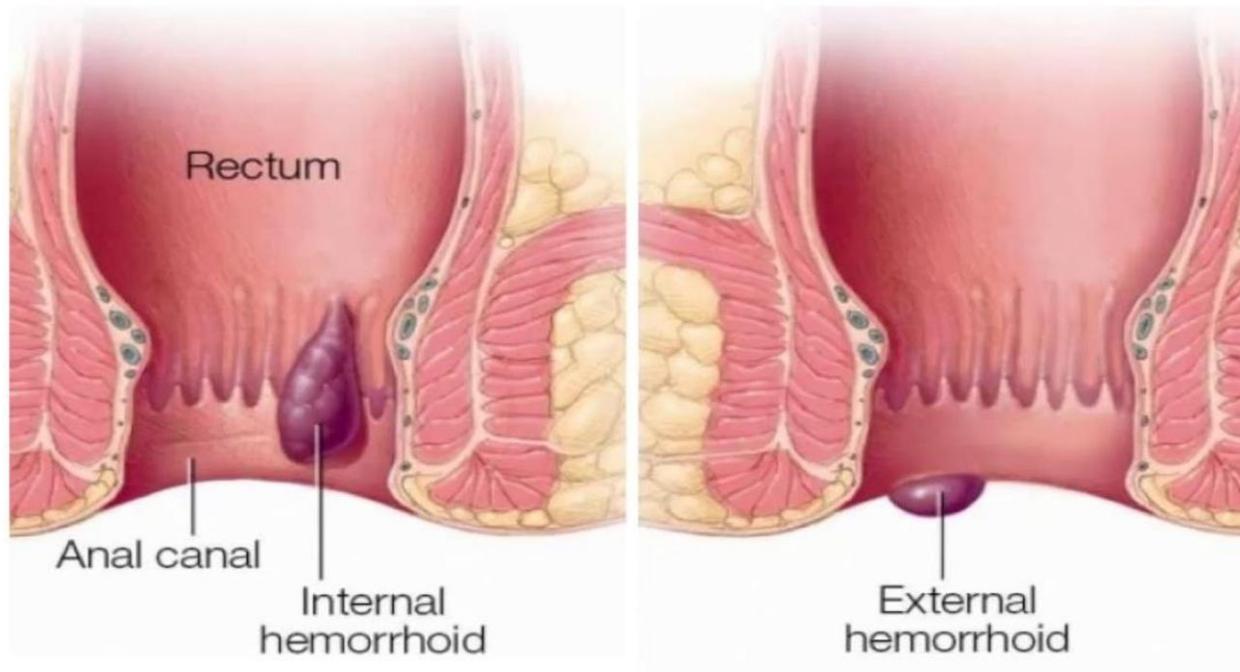
PRIMARY PILES

- Enlargement of 3 main radicles of superior rectal veins in anal columns
- usually occur at 3(left lateral), 7 (right posterior) & 11 o clock (right anterior) position

SECONDARY PILES- any other location



External hemorrhoids

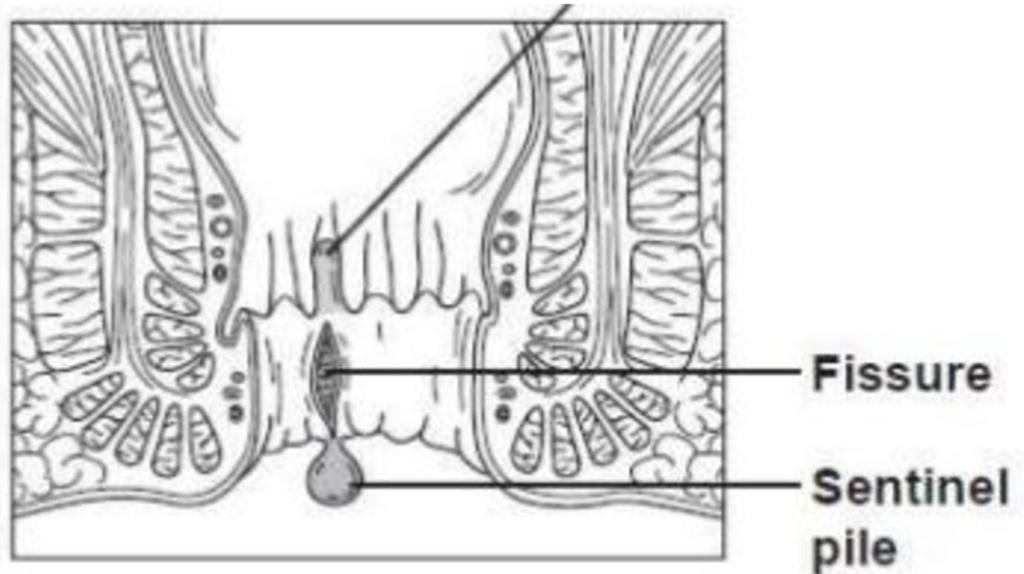


- **Tributaries of inferior rectal vein**
- **At the anal margin**
- **Covered by skin**
- **Painful**

Anatomical basis of engorgement of anal cushions

- **P**ressure over veins at sites where they pierce the muscular coat, during muscle contraction
- **I**ncreased portal pressure is directly transmitted at portosystemic communications due to absence of valves
- **L**oose connective tissue around veins forms a poor support
- **E**xcessive straining associated with chronic constipation
- **S**ome may have congenital weakness in vein walls

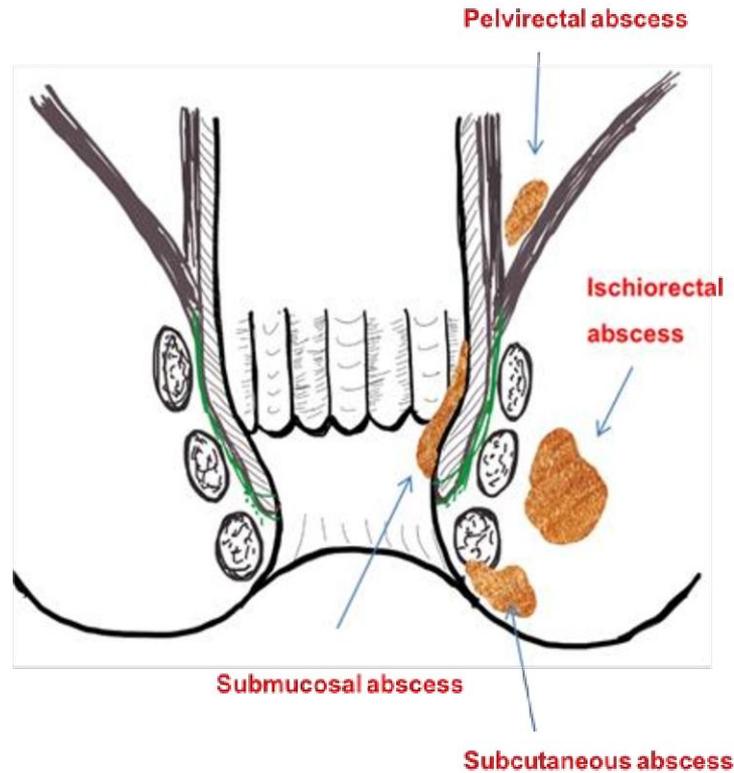
Anal Fissure



- Elongated ulcer in mucosa due to tearing of anal valves
- In people suffering from chronic constipation
- Extremely painful (lower part of canal)
- Mostly posterior midline, may occur in anterior midline (superficial external sphincter does not encircle anteriorly & posteriorly)

Anal Abscess

- Due to fecal trauma to anal mucosa
 - Infection in submucosa following fissure
 - Complication of fissure
 - Infected anal mucosal glands
- On the basis of location
 - Submucosal abscess
 - Subcutaneous abscess
 - Ischiorectal abscess
 - Pelvirectal abscess



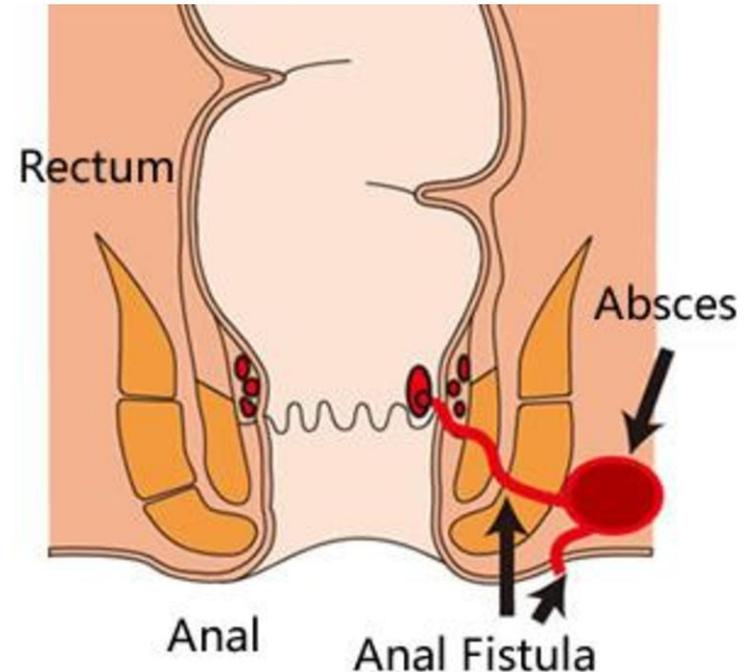
is a painful condition in which a collection of pus develops near the anus. This often appears as a painful boil-like swelling near the anus. It may be red in color and warm to the touch.

Anal abscesses located in deeper tissue are less common and may be less visible.

Anal Fistula

CAUSE:

- Due to spread of infection from anal abscess
- Due to improper treatment of anal abscess
- Abscess opens at two places
 - In the lumen of anal canal or lower rectum
 - On the skin of perianal region



An anal fistula is a small tunnel that develops between the end of the bowel and the skin near the anus

Digital Rectal Examination-by gloved index finger

- **Anteriorly:**

- Opposite Terminal phalanx

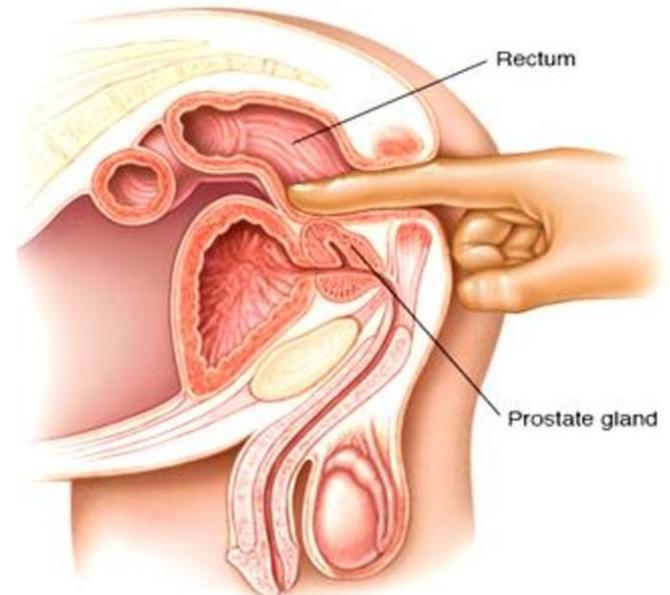
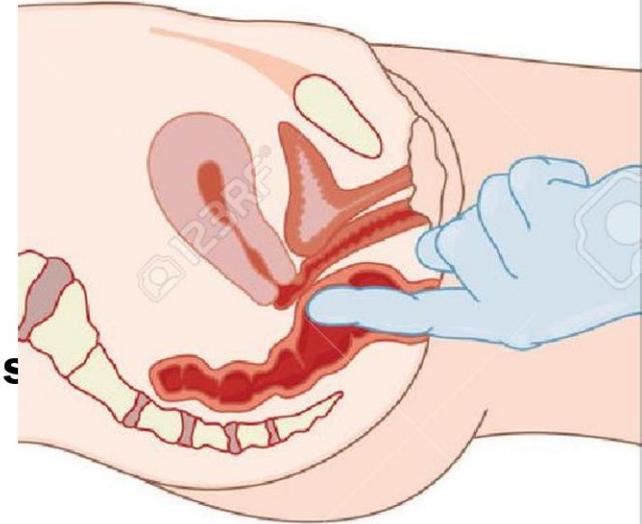
- In males- rectovesical pouch, posterior surface of bladder, seminal vesicles, vas deferens
- In females – rectouterine pouch, vagina, cervix

- Opposite Middle phalanx

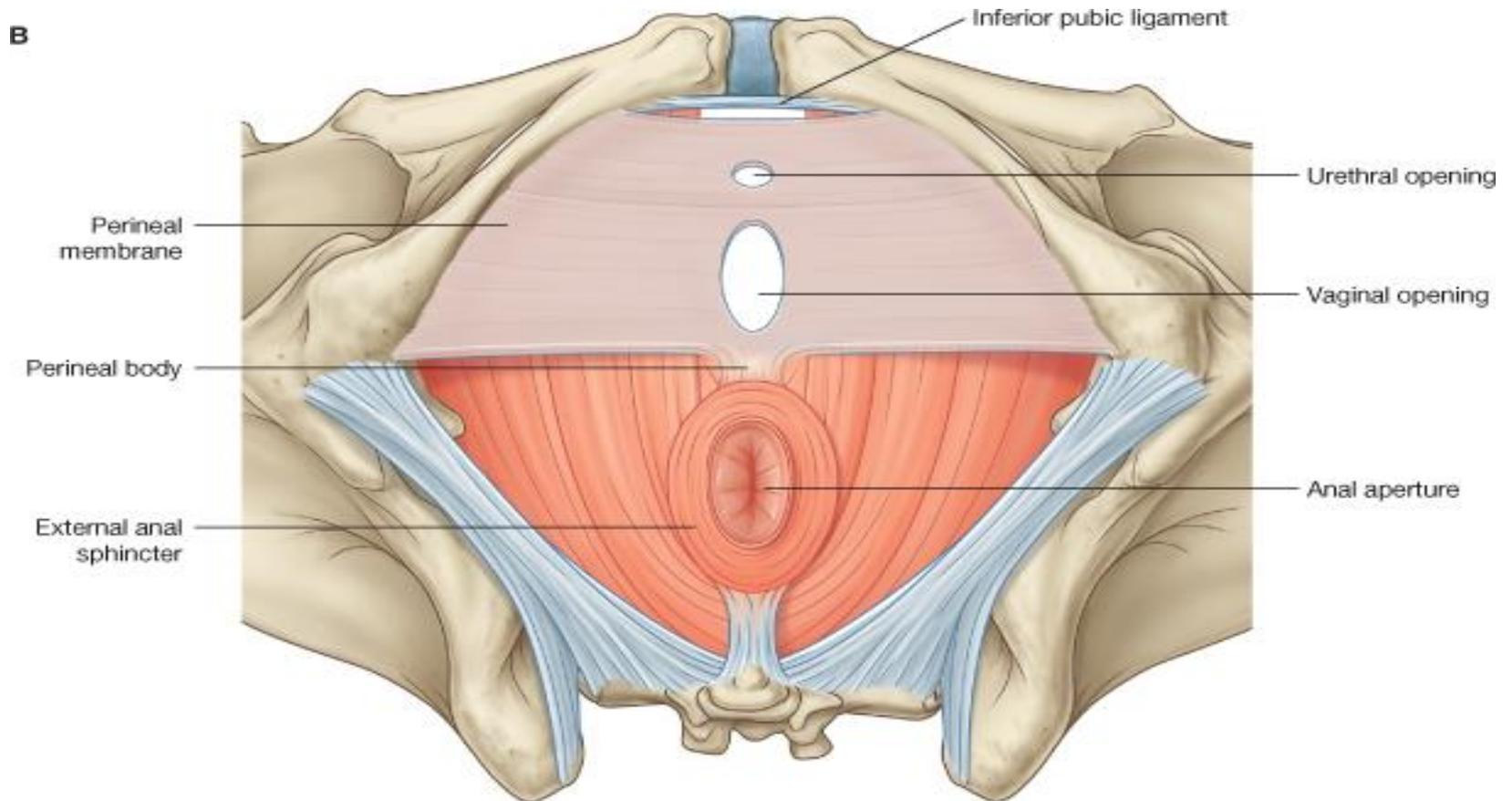
- In males – prostate
- In females – vagina

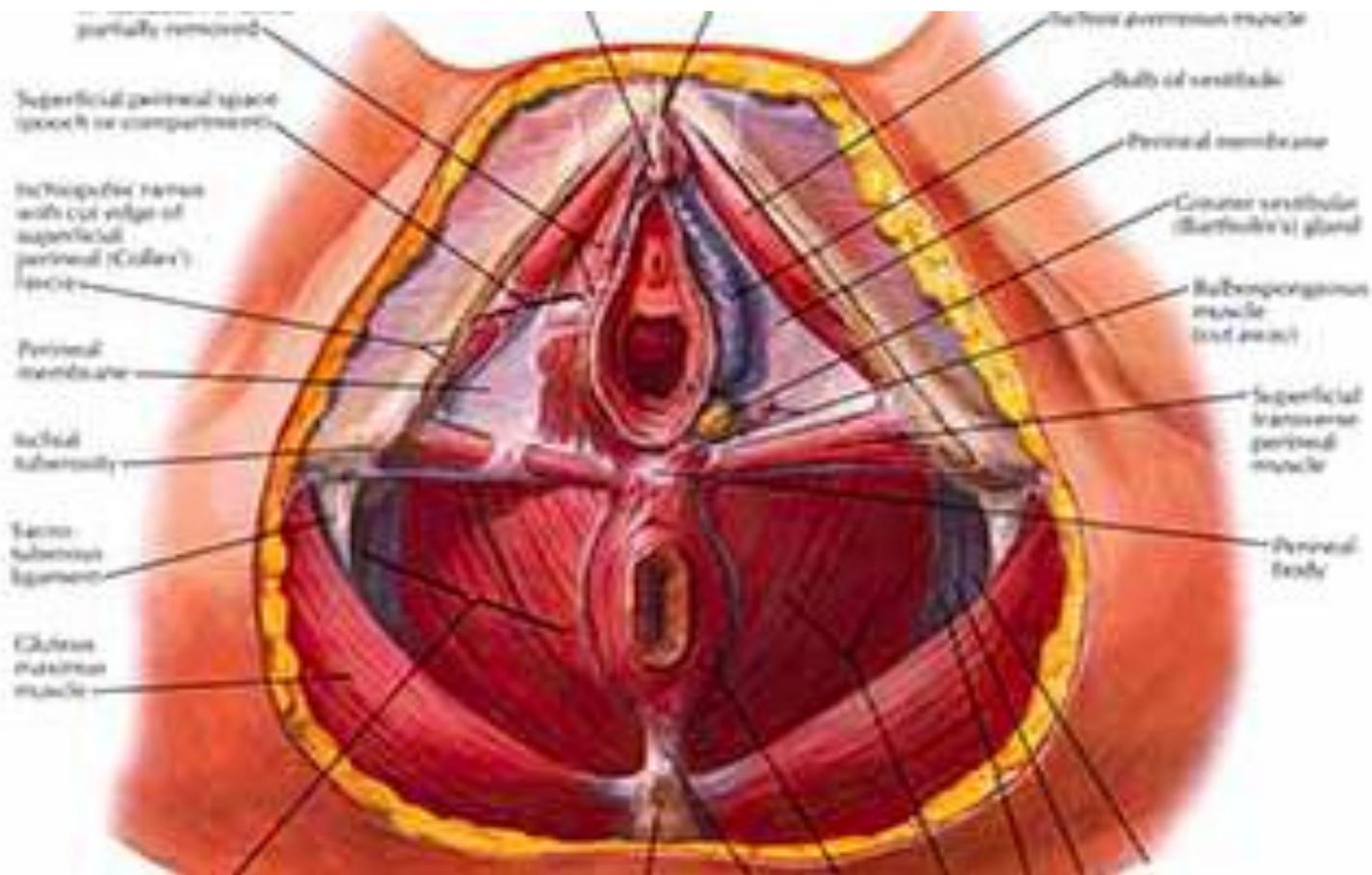
- Opposite Proximal phalanx

- In males- perineal body, bulb of penis
- In females – perineal body, lower vagina



Pelvic Floor





Pelvic Floor Assessment Lab

Pelvic Floor- Superficial muscles

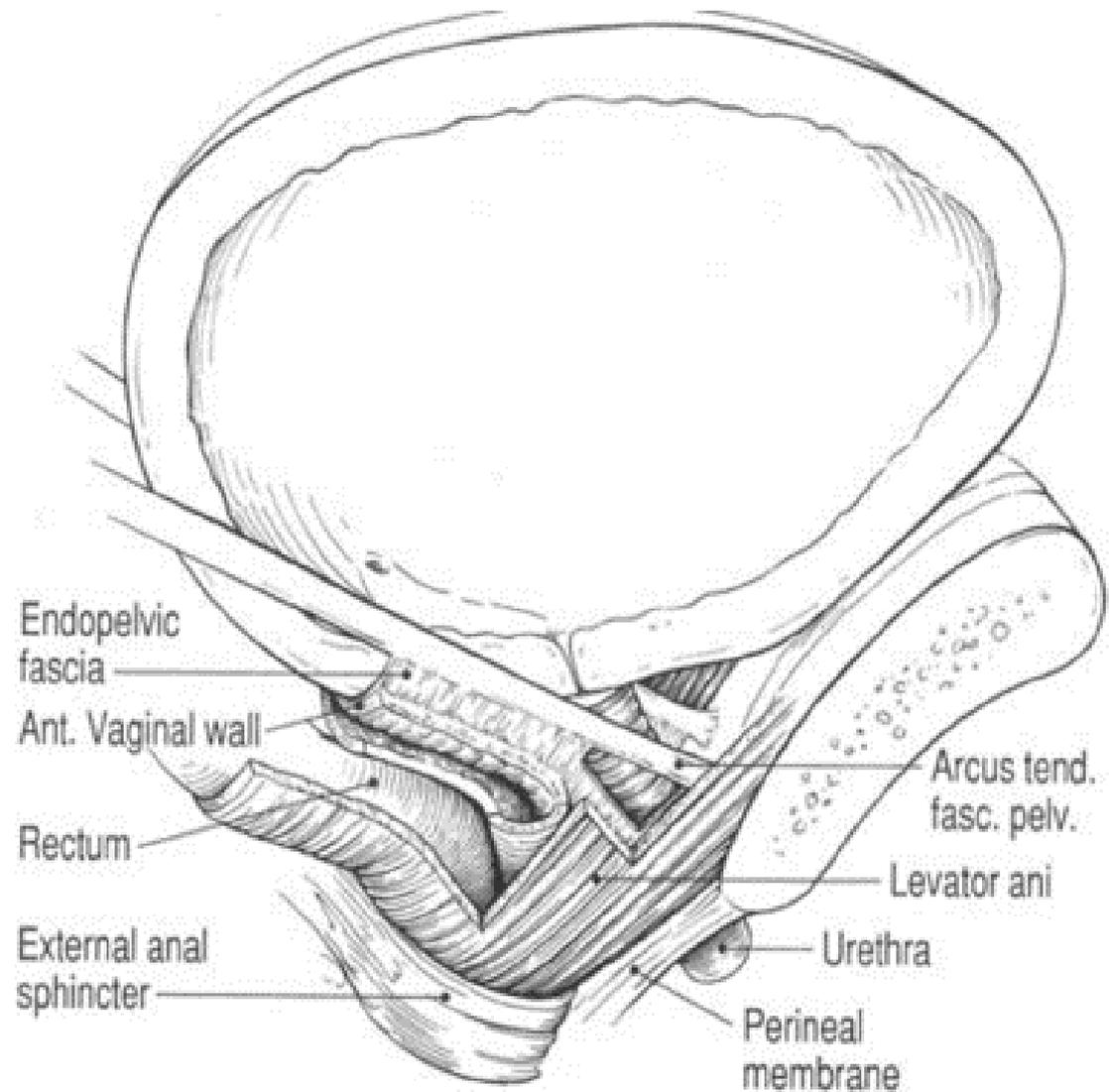
- Bulbospongiosus
- Ischiocavernosus
- Superficial Transverse Perineal
- Perineal Body

Deep pelvic Floor Muscles :

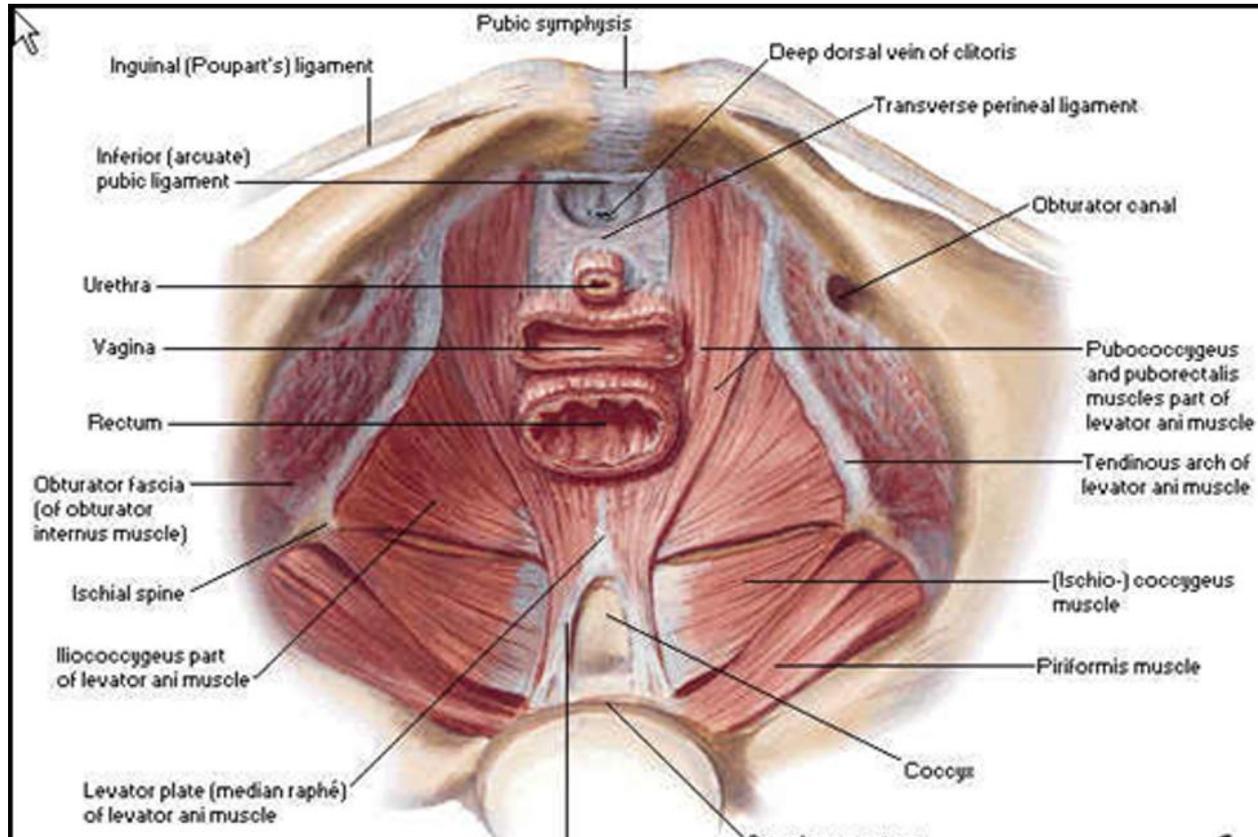
Levator Ani

- Pubovisceral
puboperinealis
Pubovaginalis
Puboanalis
Puborectalis
- Pubococcygeus
- Ileococcygeus
- Coccygeus

Endopelvic Fascia

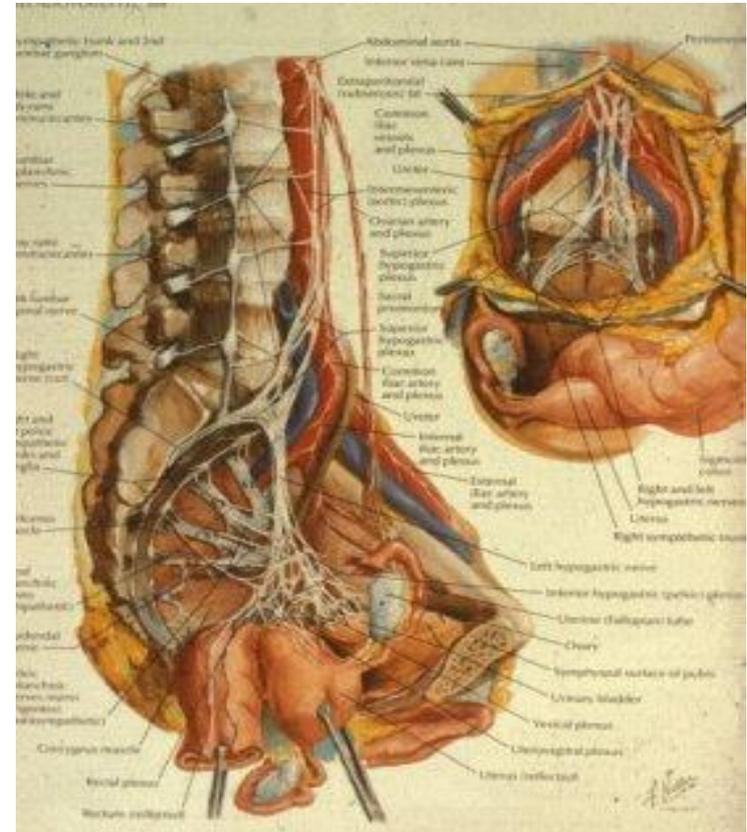


Deep Layer



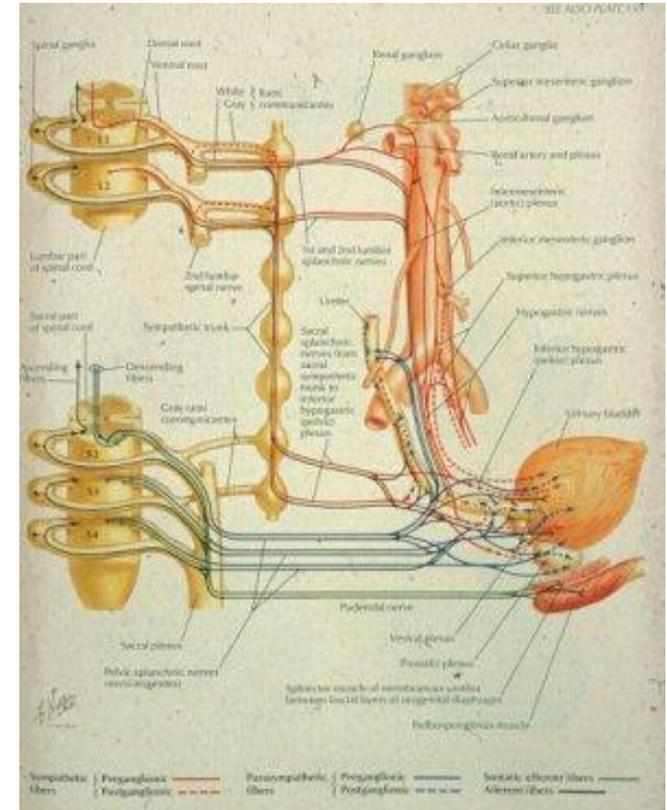
Pelvic Plexus

- Lumbar splanchnics L1-L2
- Presacral nerve
- Anterior to body of L5
- Divide into pelvic plexuses
- Postganglionic of sympathetic that relayed in lumbar and sacral ganglia causes contraction of sphincters of bladder and anal canal



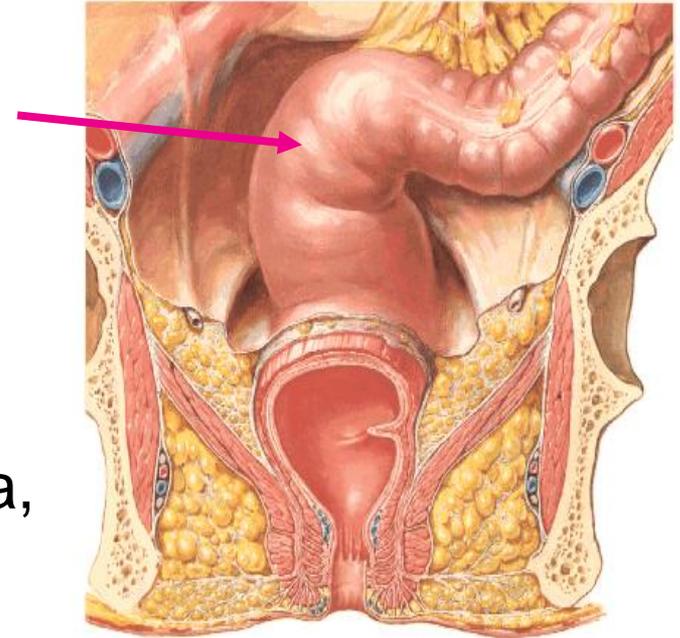
Pelvic Parasympathetic

- Preganglionic have cell bodies in lateral column of segments S2,3,4
- Ganglia found close to or in wall of organ
- Supplies intestine from splenic flexure to upper two thirds of anal canal, bladder
- Motor to walls and inhibitory to sphincters
- Parasympathetic causes erection



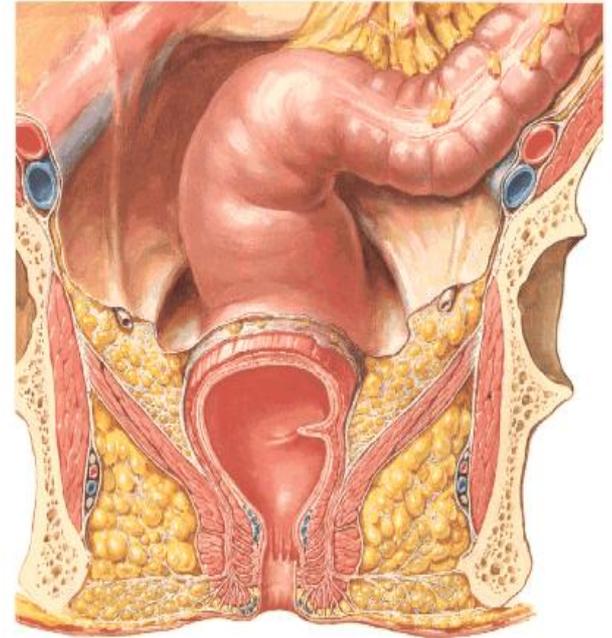
Rectum

- Rectum is a continuation of pelvic colon
- Starts at the third piece of the sacrum
- Ends 5 cm from the tip of coccyx
- Lower end is dilated at the ampulla, at the anorectal junction
- There are no taeniae and no appendices epiploicae on the rectum



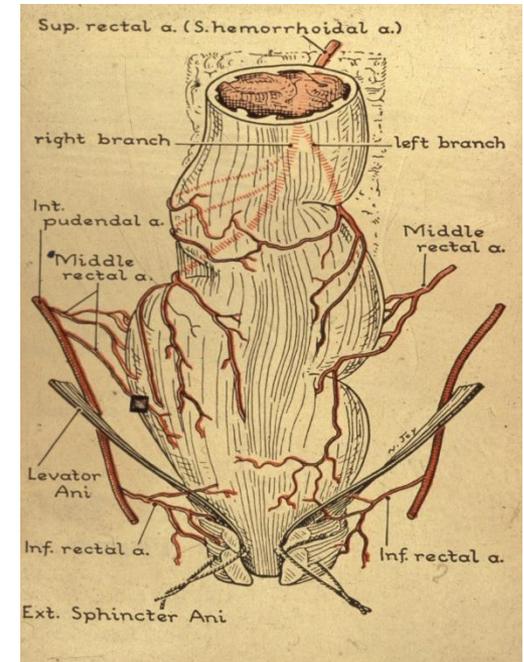
Rectum

- It has an antero-posterior curve, above it is angled anteriorly by the puborectalis
- Below convex forwards
- Three lateral curves
- Two concave to left, one to right, where the valves of Houston, which consist of circular muscle and mucous membrane
- Peritoneum covers upper third on front and sides
- Middle third on front, none on lower third



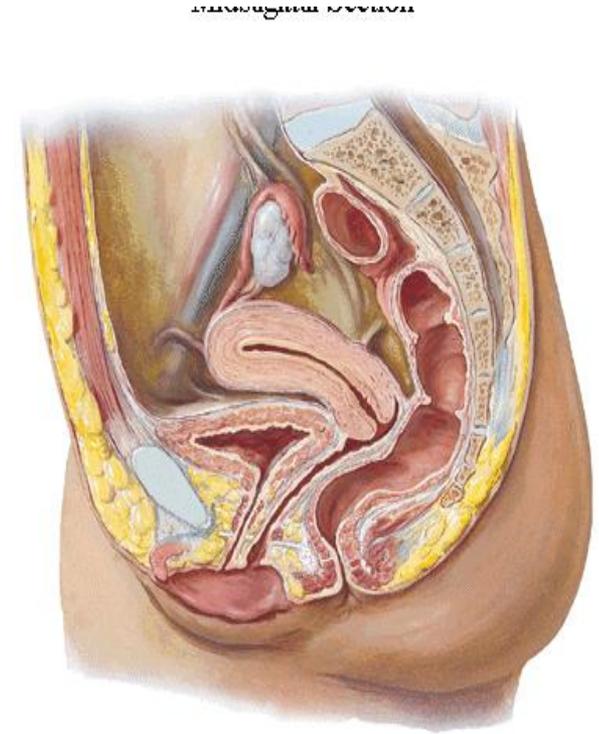
Blood Supply of Rectum

- Superior rectal, continuation of inferior mesenteric artery
- Runs in Waldyer's fascia from hollow of sacrum to the lower part of the ampulla of the rectum
- Supplies mucous membrane as far mucocutaneous junction of anal canal
- Venous drainage into portal system
- Middle rectal the muscle layer
- Small twigs from median sacral



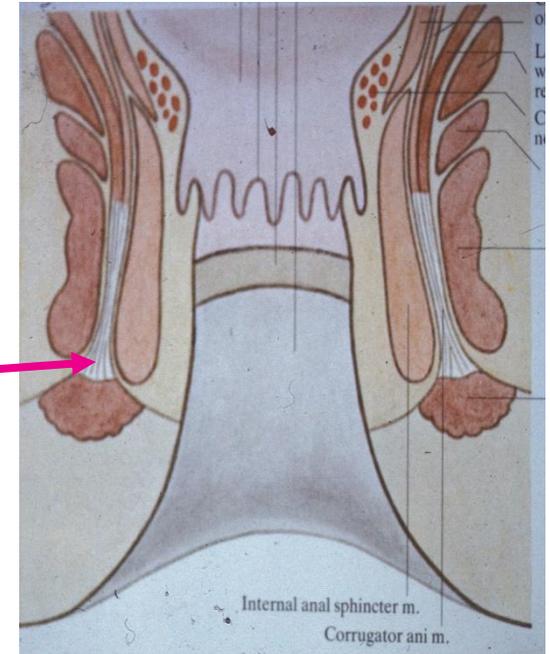
Anal Canal

- Starts at anorectal junction
- Below ampulla of rectum
- Passes backwards
- Approx 4 cm
- Ends at anus
- Anterior: perineal body
- Posterior: anococcygeal body
- Lateral: ischiorectal fossae



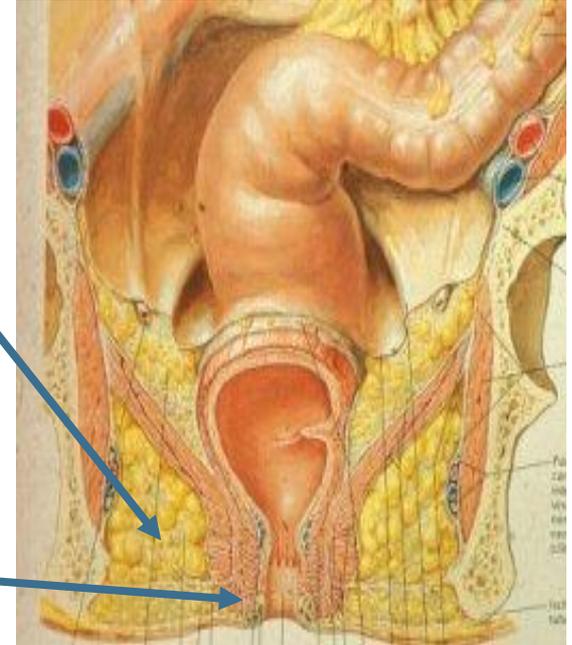
Muscles of Anal Canal

- The anal sphincter is a multilayered cylindrical structure
- The inner smooth muscle of the internal sphincter
- Surrounds upper two thirds
- Lower two thirds the outer striated muscle layer of the external sphincter
- Anorectal ring formed by puborectalis and the deep part of the external sphincter



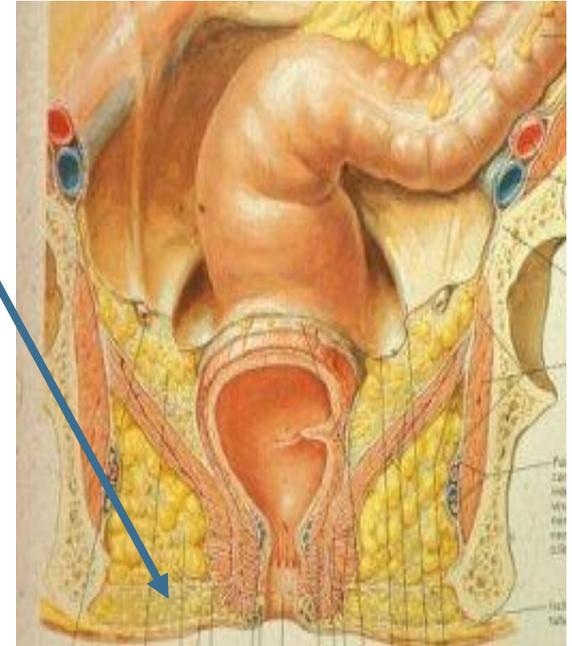
Peri Anal Fascia

- Perianal fascia continuation of longitudinal coat of rectum
- Medial to deep and superficial external sphincters
- Attached at Hilton's line
- Passes to lateral wall
- Above subcutaneous sphincter



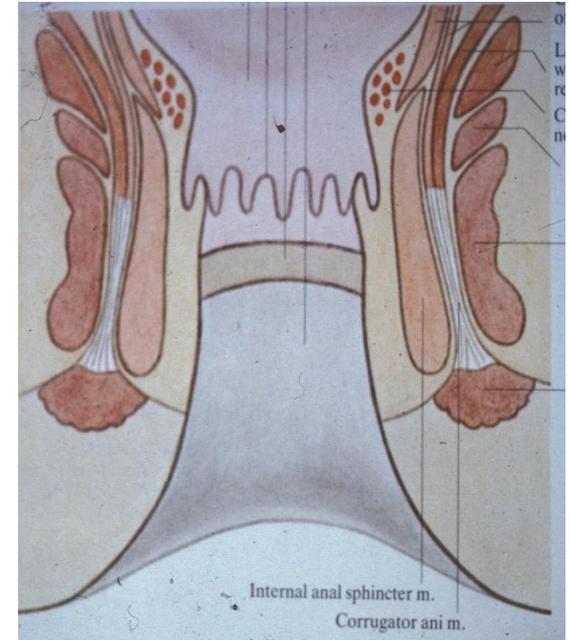
Anal Canal

- Lateral sheet passes between soft ischiorectal fat and subcutaneous fat to lateral wall
- Splits to form pudendal canal and is
- Continuous superiorly with the lunate fascia, which passes above soft ischiorectal fat
- It is medial to deep and superficial sphincter
- Above subcutaneous sphincter



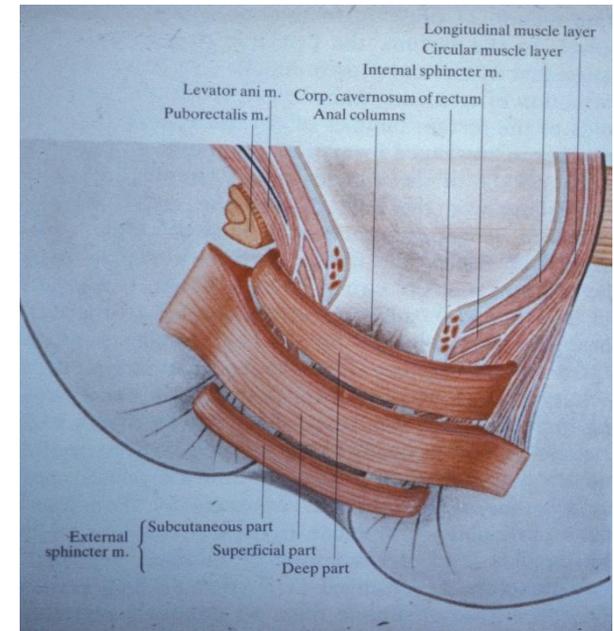
Muscles of Anal Canal

- Puborectalis portion levator ani holds the anorectal junction anteriorly
- Deep and subcutaneous parts of external are true sphincters
- No bony attachments
- Superficial attached to coccyx and the perineal body



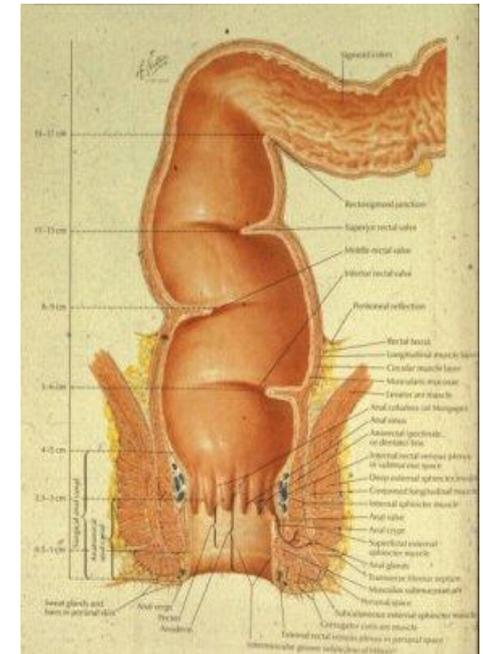
Muscles of Anal Canal

- Anorectal ring
- Internal sphincter
- Puborectalis
- Puborectal fascia
- External sphincter
- Deep, true sphincter, no bony attachments
- Inferior rectal nerve S3,4
- Superficial S4
- Subcutaneous, true sphincter
- Inferior rectal nerve S3,4



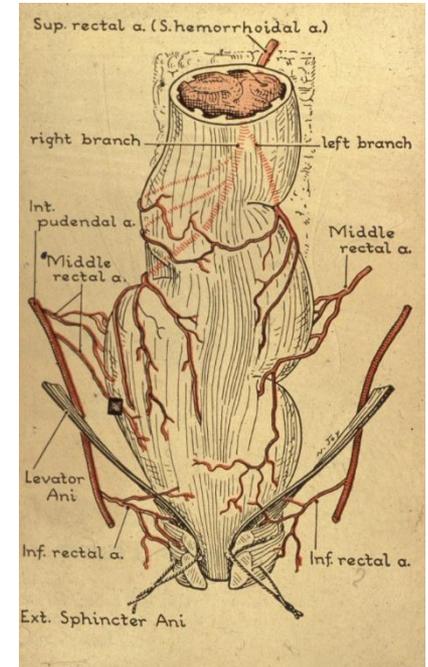
Anal Canal

- Upper two thirds lined by columnar epithelium
- Lower third by skin
- Junction of two is Hilton's white line skin
- Anal columns contain radicles of superior rectal artery and veins 4,7,11
- At the lower end joining the columns are mucosal folds called anal valves
- Anal sinuses lie behind
- Skin supplied by inferior rectal vessels and nerves



Blood and Nerve Supply

- Upper two thirds
- Columnar epithelium
- Superior rectal artery
- Autonomic nerves
- Derived from cloacae
- Lower third
- Skin
- Inferior rectal S3,4,
- Somatic nerves
- Derived from proctodeum

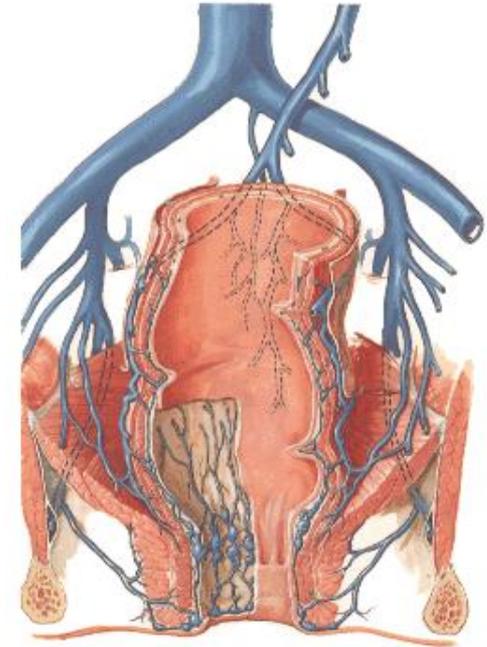


Venous Drainage

- Mucosa upper two thirds
- Superior rectal vein
- Portal system

Lower third

- Inferior rectal vein
- Vein into systemic system
- Portal systemic anastomosis' 4,7,11



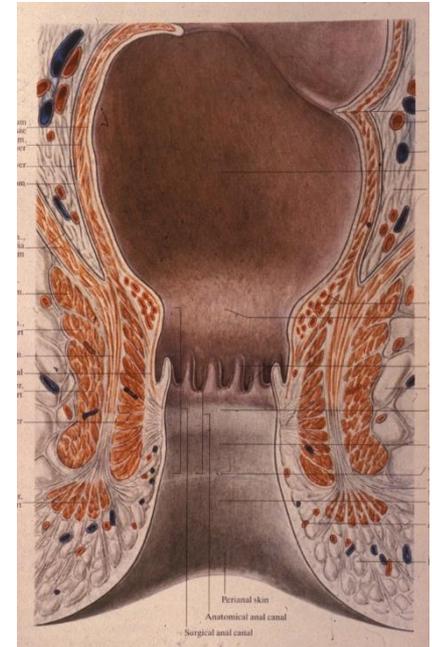
Lymphatic Drainage

Upper third

- Pre aortic inferior mesenteric
- Waldeyer's fascia passes from sacrum to the ampulla of rectum
- Encloses superior rectal vessels and lymphatics
- Internal iliac

Lower Third

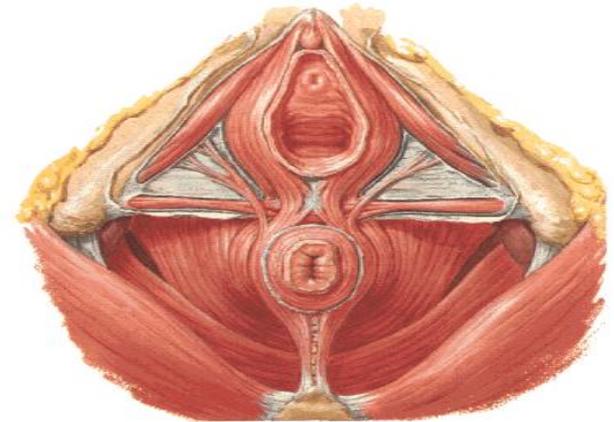
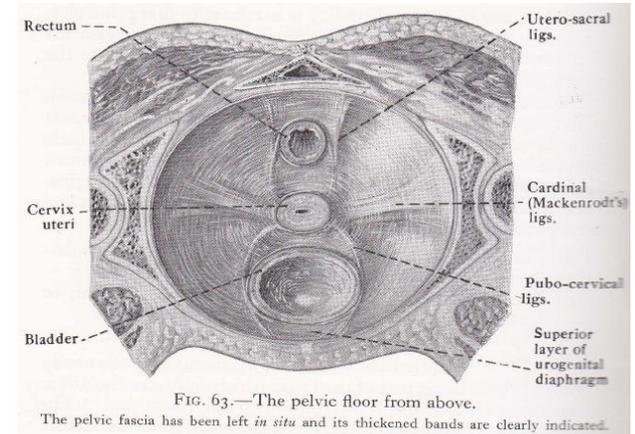
- Inferior rectal cross ischio-rectal fossa
- Medial superficial inguinal glands



Anal Sphincters

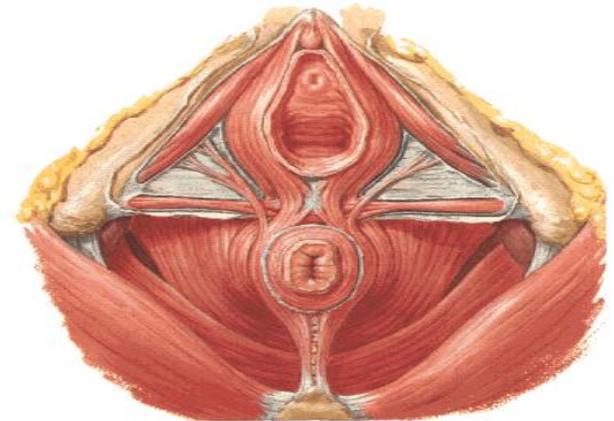
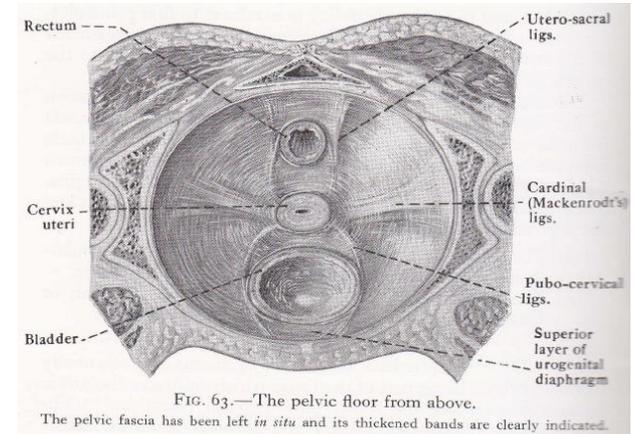
- The internal and external anal sphincters are primarily responsible for maintaining faecal continence at rest and when continence is threatened, respectively.
- Defecation is a somato-visceral reflex regulated by dual nerve supply (i.e. somatic and autonomic) to the anorectum.

Bharucha 2006



Anal Sphincters

- The net effects of sympathetic and cholinergic stimulation are to increase and reduce anal resting pressure, respectively.
- Faecal incontinence and functional defecatory disorders may result from structural changes and/or functional disturbances in the mechanisms of faecal continence and defecation.

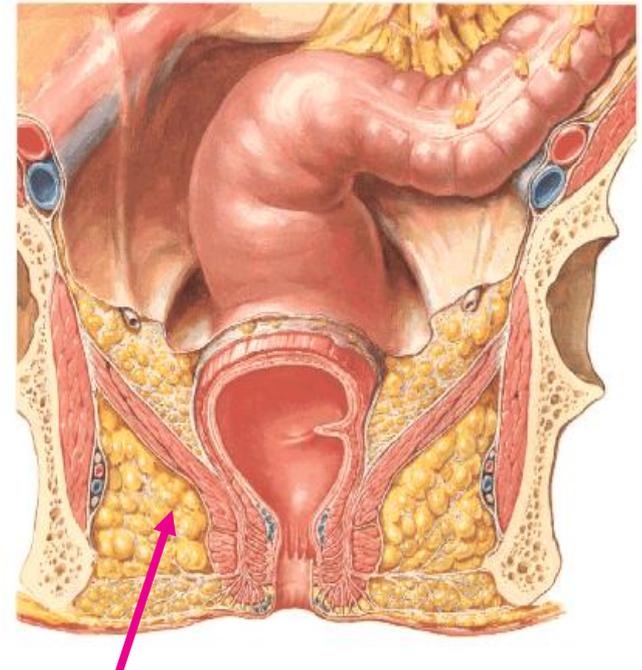


Bharucha 2006

Ischioirectal Fossa

Ischioirectal fossa contents

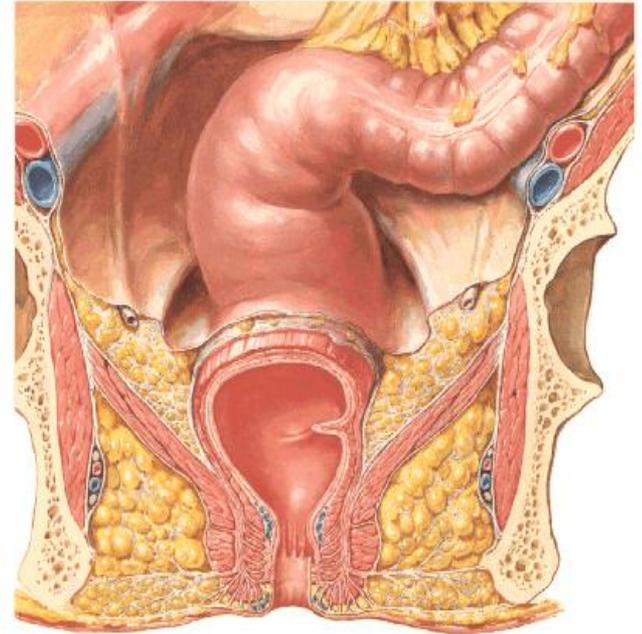
- Soft ischioirectal fat
- Lunate fascia above the fat
- Inferior rectal vessels pass above the fat to reach medial wall
- Perineal branch of S4



ischioirectal fossa

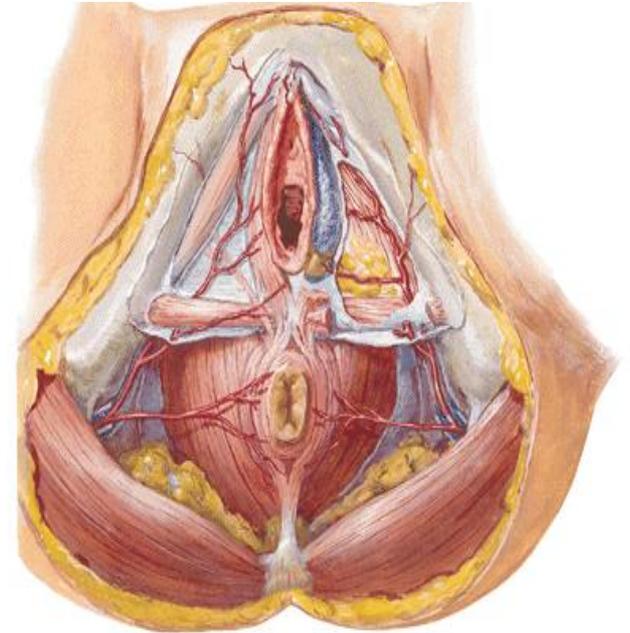
Ischiorectal Fossa

- Ischiorectal fossa contents
lunate fascia above the soft
ischiorectal fat
- Inferior rectal vessels and nerve
pass above lunate fascia and the
fat to reach medial wall
- Subcutaneous fat lies below
perianal fascia
- Perineal branch of S4
- Lymphatics cross fossa



Pudendal Canal

- Runs posterior to anterior
- Pudendal canal contents
- Pudendal nerve
- Inferior rectal nerve
- Dorsal nerve of clitoris
- Perineal nerve
- Labial nerves
- Internal pudendal vessels

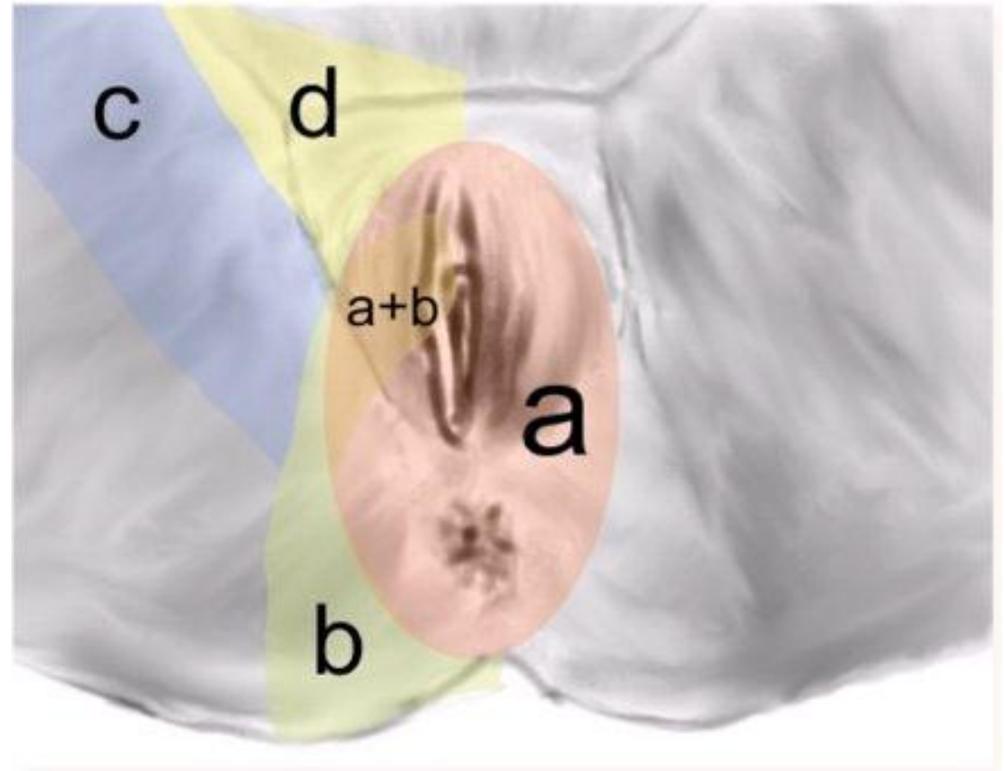


Age, pregnancy, family history, and hormonal status all contribute to the development of pelvic organ prolapse. The vagina is suspended by attachments to the perineum, pelvic side wall and sacrum via attachments that include collagen, elastin, and smooth muscle. Surgery can be performed to repair pelvic floor muscles. The pelvic floor muscles can be strengthened with [Kegel exercises](#).

Disorders of the posterior pelvic floor include [rectal prolapse](#), [rectocele](#), [perineal hernia](#), and a number of functional disorders including [anismus](#). [Constipation](#) due to any of these disorders is called "functional constipation" and is identifiable by clinical diagnostic criteria.

Nerve Supply to the perineum

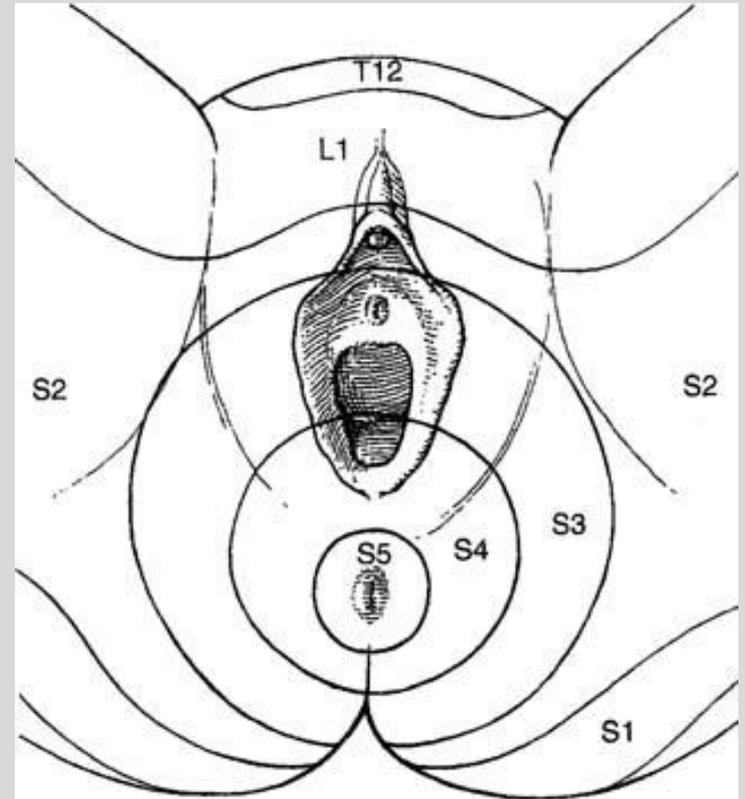
- a – pudendal nerve
- b – posterior femoral cutaneous nerve
- c – obturator nerve
- d – genitofemoral nerve



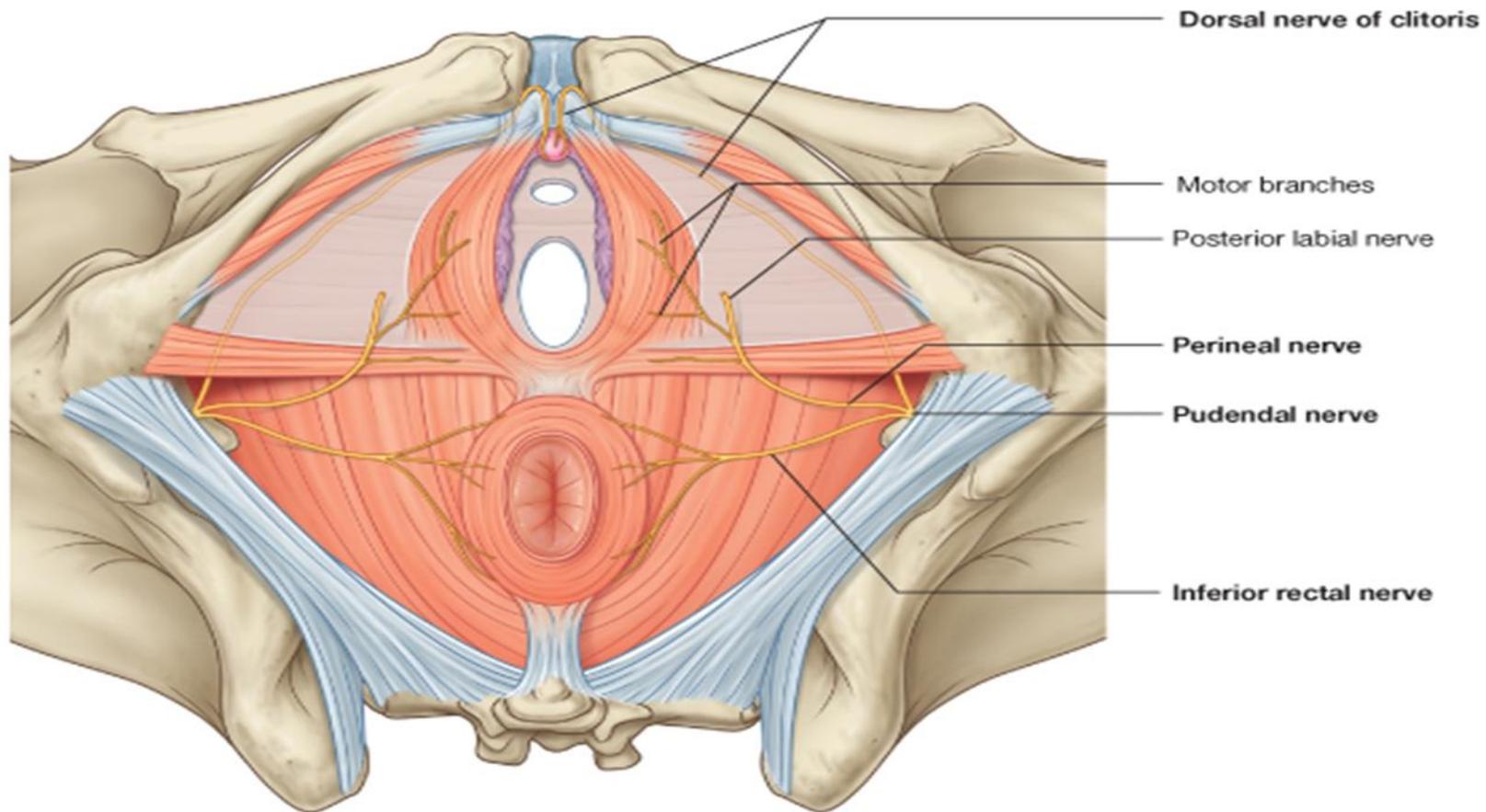
• www.glowm.com

Dermatomes

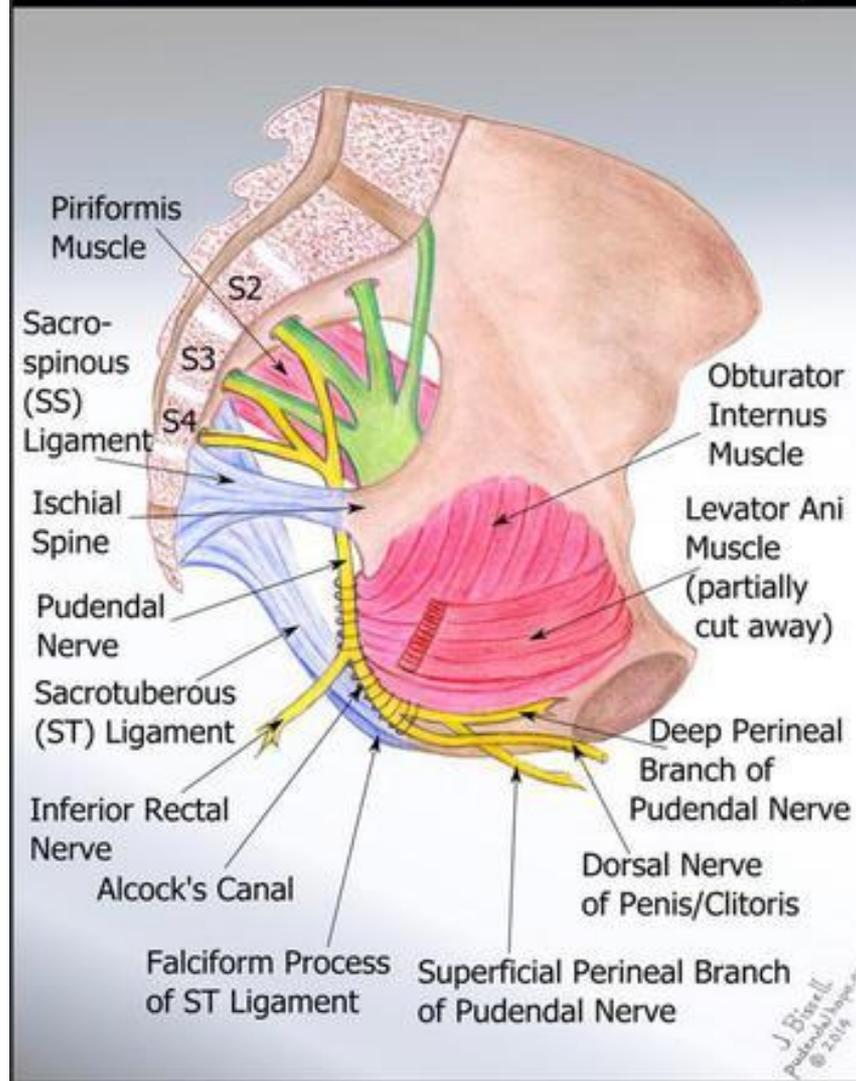
- Pelvic pain : diagnosis and management , Howard 2000



B



Pudendal Nerve Anatomy



Nerve supply Contd.

Nerve to Levator Ani

- Main somatic nerve supply for Levator Ani
- S3-5
- Sacral Plexus (L4,5 S1,2,3,4) lies on posterior pelvic wall anterior to piriformis

Pudendal nerve

- Branches
 - inferior rectal nerve
 - perineal nerve
 - dorsal nerve of clitoris
- Mixed nerve (motor, sensory and autonomic)

Somatic Nerve Supply to the Pelvis

Somatic Motor Nerves

- Nerve to Levator Ani (S3- S5)
- Pudendal nerve (S2-4)

Somatosensory Nerves

- Pudendal (mixed)
- Ilioinguinal (L1)
- Genitofemoral (L1,2)
- Posterior femoral cutaneous nerve (L2,3,4)
- Obturator nerve (L2,3,4)

OBSERVATION

- Observe crook lying/side lying
- Scars
- Prolapse visible at rest
- Perineal descent at rest
- Haemorrhoids
- Quality of soft tissues vulva...dryness...
- Obvious areas of tightness e.g adductors, gluteals, piriformis, abdominals, ribs (flared?)
- Sensory testing

Internal examination of the pelvic floor

- Position of patient/bed height/light
- Relaxed examination finger
- Palpate superficial muscles , bulbopincer grip (gently!)...trigger points?

Internal examination of the pelvic floor

- Turn pad of finger upwards palpate urethra superior to pubic symphysis...tenderness/mobility/urethral sphincter activity...?
- ATLA..avulsion?
- Slowly sweep vaginal wall from 2 o'clock to 10 o'clock (vertical clock)
 - muscle bulk/symmetry?
 - atrophy/scars ?
 - soreness/pain ?
 - faeces in rectum?

Internal examination pelvic floor contd.

- Move deeper into the horizontal clock towards posterior pelvic floor
- Score the “lift” on Modified Oxford Scale Maximum Voluntary Contraction
- More anterior compartment on vertical clock ->compression action
- **Compare sides**

Internal assessment.

Muscles (active system)

(Superficial layer/ vertical clock)

- Bulbocavernosus
- Ischiocavernosus
- Superficial transverse perineal muscle
- Deep transverse perineal muscle
- Perineal body (length/mobility?)