Anorectal Diseases

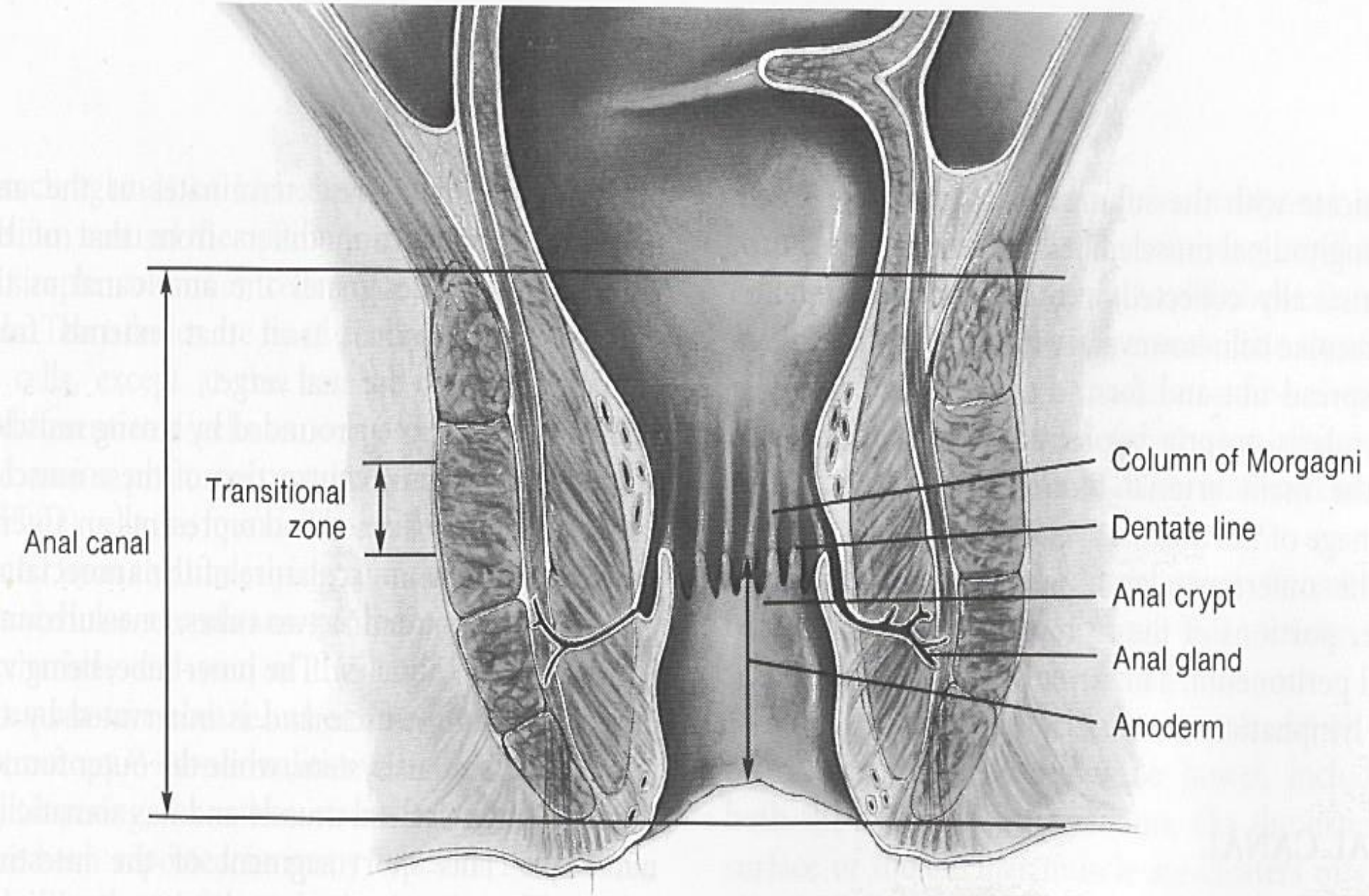


Fig. 1-6 Lining of the anal canal.

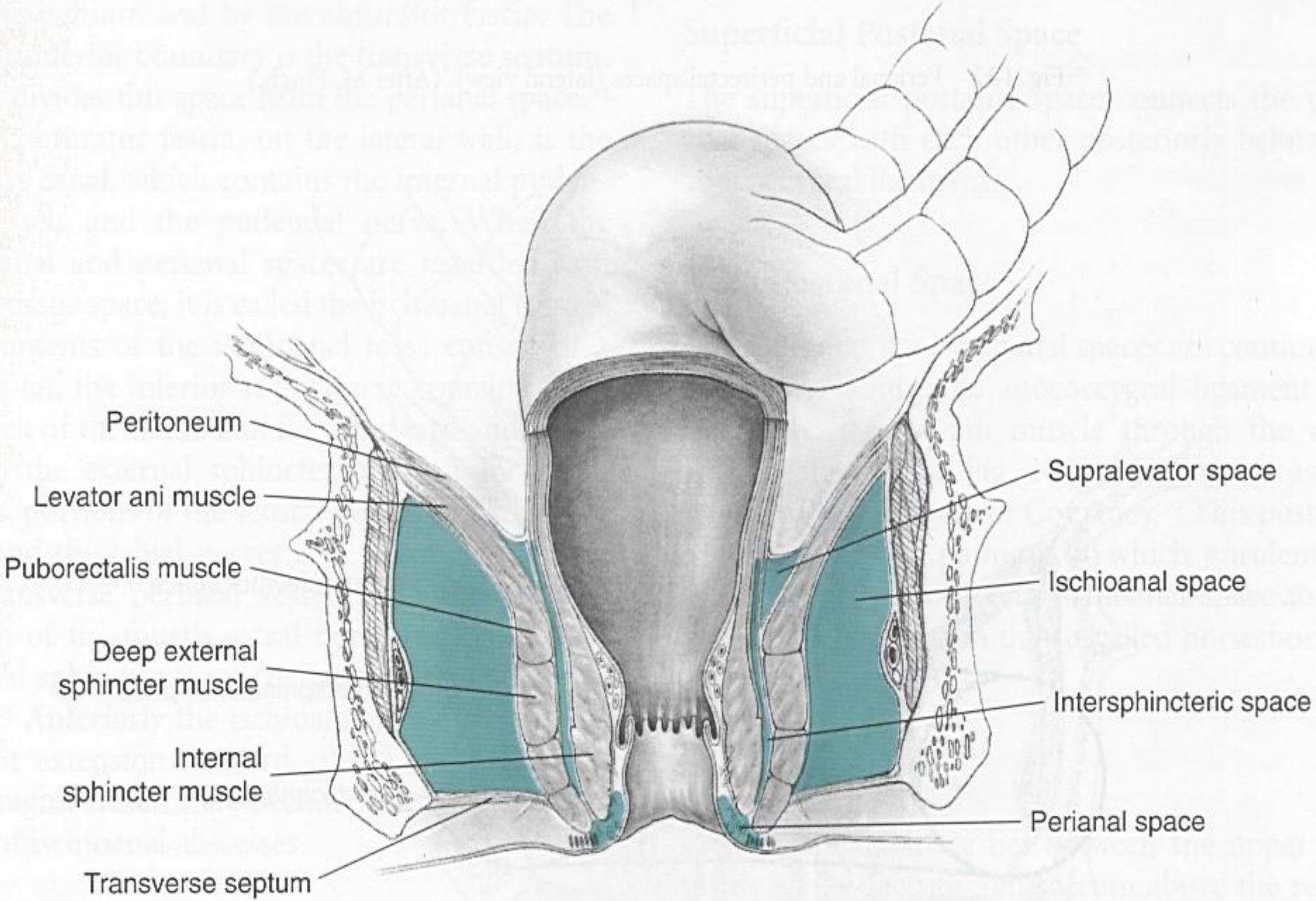


Fig. 1-11 Perianal and perirectal spaces (frontal view). (After M. Finch.)

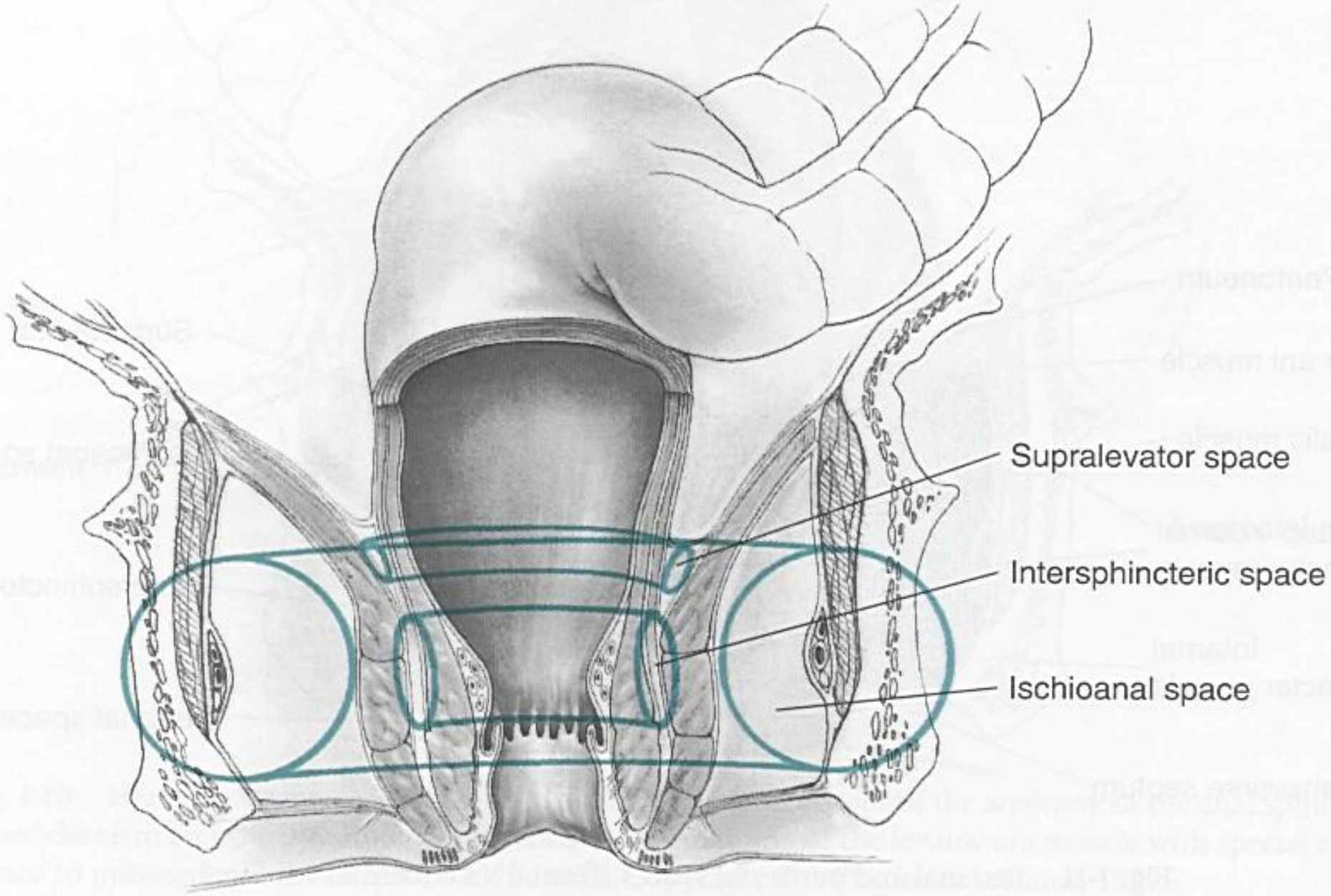


Fig. 1-13 Horseshoe-shaped connections of the anorectal spaces.

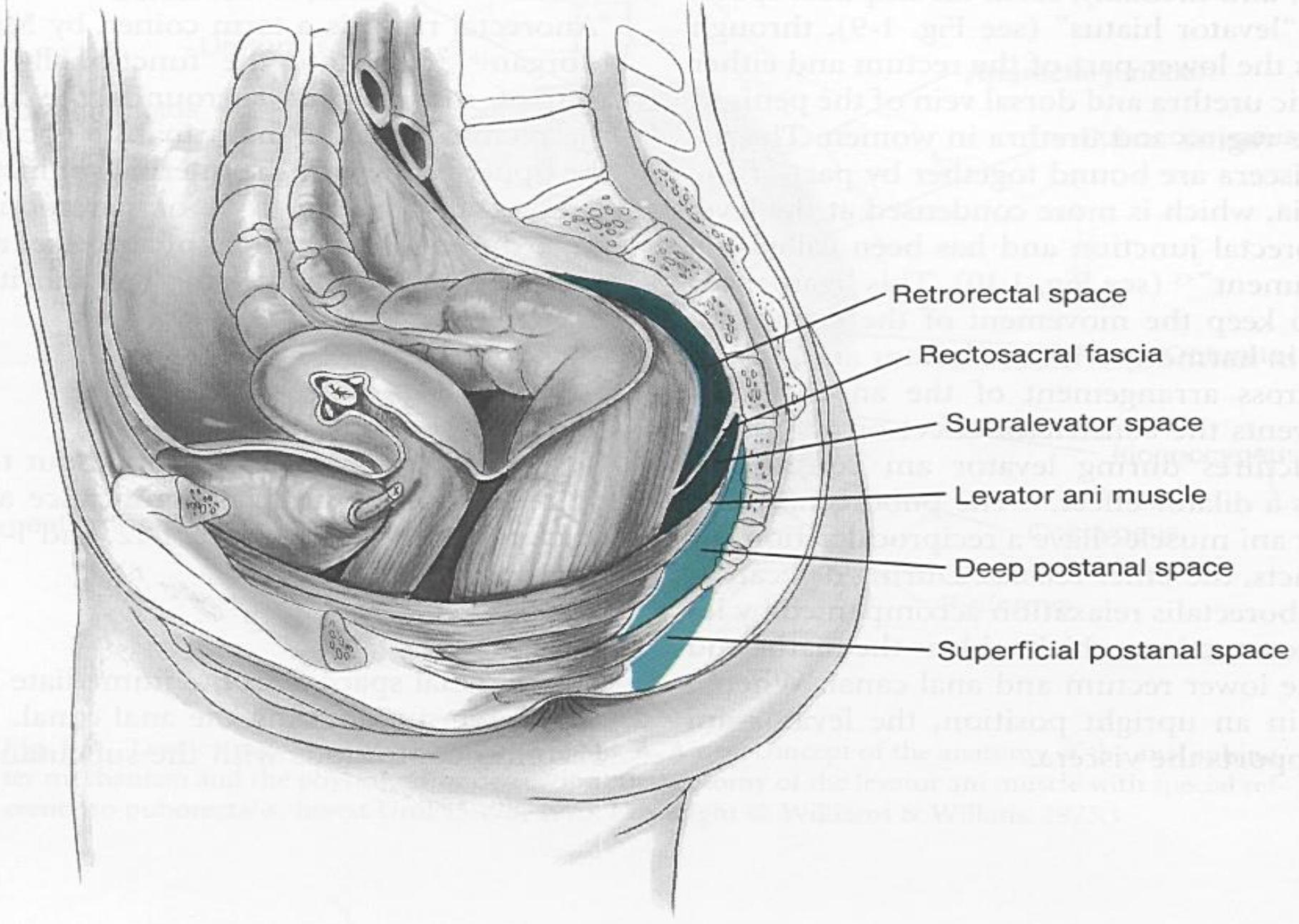


Fig. 1-12 Perianal and perirectal spaces (lateral view). (After M. Finch.)

Perianal Fistula

- Follows the abscess
- Abscess is the acute issue and fistula is the chronic problem
- 40% of drained abscesses end with fistula

Evaluation

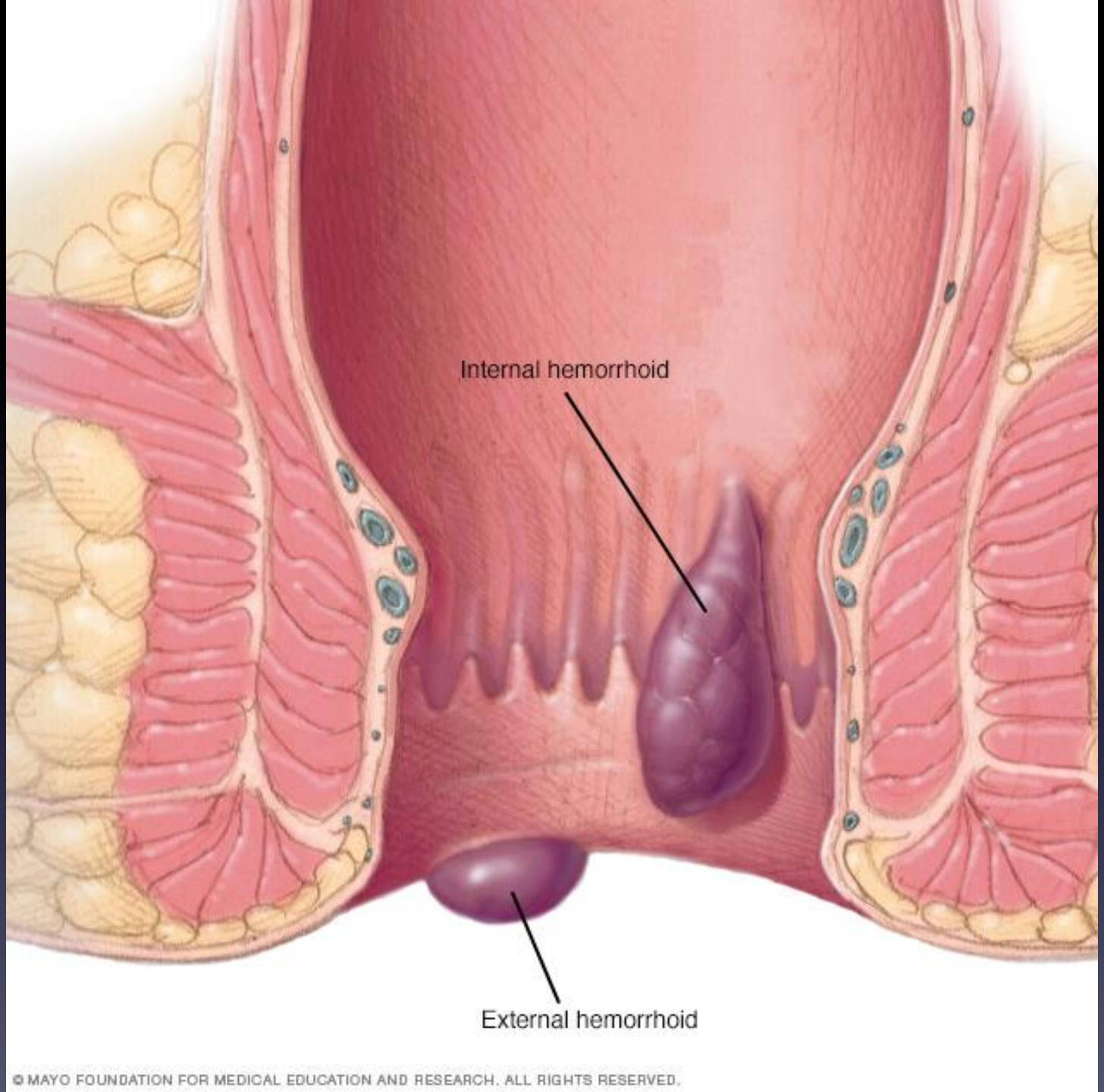
- External opening, Tract, Internal opening
- Clinical exam is the key
- Radiological imaging mainly MRI

Treatment

- Almost always surgical
- Treating the internal opening
- Treatment of underlying pathology

Haemorrhoids

- Vascular structures in the anal canal
- Helps in the continence
- Internal or External



Pathophysiology

- Increased intrapelvic pressure
- Constipation, diarrhea
- Engorgement

Grades

- Based on history
- Grade 1: Bleeding
- Grade 2: Prolapse with spontaneous reduction
- Grade 3: Manual reduction
- Grade4: Won't go back

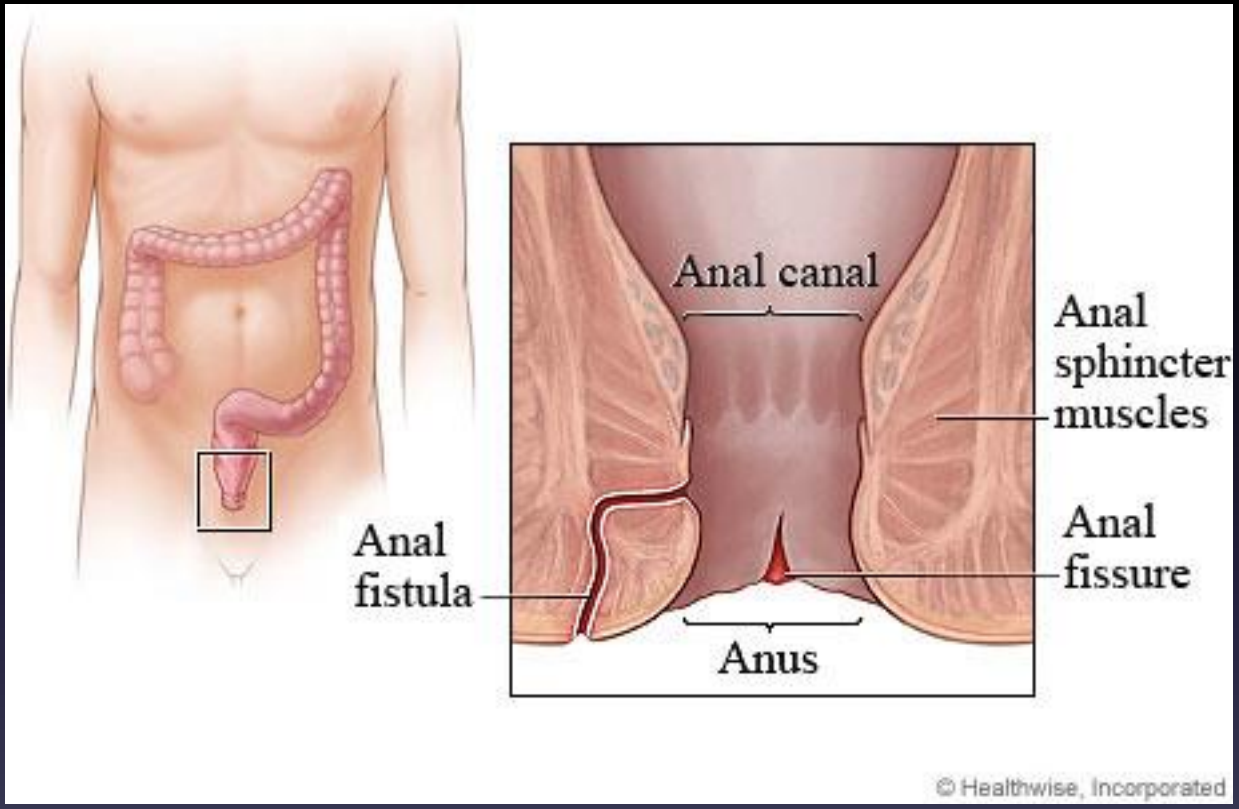
Treatment

- Scope
- Treat underlying problem
- Banding
- Surgical


Rubber Band Ligation
Internal haemorrhoid
Ligator
Rubber band

Fissure

- Tear in the anal canal
- Causes severe pain, sometimes bleeding
- Related to ischemia
- 90 – 99% posterior midline


Anal canal
Anal sphincter muscles
Anal fistula
Anal fissure
Anus
© Healthwise, Incorporated

Treatment

- Treat the constipation
- Vasodilators
- Botox
- Surgery

Rectum

Location & description:

- About 13 cm long
- Start in the front of the third sacral vertebra
- Follow the curve of the sacrum & coccyx
- Ends at the tip of the coccyx
- The lower part dilated to form ***rectal ampulla***

Peritonial cover:

- ***Upper 1/3:Cover anterior &lateral surface***
- ***Middle 1/3:Cover the anterior surface only***
- ***Lower 1/3:No peritonial covar***

Continue :

- ***Anterior Relations in*** **MALE:**
- Upper 2/3 :SIGMOID COLON &COILS of ileum
- Lower 1/3:
- Siminal vesicles
- Vas deference
- Bladder
- Prostate
- ***Posterior:***
- Sacrum &coccyx
- Levator anai –pirifomis &coccygeus
- Sacral plexus &sympathatic chain

- Anterior relations in female
- Upper 2/3:sigmoid &coils of ileum
- Lower 1/3:
- Posterior surface of

the vagina

Posterior :

same

Continue

Blood Supply:

Arteries:

- Superior rectal artery…….from….Inferior mesenteric a.
- Middle rectal artery…….From…Internal iliac a.
- Inferior rectal artery….From….internal pudendal a.

Veins:

- Superior rectal vein…to..portal vein
- Middle rectal vein…to..internal iliac vein
- Inferior rectal vein…to…internal pudendal vein

Anal canal

Surgeons: Begins at the anorectal junction (when pass through the levator ani muscles) about 4 cm down to the anal verge.

Anatomist: part of the intestinal tract that start at dentate line to the anal verge.

•The masculature of the anorectal tube regarded as two tubes,one surrounding the other.

Continue…Anal canal

Linings of the canal:

- Dentate line about 2cm above the anal verge
- **Columns of Morgagni:** 6-14 longitudinal folds at dentate line with Small anal crypts at the lower end & between the the adjacent folds
- **Surgical significance:**
- Foreign material may lodge in them,obestructing the ducts &cause sepsis

Anal mucosa:

- Above dentate line :Columnal epithelium
- Below Dentate line:Squamous epithelium

- ***TRANSITIONAL ZONE:***

- Interposed between uninterruted colorectal & anal epithelium

Anoderm:

The area below the dentate line .Not a true ski because it is devoid the accessory skin structure(hair .sebaceous glands)

Anorectal spaces:

1. Perianal space
2. Ischioanal Space
3. Intersphincteric Space
4. Supralevator Space
5. Submucous space
6. Superficial Postanal space
7. Deep postanal space
8. Retrorectal space

Superior rectal artery

- Direct continuation of the inferior mesenteric artery
- Chief arterial supply for the MUCOUSA.of the rectum
- It enters the pelvis by descending in the root of the sigmolid misocolon
- Pierce the Mascular coat &supply the mucosa
- Anastomose with Inferior &Middle Rectal Arteries

Middle rectal artery

- Branch of the Internal iliac artery
- Supply the muscular coat of the rectum
- Can not solaly provide the blood supply to the rectum in case of superior rectal artery ligation

Inferior rectal artery

- Rise from Internal pudendal artery
- Travel the ischiorectal fossa &supply the anal canal &external sphincter muscles

Median Sacral Artery

- Arise from the back of the AORTA at 1.5 cm above the biforcation
- Descends over the last two lumber vertebrae,the sacrum,and the coccyx
- The SURGICAL SIGNIFICANCE of the median sacral arteryis that during rectal excion .Yhe vessel exposed in the front of the sacrum,

This vessel may demonesterate troublesome lleeding

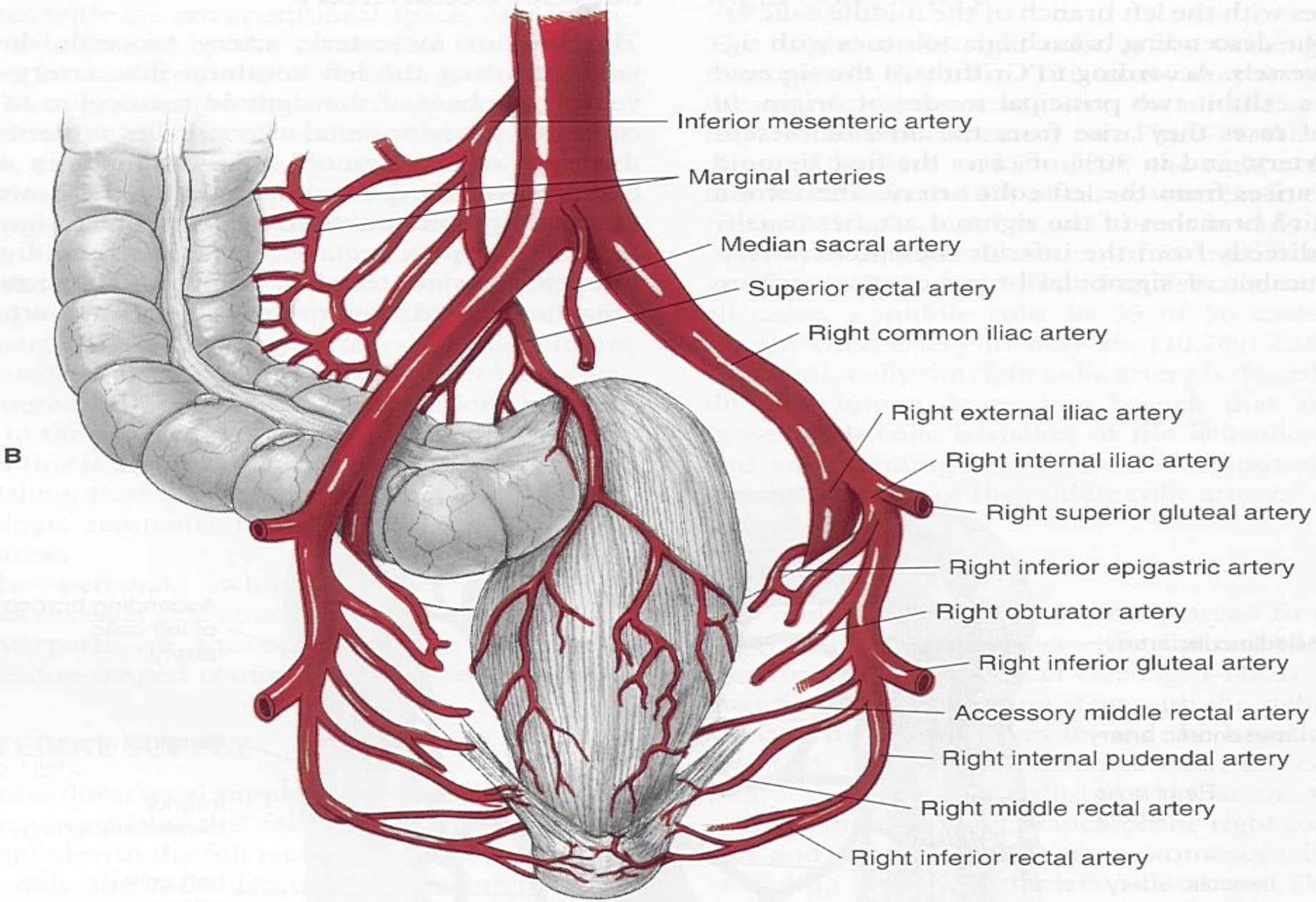


Fig. 1-14, cont'd Arterial supply. **B,** Supply to the rectum (posterior view). (**A** modified from Pernkopf E. Atlas der topographischen und angewandten Anatomie des Menschen. München-Wien-Baltimore: Urban & Schwarzenberg, 1963.)

VENOUS DRAINGE OF THE COLON &RECTUM

Superior Mesenteric Vein:

- Drain Veins from Rt.colon &Transverse colon lies Rt.&front to S.M.A.
- Joined the Splenic vein to form Portal vein

Inferior Mesenteric Vein:

- Drain the superior rectal vein
- Receive blood from the left colon,rectum&the upper part of the anal canal

Conti.Venous drainage:

Superior rectal vein:

Drain the rectum &upper part of the anal canal,Where the internal hemorhoidal plexus is situated to portal vein

Middle rectal vein:

Drain the rectum &upper part of the anal canal to SYSTEMIC circulation by internal iliac veins

Inferior rectal vein:

Drain the lower part of the anal canal ,where the external hemorrhoidal plexus is located,via internal pudendal vein then to internal iliac vein …SYSTEMIC circulation

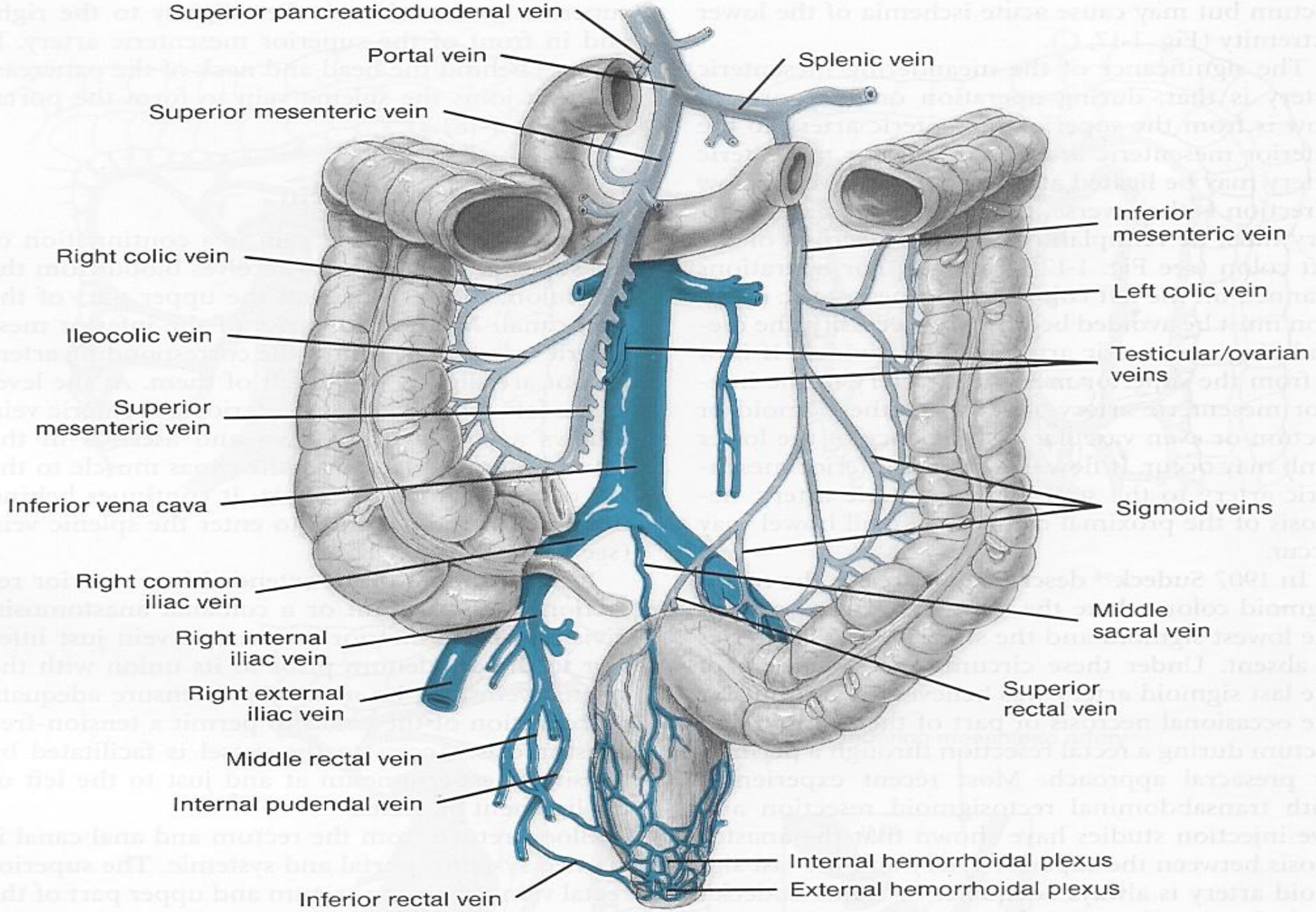
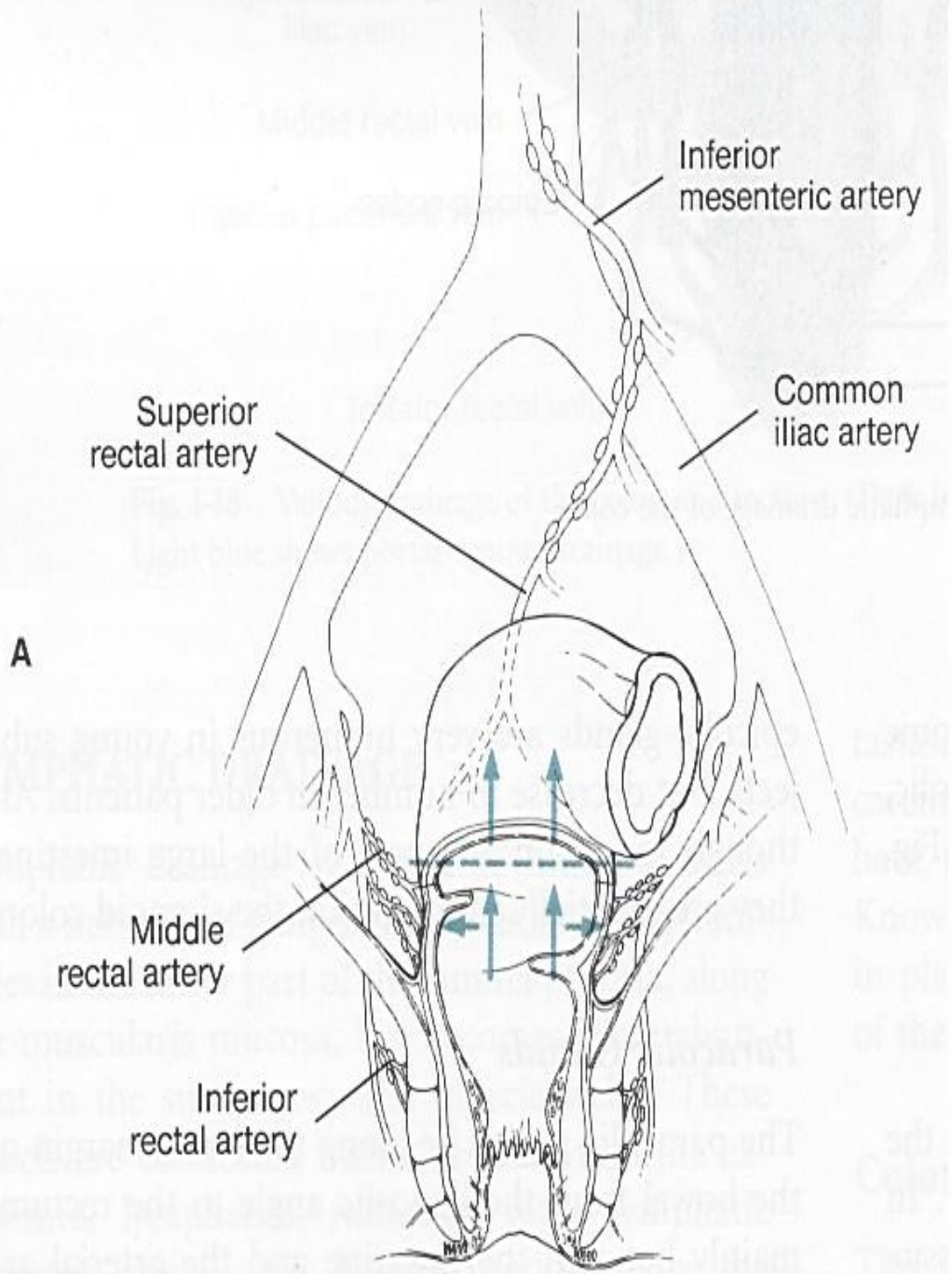


Fig. 1-18 Venous drainage of the colon and rectum. (Dark blue represents systemic venous drainage. Light blue shows portal venous drainage.)



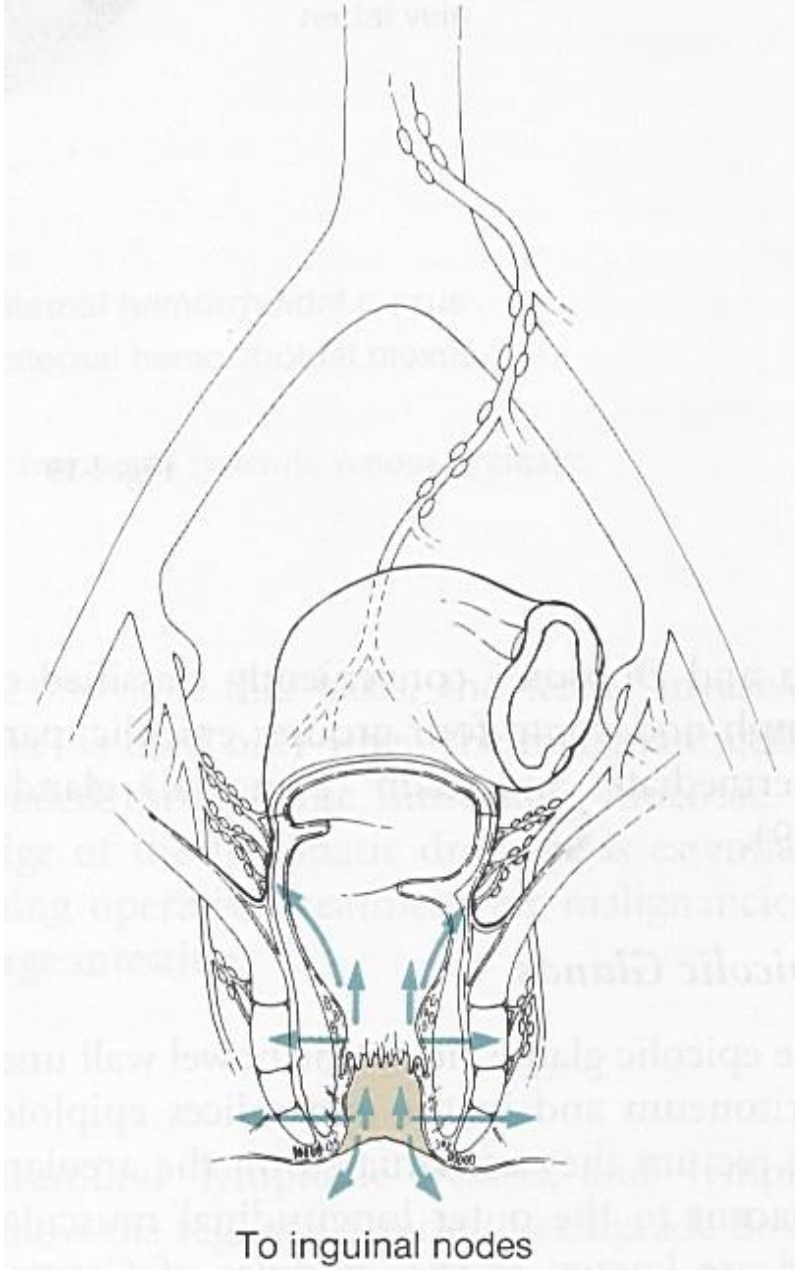


Fig. 1-20 Lymphatic drainage of the rectum (**A**) and anal canal (**B**). (After M. Finch.)

Rectum lymphatic draing

Upper &middle Rectum:

- Lymph drain along the superior rectel artery into inferior ***mesenteric lymph nodes***

Lower Rectum:

- Superiorly drain to ***inferior mesenteric lymph_nodes***
- Laterally,via lymph vessels along the middle rectal vein into ***internal iliac nodes***

Rectal epicolic lymph nodes ***located on the areolar tissue adjacent to longitudinal muscle coat &known as(nodules of Gerota)***

Anal canal lymphatics

ABOVE the dentate line :

Drain up through superior rectal lymphatics to inferior mesenteric nodes

Drain laterally via middle &inferior rectal lymphatics through ischioanal fossa to the internal iliac nodes

BELOW the dentate line:

Drain to the inguinal nodes

Clinical Significance-Spread of Ca-rectum:

1. Lymphatic drain 5 cm from the anal verge spread to….posterior vaginal wall-uterus-cervix-Broad ligament-fallopian tubes-ovaries &clu-de-sac
2. 10 cm above the anal verge spread only to broad ligament &clu-de-sac
3. 15 cm no spread to the genital orgnes

NERVE SUPPLY:

Colon:

•Sympathatic &parasympathatic (Vagus) innervation from the superior mesenteric lymph plexus till the proximal 2/3 of the transverse colon

•Innervation for the distal 1/3 of the transverse colon down to sigmoid colon drived from pelvic splanchnic nerves throgh the inferior mesenteric plexus

Sigmoide colon &rectum:

•Inferior hypogastric plexus which is sensitive only to streach

Anal canal:

•Upper half:

Sensitive to streach only ,innervated by hypogastric plexus

•Lower half:

Sensitive to pain-pressure-touch-temp,innervated by inferior rectal nerve

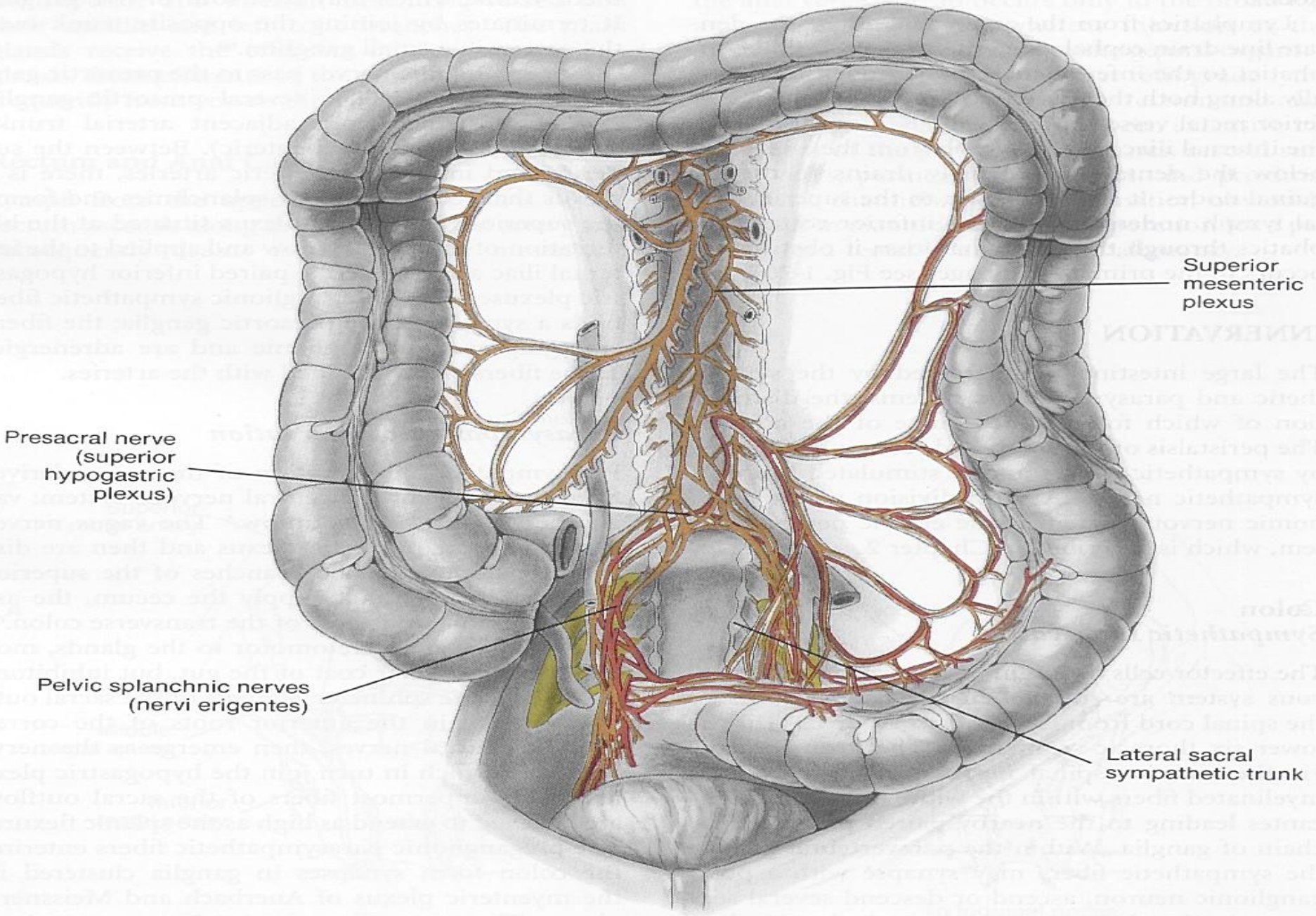
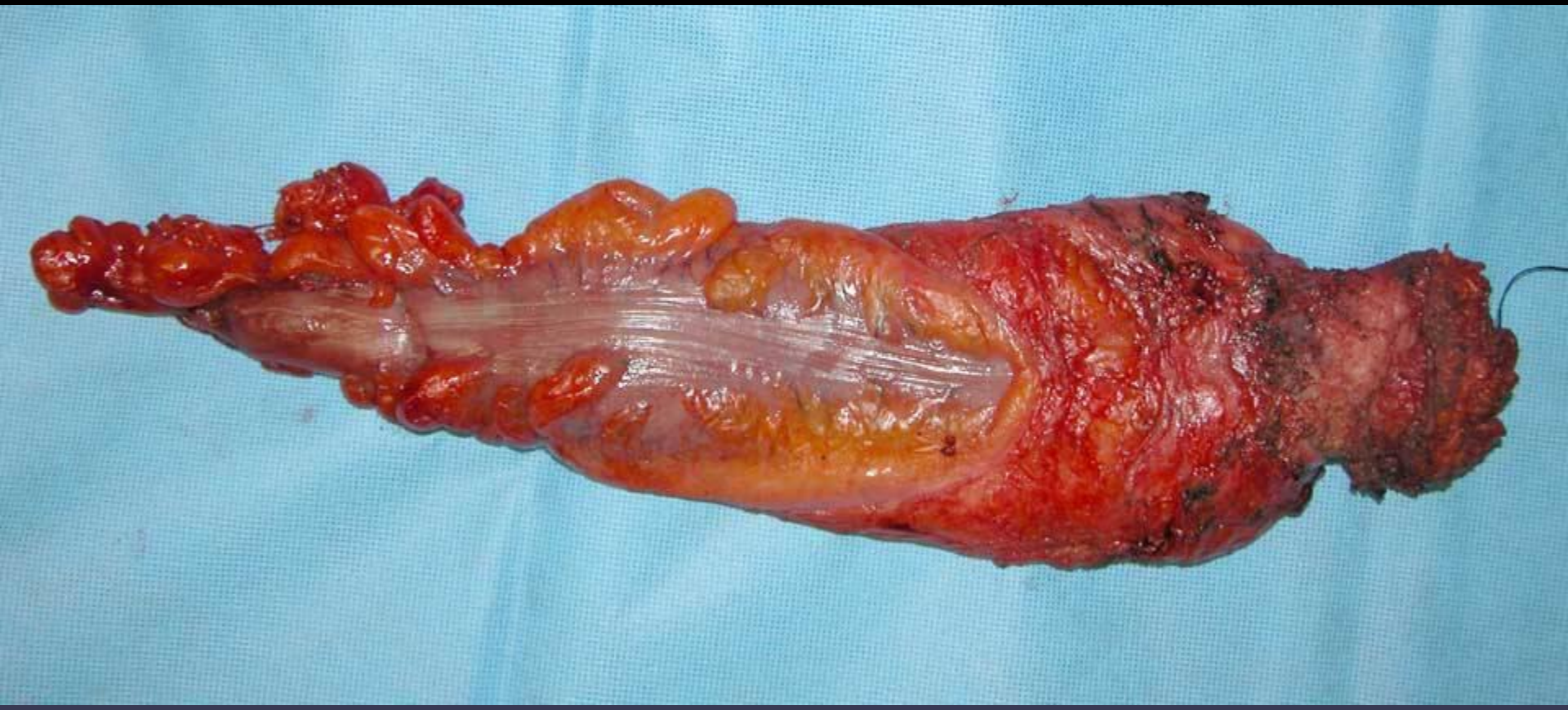


Fig. 1-21 Nerve supply to the rectum (frontal view).



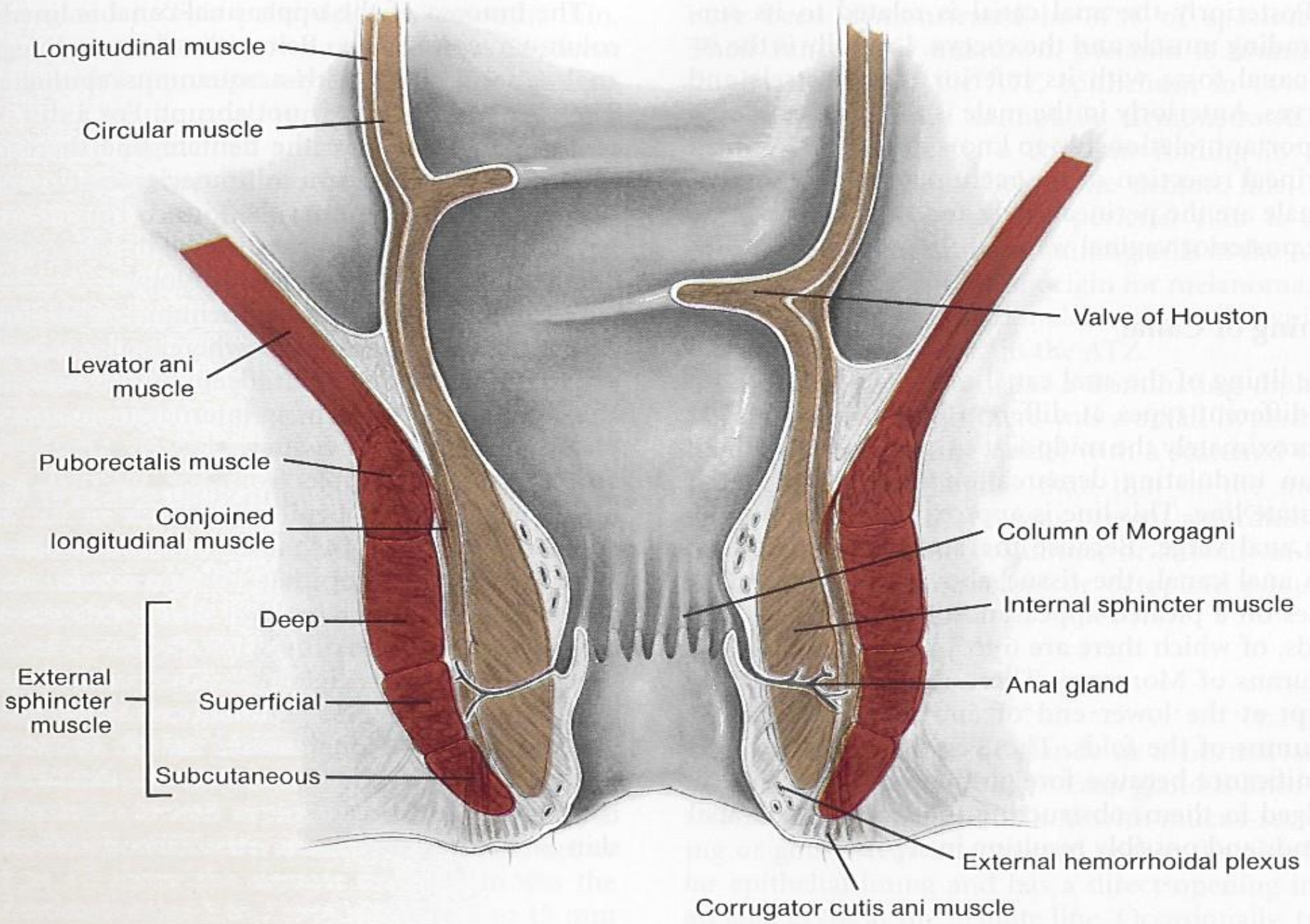


Fig. 1-5 Anal canal.