

Pelvic Diaphragm: muscular partition between true pelvis & perineum

- ↳ forms pelvic floor
- formed by large levator ani & small coccygeus muscles of 2 sides & their converging fasciae
- incomplete anteriorly to allow passage for — urethra in males
— urethra & vagina in females

Functions: provides principal support to pelvic viscera

- sphincteric action on rectum & vagina
- assists in increasing intra-abdominal pressure during defecation, micturition & parturition

Openings:

Hiatus Vaginalis:

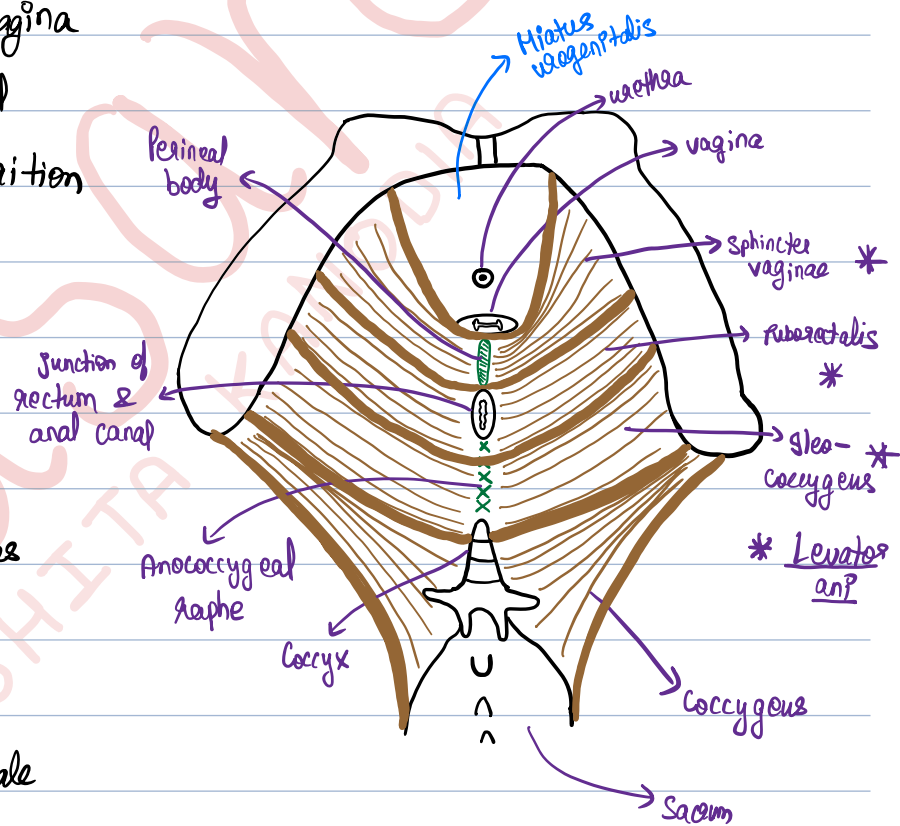
- ↳ triangular gap between anterior fibres of 2 levator ani muscles
- transmits — urethra in male
— urethra & vagina in female

Hiatus Rectalis:

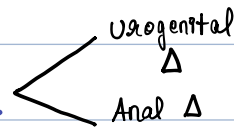
- ↳ round opening between perineal body & anococcygeal raphe
- provides passage to anorectal junction

Applied aspect:

- ↳ pelvic diaphragm may be injured (tearing of perineal body) during difficult child birth
- becomes weak & can no longer provide sufficient support to pelvic viscera
- may lead to uterine & rectal prolapse.



Perineum



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Superficial Boundaries: (lithotomy position)

Anteriorly : scrotum in male / mons pubis in female

Posteriorly : buttocks

On each side : upper medial aspect of thigh

Deep Boundaries:

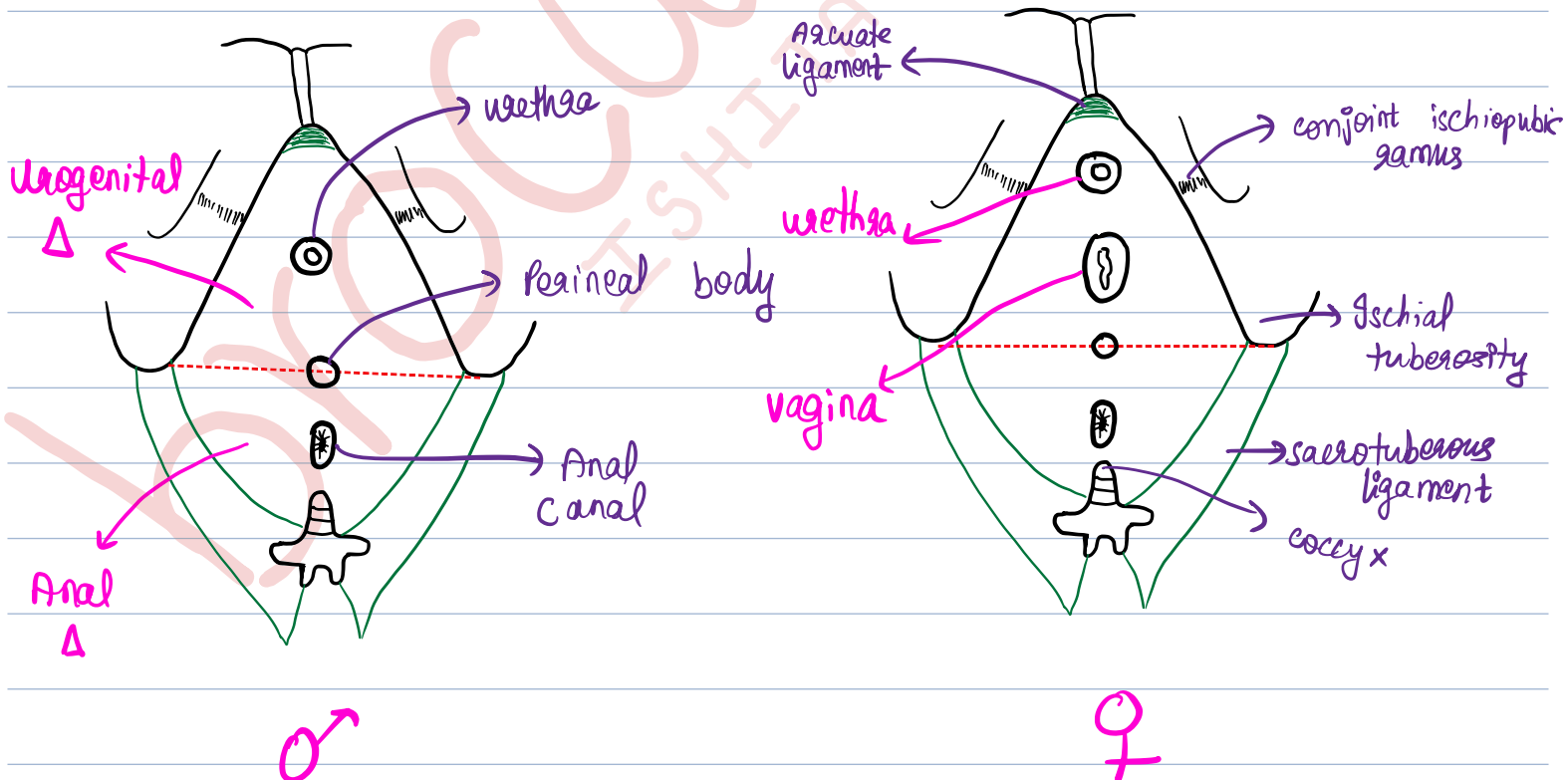
Anteriorly: inferior margin of pubic symphysis

Posteriorly: Tip of coccyx

Anterolaterally: conjoint ischiopubic ramus

Posterolaterally: Sacrotuberous ligament

Laterally: Ischial tuberosity.



DPP:

Boundaries:

Inferiorly: perineal membrane

Superiorly: superior fascia of VGD

Laterally: inferior part of obturator fascia

SPP:

Boundaries:

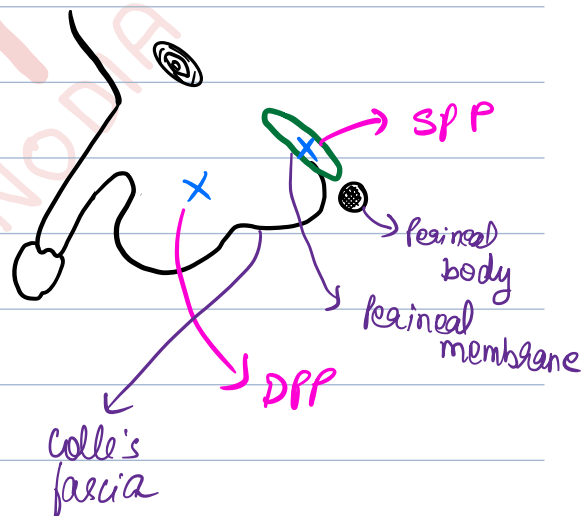
Superiorly: perineal membrane

Inferiorly: Colle's & Scarpa's fascia

Laterally: ischiopubis ramus

Structures within DPP

♂	♀
- Membranous urethra - Deep transverse perineal muscles & sphincter urethrae - Bulbourethral glands - Branches of internal pudendal artery (arteries to penis) - Branches of pudendal N. (dorsal nerve of penis)	- Urethra & Vagina - Deep transverse perineal muscles & sphincter urethrae - No glands - Branches of internal pudendal artery (arteries to clitoris) - Branches of pudendal N. (dorsal nerve of clitoris)



Structures within SPP

♂	♀
- Root of penis - Bulb of penis - Caverna of penis - Superficial transverse perineal m. - Ducts of bulbourethral gland - Urethra - Branches of internal pudendal A. • Perineal A. • Dorsal A. of penis • Deep A. of penis - Branches of pudendal N. • Perineal N. • Dorsal N. of penis	- Root of clitoris - Bulb of vestibule - Caverna of clitoris - Superficial transverse perineal m. - Greater vestibular glands (Bartholin's gland) - Urethra - Branches of internal pudendal A. • Perineal A. • Dorsal A. of clitoris • Deep A. of clitoris - Branches of pudendal N. • Perineal N. • Dorsal N. of clitoris

Perineal Membrane (PM):

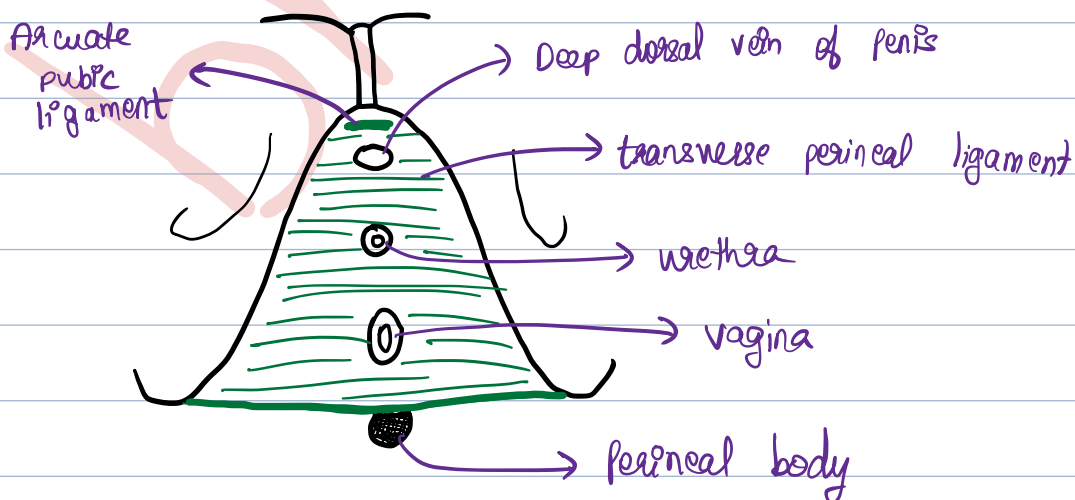
- strong triangular fascial sheet that stretches across the UG Δ
- intervenes between SPP & DPP.

Structures piercing: - posterior scrotal/labial N. & vessels

- deep artery of penis/clitoris
- dorsal artery of penis/clitoris
- urethra (in idline)
- vagina (in ♀)
- ducts of bulbourethral gland

Structures piercing:

♂	♀
- urethra - ducts of bulbourethral gland - A. & N. to bulb of penis - Dorsal A. of penis - Deep A. of penis - Posterior scrotal N. & vessels - Branches of perineal nerve to superficial perineal m.	- urethra & vagina - A. & N. to bulb of vestibule - Dorsal A. of clitoris - Deep A. of clitoris - Posterior labial N. & vessels - Branches of perineal nerve to superficial perineal m.



Perineal Body (PB):

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- wedge-shaped mass of fibromuscular tissue
- lies in the midline at the junction of UG Δ & anal Δ .

10 muscles attached to PB

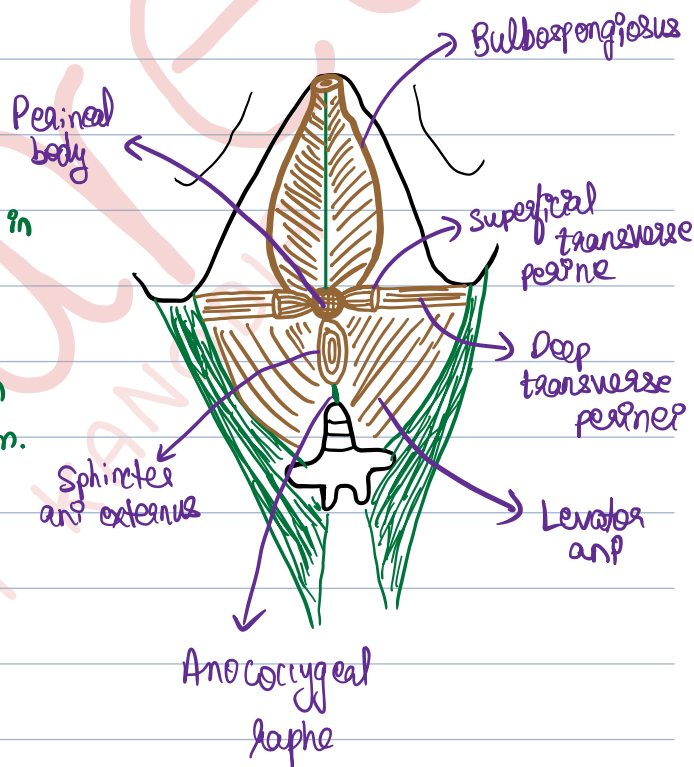
- 2 superficial transverse perineal
- 2 deep transverse perineal
- 2 bulbospongiosus
- 2 levator ani
- sphincter ani externus
- longitudinal muscle coat of anal canal.

Damage of PB: PB is important in females in

- maintaining the integrity of the pelvic diaphragm
- it may be damaged during difficult child birth which may result in prolapse of the bladder, uterus, rectum.

Urogenital Diaphragm: (UGD)

- triangular muscular sheet formed by sphincter urethrae & deep transverse perineal muscles
- Deeper aspect: endopelvic fascia called superior fascia of UGD.
- Superficial aspect: perineal membrane called inferior fascia of UGD.

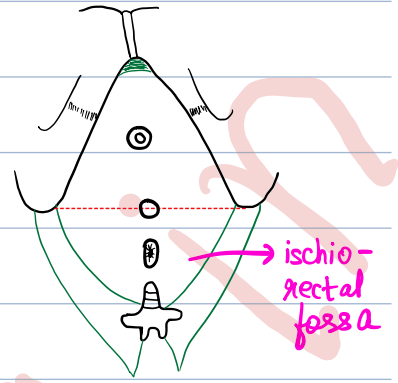


Episiotomy: incision given in the perineum to enlarge the vaginal orifice to facilitate childbirth.

- Median episiotomy: incision begins at the frenulum of labia minora & proceeds backwards in the midline up to EAS.
- Mediolateral episiotomy: incision begins at the labia minora & proceeds laterally at an angle of 45° .

Ischio-rectal/Ischioanal Fossa

- fat-filled space
- situated on each side of anal canal below the pelvic diaphragm
- 2 fossae communicate with each other behind the anal canal through horse-shoe recess
- help in dilatation of the anal canal during defecation.



Boundaries:

- Lateral: fascia covering obturator internus
- Medial: Fascia covering levator ani & EAS
- Posterior: Sacrotuberous ligament
- Anterior: Posterior border of perineal membrane
- Floor: Perineal skin
- Roof: Meeting point of fascia covering obturator internus & inferior fascia of pelvic diaphragm.

- Contents:
- ischio-rectal pad of fat
 - inferior rectal Ns. & Vs.
 - perineal branch of 4th sacral nerve
 - posterior scrotal/labial Ns. & Vs.

Ischio-rectal Abscess: ischio-rectal fossa is prone to infection due to its location

- infection often forms abscess
- fat in the fossa is loosely arranged $\therefore$ swelling can occur without tension & with little pain
- infection may readily pass from one fossa to the other through the horseshoe recess behind the anal canal forming horseshoe-shaped abscess.
- $\therefore$ ischio-rectal fossa does not contain any important structure, it can be incised fearlessly to drain the abscess.
- in a neglected case, the abscess may burst into the anal canal or on the surface of perineum to form the ischio-rectal type anal fistula
- loss of fat of ischio-rectal fossae in debilitating diseases in children (diarrhoea) can cause rectal prolapse.
- a gap exists between the tendinous origin of levator ani & obturator fascia called hiatus of Schwalbe
Through this pelvic organs may herniate into the ischio-rectal fossa

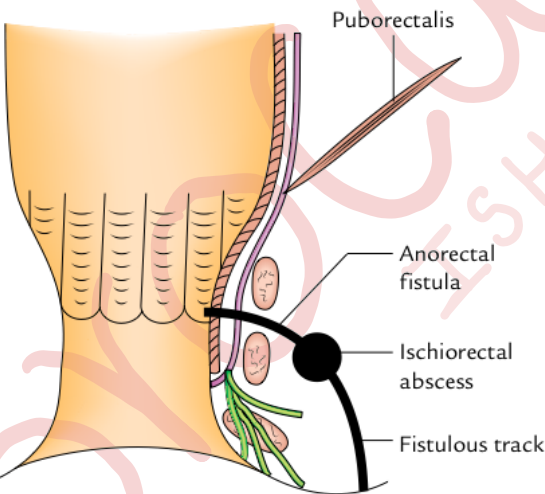
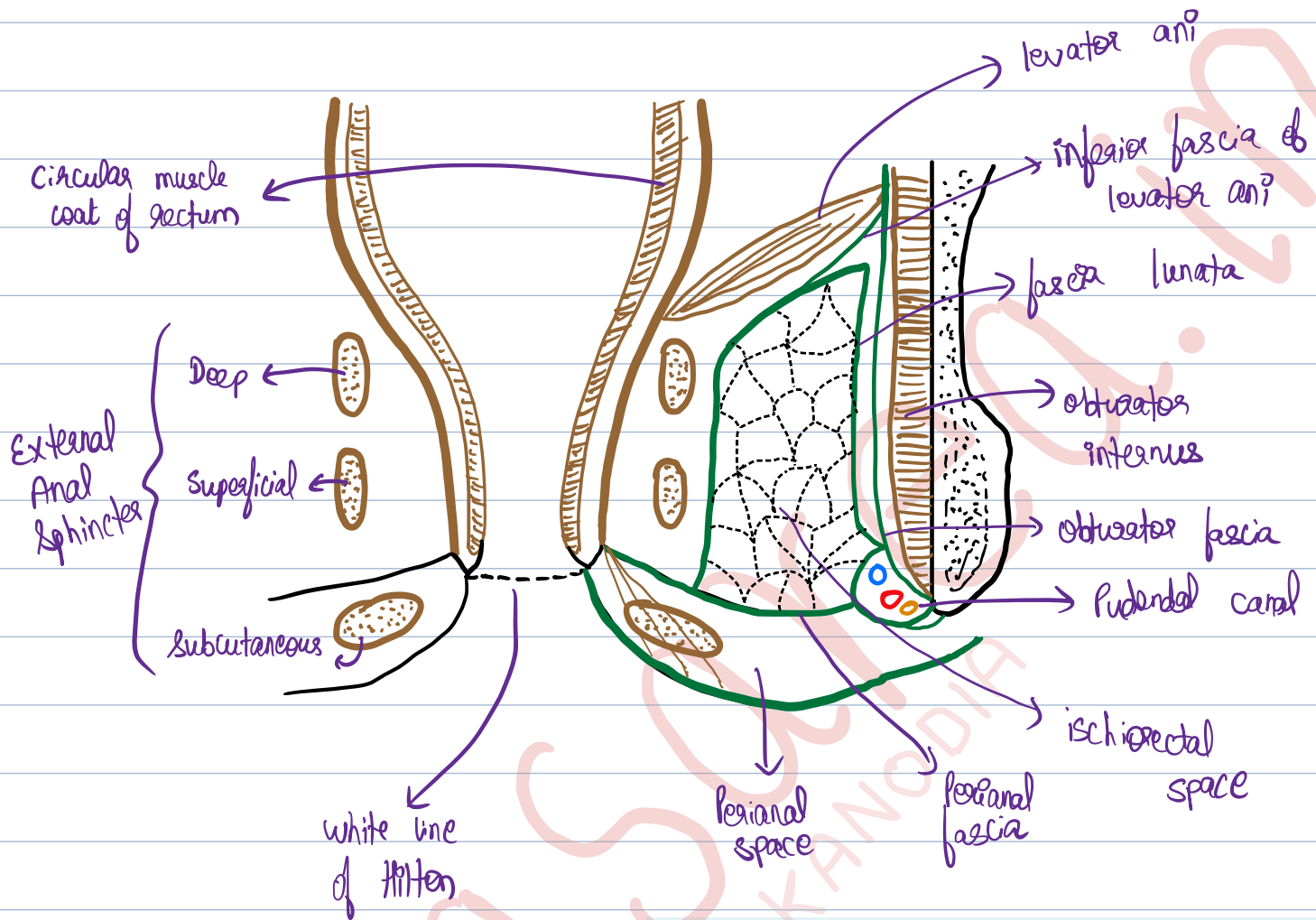


Fig. 15.20 Ischioanal abscess and anorectal fistula.

Ischioanal abscess (Fig. 15.20): The ischioanal fossa is prone for infection due to its location. The infection may occur from boils and abrasions of the perianal skin, from lesions within the anal canal, from pelvic infection or rarely via blood. It often forms abscess—the *ischioanal abscess*.

The fat in the fossa is loosely arranged; therefore swelling can occur without tension with little pain.

The infection may readily pass from one fossa to the other through horseshoe-shaped recess behind the anal canal forming *horseshoe-shaped abscess*.

Since ischioanal fossa does not contain any important structure, it can be incised fearlessly to drain the abscess.

In a neglected case, the abscess may burst into the anal canal or on the surface of perineum to form the ischioanal type of *anorectal fistula* or *fistula in ano*, respectively.

- The fat in ischioanal fossae provides a cushion-like support to the rectum and anal canal. The loss of this fat in debilitating diseases in children, viz. diarrhea, can cause *rectal prolapse*.

- Occasionally a gap exists between the tendinous origin of the levator ani and obturator fascia. This gap is called **hiatus of Schwalbe**, and through it pelvic organs may herniate into the ischioanal fossa.

- Normally, the peritoneal cavity is only a potential space and contains only a thin film of serous fluid, which lubricates the adjacent surfaces of peritoneum so that they can glide over one another but the peritoneal cavity is capable of great distension following the collection of fluid (ascitis), blood (**hemoperitoneum**), and air (**pneumoperitoneum**).
- **Paracentesis abdominis:** It is a procedure by which excessive collection of intraperitoneal fluid is evacuated by canula inserted through the abdominal wall. After emptying the urinary bladder with catheter, the canula is introduced on a trocar either through the anterior midline, where linea alba is relatively bloodless, or through the flank (lateral to McBurney's point, where there is no danger of injuring—*inferior epigastric vessels*). The canula inserted in the flank will pass through the skin, superficial fascia, aponeurosis of external oblique muscle, internal oblique muscle, transversus abdominis muscle, fascia transversalis, extraperitoneal fat, and parietal peritoneum.

Ascites , Peritonitis

[SOURCE: VISHRAM SINGH ANATOMY]