Gross Anatomy of Perineum

- The perineum is diamond-shaped area located below pelvic diaphragm (fig. 1), seen from below in lithotomy position (patient is in supine position with both hip joints flexed and abducted; feet are held in position by stirrups).
- It is bounded anteriorly by symphysis pubis; posteriorly by tip of the coccyx, and laterally by ischial tuberosities (fig. 1).
- It is divided into an anterior part called urogenital triangle and a posterior part called anal triangle (fig. 1).

**Anal Triangle**
- The anal triangle is bounded on each side by ischial tuberosities and sacrotuberous ligaments, and posteriorly by tip of coccyx, (fig. 1) overlapped by borders of gluteus maximus.
- It contains anus in midline and ischiorectal (anorectal) fossa on each side (fig. 1).
- The skin around anus is supplied by inferior rectal nerve.

**Ischiorectal (Anorectal) Fossa (fig. 2)**
- It is a wedge-shaped space situated on each side of anal canal.
- The medial wall is formed by sloping levator ani muscle and anal canal.
- The lateral wall is formed by pelvic fascia covering lower part of obturator internus muscle.
- The base of wedge is superficial and formed by skin of perineum. The internal pudendal vessels and pudendal nerve lie on lateral wall of fossa in pudendal canal.
- The ischiorectal fossa is filled with a fatty pad which allows anal canal to expand during passage of feces.
- The edge of wedge is at junction of medial and lateral walls.
- The internal pudendal vessels and pudendal nerve lie on lateral wall of fossa in pudendal canal.
- The ischiorectal fossa is filled with a fatty pad which allows anal canal to expand during passage of feces.
- The inferior rectal vessels and nerve pass medially from lateral wall of fossa to anal canal.

**The Urogenital Triangle (fig. 1)**
- Is bounded on each side by ischial tuberosity, and anteriorly by pubic arch.
- In male, it contains root of penis and scrotum; in female, it contains external genitalia and orifices of urethra and vagina.

**Superficial fascia**
Consists two layers:

a. The fatty layer (fascia of camper):
   - It is continuous with fat of ischiorectal fossa, and superficial fascia of thigh.
   - Anteriorly, in scrotum, the fat is replaced by smooth muscle known as dartos muscle.

b. The membranous layer (colles’ fascia):
   - It is attached posteriorly to posterior border of urogenital diaphragm, and laterally to margins of pubic arch.
   - Anteriorly, it is continuous with membranous layer of superficial fascia of anterior abdominal wall, the scarpa's fascia.
   - Over penis (or clitoris), it continued as a tubular sheath.

**Urogenital Diaphragm**
- The urogenital diaphragm is a triangular musculofascial diaphragm, situated in anterior part of the perineum, filling gap of pubic arch.
It is formed by sphincter urethrae (external urethral muscle) and deep transverse perineal muscles, which are enclosed between a superior and inferior fascia of urogenital diaphragm; the inferior fascia also called perineal membrane (fig. 3 & 4).

Anteriorly, superior and inferior layers of fascia of urogenital diaphragm fuse, leaving a small gap beneath symphysis pubis.

Posteriorly, the two fascial layers fuse with each other and with membranous layer of the superficial fascia and perineal body.

Laterally, the two fascial layers are attached to pubic arch.

The close space that is contained between two fascial layers is known as deep perineal pouch.

The closed space below inferior layer of fascia of urogenital diaphragm (perineal membrane) is called superficial perineal pouch (fig. 3).

Figure – 3 The superficial and deep perineal pouch.

Superficial Perineal Pouch (fig. 3, 4A & B, and 5A &B)

- Closed posteriorly by fusion of upper and lower walls.
- Laterally, it is closed by attachment of upper and lower walls to margins of pubic arch.
- Anteriorly, space communicates with a potential space lying between the superficial fascia of anterior abdominal wall and anterior abdominal muscles.

Contents in the Male (fig. 4A & B)

a. Bulbospongiosus muscles: One on each side of midline, cover bulb of penis.
   
   Their action is:
   
   i. They compress penile part of urethra and empty it of residual urine or semen; ii. They compress deep dorsal vein of penis, thus impeding venous drainage of erectile tissue and thereby assisting in process of erection of penis.

b. Ischiocavernosus muscles: One on each side, cover corresponding crus penis.

Their action is: Assist in process of erection of penis.
c. Bulb of penis: It is firmly attached to perineal membrane.
d. Crura of penis: One on each side, are firmly attached to margins of pubic arch.
e. Superficial transverse perineal muscles: The two muscles lie in posterior part of pouch.
f. Perineal body: The perineal body is a fibromuscular mass, occupies:
   - In male, space between anal canals, posteriorly and bulb of penis, anteriorly.
   - In the female, space between anal canal and vagina.
   - The perineal body supports vagina in female.
   - During childbirth it is liable to be torn, and if repair does not occur, the upper part of vagina together with uterus is liable to descend (prolaps).
g. Perineal branch of pudendal nerve: Supplies muscles within the superficial perineal pouch and covering skin.
Contents in Female (fig. 5A & B)
a. Bulbospongiosus muscles: One on each side of midline, surround orifice and lower part of vagina and cover lateral part of vestibular bulb. Their action is:
(1) They reduce the size of vaginal orifice;
(2) They compress deep dorsal vein of clitoris, thereby assisting in mechanism of erection of clitoris.
b. Ischiocavernosus muscles: One on each side, cover the crus of clitoris.
c. Bulb of the vestibule: They are identical to that of penis.
d. Crura of clitoris: They are identical to that of penis.
e. Superficial transverse perineal muscles.
f. Perineal body: It is larger than that of male, and situated between lower end of the vagina and anal canal.
g. Perineal branch of the pudendal nerve: Supplies muscles within the superficial perineal pouch and covering skin.
Deep Perineal Pouch (fig. 6A & B, and fig. 7A &B)
Is the closed space that is contained between superior and inferior (perineal membrane) layers of fascia of urogenital diaphragm.

Contents in Male (fig. 6A & B)
a. Membranous part of urethra.
b. Sphincter urethrae muscle:
   • Supplied by the perineal branch of the pudendal nerve.
   • Its function is to compress membranous part of urethra and relaxes during micturition.
c. Deep transverse perineal muscles:
   • The two muscles lie behind sphincter urethra muscle.
   • They are clinically unimportant.
d. Bulbourethral glands:
   • These are two small glands, situated behind sphincter urethrae muscle.
   • Their ducts pierce perineal membrane and enter penile urethra.
e. Internal pudendal artery.
f. Dorsal nerve of the penis.
Contents in Female (fig. 7A & B)
a. Part of urethra.
b. Part of vagina.
c. Sphincter urethrae.
d. Deep transverse perineal muscles.
e. Internal pudendal artery.
f. Dorsal nerve of clitoris.

Figure – 7A  Deep perineal pouch – Female

Figure – 7B  Deep perineal pouch – Female