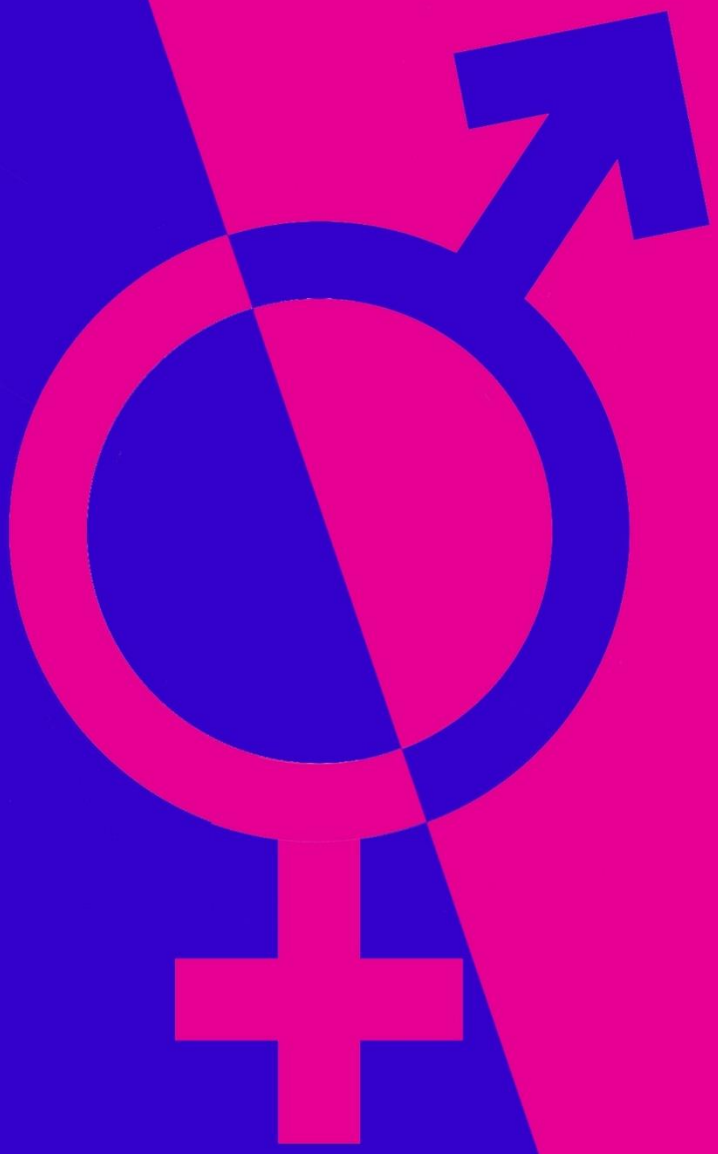
HATAHET ANATOMY



Male Reproductive System

Lecture: 16

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Lecture 16: Male reproductive system

Scrotum

- Scrotum is the outpouching supportive structure of lower anterior abdominal wall
- contains the following structures: (Testes, Tunica vaginalis, Epididymis, Vas deferens; the lower end)
- made up of 6 layers:

❶ **Skin**, thin and wrinkled

❷ **Superficial fascia**, forms the median partition (septum) which separates the testes, composed of 2 layers:

A. **Dartos fascia**, a continuation muscle of Camper's fascia
B. **Colle's fascia** , a continuation membrane of Scarpa's fascia

❸ **Deep fascia (Spermatic fascia)**

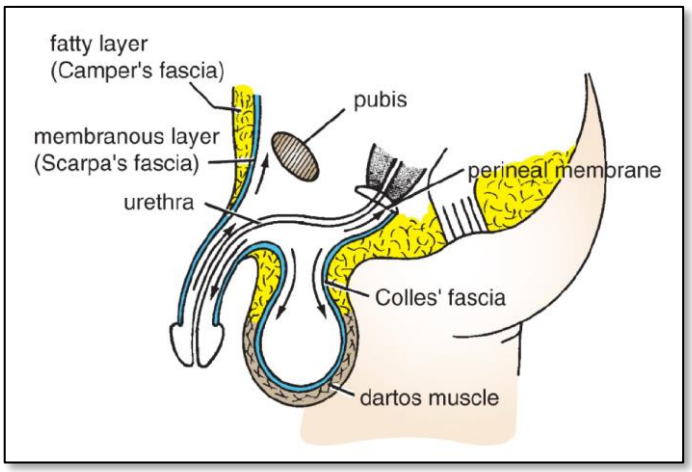
A. **External spermatic fascia**, derived from external oblique aponeurosis
B. **Cremasteric muscle**, derived from internal oblique muscle, it regulates temperature of the testes; as the production of sperms is achieved in a specific temperature:

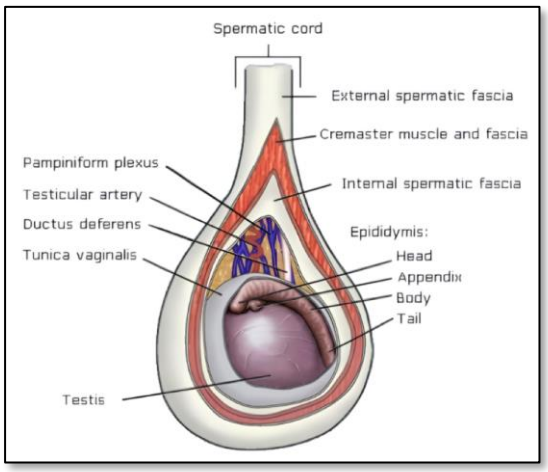
- contracts to elevate the testes in cold weather → bringing them closer to the body
- relaxes to depress the testes in hot weather → bringing the away from the body

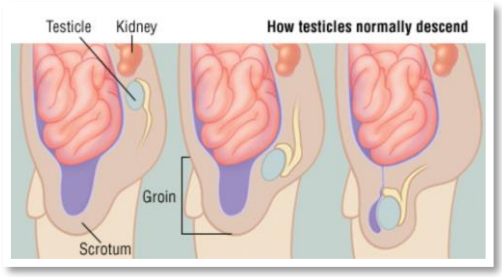
C. **Internal spermatic fascia**, derived from transversalis aponeurosis

***Note**: Below the level of umbilicus, the superficial fascia will be modified; it will become 2 layers:

1) Fatty layer (Camper's fascia)
2) Membranous layer (Scarpa's fascia)





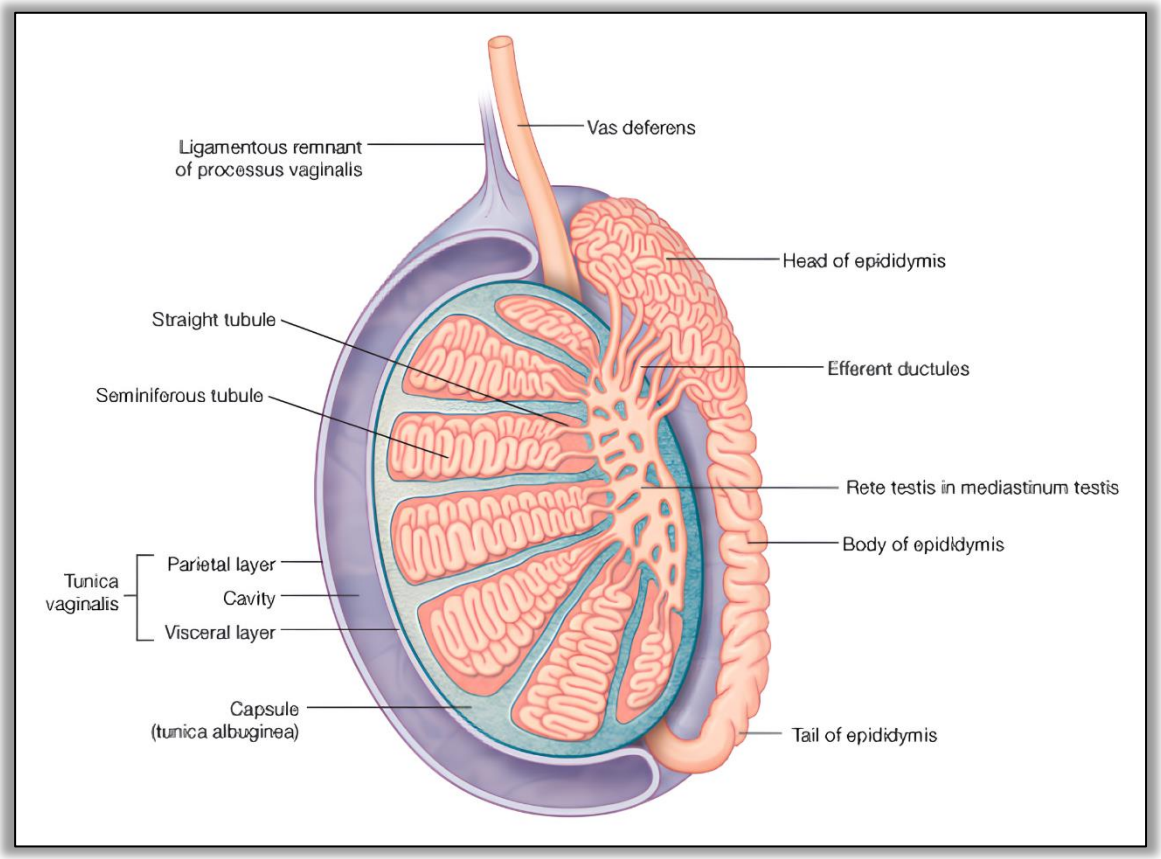


Testicles (Testes)

- a firm mobile organ that lies within the scrotum and responsible for Spermatogenesis (production of sperms)
- protected by a tough fibrous capsule called (Tunica albuginea) which divides the testicles internally into 200-300 (**Testicular lobules**)
- they originate in the posterior abdominal wall and start descending between the 7^{th} and 8^{th} months or pregnancy
- anatomy of testicular lobules:

❶ **Seminiferous tubules**, 1-3 in each testicular lobule, it is where spermatogenesis takes place
❷ **Straight tubules**, deliver immature sperms to rete testis
❸ **Rete testis** ,a network of tubules in the testicular mediastinum
❹ **Efferent tubules**, carry sperms to the epididymis

▪ **Testicular lobules**: a system of small tubules where spermatogenesis and delivery of sperms to epididymis takes place



***Note**: the left testicle is at lower level than the right one, for 2 reasons:

Theory #1: the left testis descends before the right one
Theory #2: the line of force axis is deviated to the left side due to abdominal organs distribution

Tunica vaginalis

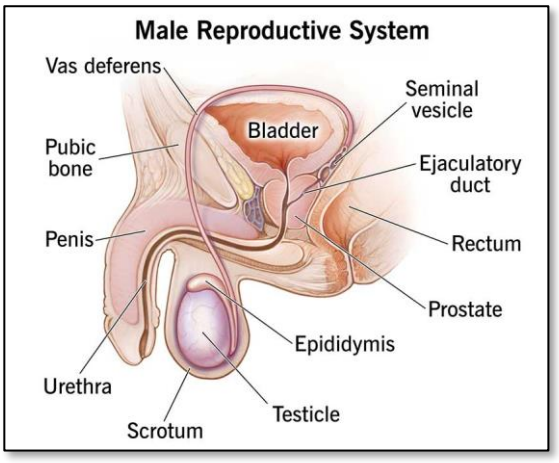
- Tunica vaginalis is a diverticulum fluid-filled sac derived from the peritoneum inferiorly
- cushions and surrounds testicles from all sides except the posterior side; so testicles are retroperitoneal organs
- has a small ligament that represents the remnants of (**Processus vaginalis**) which is the precursor of tunica vaginalis; just before birth, PV shuts off to become TV

Spermatic cord

- the 2 tubular structure that pass to and from testicles
- they contain the following structures:

❶ **Testicular artery**, a branch from the abdominal aorta
❷ **Pampiniform plexus**, a network of veins around testicular artery, it drains into the testicular vein
❸ **Autonomic nerves**, derived from the spinal segments (S2 - S4)
❹ **Lymphatic vessels**, which drain into the Lumbar (Pre-aortic) lymph nodes
❺ **Vas deferens**

Epididymis



- Epididymis is a highly coiled tubule (6m when stretched)
- lies posterior to testicles; also retroperitoneal organ
- has a: head, body, tail
- it is the site of Spermiogenesis (maturation of sperms) and storage of sperms

Vas (Ductus) deferens

- Vas deferens is a direct continuation of the epididymis tail that ascends on its medial side
- it transports sperms from epididymis to the ejaculatory duct
- course of vas deferens:

① rises from tail of epididymis → ② passes anteriorly then posteriorly to pubic symphysis → ③ enters the inguinal canal through the deep inguinal ring → ④ enters pelvic cavity through the superficial inguinal ring → ⑤ runs superior to the ureters to reach the fundus of urinary bladder → ⑥ forms a dilated termination (Ampulla) that joins ejaculatory duct

Seminal vesicles

- Seminal vesicles are 2 lobulated (5 cm) organs on the base/fundus of bladder
- located laterally at each side of each vas deferens
- they are responsible for 65% of the seminal fluids
- both seminal vesicles will join the vas deferens to form the ejaculatory duct

Ejaculatory ducts

- they are 2 ducts that run through the antero-inferior through the upper part of the prostate gland
- both will open into the prostatic urethra

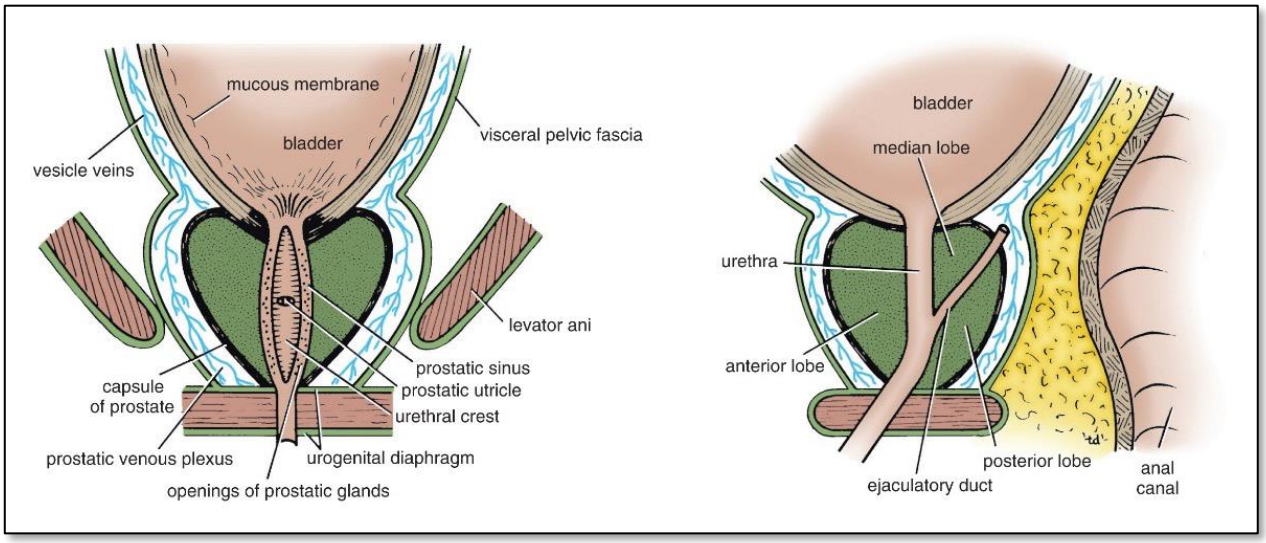
Prostate gland

- Prostate gland is a singular walnut-shaped organ
- a fibromuscular glandular organ:

  - **anterior part** → the fibromuscular part
  - **posterior part** → the glandular part

- it is the largest male reproductive gland (3x4)
- secretes a milky, slightly alkaline fluid that accounts for 25% of the seminal fluids, it neutralizes the acidity of vagina
- location of prostate gland:

  - **Superior (Base)** → neck of urinary bladder
  - **Inferior (Apex)** → rests on pelvic diaphragm (Levator ani muscle)
  - **Anterior** → Pubic symphysis
  - **Posterior** → anal canal; important for prostate physical examination



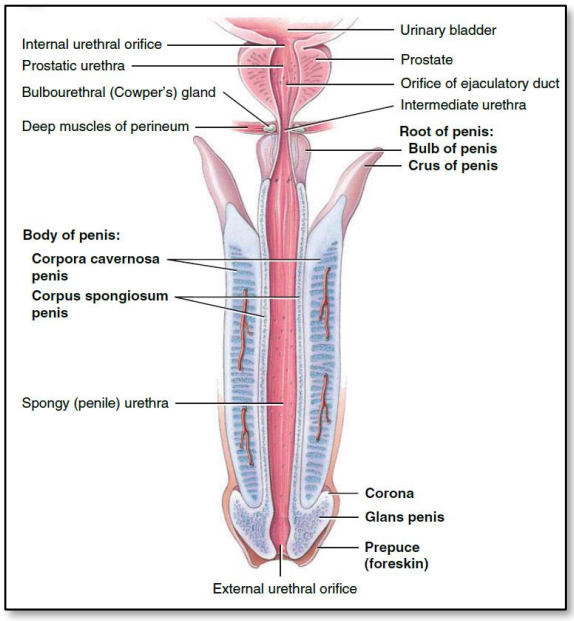
Urethra

- Urethra is a 20 cm long passageway for both urine & semen
- consists of 3 main regions:

❶ **Prostatic urethra**
- passes through the prostate gland
- contains the openings (orifices) of <u>both ejaculatory ducts</u>

❷ **Membranous (Intermediate) urethra**
- passes through the Urogenital diaphragm (Levator ani muscle)

❸ **Penile (Spongy) urethra**
- passes through the corpus spongiosum of the penis
- contains the openings of <u>both bulbourethral glands</u>
- the longest portion of the male urethra



Cowper's glands

- Cowper's (Bulbourethral) glands are 2 small pea-shaped glands
- located posterolateral to membranous urethra, and open into the spongy urethra
- secretes alkaline fluid rich with mucous

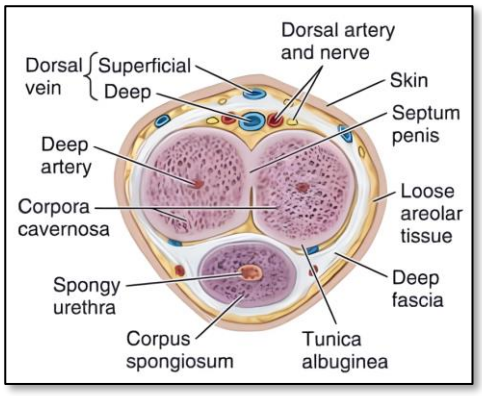
Penis

- Penis is the supportive rod of erectile tissue that supports the spongy urethra
- composed of 3 main parts:

❶ **Root**, the proximal part, composed of:
- **A.** **Bulb**, the base of corpus spongiosum
- **B.** **Crus**, the base of corpora cavernosa

❷ **Body**, the largest portion, composed of 3 vascularized erectile tissue masses:
- **A.** **Corpora cavernosa**, two supero-lateral (Dorsal) masses
- **B.** **Corpus spongiosum**, one infero-medial (Ventral) mass

❸ **Glans penis**, the enlarged distal end of the corpus spongiosum, covered by the Prepuce (Foreskin)



Muscles of Penis			
Muscle	**Origin**	**Insertion**	**Action**
Ischiocavernosus	Ischial tuberosity	Crus of penis	assists in erection (الانتصاب)
Bulbospongiosus	Perineal body	Bulb of penis	assists in ejaculation (القذف)