



Reproductive System



Anatomy Team

430

This lecture is done by:

Mayyadah Alabdely

Organized by: Samar Al-Shetawe

Anatomy of the Male Reproductive system

Components of Male Reproductive System:

- 1- Primary Sex Organ:** Testis.
- 2- Reproductive Tract:** Epididymis, Vas Deferens, Spermatic cord.
- 3- Accessory Sex Glands:** Seminal vesicles, Prostate gland, Bulbourethral glands.
- 4- External genitalia:** Penis.

Scrotum:

Definition: An out pouching of loose skin & superficial fascia

- **The Left scrotum is lower than the right.**
- The Dartos_muscle lies within the superficial fascia

Functions:

- 1- Houses & Protects the testis
- 2- Regulates testicular temperature
- 3- It has thin skin with sparse hairs and sweat glands

Testis

A Paired almond-shape gonads that suspended in the scrotum by *the* spermatic cord

Parameters : 4 - 5 cm long, Weigh (10.5 – 14) g

Functions:

- 1- Spermatogenesis.
- 2- Hormone production (Androgens- testosterone).

Coverings of the Testis:

Tunica Vaginalis:

- Peritoneal covering, formed of parietal and visceral layers.
- It surrounds testis & epididymis.
- It allows free movement of testis inside scrotum.

Tunica albugenia:

It is a whitish fibrous capsule

Internal Structure of Testis:

- Fibrous septae extend from the capsule, divide the testis into (200-300) lobules.
- Each lobule contains, (1-3) seminiferous tubules.

1-Seminiferous Tubules:

- They are the site of the spermatogenesis.
- They form the bulk of testicular tissue.

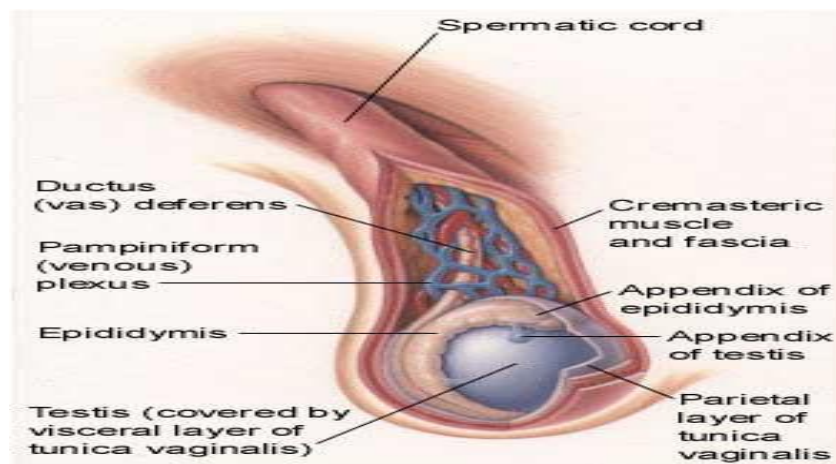
2-Rete testis: (a network of tubules)

It is the Site of merging of the Seminiferous tubules.

Blood Supply of Testis:

-Testicular artery: It is a direct branch from the abdominal aorta.

-Venous drainage : (Pampiniform plexus of veins). Approximately a dozen veins which forms a network in the spermatic cord. They become larger, converge as it approached the inguinal canal and form the Testicular vein (Right Vein drains into IVC while Left Vein drains into Left Renal Vein).



Lymphatic Drainage :-

-Testicular Lymphatics:

Follow arteries, veins end in Lumbar (par aortic) nodes

-From scrotum, penis, prepuce:

Terminate in Superficial Inguinal nodes

Epididymis: A Single coiled tubule

Its length: 6 M long

Position: Located on the posterior & superior margins of the testis.

It is divided into: Head, Body and Tail.

The Head receives efferent ductules from testis and the Tail is continuous with Vas Deferens .

Functions:

1. Secretes/absorbs the nourishing fluid.
2. Recycles damaged spermatozoa.
3. Stores spermatozoa Up to 2 weeks to allow for maturation.

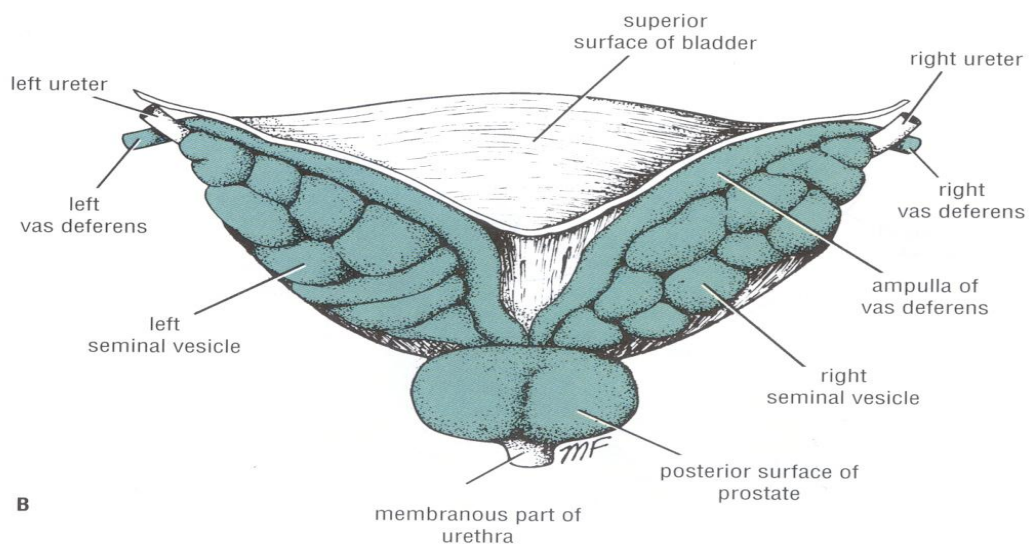
Vas Deferens:

- A Muscular tube 45 cm long.

Function : Carries sperms from the Epididymis to pelvic cavity.

Course:

- 1-Passes through the inguinal canal
- 2-It crosses the ureter
- 3-Its terminal part is dilated to form the Ampulla of the vas
- 4-It joins the duct of the seminal vesicle to form the ejaculatory duct which opens into the prostatic urethra.



Spermatic Cord:

-cord-like structure in males formed by the vas deferens and the surrounding tissue that run from the abdomen down to each testicle.

Contents:

-Vas deference.

-Arteries:

- 1 Testicular artery.
2. Cremasteric artery.
3. Artery of the vas.

-Veins: Pampiniform plexus of veins.

-Nerves:

1. Genital branch of the genitofemoral nerve.
2. Sympathetic nerves.

-Lymph vessels.

-Tunica vaginalis remains of the (processes vaginalis)

Accessory Glands:

1-Seminal vesicle.

2-Prostate.

3-Bulbourethral glands.

Functions:

1. Secretion of seminal fluid
2. Nourishing, activation.
3. Protection of sperms

Seminal Vesicles:

-Paired elongated glands.

Position: Located posterior & inferior to the urinary bladder

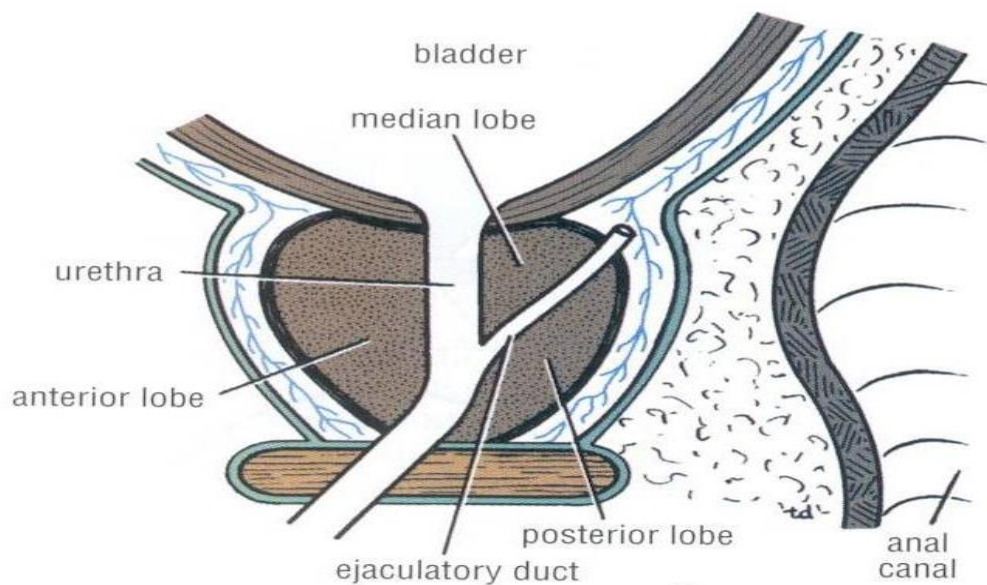
Function: Secrete (60% of Semen)

Ejaculatory Ducts:

-Formed by the union of the lower end of the vas deferens and the duct of the seminal vesicle.

-The 2 ejaculatory ducts open into the prostatic urethra.

-They drain the seminal fluid into the **prostatic urethra**.



Prostate Gland: The Largest male accessory gland.

Size : Walnut sized.

Location : Located at the neck of bladder

Function :

- Houses prostatic urethra
- secretes (20-30% of semen)

Shape: Conical, **It has:**

- Base (Sup):** Attached to neck of urinary bladder
- Apex (Inferior),** on Urogenital diaphragm.
- Four Surfaces:** Posterior, Anterior, Right & Left.

Functions of the enzymes:

- 1-Aid in activating sperm motility
- 2-Antibiotic
- 3-Mucus degradation
- 4-Alkaline fluid to Neutralize female reproductive tract

Relation of the prostate:

- Anterior:** Symphysis pubis (SP).
- Superior :** Neck of urinary bladder.
- Posterior :** Rectum (important for PR

Examination)

- Inferior:** Urogenital diaphragm, (UGD).
- Lateral:** Medial margins of levator ani muscles (levator prostate)

Internal Structure:

It is enclosed in a fascial sheath (Prostatic Sheath)

Has (5) Lobes: named according to relation of urethra:-

- Anterior, Posterior, Lateral (right & left) and Median.
- The anterior & posterior lobes have no glandular tissue.

The Median Lobe:

- Lies posterior and superior to ejaculatory ducts
- May project into urinary bladder.
- The median & lateral lobes are rich in glandular tissue.

Prostatic Urethra:

On the posterior wall:

1-Urethral crest: A longitudinal elevated ridge.

2-Prostatic sinus:

- A groove on each side of the crest.
- The prostatic gland opens into the sinuses.

3-Prostatic utricle :

- A depression on the summit of the urethral crest.
- The ejaculatory ducts open on the sides of the utricle.

Bulbourethral Glands "Small paired glands" :-

Position : Located at the base of the penis

Function :

1-Secrete alkaline mucus that neutralize urinary acids 2- Lubrication

Penis "Copulatory & Excretory organ".

-Excretory:

Penile urethra: Carries urine & sperm.

-Copulatory:

Has (3) cylindrical masses or erectile tissue:-

- Two Corpora Cavernosa

- One Corpus Spongiosum

Corpora Cavernosa:

- Paired Right & left

- Superior masses of (Primary erectile tissue).

- Provide the majority of rigidity & length of penis

- Their Posterior Expansions :form **Crura (anchor" tissue) against pelvic bone**

Corpus Spongiosum:

- The Inferior mass (A Secondary erectile tissue)

- Traversed by the Penile urethra

- Its Anterior expansion: forms the Glans

- Prepuce : Fold of skin covering glans

- Its Posterior expansion: **forms Bulb of penis**

Cremasteric reflex:

Indication:-

Evaluation of testicular pain. (Testicular Torsion)

Technique :-

- Examiner strokes or pinches **upper medial thigh >>** Causes cremasteric muscle contraction
- Observe for rise of the Testicle on same side (normal)

Interpretation :-

- Normal: **It is present with Epididymitis**
- Cremasteric reflex absent (no Testicle rise) and **it's Suggestive of Testicular Torsion** . Also absent in 50% of boys under age 30 months (that`s why we don`t use **this test under age 30 months**) .

Efficacy:-

- Test Sensitivity for Testicular Torsion: 99%
- Assumes age over 30 months

Nerve involved: Genitofemoral nerve (GFN), (L1,2)

-Sensory: femoral branch of (GFN) & Ilioinguinal N.

-Motor: genital branch of (GFN).

Summary

- The scrotum is an out pouching of loose skin & superficial fascia, it houses and protects the testis and regulates its temperature
- The testis is an almond shaped organ that is responsible for **spermatogenesis and hormone production**
- The testis is covered by Tunica Vaginalis and Tunica albugenia
- The arterial supply for the testis is the **testicular artery** which is a direct branch from the **abdominal aorta**
- The venous drainage is **Pampiniform plexus** of veins They become larger, converge as it approached the inguinal canal and form the testicular vein **The right vein drains into IVC ,the left vein drains into Left Renal Vein.**
- Epididymis It is divided into: Head, Body and Tail . It :- 1. **Stores spermatozoa up to 2 weeks to allow for physiological maturation** 2. Secretes and absorbs the nourishing fluid. 3. Recycles damaged spermatozoa.
- The vas deference ,Carries sperms from the tail of the Epididymis to the pelvic cavity. Passes through the inguinal canal. **It crosses the ureter.** Its terminal part is dilated to form the ampulla of the vas **It joins the duct of the seminal vesicle to form the ejaculatory duct which opens into the prostatic urethra.**
- Seminal Vesicles Secrete (**60% of Semen**)
- The prostate **30 % of semen**
- The bulbourethral gland **10% of semen**
- Prostatic sinus: is A groove on each side of the crest, **where the prostate opens into it.**
- Prostatic utricle :_A depression on the summit of the urethral crest, **The ejaculatory ducts open on the sides of the utricle.**
- The penis is a Copulatory & Excretory organ.
- Cremasteric reflex is to determine **if the testicular pain is caused by Epididymitis or testicular torsion,** if its normal then its epididymitis if its abnormal "absent " (then its testicular torsion)