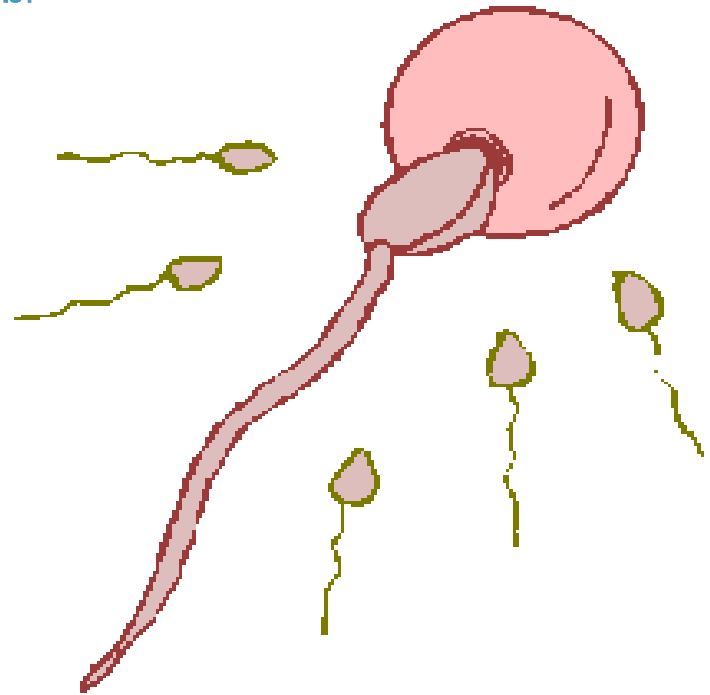


Male reproductive system

Before going through the contents, make sure you check this CORRECTION FILE first

Components of Male Reproductive System:

Primary Sex Organ	Reproductive Conducting Tract	Accessory Sex Glands	External genitalia
testis	- Epididymis. - Vas Deferens. - Spermatic cord. - urethra	- Seminal vesicles. - Prostate gland. -Bulbourethral glands.	penis

Testis

Testis or Testicle (singular),Testes (plural).

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

4 - 5 cm long

Weigh (10.5 – 14) g

Its volume is about 20-25 ml

Functions:

Spermatogenesis.

Hormone production

Androgens- testosterone).

قصة صدقية: يحكى انه كان فيه طالب طب يحب له بنت, المهم صديقنا ذا دخل عليهم الدكتور يشرح التستس وقال لهم ان الي التستس حقتهم صغيرة اصغر من كذا وكذا فهو ستيرايل -عقيم- الولد شيك ع نفسه بنفسه وطلعت التستس حقته صغيرة فحزن ع حاله والبنت الي يحبها,فراح بوقتها اعتلى الكلية ورمى نفسه من فوق السطح ومات.

مايستفاد من القصة:

- Medical student syndrome may exagerate.
- ومن العلم ماقتل

Scrotum

An out pouching of loose skin & superficial fascia.

Note:The Left scrotum is lower than the right, why?

because the venous drainage of the left testis is more difficult due to:

1-it travels in a vertical angle(to join the left renal vein)

2-it is compressed by the sigmoid colon and it's content.

Functions of scrotum:

- Houses & Protects the testis
- It has thin skin with sparse hairs and sweat glands.
- It Regulates testicular temperature (no superficial fat, fat retains heat)
- the Dartos muscle lies within the superficial fascia.
- replaces Scarpa's fascia (of the abdomen).

Coverings of the Testis	
Tunica Vaginalisis	Tunica albugenia
It surrounds testis & epididymis. It allows free movement of testis inside scrotum.	It is a whitish fibrous capsule

Internal Structure of Testis	
Fibrous septae extend from the capsule (tunical albugenia), divide the testis into a (200-300) lobules, Each lobule contains, (1-3) seminiferous tubules.	
Seminiferous Tubules: • They are the site of the spermatogenesis. • They form the bulk of testicular tissue.	Rete testis: • a network of tubules • It is the Site of merging of the Seminiferous tubules.

	Blood Supply of Testis	
	Artery	vein
Blood vessel	Testicular artery	Pampiniform plexus
Origin/drainage	direct branch from the abdominal aorta.	Testicular vein ,Rt will drain into IVC, Lt drains into the Lt renal vein and then into IVC.

Lymphatics of testis	
Testis	scrotum, penis, prepuce
- Follow arteries, veins - End in Lumbar (par aortic) nodes Note: testis cancer can be associated with lymphatic enlargement in the abdomen (para aortic nodes)	Superficial Inguinal nodes

Approximately a dozen (12) veins which forms a network in the spermatic cord.
They become larger, converge as it approached the inguinal canal and form the Testicular vein.

What is it?	length	position	divisions	Functions
Epididymis				
A Single coiled tubule	6 m	Located on the posterior & superior margins of the testis.	1- Head: receives efferent ductules from testis. 2- Body 3- Tail: continuous with Vas Deferens	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	Passes through the inguinal canal & crosses the ureter	Its terminal part is dilated to form the Ampulla of the vas	Carries sperms from the Epididymis to pelvic cavity.
Seminal vesicles				
Paired elongated glands	-	posterior & inferior to the urinary bladder	-	Secrete (60% of Semen)
Ejaculatory duct				
the union of the lower end of the vas deferens and the duct of the seminal vesicle	1 inch (2.5) cm	2 ejaculatory ducts open into the prostatic urethra	-	drain the seminal fluid into the prostatic urethra
Bulbourethral glands				
Small paired glands	-	at the base of the penis	-	Secrete alkaline mucus for: • Neutralization of urinary acids. • Lubrication

Joins the urethra in the prostate

Accessory glands:
- Seminal vesicle.
- Prostate.
- Bulbourethral glands.

Functions:
1. Secretion of seminal fluid
2. Nourishing, Activation & Protection of sperms

Prostate gland

Prostate gland				
What is it?	size	position	shape	functions
The Largest male accessory gland	Walnut sized	at the neck of bladder	Conical, It has: - Base (Sup): Attached to neck of urinary bladder - Apex (Inferior): on Urogenital diaphragm. - Four Surfaces: Anterior,posterior,right & left.	• Houses prostatic urethra • Secretes (20-30% of semen) • Secretes enzymes which has the following functions: 1. Aids in activating sperm motility 2. Mucus degradation 3. Antibiotic 4. Neutralizes Alkaline fluid of female reproductive tract

Prostatic Capsule	
internally	externally
dense fibrous prostatic Capsule.	surrounded by a fibrous prostatic Sheath which is continuous with the puboprostatic ligaments (levator prostate).

Prostatic relations				
Anterior	posterior	lateral	inferior	superior
Symphysis pubis	Rectum (important fo per rectal examination PR)	Urogenital diaphragm	Medial margins of levator ani muscles (levator prostate)	Neck of urinary bladder

Prostate gland,cont'd

Prostatic lobes (anatomically)

Anterior (Isthmus)	Posterior	Two Lateral	Middle (Median)
lies anterior to the urethra, it is fibromuscular	posterior to the urethra and inferior to the ejaculatory ducts.	on each side of the urethra.	between the urethra and ejaculatory ducts & closely related to neck of urinary bladder.

It may project into the urinary bladder

Prostatic lobes (radilogically)

central	peripheral
represented by the Middle lobe.	All the anatomical prostatic lobes except the middle one

Median & Lateral lobes are rich in glandular tissue.

Urologists & Sonographers, divide the prostate into Peripheral and Central (Internal) zones.
Central is represented by the: middle lobe.
Hitologically:
Within each lobe are four lobules, which are defined by the ducts and connective tissue.

Prostatic blood & lymphatics

Artery	vein	lymphatics
inferior vesical artery (a branch of internal iliac aretery)	Prostatic venous plexus: Lies between the prostatic fibrous capsule and the prostatic sheath. It drains into the internal iliac veins.	Internal iliac lymph nodes

structures seen on its posterior wall:

Urethral crest:
A longitudinal elevated ridge.
Prostatic sinus:
A groove on each side of the crest.
The prostatic gland opens into the sinuses.
Prostatic utricle :
A depression on the summit of the urethral crest.
The ejaculatory ducts open on the sides of the utricle.

Prostatic venous plexus:
It is continuous superiorly with the vesical venous plexus and posteriorly to the internal vertebral venous plexus, so it's common for prostatic cancer to metastasize to the vertebrae

Penis

Penis (A Copulatory & Excretory organ)	
Excretory:	Copulatory:
Penile urethra transmits urine & sperm	Has (3) cylindrical masses of erectile tissue: 1- Two Corpora Cavernosa 2- One Corpus Spongiosum

penis	
Corpora Cavernosa	Corpus Spongiosum
Superior Paired Right & left	The Inferior mass
masses of Primary erectile tissue	A Secondary erectile tissue
Provide the majority of rigidity & length of penis	Traversed by the Penile urethra
Their Posterior Expansions: form Crura (anchor" tissue) against pelvic bone	• Its Anterior expansion forms the Glans • Its Posterior expansion: forms Bulb of penis
Found in Superior perineal pouch	Prepuce : Fold of skin covering glans (before circumcision)

Clinical points

Cremasteric reflex

Indication:
Evaluation of testicular pain (Testicular torsion)
Technique:
1-Examiner strokes or pinches upper medial thigh causes cremasteric muscle contraction
2-Observe for rise of the Testicle on same side (normal).
Interpretation:
Normal: It is present with:
1- Normal boys above 3 months.
2- epididymitis.
If Cremasteric reflex absent (no Testicle rise): Torsion
1- in 50% of boys under age 30 months.
Note: Do not use this test under age 30 months.
2- Testicular tension.
Efficacy:
Test sensitivity for:
1- Testicular Tension= 99%
2- Assumes age over 30 months.
Nerve involved: Genitofemoral N., (L1-2)
Sensory: femoral branch of (GFN) (from L1-2)& Ilioinguinal N (L1), supplying the skin over the anterior medial side of the thigh.
Motor: genital branch of (GFN).

Try to rember the structures coloured with bright blue

Hypertrophy of the Prostate

- Benign
Common after middle age.
An enlarged prostate projects into the urinary bladder and distorts the prostatic urethra.
The middle lobe often enlarges the most and obstructs the internal urethral orifice, this leads to nocturia, dysuria and urgency.

- Malignant:
It is common after the age of 55
The malignant prostate is felt hard & irregular during PR
The malignant cells metastasize through lymph and veins.
Lymphatic metastasis to Internal iliac & Sacral lymph nodes, Later to distant nodes.
Venous metastasis to Bone & Brain through (IVVP= internal vertebral venous plexus)

notes from male doctor:

We can try to remember all the contents of Spermatic cord by Rule of 3
3 arteries: cremasteric artery, deferential artery or artery to vas deferens, testicular artery.
3 nerves: genital branch of the genitofemoral nerve (L1/2), autonomic and visceral afferent fibres,
ilioinguinal nerve (though outside(not content) spermatic cord but travels next to it).
3 fascial layers: external spermatic, cremasteric, and internal spermatic fascia.
3 other structures: pampiniform plexus, vas deferens (ductus deferens), testicular lymphatics.

testicular artery is at the level of L3 while the renal artery at the level of L2

MCQs

1-which one of the following is the male primary sex organ??

A. seminal vesicles

B. prostate gland

C. testis

D. bulbourthral gland

2-Which one of the following form the bulk of the testes (site of spermatogenesis)?

A.Tunica Vaginalis

B.Tunica albugenia

C.seminiferous tubules

D.Rete testis

3-testicular*gonadal* artery is a branch of abdominal aorta at the level of??

A. L1

B. L2

C. L3

D. L4

4-Testis drains it's lymph into?

A.Superficial inguinal lymph node

B.Deep inguinal lymph node

C.Lumbar (paraaortic) lymph node

5-which one of the following copulatory organs of the penis has the penile urethra?

A. corpus spongiosum

B. corpora cavernosa

6-the Efferent *motor* nerve of the cremasteric reflux is??

A. femoral branch of (GFN)

B. genital branch of (GFN)

C. Ilioinguinal nerve

D. illiohypogastric nerve

7-which one of the following parts of Reproductive Conducting Tract store spermatozoa up to 2 weeks for maturation??

A. Epididymis.

B. Vas Deferens.

C. Spermatic cord.

8-Which one of the following glands secrete the majority of the seminal fluid ?

A.Seminal vesicle.

B.Prostate.

C.Bulbourethral glands.

9-Which one of the following structures is inferior to the prostate gland?

A.Symphysis pubis

B.Neck of urinary bladder

C.Rectum

D.Urogenital diaphragm

10-which one of the following lobes of the prostate gland is located between the urethra and ejaculatory ducts also rich of glandular tissue??

A. anterior lobe

B. posterior lobe

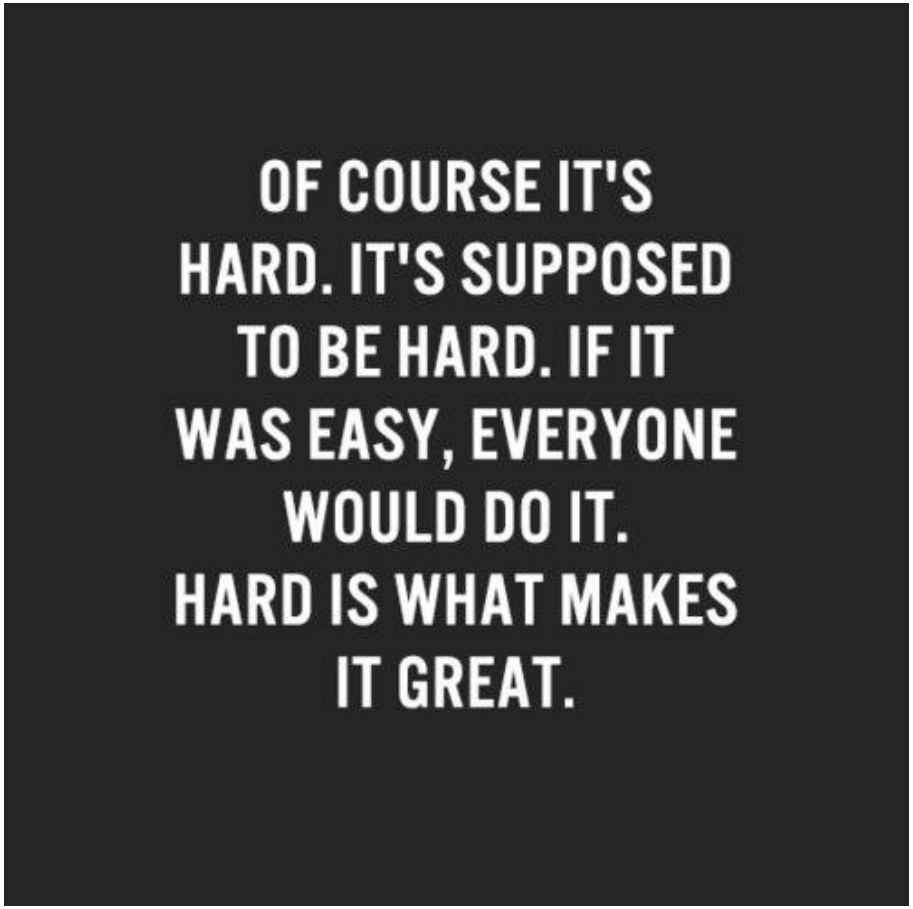
C. lateral lobe

D. median lobe

THANK YOU FOR CHECKING OUR WORK
GOOD LUCK DOCTORS

Key Answers:

1-C
2-C
3-C
4-C
5-A
6-B
7-A
8-A
9-D
10-D



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