

MALE REPRODUCTIVE SYSTEM

OBJECTIVES

At the end of this lecture, the student should be able to describe the microscopic structure of :

1. Testis and epididymis.
2. Vas deferens.
3. Seminal vesicles.
4. Prostate.

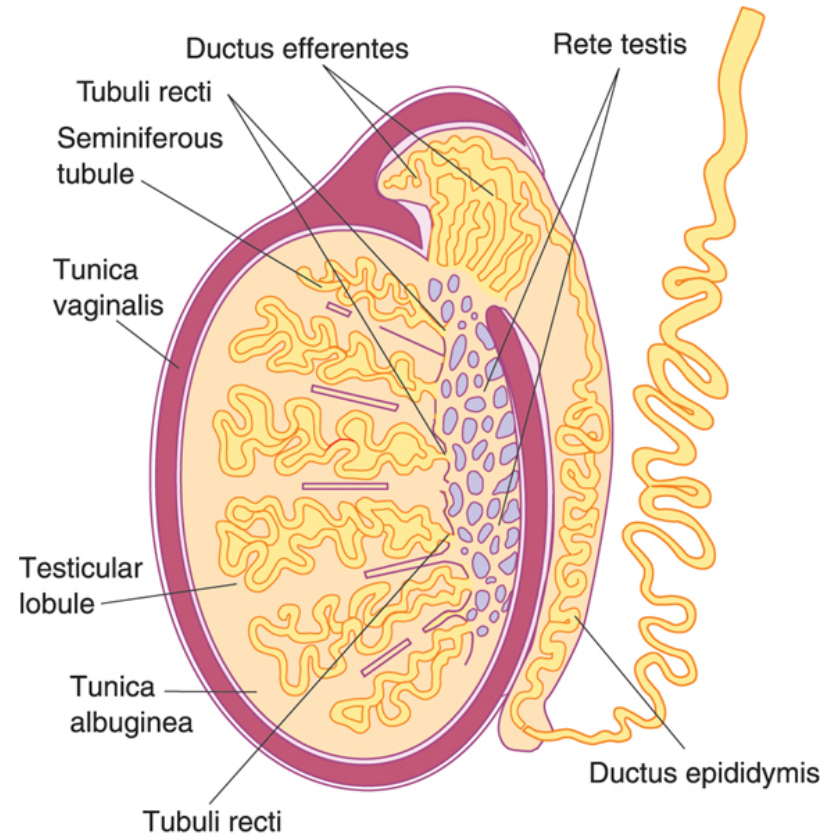
TESTIS

(A) Stroma:

- 1- Tunica vaginalis.
- 2- Tunica albuginea.
- 3- Tunica vasculosa.
- 4- Septa.
- 5- Interstitial tissue.

(B) Parenchyma:

- 1- Seminiferous tubules.
- 2- Interstitial cells of Leydig.



STROMA OF THE TESTIS

1. *TUNICA VAGINALIS*

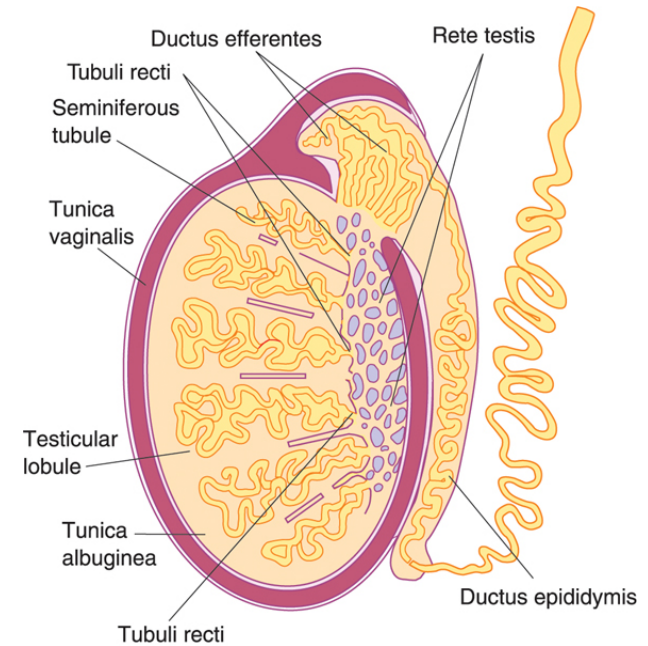
It is formed of mesothelial cells.

2. *TUNICA ALBUGINEA*

Dense irregular collagenous C.T.

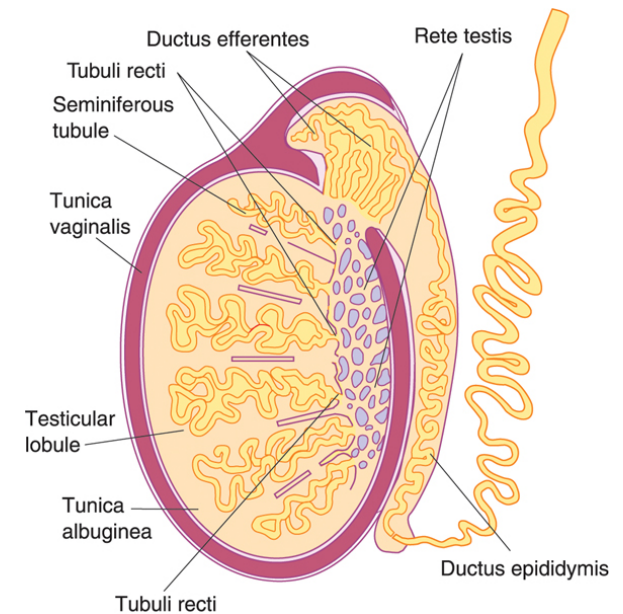
3. *TUNICA VASCULOSA*

It is formed of loose vascular C.T. lining tunica albuginea & speta from inside.



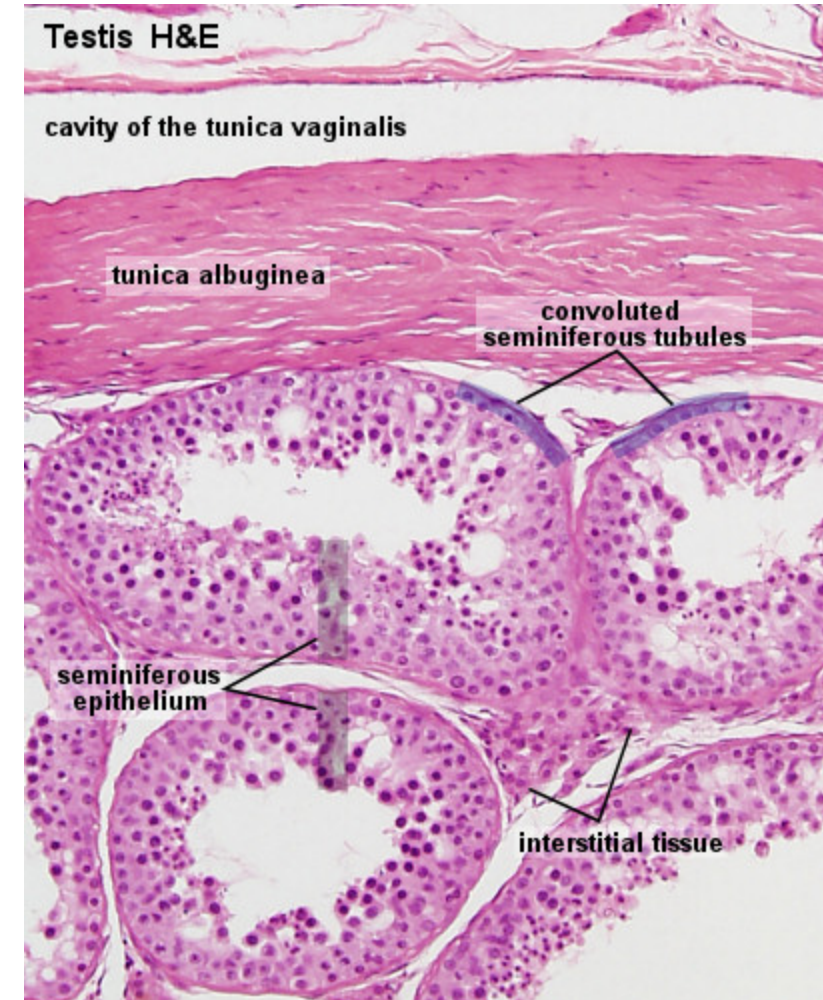
Septa of the Testis

- Dense irregular collagenous C.T.
- Divide the testis into about 250 intercommunicating compartments (testicular lobules = lobuli testis).



Interstitial Tissue

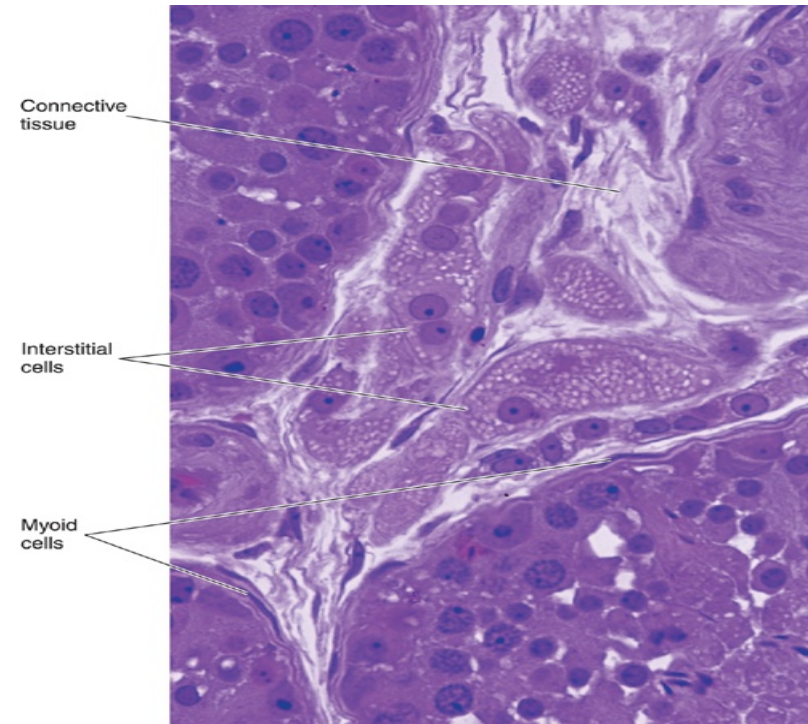
- Loose vascular C.T. in between the seminiferous tubules.
- Contents:
 - 1- Loose vascular C.T.
 - 2- Interstitial cells of Leydig.



PARENCHYMA OF THE TESTIS

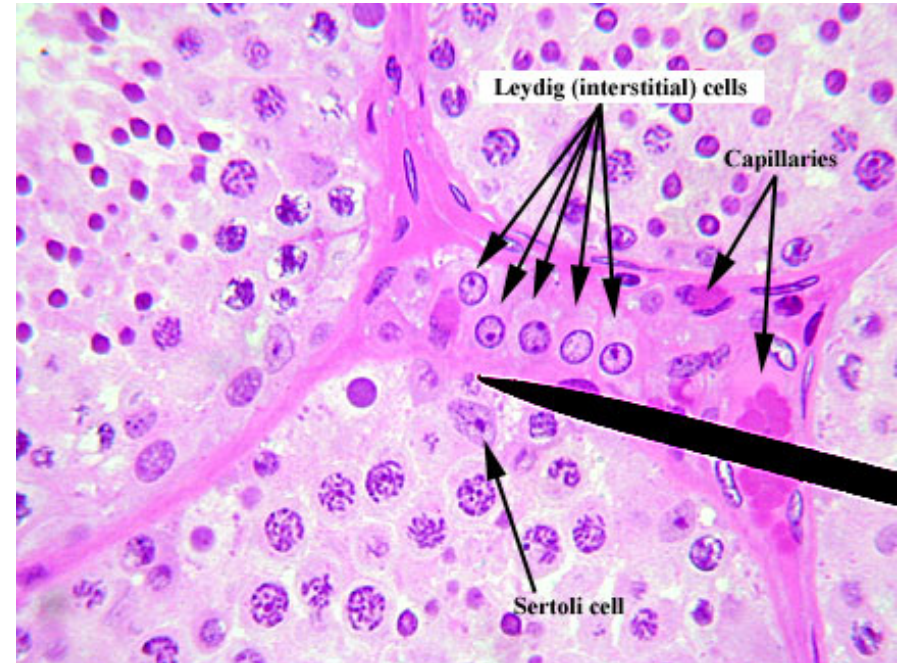
It is formed of:

- ***Exocrine part:*** The seminiferous tubules which produce spermatozoa.
- ***Endocrine part:*** interstitial cells of Leydig which produce



Interstitial Cells of Leydig

- Are rounded or polygonal cells with central rounded nucleus.
- Cytoplasm: acidophilic & vacuolated.
- **Function:**
Secrete testosterone.



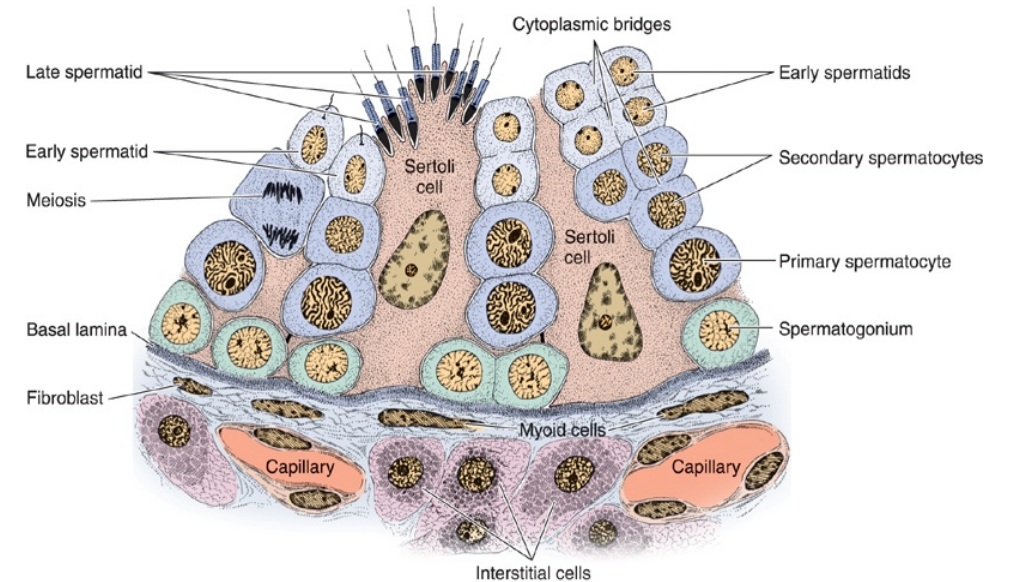
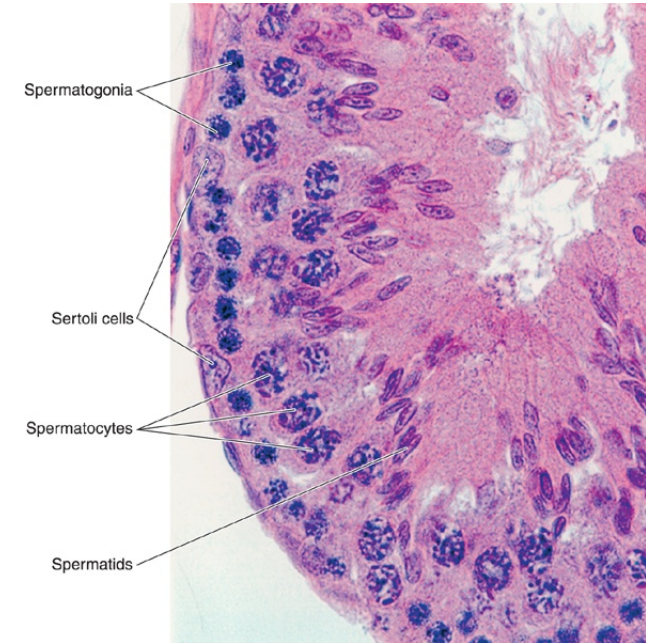
Seminiferous Tubules

- Each tubule is lined with a stratified epithelium called seminiferous epithelium which is formed of 2 types of cells:

1- Spermatogenic cells.

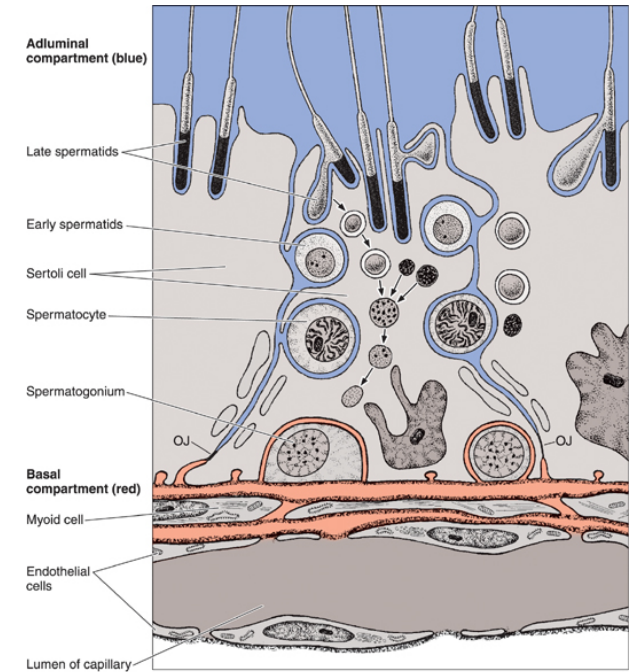
2- Sertoli cells.

- Each tubule is surrounded by a basement membrane.



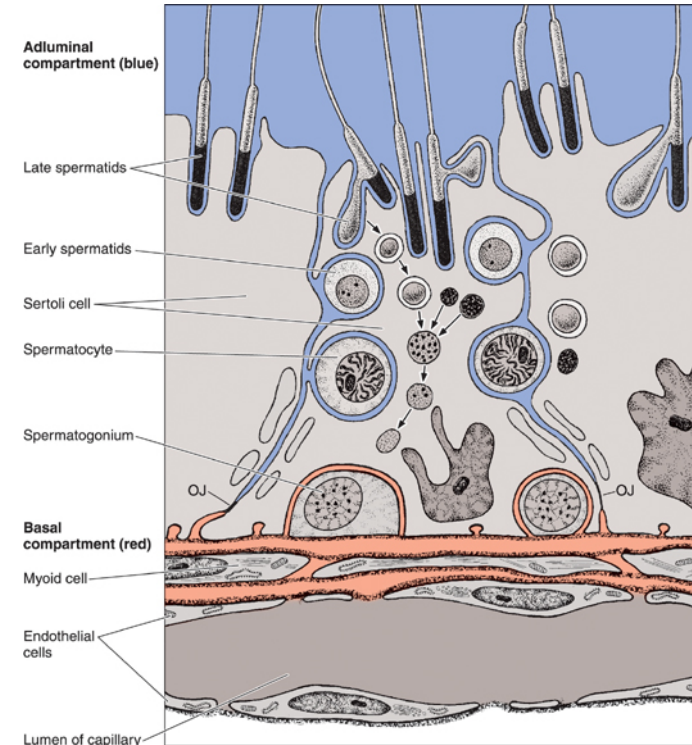
Sertoli Cell

- Are *columnar or pyramidal cells*.
- **Nucleus:** Basal, vesicular, irregular with prominent nucleolus.
- **Functions:**
 - 1- Support & Nutrition of spermatogenic cells.
 - 2- Phagocytosis of cytoplasmic remnants of spermatogenesis.
 - 3- Secretion: *Testicular fluid,
*Androgen Binding Protein (ABP),
*Inhibin hormone.
 - 4- Formation of blood-testis barrier.



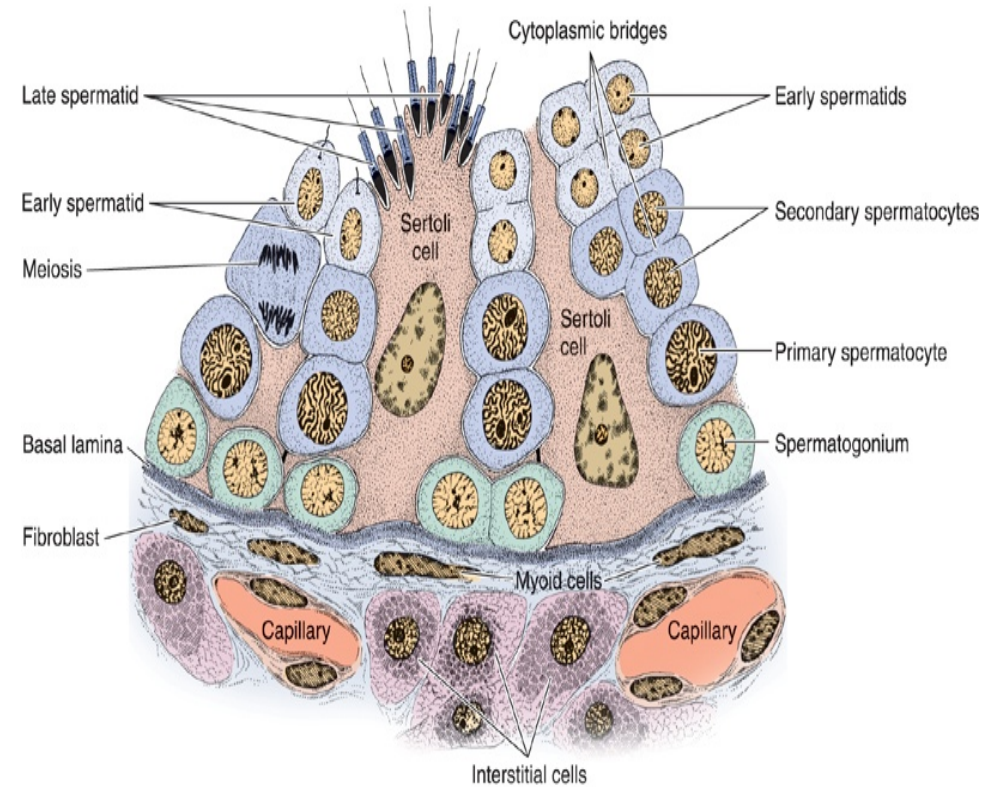
Blood-Testis Barrier

- It is formed by the **tight junctions** between the basal parts of the lateral borders of adjacent Sertoli cells.
- It divides the seminiferous tubule into 2 compartments:
 - 1- Basal compartment:** contains spermatogonia.
 - 2- Adluminal compartment:** contains the other spermatogenic cells.
- **Function:**
 - 1- It protects the developing spermatogenic cells from drugs and toxic materials.



Spermatogenic Cells

- A series of cells lining the seminiferous tubules extending from the BM to the lumen.
- Include:
 1. Spermatogonia.
 2. 1ry spermatocytes.
 3. 2ry spermatocytes.
 4. Spermatids.
 5. Spermatozoa.



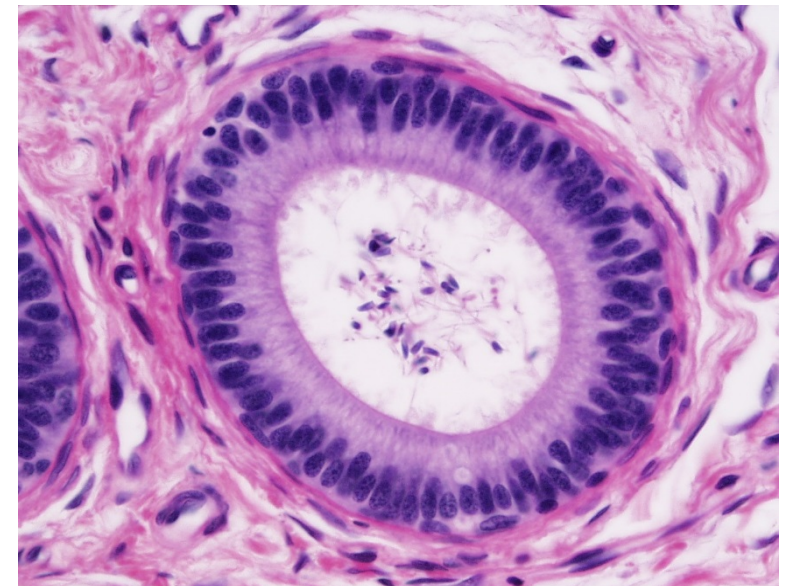
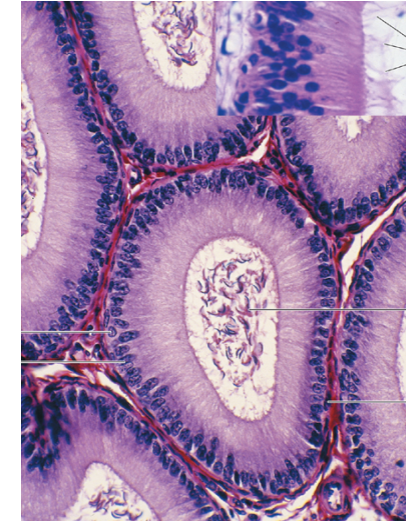
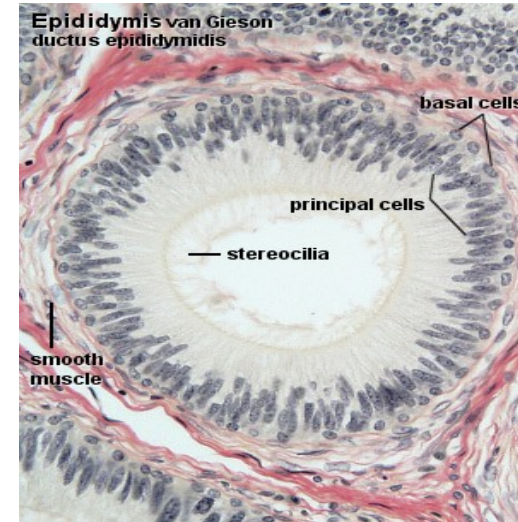
EPIDIDYMIS (DUCTUS EPIDIDYMIS)

Structure:

- (1) *Epithelium:* Ps. Str. Col. E. with stereocilia.
- (2) *Basal lamina.*
- (3) *Loose C.T.*
- (4) *Layer of circularly-arranged smooth muscle cells.*

Functions:

- a. Storage & maturation of spermatozoa.
- b. Propelling spermatozoa to the vas deferens.



DUCTUS DEFERENS (VAS DEFERENS)

- It is a muscular narrow tube with irregular lumen.

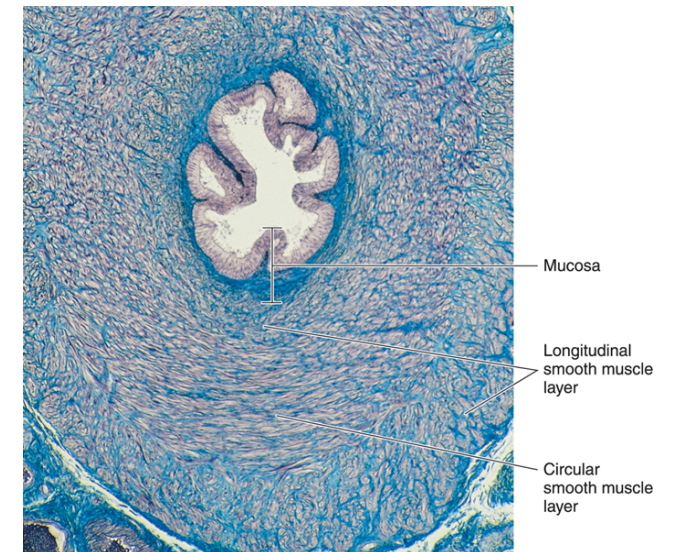
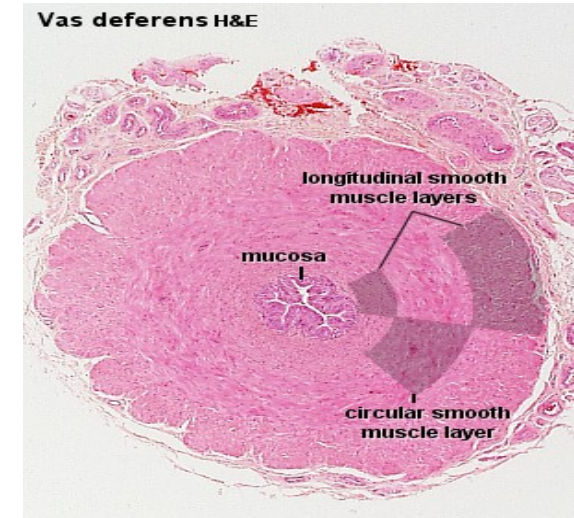
- **Structure:**

(1) **Mucosa:** Ps. Str. Col. E. With stereocilia (immotile cilia) on a corium of loose C.T.

(3) **Musculosa** (thick; 3 layers):
Inner longitudinal muscle layer.
Middle circular “ “ .
Outer longitudinal “ “ .

(4) **Adventitia:** loose C.T.

- **Function:** Propelling of spermatozoa by strong peristalsis.

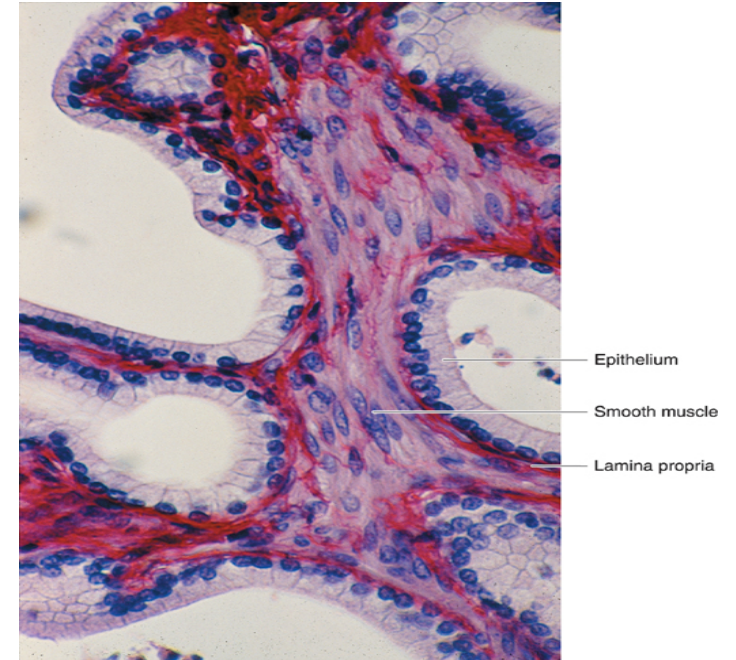
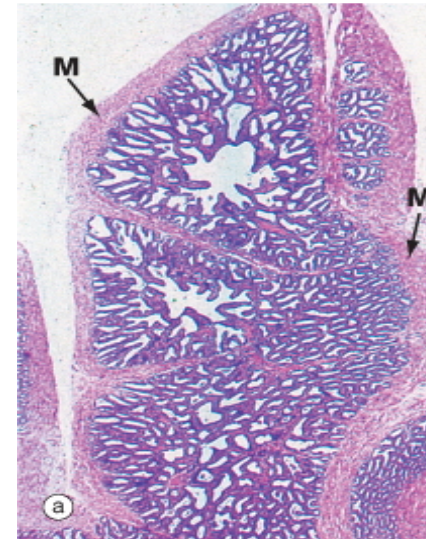


SEMINAL VESICLES

- (1) *Mucosa*: is highly folded.
 - Epithelium: Ps. Str. Col. E.
 - Lamina propria of C.T.
- (2) *Musculosa*:
 - Inner circular layer.
 - Outer longitudinal layer.
- (3) *Adventitia*: C.T.

- *Function*:

Secretion of most of seminal fluid, rich in fructose & vit. C. which are the main nutrients for spermatozoa



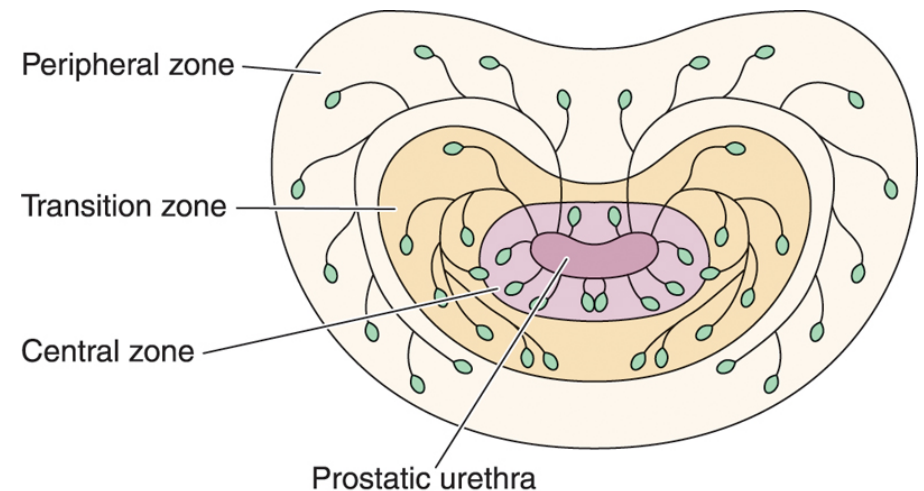
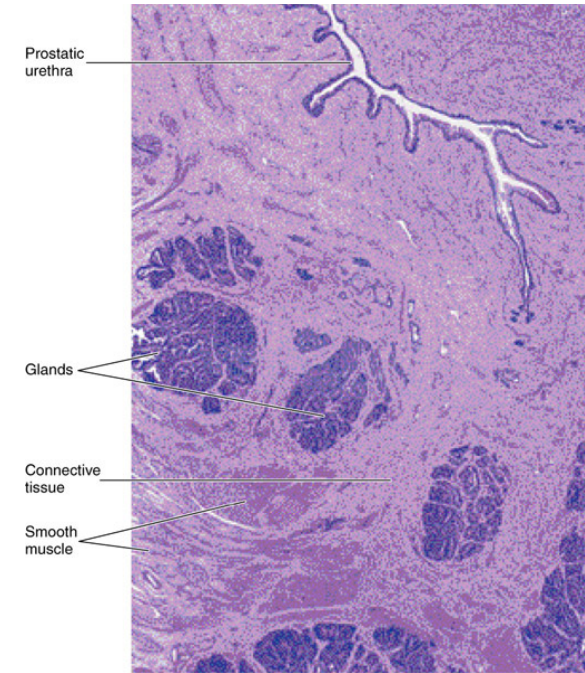
PROSTATE

- **Stroma:** fibromuscular capsule & trabeculae.
- **Parenchyma:** 30-50 glands in 3 concentric groups around the prostatic urethra:

Mucosal group: small.

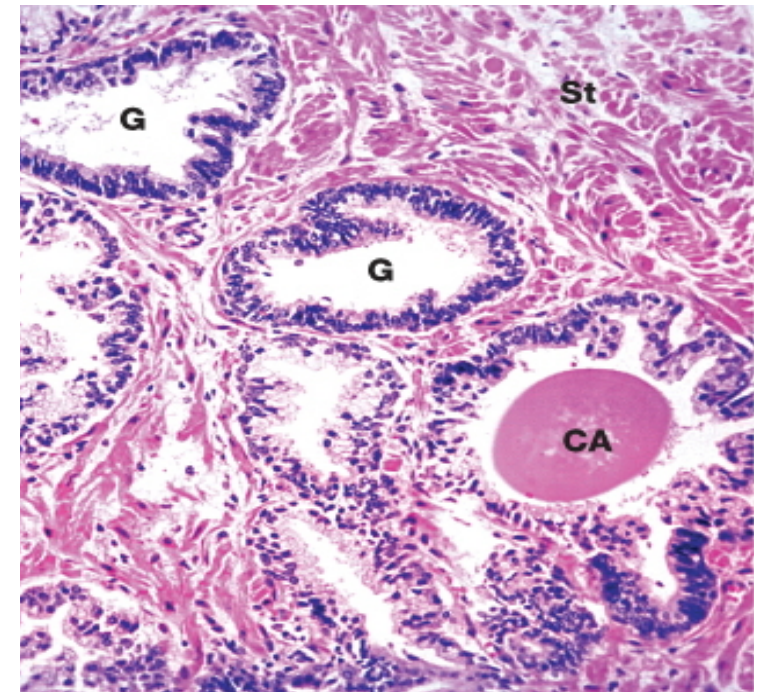
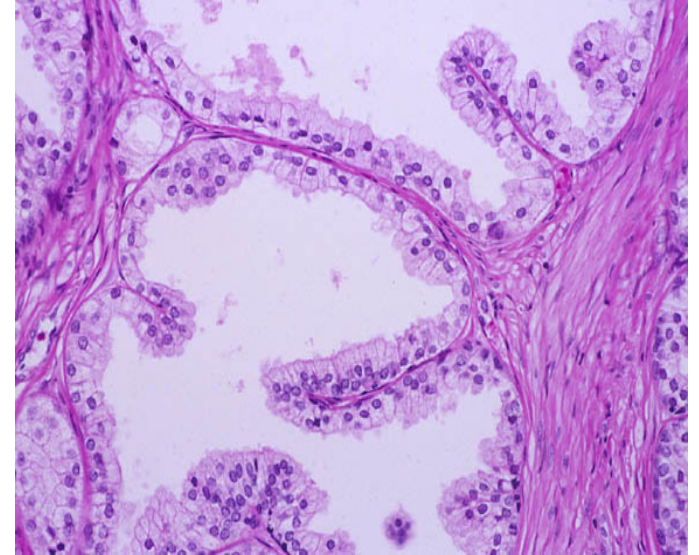
Submucosal group: medium-sized.

Main group: Large, 70% of all glands.



PROSTATE

- Acini and ducts are lined with simple Col. or Ps. Str. Col. E. according to activity of the glands.
- Prostatic concretions (corpora amylacea):
 - Round or oval masses of glycoprotein in the lumen of some glands.
 - Increase with advancement of age & become calcified.
- **Function:** participates in the secretion of the seminal fluid. Its secretion is rich in acid phosphatase & proteolytic enzymes.



BEST WISHES