LECTURE 1:
Male reproductive s.

- **Objectives:**

At the end of this lecture, you should describe:

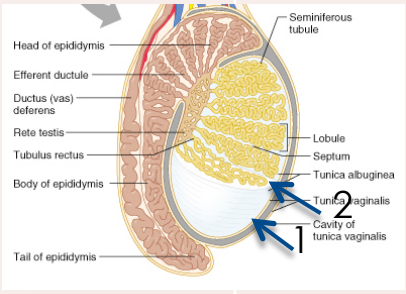
the microscopic structure of :

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

1. Testis

Stroma

1. Tunica vaginals	2. Tunica albuginea	3. Tunica vasculosa	4. Septa	5. Interstitial tissue
Formed of mesothelial cells.	Dense irregular collagenous C.T.	It's formed of loose vascular C.T. lining **tunica albuginea** & **septa** from inside.	Dense irregular collagenous C.T. Divide the testis into about 250 intercommunic-ating compartments (testicular lobules = lobuli testis).	Loose vascular C.T. in between the seminiferous tubules. Contents: 1- Loose vascular C.T. 2- Interstitial cells of Leydig.



Parenchyma

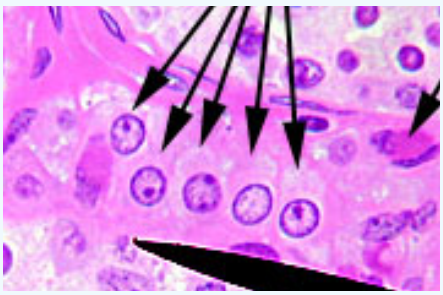
Endocrine

Interstitial cells of Leydig

Are rounded or polygonal cells with **central** rounded nucleus.

Cytoplasm: acidophilic & vacuolated.

Function:
Secrete **testosterone**.



Exocrine

Semineferous tubules

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

1.Sertoli cells:

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:
a- Testicular fluid.
b-Androgen Binding Protein (ABP).
C- Inhibin hormone.
4- Formation of **blood-testis barrier.**

2. Spermatogenic cells:

A series of cells **lining the seminiferous tubules** extending from the BM to the lumen.

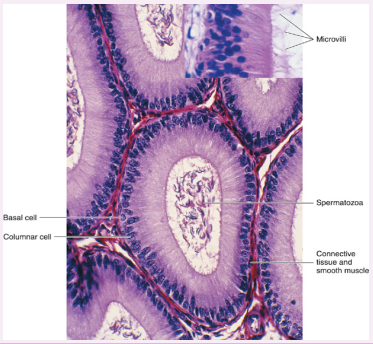
Include:
Spermatogonia.
1ry spermatocytes.
2ry spermatocytes.
Spermatids.
Spermatozoa.(sperm)

2. Epididymis (Ductus epididymus)

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

* Epididymis is look look like seminiferous but the epithelium is different

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



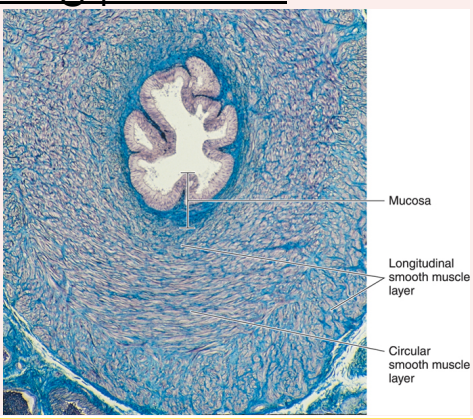
3. Ductus deferens (vas deferens)

It's 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.
(2) Musculosa* (thick; 3 layers):
- **Inner longitudinal** muscle layer.
- **Middle circular**
- **Outer longitudinal**

(3) Adventitia: loose C.T.
*to help the movement of sperms

Functions: Propelling of spermatozoa by <u>strong peristalsis</u>.

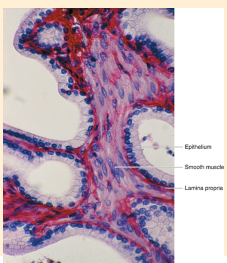


4. Seminal vesicles

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

(3) Adventitia: C.T.

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



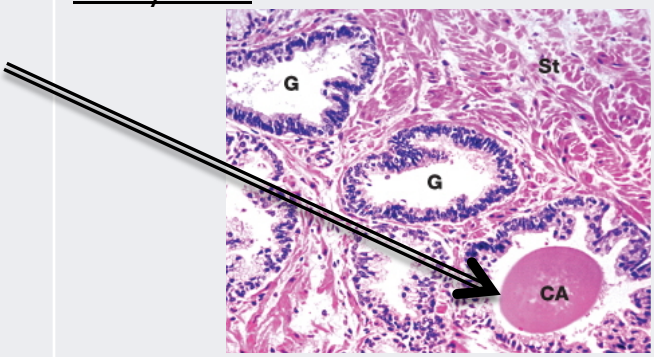
5. Prostate*

- **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.

Structure:

- 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**).

Functions: participates in the secretion of **the seminal fluid**. Its secretion is rich in acid phosphatase & proteolytic enzymes.



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- **Ad-luminal compartment**: contains the other **spermatogenic** cells.

Function:
1- It protects the developing **spermatogenic cells** from drugs and toxic materials.
2- It prevents **autoimmune** infertility.

**Prostate and seminal vesicle don't contain sperms (sperms goes directly from vas difference to urethra)*

MCQs

- **1- The type of epithelium of Seminal vesicles is:**

a. Pseudo stratified columnar epithelium
b. Pseudo stratified columnar epithelium with stereocillia
c. Simple squamous epithelium
d. Simple cuboidal with goblet cells

- **2- Where Leydig cell can be found?**

a. Tunica vaginalis
b. Semineferous tubules
c. Interstitial tissue
d. Tunica albuginea

- **3- Which of the following is component of basal compartment in blood-testis barrier?**

a. Spermatids
b. Spermatogenic cell
c. Spermatogonia
d. 2nry spermatocytes

- **4- Support & Nutrition of spermatogenic cells :**
- Sertoli cells.
- Spermatogenic cells.
- Interstitial Cells of Leydig

1-a 2-c 3-c 4-a

The function of ..

- **5- Secretion of most of seminal fluid, rich in fructose & vit. C :**
- SEMINAL VESICLES
- Vas Deferens
- Ducts EPIDIDYMIS

- **6- Storage & maturation of spermatozoa :**
- SEMINAL VESICLES
- Vas Deferens
- Ducts EPIDIDYMIS

- **7- Propelling of spermatozoa by strong peristalsis :**
- SEMINAL VESICLES
- Vas Deferens
- Ducts EPIDIDYMIS

- **8- Secretion Testicular fluid and Inhibin hormone:**
- Spermatogenic cells.
- Sertoli cells.
- Interstitial Cells of Leydig

5-a 6-c 7-b 8-b