Testes (paired Gonads)

Penis

Series of passageways
- Epididymis
- Ductus Deferens
- Urethra

Accessory Glands
- Seminal vesicle
- Prostate
Functions

• **Paired Gonads (Testes)** –
  Produce Spermatozoa (male germ cells) & Androgens (male sex hormones)

• **Penis** –
  Copulatory organ

• **Series of passageways & ducts** –
  To store the spermatozoa, ready for delivery to male copulatory organ

• **Male accessory glands** –
  Provide fluid vehicle for carrying spermatozoa
Coverings

- Tunica Vaginalis
- Tunica Albuginea
- Tunica Vasculosa
Outermost Layer

- **Tunica Albuginea** (Dense connective tissue fibrous Memb.) – Consist of closely packed collagen Fibres with a few Elastic Fibres

- form septa, Project from Mediastinum Testis

- Divide incompletely into pyramidal lobules with apex towards Mediatinum

- Each Testis Approx-200 lobule

- Each lobule has Approx 1-4 seminiferous Tubules

- Form loop to end in **Straight tubule** (20-30)
• Straight tubules end up unite to form network (Rete testis) which gives off 15-20 efferent ductules

• Space between tubules filled up by Loose connective tissue (collagen fibres & fibroblasts, macrophases, mast cells), blood vessels, Lymphatics & Interstitial cells of Leydig
Seminiferous Tubules

- Fill most of interior of Each Testes
- Two types of cells
  - Germ cells (represent different stages of spermatogenesis)
    - Spermatogonia (Type A & type B)
    - Primary spermatocyte
    - Secondary spermatocyte
    - Spermatids
    - Spermatozoa
- Sustantacular cells (Sertoli)
Spermatogonium
Type A

Spermatogonium
Type B

Mitosis

Enlarge/Mitosis

Primary Spermatocyte

First Meiotic Division

Sec. Spermatocyte

Second Meiotic Division

Spermatids

SPERMATOZOA
1. Spermatogonia:
   a. Dark type A
   b. Pale type B

2. Primary spermatocytes

3. Connective tissue

4. Interstitial cells

5. Seminiferous tubule

6. Sertoli cells

7. Spermatids
Sertoli Cells

- Elongated to Ovoid tall irregular columnar cells resting over basement membrane to upto lumen of tubule
- Irregular indentations
- Large pale staining basal nucleus with prominent nucleolus
Sertoli Cells

Functions

• Support & Supply nutrition to developing Germ cells
• Provide suitable environment for fostering differentiating germ cell progenitors
• Active translocation of interconnected differentiating germ cell progenitors towards lumen
• Active release of mature spermatozoa into lumen
• Phagocytic disposal of degenerating germ cells & cytoplasm left over following formation of spermatozoa
• Maintain necessary androgen concentration for adequate level of spermatogenesis
• Secrete testicular fluid
• Secrete ABP (Androgen Binding Protein)
• Maintain blood –testis permeability
• **Interstitial (Leydig) Cells** – small groups large round or polyhedral with Eccenteric nuclei & light stained cytoplasm - steroid secreting cells present in the connective tissue stroma between these epithelial tubules

**Functions**

• In response to stimulation of LH (Luteinizing hormone) – From gonadotrophs of Ant. Pitutary - these cells produce Androgens – Chiefly Testosterone – responsible for

  ❖ Promoting formation of Spermatoza (Spermatogenesis)
  ❖ Development & secretory activity of androgen –responsive accessory glands
  ❖ Development of male secondary sexual characteristics
Epididymis

- Thick Smooth muscle coat
- Pseud stratified columnar epithelium
- with short basal cells & Tall columnar cells with stereocilia (non motile) at their luminal surface
- Clumps of spermatozoa present in lumen
Seminal Vesicle

- Convulated tube
- Outer covering of connective tissue
- Intermediate muscular layer with outer longitudinal & inner circular muscles
- Inner mucosal lining of simple columnar or pseudostratified with goblet cells
- Lamina propria of loose connective tissue
- Mucosal lining thrown into folds that branch & Anastomose to form network
Seminal Vesicles

1. Primary mucosal folds
2. Secondary mucosal folds
3. Inner circular muscle layer
4. Outer longitudinal muscle layer
5. Epithelium
6. Lamina propria
7. Mucosal crypts
8. Adventitia