



Diseases of the Cornea

BY

Amr Mounir.MD



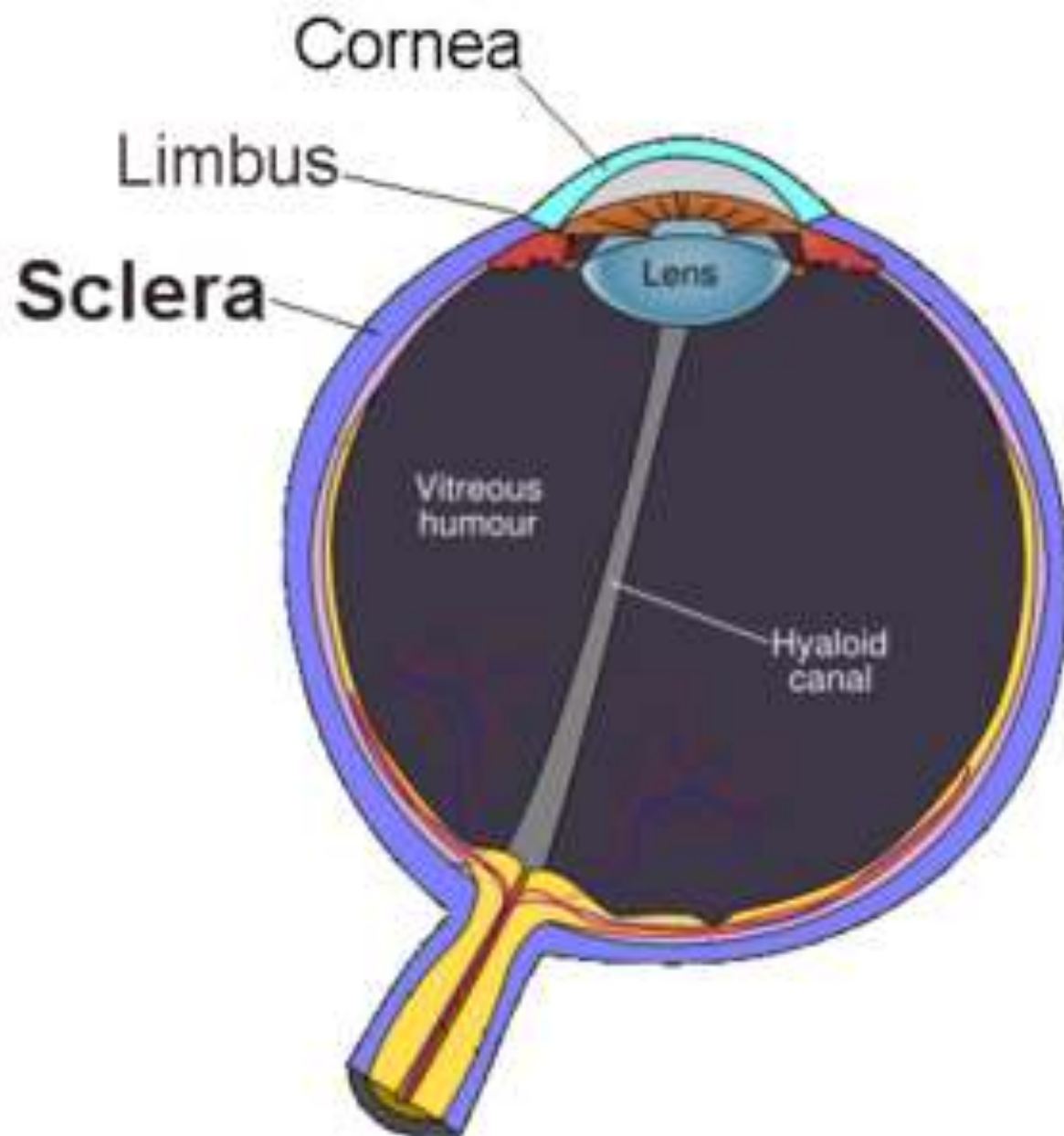
Three Coats of Eye Ball



1.OUTER COAT

2.MIDDLE COAT

3.INNER COAT



Outer Coat



Tough Fibrous Coat

Post 5/6th of Globe

White & Opaque

Sclera

Radius---12mm

Outer Coat



Tough Fibrous Coat

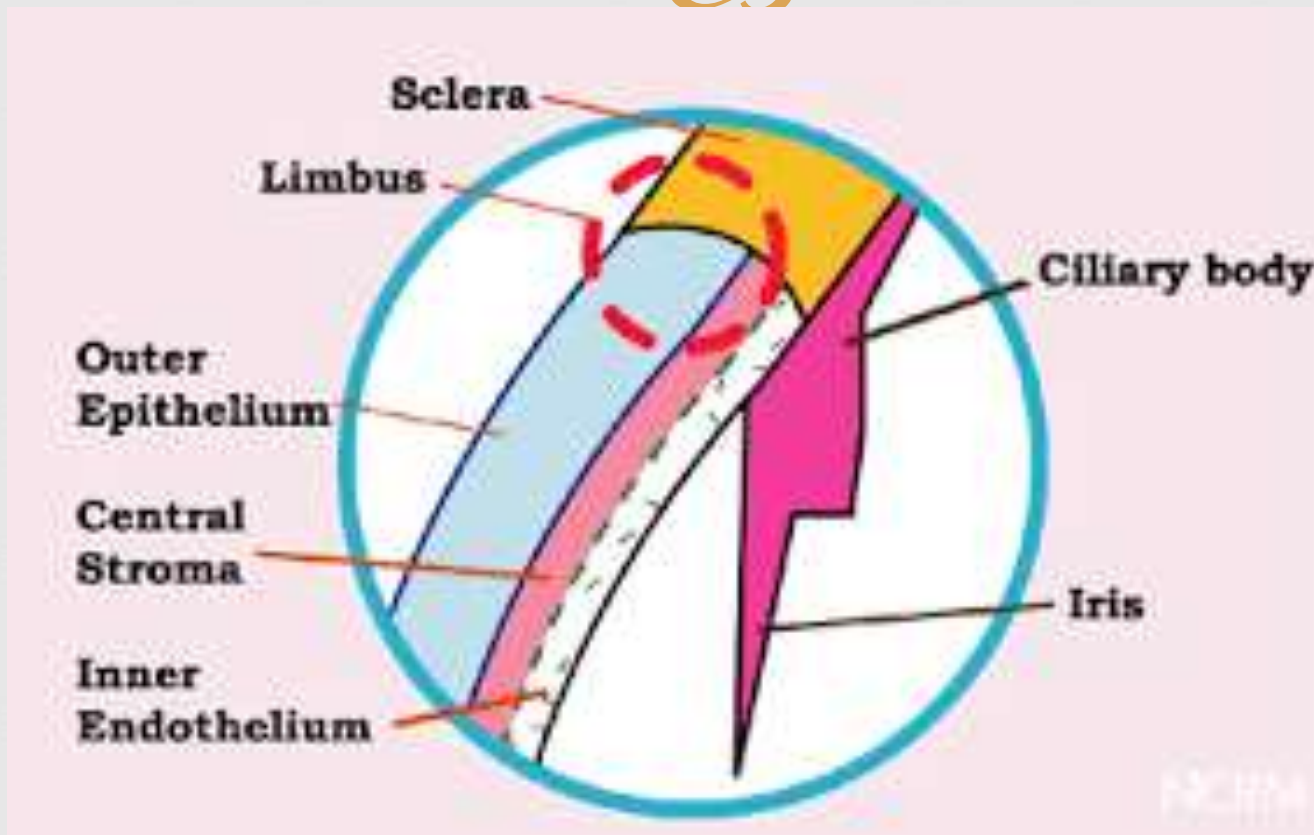
Ant 1/6th of Globe

Transparent

Cornea

Radius---8mm

Corneoscleral Limbus



Size of Cornea



Vertical-----10.6 mm

Horizontal---11.7 mm

Thickness

Central portion---0.52 mm

Peripheral portion---1 mm

Structure

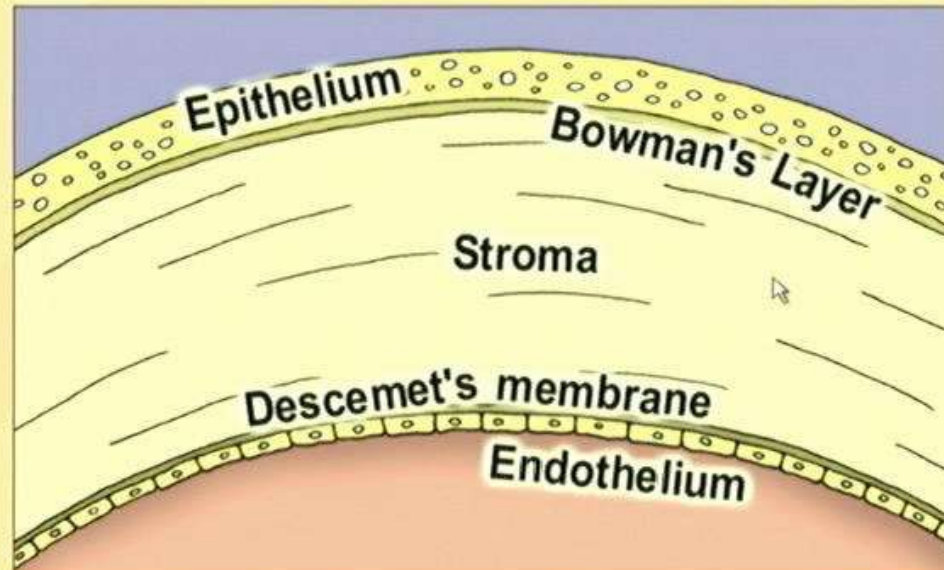


Three Layers

1. Epithelium & its Basement
2. Stroma & its ant condensation (Bowman Zone)
3. Endothelium & its Basement (Descemet Membrane)



Corneal Layers



Structure



From Anterior to Posterior

1. Epithelium
2. Bowman Zone
3. Stroma
4. Descemet Membrane
5. Endothelium

Epithelium



50-60 μm thick ❧

Covers the stroma anteriorly ❧

Continuous with epithelium of conjunctiva ❧

Life of epithelial cells is 7 days ❧

Prevent aqueous solutions to penetrate ❧

Epithelium



Surface cell layer



Wing cell layer



Basal cell layer



Basement membrane



Stroma



90% of the corneal thickness

Bowman Zone ❧

Lamellar Stroma ❧

Once deformed its typical structure is not restored

Inner Lining



Descemet membrane

(Regenerates)

Endothelium

Single layer of cells

Cells are tightly bound together

Responsible for dehydration

Never regenerates

Blood supply



Central cornea is avascular ❧

Corneoscleral limbus is generously supplied by ❧
anterior conjunctival branches of the anterior ciliary
arteries

Aqueous humor and tear film provides nutrients ❧

Nerve Supply



Branches of the ophthalmic division of  trigeminal nerve and are solely sensory

Most are concentrated in the anterior stroma 
beneath the Bowman zone and send branches
forward into epithelium

Descemet membrane and endothelium are not  innervated