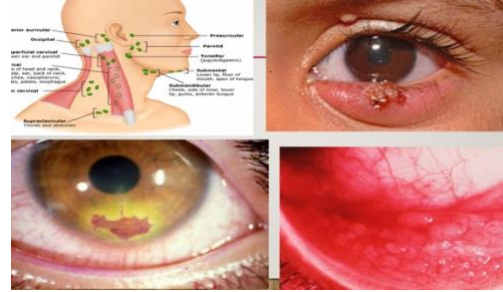


Cornea & Sclera

→ Cornea :

- 0.5mm, 43D, transparent, avascular, No lymphatics... supplied by air & aqueous
- **Epithelium -> Bowman's membrane -> Stroma -> Dua -> Descemet's membrane -> Endothelium**
 - > Layers of epithelium: Basal cell (1) -> wing cell (2-3) -> surface cell (3)
 - > importance of Dua's layer: inject tiny air bubbles **below it**, reduce the risk of tearing in surgery
 - > Damage to the epithelial layer, is repaired by cell **spreading and proliferation**.
 - > Endothelial damage, is repaired by cell **spreading** alone, with a loss of cell density.



1) Infective Corneal Lesions :

i. Herpes simplex keratitis; HSV1 , HSV2

- fever, vesicular lid lesion, follicular conjunctivitis, LAP ...
- **primary infection** -> resolution & latency -> reactivation -> **recurrent infection**
- The pathognomonic appearance is **dendritic ulcer** : linear , branching , epithelial ulcers
- involving epithelial layer + corneal stroma.
- **Aciclovir, Ganciclovir, triflurothymidine** —> intravitreal / **Topical**

ii. Herpes Zoster Ophthalmicus :

- Lid swelling , Keratitis , Secondary glaucoma
—> Pain & vesicles at CN 5/1, **Hutchinson Sign** 🍷
- **Oral antiviral treatment, Antibacterials**



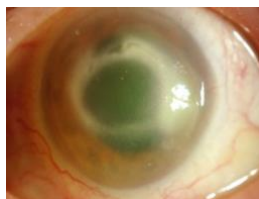
iii. Bacterial Keratitis

- S.epidermidis ,s.aureus , s.pneumonia , coliform , pseudomonas, haemophilus.
- Contact lens wear, break in epithelium, k. sicca ,
- Pain, Purulent discharge, Visual loss, Hypopyon, White opacity
- Gram culture -> **2 broad s. topical abx** -> specific Tx , +/- corneal graft



iv. Acanthamoeba Keratitis

- Freshwater amoeba >> painful ,by washing contact lenses, cause blindness
- Dx vivo confocal microscopy or corneal scrapes, PCR
- Tx : **topical chlorohexidine ,polyhexamethylene**



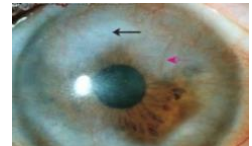
v. Fungal Keratitis

- India , DM , Immune Deficiency, Trauma , use steroids
- Whitish infiltrate with satellite lesions, Not responding to abx
- Tx : **topical antifungal drop pimaricin (natamycin)**



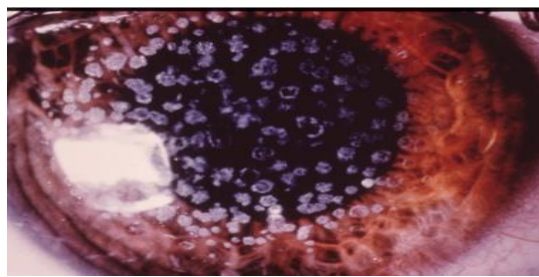
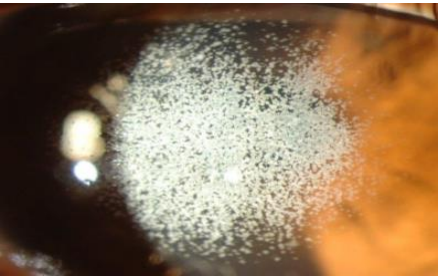
vi. Interstitial Keratitis

- congenital syphilis -> in the corneal stroma without the epithelium
- scar is formed with empty "**ghost " blood vessel**" / neovascularization



2) Corneal Dystrophies

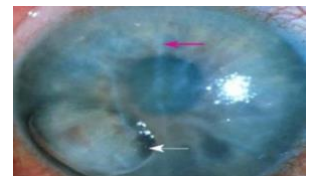
- Anterior dystrophies: epithelium and bowman -> meesmann ,AD.Asx
- Stromal dystrophies: visual loss , corneal erosion , pain,-> granular or macular
- Posterior dystrophies: endothelium -> lost endothelial pumping , oedema -> fuch's d.



3) Keratoconus

- failure of cohesion between stromal collagen fibrils and lamellae
- > central corneal thinning -> ectatic conical cornea ,myopia, astigmatism, v loss
- MC in Arabic regions
- Dx : distorted red reflex, record surface corneal topography

Tx : **rigid contact lenses**, replacement of the corneal stroma., **cross-linking by UVA** radiation, **corneal graft**.

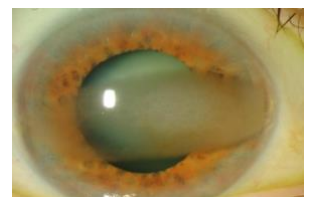


4) Corneal Degeneration

- uveitis, cataract surgery, graft failure-> Endothelial failure -**bullous** keratopathy
- very low density -> polymegethism -> Guttata, normal Cael count
- Corneal thickening & guttae -> abnormal basal laminar synthesized by sick endothelial cell
- oedema spreads to the epithelium -> epithelial bullae -> rupture -> painful erosions.
- Tx : **corneal graft**.

5) Band Shaped Keratopathy

- Subepithelial deposition of ca phosphate -> co2 loss -> raised ph
- Associated with: chronic uveitis, glaucoma, and systemic hypercalcaemia/ parath.
- visual loss, discomfort—>epithelial erosions
- Tx : **scraping off** surgery/ by **sodium edetate(EDTA-Na)** & **excimer laser**.



6) Lipid arcus

- Asymptomatic, Peripheral white ring lipid deposit.
- Elderly, if young >>hyperlipoproteinaemia.
- **No** treatment required



7) Corneal grafting & rejection

- Full thickness keratoplasty -> t. Corticosteroid -> 90% success without HLA cross- > astigmatism
- Descemet's stripping endothelial keratoplasty : No sutures required. Visual recovery faster
- Graft rejection by T cell —> redness, pain or visual loss, oedema, iritis -> **Intensive T. steroid**

→ Sclera

- Outer surface > covered by Tenon's capsule.
- Anterior part > covered by bulbar conjunctiva.
- below it ... potential suprachoroidal space
- episclera -> sclera proper -> lamina fusca

1) Episcleritis

- In the **surface** of the sclera
- **Not** associated with systemic diseases, usually in **Young**
- patches of redness and mild or **discomfort**
- Tx : self limiting, symptom are tiresome—> **topical anti inflammatory**. sever —> **NSAIDs**



2) Scleritis

- Deep in sclera, More sever , usually in elderly, Female
- Associated with systemic diseases, mostly RA
- deep ocular pain, inflammatory & ischaemic areas... anteriorly swollen
- Complications: Scleral thinning / scleromalacia, Perforation, keratitis, Uveitis, cataract formation, Glaucoma.
- Tx : **anti-inflammation, immunosuppressants, steroids, cytotoxic therapy, sclera grafting**—> prevent perforation.

