Cornea and sclera
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Infective corneal lesions	Viral keratits		Bacterial keratitis	Acanthamoeba keratits	Fungal keratits	Interstitial keratits
	Herpes simplex keratits	Herpes zoster opthalmi				
Definition and notes	Reactivation of type 1 HSV from the trigenminal ganglion	Reactivation of varicella zoster in ophthalmic division of trigeminal nerve + ocular problems if nasociliary branch is involved	Staph epidermis Staph aureus Strep pneumonia Coliform Pseudomonas Haemophilus factors preventing infection of cornea and conjunctiva: blinking, flow of tears, the corneal epithelium , mucus trapping foreign body predisposing	Freshwater amoeba - painful infective keratitis , often with contact lenses - Infiltrated corneal nerves , may spread to sclera ,	➢Not responding to antibacterial therapy in corneal ulceration ➢Trauma ➢Prolonged use of steroids	Any vascular keratitis that effects the corneal stroma without the epithelium • Caused by congenital syphilis
Symptoms and diagnosis	Asymptomatic , fever, follicular conjunctivitis, vesicular lid lesions periauricular lymphadenopathy	Lid swelling, keratits, iritis, secondary glaucoma	Pain, purulent discharge, ciliary injection, visual loss, hypopyon, white corneal opacity	Diagnosis: in vivo confocal microscopy or corneal scrapes - Culture (E.coli lawn) to identify		
Characteristic feautures	Dendritis ulcer which is linear, branching epithelial cells			Corneal Ring infiltrates	Whitish inflammatory infiltrate with satellite lesions is	A scar is formed with empty “ghost “ blood vessel(late ((neovascularization) .

complications	Corneal ulcers which disrupt both epithelial and stromal layers of cornea may not have					
tx	Acyclovir, ganciclovir, vidarabine, triflurothymidine	Oral antivirals Antibacterials for secondary infection	Gram staining and culture + topical antibiotics Dual therapy to cover most bacteria (cefuroxime + gentamicin) Monotherapy (ciprofloxacin) Tissue adhesives and corneal graft	topical chlorohexidine, polyhexamethylene	topical antifungal drop pimaricin (natamycin)	

CORNEAL DYSTROPHIES

histology of cornea anteriorly to posteriorly: epithelium, bowmans membrane, stroma, descments membrane, endothelium

	Anterior dystrophies	**Stromal dystrophies**	**Posterior dystrophies**
layer	Epithelium and bowman's membrane	stroma	endothelium
examples	Meesmann: autosomal dominant & asymptomatic	Granular corneal dystrophy (dominant) Macular corneal dystrophy (Recessive)	Fuchs dystrophy can be sporadic, dominant, x-linked

	Keratoconus	Corneal degeneration	Band shaped keratopathy	Lipid arcus
Layer involved and pathology	Stromal; failure of cohesion between collagen fibrils and lamellae resulting in central corneal thinning	Endothelial failure There will be loss of endothelial cells causing decreased density resulting in increased space which causes edema in the stroma and bullous keratopathy In advanced stages it can also spread to epithelium as well causing epithelial bullae which may rupture and	Subepithelial deposition of calcium phosphate in exposed part cornea which causes CO2 loss and elevated pH	Peripheral white ring lipid deposits
Presentation and diagnosis	Myopia, vision loss, irregular astigmatism, ectatic conical cornea Distorted red reflex during ophthalmoscopy		Visual loss and discomfort due to epithelial erosions	Asymptomatic often in elderly people but if found in youg it favors hyperproteinemia
causes		Uveitis Cataract surgery Corneal graft failure	Associated with chronic uveitis Glaucoma Systemic hypercalcemia (hyperparathyroidism/ renal failure)	
Tx	- Rigid contact lenses - Replacement of stroma - Cross linking of anterior stromal collagen	Corneal graft	Symptomatic -> scraping off surgery using off chelating agents like sodium edetate Excimer laser	No treatment required

SCLERA

Main anatomy points

Sclera is 3 layers: 1- episclera (thin, dense vascularized la, dense vascularized layer of connective tissue)

2- sclera proper: avascular structure

3- lamina fusca innermost

	episcleritis	**Scleritis**
	Inflammation at the surface of the sclera usually in young	Inflammation of sclera usually anteriorly usually in elderly
Association with systemic disease	Not associated with systemic disease	Associated with 50% of collagen vascular diseases like rheumatoid arthritis
Signs and symptoms	Patches of redness and mild or no discomfort	Characteristically: swollen sclera Deep ocular pain and both inflammatory and ischemic areas may occur in the sclera
tx	Self limiting If symptoms are tiresome -> topical anti inflammatory treatment Severe symptoms -> NSAIDS	Anti inflammatory tx Immunosuppressants Steroids Cytotoxic therapy Sclera grafting to prevent perforation of the globe