

EYELID	
Chalazion	obstruction of the orifice of the meibomian gland leading to lipogranulomatous inflammation of the gland. (painless swelling)
Hordeolum ext./stye	acute infection of the zeis and moll. (painful)
Hordeolum internum	acute infection of the meibomian gland. (painful)
Ulcerative/infectious blepharitis	chronic infection of gland of zeis and moll. (gluing+ crusts)
Trichiasis	misdirection of eye lashes towards globe
Distichiasis	Extra row of eyelashes
Madarosis	loss of eyelashes
Poliosis	patch of white hair in eye lashes
-Tylosis	hypertrophy & thickening of eyelid margin
Ankyloblepharon	adhesion of lid margins
Seborrheic/squamous blepharitis	disorder of gland of zeis and moll. (dandruff like deposition)
Meibomianitis/posterior blepharitis	inflammation of meibomian glands (excessive fatty acid secretion) (burning sensation)
Phthiriasis palpebrarum	lice infestation by phthirus pubis/ crab lice
Congenital Entropion	eyelid margin turned inwards towards globe caused by congenital deformity of the tarsal plate
Congenital ectropion	eye margin everted away from eyeball due to developmental deformity of eyelid
Senile entropion	eyelid margin turned inwards towards globe due to old age (most common, usually lower eyelid)
Senile ectropion	due to senile laxity of the tissues of the eyelid (most common)
Cicatricial entropion	scarring of palpebral conjunctiva (usually upper eyelid)
Cicatricial ectropion	scarring of contracture of skin and underlying tissues which pull eyelid away from the globe
Spastic entropion	excessive contraction of orbicularis muscles, atrophy of lower eyelid retractor (usually after ocular surgery)
Paralytic ectropion	due to facial nerve paralysis which leads to atony of orbicularis muscle
Simple congenital ptosis	reduced levator function
Synkinetic congenital ptosis	due to misdirected cross innervation b/w oculomotor and mandibular branch of trigeminal nerve supplying muscles of mastication (jaw closed, ptosis happen)
Blepharophimosis syndrome (congenital ptosis)	Party Bitches Escaped Thriftstore. Ptosis, Blepharophimosis, telecanthus, epicanthus inversus.
Neurogenic ptosis	CNIII lesion, horner's syndrome (partial ptosis)
Myogenic ptosis	due to myasthenia gravis (worse in evening)
Aponeurotic ptosis	due to dehiscence, stretching or disinsertion of levator aponeurosis
Squamous cell papilloma	most common benign epithelia tumor. HPV
Capillary hemangioma	common in children, benign pinkish red lesion
Xanthelasma	common in middle aged women, benign, lipid deposits in histiocytes of eyelid skin, creamy yellow lesions, hyperlipidemia
Neurofibroma	found in ppl with neurofibromatosis type 1, benign tumor of nerve sheath, S shaped ptosis
Basal cell carcinoma	most common malignancy of eyelid, usually lower eyelid, fair skinned people exposed to sun
Squamous cell carcinoma	2 nd most common malignancy. Bowen disease (type of SCCA), scaly hyper keratotic patch
Sebaceous gland carcinoma	malignant tumor arising from meibomian or zeis glands, upper eyelid

LACRIMAL	
Congenital nasolacrimal duct obstruction	Non canalization of lacrimal duct at of the membrane of nasolacrimal duct or maldevelopment of punctum and canaliculi. Common in babies
Aquired nasolacrimal duct obstruction	Common in adults. Trauma, sarcoidosis, tumors
DCR	Passage is created between the lacrimal sac and the nasal cavity through bony ostium

Dacryocystitis (medial)	Inflammation of the lacrimal sac (excretory system) . Acute- painful, lots of swelling at medial canthus, inflammation/infection, epiphora. Chronic- painless, swelling ls mid.
Dacryoadenitis (superolateral)	Inflammation of lacrimal gland (secretory system) , S-shaped lid. Acute- Epstein bar virus, painful proptosis. Chronic- painless, always secondary; sjogren's syndrome
Keratoconjunctivitis sicca/ DES dry eyes syndrome	Aqueous tear deficiency- Sjogren synd, rheumatoid arthritis, sys lupus synd, Steven Johnson's synd. Evaporative tear dysfunction- meibomian gland dysfunction
Lacrimation	Increased tear production by irritation
Epiphora	Decreased drainage by lacrimal pump failure or obstruction causing excessive watering

CONJUNCTIVA

Bacterial: Mucopurulent conjunctivitis	Acute, Pink eye, mucopurulent discharge				
Bacterial: Purulent conj	Hyperacute, purulent discharge, corneal ulceration, N.Gonorrhoea, infants from birth canal, hospitalization				
VIRAL COJUNCTIVITIS					
Name	Cause	Symptoms	Signs	Diagnosis	Treatment
Epidemic keratoconjunctivitis	-Adenovirus 8, 19, 37 -Highly infectious	-Watery discharge -Redness -Discomfort -Follicles	-Edema -Chemosis -sub conjunctival hemorrhage Pseudomembrane formation	-PCR -Giemsa stain -Immuno-fluorescence test	-Spontaneous/self-resolving -Antiviral -Antibiotic -Steroids
Pharyngoconjunctival fever	-Adenovirus 3, 4, 7	-Pharyngitis , headache, fever	Same symptoms but less severe	Same	Same
Picornavirus	-Enterovirus 70 -Highly contagious	-Bilateral redness -Watery discharge -Follicles	-Punctate keratitis -Edema -Chemosis -Conj. hemorrhage	↑IgG	Steroid, topical
Herpes simplex	-HSV	-Vesicles -Watery Discharge -Follicles	-Follicles -Hyperemia -Chemosis -Serous disch -Dendrites	-↓corneal sensitivity -↑Ig -Fluorescein antibody test	Supportive
Molluscum	-Pox virus	-Mucoïd discharge -Follicles	-Warg nodule on lid -Bulbar nodule on lid -no chemosis -Punctate keratitis	-	-Spontaneous resolution -Cryotherapy -Cauterization -Shave excision
Trachoma	Cicatrial keratoconjunctivitis, chlamydia type A,B,Ba,C, enlarged preauricular lymphnodes, leading cause of preventable blindness, herberts pits, scar				
Neonatal conjunctivitis	Chlamydial type D-K (mucopurulent), HSV II (blepharoconjunctivitis), N.gonorrhoea (purulent discharge), chemical (prophylactic silver nitrate/antibiotics), swollen lids				
Vernal conjunctivitis/ spring catarrh (allergic)	Type I & IV hypersensitivity, common in spring, palpebral (ropy secretion, cobble stone, ptosis), limbal (trantus dots), mixed (keratoconus, plaque and shield ulcer)				
Steven johnson syndrome	Acute vesiculobullous reaction to a medication of infection. Sulfonamides, HSV, symptoms > Rats Get Pissed With Controlling Mouse Killing List (see pg 73), lip crusting, target lesions on skin				
Pterygium	Degenerative conjunctiva where there is triangular fibrovascular connective tissue, stocker line, iron deposition				
Pseudo pterygium	Fold of bulbar conjunctiva, inflammatory, probe can be passed under the neck				
Pinguecula	Yellowish white mass on bulbar conjunctiva, degenerative, precursor of pterygium				
Xerophthalmia	↓vitA due to chronic alcoholism, leading cause of childhood blinding, xerosis, bitot spots				
Subconjunctival hemrg	Whooping cough, blood thinner, severe HTN, trauma, ↑strain, ↓vitK				

CORNEA	
Bacterial corneal ulcer	Commonly staph, strep, hypopyon, halos, hazy cornea, corneal stain positive, IOP↑, treatment for descemetocoele is pressure bandage, conjunctival flap, amniotic membrane transplant, grafting & cyanoacrylate glue
Fungal keratitis	Filamentous (aspergillus, tropical, greyish white infiltrations, satellite lesions) yeasts (candida, temperate, yellow white infiltration)
Acanthamoeba keratitis	Amoeba in water & soil, contact lens wearer, limbitis, ring abscess
Herpes simplex keratitis	By HSV (type 1 above the waist, type 2 below) lodging in the trigeminal ganglion reactivated travels along sens axons to cornea, dendritic ulcer, corneal sensitivity↓, acyclovir
Herpes Zoster ophthalmicus	HHV-3, skin and ocular lesions, hutchison's sign, epithelial keratitis & microdendritic ulcers
Keratopathy	Disturbance is the metabolic activity of corneal epithelium
Neurotropic keratopathy	Degenerative, Damage to CN5 (trigeminal) due to trauma, lasik, tumor, diabetes, painless red eye w/ visual acuity↓
Exposure keratopathy	Incomplete closure of eye lid due to bells palsy, ectropion, thyroid-proptosis
Keratoconus	Central stromal thinning leading to bulging of central cornea, painless progressive visual acuity↓, distant direct ophthalmoscopy- oil droplet, retinoscopy- scissor reflex. Munson's sign. Associated with vernal kerato conjunctivitis
Keratoplasty	Procedure of diseased cornea replacement by doners cornea
Penetrating keratoplasty	Complete thickness graft
Superficial keratoplasty	Partial thickness graft, anterior 1/3 rd of cornea
Deep ant. keratoplasty	Anterior 90% (still partial)
Limbal stem cell grafting	Indicated in steven Johnson's syndrome

Lens and Cataract	
Leukoria	White reflex in pupillary area due to congenital cataract (m/c), retinoblastoma, endophthalmitis
Rosette cataract	Traumatic concussion
Glass blowers cataract	Infrared radiation/ heat
Snowstorm cataract	Diabetes
Oil drop cataract	Galactsemia
Sunflower cataract	Wilson disease, copper poisoning
Syndermatotic cataract	Atopic dermatitis
Posterior subcapsular cataract	A central cat, saucer shape opacities, due to steroid use, inline of visual axis causing loss of vision
Cortical cuniform cataract	Cause of hydration of lens due to changes in permeability. Incipient, immature, intumescent, and mature cataract
Incipient cat	Constantly changing refractive error seen
Immature cat	Refractive index of cortex increases causing ↓refractive power and hypermetropia, +iris shadow test
Intumescent cat	Attack of angle closure glaucoma
Mature cat	Fully opaque, entire lens white, -iris shadow test
Nuclear cataract	Dehydration and sclerosis, inelastic and hard, ↑refractive power, myopia
Hyperature cataract	Denatured protein leaks producing phacolytic glaucoma
Congenital cataract	Remove asap or will develop amblyopia, Rubella (most common), radiation xray, corticosteroids, diabetes, forceps delivery
Subluxation/luxation	Collagenous ligament degenerate causing dislocation of lens. Sublux-partial, lux-fully
Central cataract	Includes Post. subcapsular & nuclear cataract, has daytime cataract worsening, improves with dark glasses cause of pupillary dilation in daytime
Phacomorphic glaucom	Swollen lens pushing against iris causing pupillary block
Phacolytic glaucoma	Protein leak, macrophages phagocytose proteins blocking trabecular meshwork
Biometry	Calculation of lens power done by keratometry (curvature of ant conreal surface K) and by A-scan-axial length L (ant post length). SRK formula: $P = A - 2.5L - 0.9K$
Extra capsular cataract extraction (ECCE)	Leaving posterior capsule intact (phacoemulsification, Femtosecond laser cataract extraction, manual small extraction surgery-tunnel incision, conventional)

Phacoemulsification	Preferred cause its astigmatism free, suture less, precise. Pad bandage needed, safe anesthesia is peribulbar
Intracapsular cataract extraction (ICCE)	Removal of cataract along with its capsule, indicated in subluxated lens, common complication is vitreous collapse
After cataract	Cataract after surgery, removed with YAG laser
Pars plana Lensectomy	Removed through pars plana, indicated in congenital cataract, lens and ant vitreous are removed
Anterior chamber lens	Indicated in ICCE or rupture of posterior capsule, complications are glaucoma, uveitis
Ectopia lentis	Displacement of lens from its normal position, trauma, hypermature cataract, Marfan's syndrome. Iridodonesis (tremulation of iris) demonstrated in children

GLAUCOMA	
Glaucoma	Progressive optic neuropathy with visual field defects. Cupping- cup disc ratio > 0.7/ difference of 0.2 between eyes, neuroretinal rim turns pale, nasalization of optic disc blood vessels, splinter hemorrhage
Normo tensive glaucoma	Normal IOP (10-21mmhg) with damage to the optic nerve (cupping) and visual field defects
Ocular HTN (glaucoma suspect)	↑IOP without cupping visual field defects
Primary open angle glaucoma	Bilateral optic neuropathy, increased resistance in trabecular meshwork due to loss of trabeculocytes, open angle, no secondary cause, IOP>21, most common type, more common in black, myopes, steroid users and diabetes
Primary closed angle glaucoma (PACG)	Bilateral, raised IOP due to closed angle, more common in females, hyperopes, small eye having people
Acute PACG	Due to sudden closure of angle of ant chamber by iris, pain, ↑pressure-ischemia of iris-↑PG's-inflammation, emergency
Chronic PACG	Anterior synechia formation, mainly surgical
Absolute glaucoma (PACG)	End stage of closed angle glaucoma, dilated & non reactive pupil, optic atrophy (full cupping), stony hard eye
Secondary glaucomas	
Corneal ulcer	Causes glaucoma, nonperforated ulcer-trabecular obstruction caused by exudate, perforated ulcer-collapse of anterior chamber resulting in ant. Synechiae formation, descemet membrane involved
Inflammatory glaucoma	Iridocyclitis causing glaucoma in many ways
Pigmentary glaucoma	Open angle, deposition of pigments in trabecular meshwork by iris epithelium
Neovascular glaucoma	Aka rubeotic glaucoma, ischemic central retinal vein occlusion or diabetic retinopathy causing release of VEGF inducing neovascularization which causes angle block by neovascular tissue, protein leakage
Phacomorphic glaucoma	Closure angle, swollen cataract lens causing pupillary block
Phacolytic glaucoma	Open angle, hypermature cataract protein leakage blocking trabecular meshwork
Phacotoxic glaucoma	Open angle, lens capsule rupture causing uveal tissue inflammation and protein leakage, trabecular obstruction by proteins and inflammatory cells
Pupillary block glauc	Close angle, dislocated lens
Pseudoexfoliative glc	Open angle, exfoliated material deposition in trabecular
Haematogenic glaucoma	Intraocular hemorrhage, <u>red cell glaucoma</u> - obstruction by RBC's, <u>hemolytic glaucoma</u> - macrophages phagocytosing RBC's, <u>ghost cell glaucoma</u> - occurs in vitreous hemorrhage having degenerated RBC's
Aphakic glaucoma	Caused by cataract extraction, more common in ICCE
Malignant glaucoma	Aka ciliary block glaucoma, after glaucoma/ataract surgery, treatment is viterous aspiration
Cancer causing glaucs	Retinoblastoma & malignant melanoma (inflam. cells, neovascularization of angle, mechanical)
Angle recession glauc	Blunt trauma, damage to ciliary body and meshwork causing fibrosis causing angle block
Congenital glaucoma	True congenital-↑IOP at birth, primary infantile- <3 yrs- juvenile glaucoma 3-16yrs
Primary infantile glaucoma	Impaired aqueous flow due to maldevelopment of ant chamber angle, haab's striae, corneal haze & edema, buphthalmos (big eye balls with blue sclera), always surgical-goniotomy preferred if cornea clear
Iridectomy	Hole in periphery or iris for drainage of aqueous, indicated in prophylaxis of primary angle closure glc
Goniotomy	Incision made in the angle to establish communication between anterior angle and canal of schlemm, indicated in congenital glaucoma with clear cornea

Trabeculectomy	Creating a fistula covered by a superficial scleral flap to allow aqueous outflow from the anterior chamber through a surgical corneoscleral opening into the subconjunctival and subtenon space, done with anti-scarring mitomycin C/ 5 fluorouracil, preferred in open angle and others too
Trabeculotomy	Trabecular meshwork is broken up by passing a trabeculotome into schlemm canal and rotating it into anterior chamber thus establishing a communication between aqueous humor and schlemm canal, indicated in congenital glaucoma with hazy cornea

UVEAL TRACT & VITEROUS	
Uveal tract	Made of choroid, ciliary body and iris
Acute iridocyclitis (acute anterior uveitis)	Most common form of uveitis, ciliary body and iris, idiopathic, associated with ankylosing spondylitis in young, pupil constricted sluggish, KPs in cornea, mydriatic cycloplegic an steroids, cells in ant chamb
Chronic iridocyclitis (chronic ant. uveitis)	Persistent but less than 3 months, KPs large greasy mutton fat, koeppe & busacca nodules (granulomas), complications- complicated cataract, cyclitic membrane, band keratopathy
Intermediate uveitis	Pars plana, post ciliary body, vitreous base. Pars planitis-snowballs & snowbanking in vitreous, floaters
Choroiditis (Posterior uveitis)	Chorioretinitis, metamorphosis- distorted objects, micropsia, macropsia, photopsia-flashes of light, floaters, scotoma, complication- exudative retinal detachment
Toxoplasmosis	Toxoplasma gondii, obligate intracellular protozoan parasite, from cats, retinochoroiditis, convulsions
TB	Ant uveitis-Fibrinous exudate, disseminated choroiditis-yellowish lesions called tubercles, retinal detachment and macular star
Endophthalmitis	Inflammation of intraocular structures are normal, cause- trauma surgery perforation, hazy cornea, loss of red reflex, parsplana vitrectomy when no response to medical treatment
Panophthalmitis	Inflammation of eyeball including orbital structures, extraocular movements restricted & painful
Sympathetic ophthalmitis	Bilateral granulomatous panuveitis after penetrating ocular injury, sympathizing eye is non injured fellow eye developing uveitis, dalen fuhcs nodules
Vitreous liquefaction	Most common degenerative disorder of vitreous, trauma, inflammation, photocoagulation
Post vitreous detachment	Common in above 60 years, synchitic fluid collects behind vitreous, flashes of light and floaters
Vitreous hemorrhage	Accumulation of blood in the vitreous cavity, due to angiopathies, sudden onset of floaters and sudden painless vision loss, no fundal glow, ↓visual acuity, slit lamp examination, ghost cell glaucoma
Vitrectomy	Surgical removal of vitreous, indications of pars plana vitrectomy- endophthalmitis, vitreous hemorrhage

RETINA	
Diabetic retinopathy/DR	Non inflammatory, progressive dysfunction of retinal vasculature secondary to hyperglycemia. Treatment- anti VEGF, burn hypoxic retina, destroy leakage areas, vitrectomy for vit hem.
Background DR	Microaneurysms, retinal edema, hard exudates, dot & dark hemorrhages
Pre-proliferative stage	Venous dilation & sausage segmentation, cotton wool spots, IRMA
Proliferative stage	Neovascularization of retina/iris, vitreous hemorrhage, pre-retinal boatshaped hemorrhage in retrohyaloid space
Diabetic maculopathy	m/c cause of diabetic visual loss and blindness- macular edema
HTN retinopathy	Sudden painless bilateral visual loss, splinter flame shaped hemorrhages, salus sign, silver wire appearance of arterioles, cotton wool spots
Ischemic Central retinal vein occlusion	Sudden & severe unilateral visual loss, v/a is counting fingers, deep blot & flame shaped hemorrhages, cotton wool spots, disc edema, tomato splash appearance. Complication- rubiosis iridis
Central retinal artery occlusion	m/c cause thrombosis, amaurosis fugax- sudden, painless, unilateral loss of vision. Fundus exam- cherry red spot, pale retina, cattle tracking, arterial narrowing
Branch retinal artery occlusion	m/c cause embolism, altitudinal & sectional visual field loss
Age related macular degeneration (ARMD)	Degeneration of macula causing irreversible vision loss. Risk- drusen formation at post pole, smoking, aspirin, ↑cholesterol, obesity. Dry ARMD- m/c form, drusen, gradual ↓vision. Wet ARMD- choroidal neovascularization leaking serous exudate, sudden, metamorphopsia

Retinal detachment	Separation of sensory retina from retinal pigment epithelium by sub retinal fluid
Rhegmatogenous RD	Break in the sensory retina, high myopic ppl, flashing lights & floaters, tobacco dust/ shaffer's sign. Goldmann 3 mirror for diagnosis.
Tractional RD	Contraction of vitreous retinal membrane, diabetes, retinopathy of prematurity, eales disease
Serous/exudative RD	Accumulation of exudative fluid in sub retinal space, related to vascular patho, retino blastoma & syst HTN
Retinitis pigmentosa	Group of hereditary disorders resulting in pigmentary retinal dystrophy predominantly affecting rods and cones, pigmentary bone corpuscles/ bone spicules, night blindness ↑dark adaption time
Retino blastoma	Congenital malignant tumor arising from retinoblasts, < 3 years, chromosome 13q 14, m/c leukocoria, convergent squint, calcium deposition, proptosis

Optic nerve	
Optic neuritis	Inflammation of optic nerve anywhere along the route, m/c cause multiple sclerosis, syphilis, varicella zoster virus, RAPD-negative swinging light test, papillitis, neuroretinitis, retrobulbar optic neuritis
Neuroretinitis (ON)	Retinal involvement & macular star, RAPD
Papillitis (ON)	Inflammation of optic nerve head, m/c type, RAPD present, cells in posterior vitreous,
Retrobulbar optic neuritis (ON)	Inflammation of orbital part of optic n, normal fundus appearance with RAPD, pain with eye movt, acute ↓vision, associated with multiple sclerosis, defective color vision
Papilloedema	Passive edema of optic nerve head secondary to raised intracranial pressure, V/A normal but attacks of blurred vision, macular star incomplete, paton's lines, champagne cork appearance of optic disc
Arteritic Anterior ischemic optic neuropathy (AION)	Caused by giant cell arteritis, jaw claudication, headache, CRP in blood
Anterior ischemic optic neuropathy	HTN, DM, hyperlipidemia, lipid profile test ↑, altitudinal visual field defects
Compressive ON	Pituitary tumor, visual loss painless and gradual
Infiltrative ON	Inflammation, infections, visual loss painless gradual
Nutritional and toxic ON	Tobacco-alcohol amblyopia, ↓B12 due to alcohol excess
Toxic optic neuropathy	Methanol poisoning, ethambutol
Optic atrophy	Atrophy of the optic disc resulting from degeneration of retinal ganglion cells or their axons, chalky white disc (primary) then dirty grey green (secondary). Waxy pallor disc (consecutive). Nasal shiting of retinal vessels & peripapillary halo (glaucomatous optic atrophy)
Horners syndrome	Cause by damage to sympathetic trunk in neck, miotic/constricted pupils (paralysis of pupillary muscles), ptosis (paralysis of muller's muscle), anhidrosis (reduced sweating of on face of affected side), test- apraclonidine
RAPD	Unilateral incomplete lesion of optic nerve, swinging light test- light struck on affected eye both pupils dilate instead of constriction

ORBIT	
Proptosis	Forward displacement of an eyeball orbital margins, m/c overall cause is thyroid disease axial central displacement- thyroid opthopathy, non axial- growth invading orbit from paranasal sinus
Preseptal cellulitis	Actue infection of subcutaneous tissues ant. to the orbital septum, m/c type of cellulitis esp in children, staph aureus, ocular movt ,VA and pupillary reaction are normal
Orbital cellulitis	Acute infection of orbital soft tissues posterior to the orbital septum, medical emergency, staph aureus, extraocular movt. restricted and painful, exposure keratopathy, spread to brain (v.dangerous)
Cavernous thrombosis	Formation of boodclot in cavernous sinus, conjunctival chemosis, swelling of mastoid process of temporal bone, life-threatening, staph aureus, unilateral proptosis
Thyroid eye disease, graves	Middle aged, smoking females with HLA-DR3, (Dark Valley Kissed Sunset) dalrymple's, von graefe's, kocher's & stellwag's signs, causes keratoconjunctivitis cicca, test-ultrasonography & TFT's

INJURY	
Extra ocular foreign body	Very common in agricultural & industrial workers
Blunt trauma (contusion)	Closed globe injury, by ball
Intraocular foreign body	MRI, CT, A & B scan, NO MRI, Siderosis-iron chalcosis-copper, kaiser-fleischer rings
Chemical injury	Emergency; irrigation, Acids- coagulation of proteins, cornea opaque. Alkalis-saponify cell membrane FA, penetrate deeper tissues, burn marks.
Sympathetic ophthalmia	Bilateral granulomatous panuveitis after penetrating ocular injury, sympathizing eye is non injured fellow eye developing uveitis, dalen fuhcs nodules
Blow-out fracture	Object lager than eyeball, tennis ball, weakest; orbital floor & maxillary bone, diplopia, Xray (waters view)

REFRACTION	
Hypermetropia (far sightedness)	Parallel rays focused behind the retina when accommodation is at rest. (near object blur), asthenopic (eyestrain) sympts, convex lens, lasik upto 4 diopters, PRK upto 2 diopters
Myopia (near sightedness)	Parallel rays focused infront of the retina when accommodation is at rest (far object blur), m/c common, A scan for ↑axial length, concave lens, lasik upto 12 diopters, lens extraction upto 20diopters
Astigmatism	Parallel rays cannot form single focus point, strum's conoid- dist b/w two focal point, dislocation of lens, cataract, keratoconus/corneal injury, surgical- limbal relaxing incision, lasik
Simple myopic astigmatism	One meridian focus on retina and the other infront of retina, cylindrical lens
Simple hypermetropic astigmatism	One meridian focus on retina and the other behind of retina, cylindrical lens
Compound myopic astigmatism	Both the meridians focus infront of retina, spherocylindrical lens
Compound hypermetropic astig.	Both the meridians focus behind of retina, spherocylindrical lens
Mixed astigmatism	One meridian focus infront and one behind the retina, spherocylindrical lens
Irregular astigmatism	Multiple irregular foci
Presbyopia	↓Power of refraction of lens, ↓elasticity, senile, convex lens/ reading glasses
Anisometropia	Unequal refractive power of the eyes, difference > 4diopters is not tolerated, cause amblyopia if under 9 years otherwise diplopia
Aniseikonia	Different size and shape of images

SQUINT	
Binocular single vision (BSV)	Fusion of two foveal images of an object into unified perception of single image
Amblyopia/lazy eye	<9 years, decrease in the best corrected visual acuity, no improvement on pinhole, improved with single words spread apart, occlusion of normal eye to encourage use of amblyopic eye
Strabismic amblyopia	Most common, unioocular squint
Stimulation deprived amblyopia	No/reduced image formation in early life in e.g complete ptosis, any other congenital disease causing the same effect
Anisometropic amblyopia	Unequal refractive power of the eyes
Isometropic amblyopia	Bilateral amblyopia, High refractive error > 5 diopters
Astigmatism amblyopia	When astigmatism > 1 diopter
Squint	Misalignment of the visual axes of eyes
AC/A ratio	Accommodative convergence to accommodation ratio, normal 3:1
Congenital exotropia	AC/A normal, neurological patho, angle of deviation is large, alternate fixation, surgery
Intermittent exotropia	Most common, diplophotophobia- closure of one eye in bright light, horizontal diplopia, deviation present at times and latent at others, alternate deviation,
Constant exotropia	Intermittent can turn into constant

TYPES of ESOTROPIA	FEATURES	TREATMENT
Congenital infantile (6 months or less)	Angle of deviation > 30 degrees Cross & alternate fixation Associated with: -dissociate vertical deviation (DVD) -nystagmus -inferior oblique overaction	Surgical: Recession Resection
Accommodative refractive (1.5-3 years)	Associated with hypermetropia AC/A normal Deviation changes with changing object distance m/c in childhood	Glasses
Accommodative non-refractive	Deviation remains same with changing object distance ↑AC/A ↓Binocular singular vision	Bifocal glasses
Paralytic squint (non concomitant)	3 rd 4 th 6 th nerve palsies, sudden, secondary deviation greater than primary deviation, deviation not equal in all directions, usually trauma, nausea, vertigo, limited ext. ocular movt	
Secondary deviation	Position of the normal eye when the affected eye (primary) is in position	
Third nerve palsy	lateral & downward deviation, LPS, MR, IR, IO are paralyzed, ptosis (LPS), pupil dilated. Pupil involving palsy- <u>surgical/traumatic</u> , Edinger Westphal nucleus+ main motor, pupil sparing palsy- <u>systemic</u> , HTN, DM, only main motor nucleus	
Fourth nerve palsy	Trauma, vertical diplopia-extorsion, head tilt towards unaffected side, hypertropia-upwards, superior oblique paralyzed	
Sixth nerve palsy	Horizontal diplopia, esotropia, lateral rectus paralyzed	