

OCULAR EXAMINATION

Aim and Objectives

- Understand the fundamental principles and perform a systematic eye examination.
- On completion of this session you will be able to:
 - Recognize normal and abnormal anatomy
 - Systematically examine an eye
 - Correctly document examination findings

Equipment required to examine an eye

- Fine beamed torch
- Cotton buds
- Local anaesthetic eye drops, eg Paracaine
Fluorescein strips
- Magnification – slit lamp, indirect ophthalmoscope, loupes

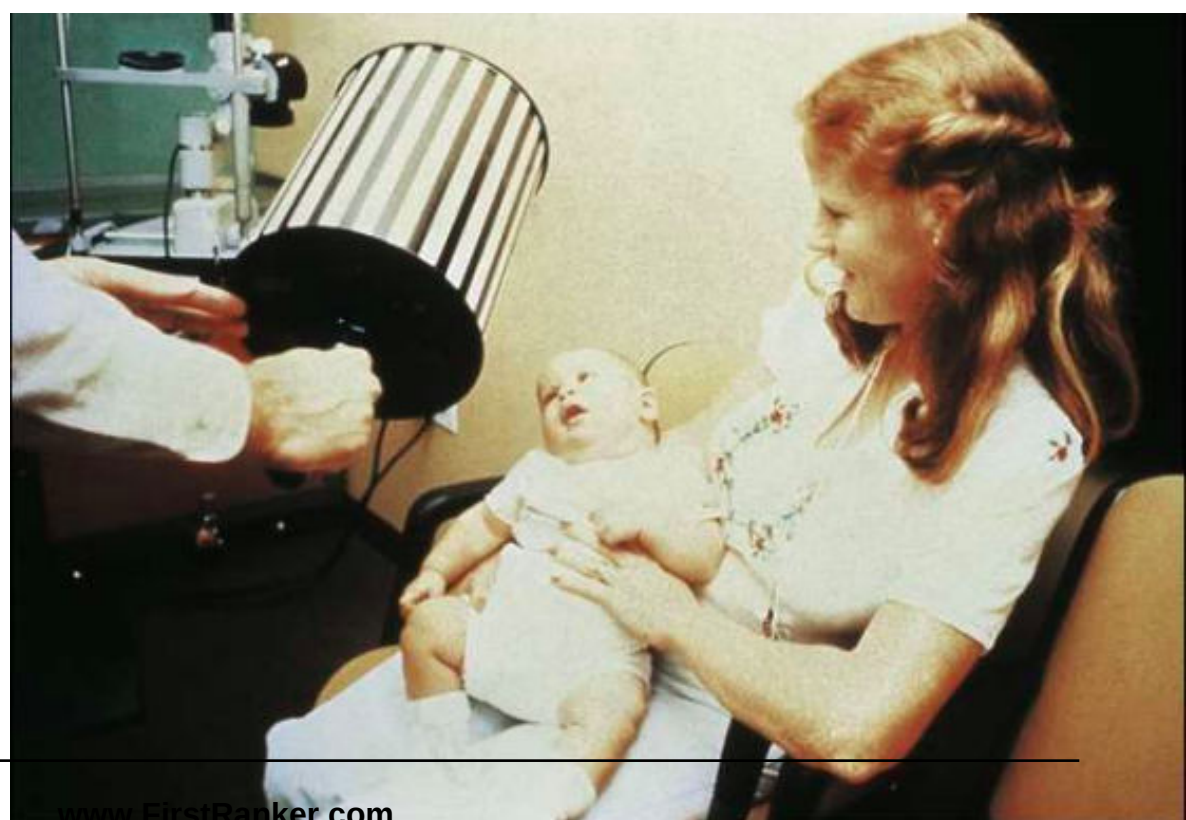
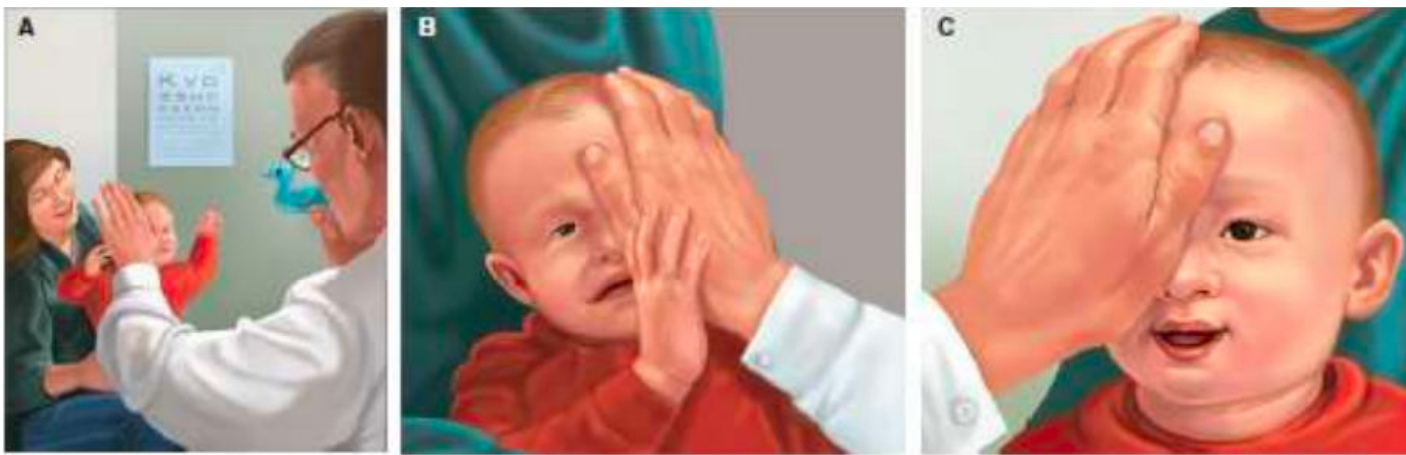
Patient Assessment

- **General Physical Examination**
 - Sclera – for jaundice
 - Conjunctiva – Anemia
 - Lids – xanthelesma
 - Puffy eye lids – Nephrotic syndrome, Thyroid eye ds, Hypertension
 - Lymphadenopathy – Tuberculosis, tumor and viral conjunctivitis
 - Parotid swelling or lacrimal gland swelling

VISUAL ACUITY

Pin Hole test

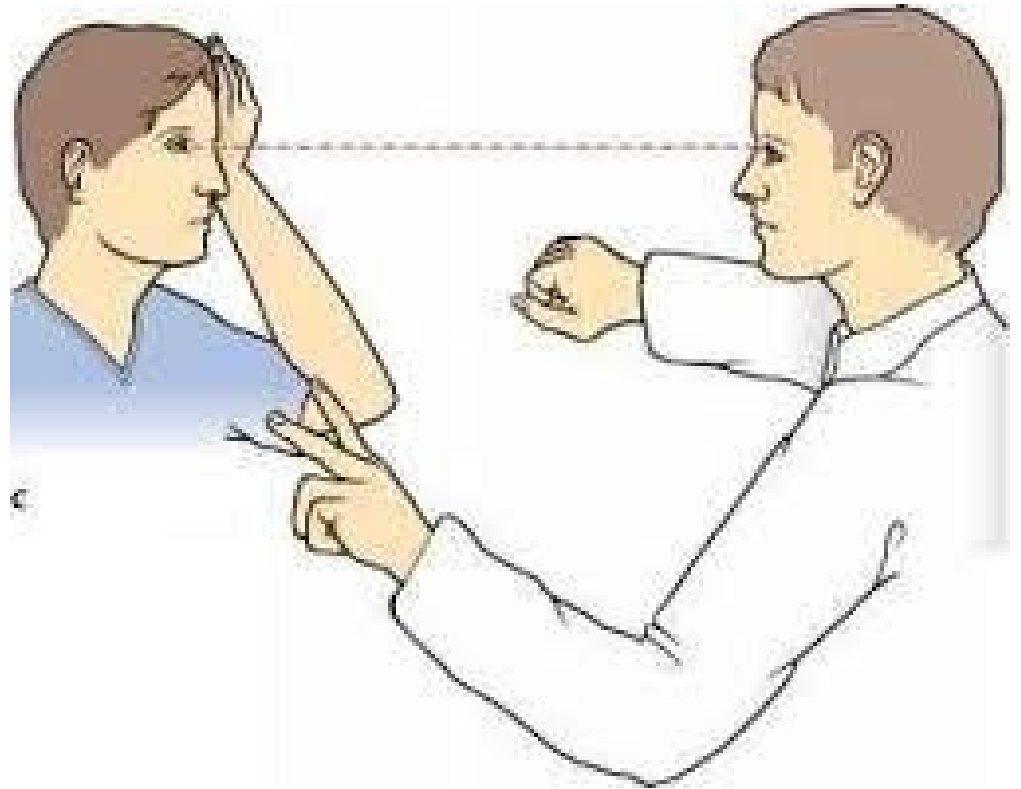
To differentiate refractive errors from organic diseases by blocking peripheral rayes



Optokinetic nystagmus

- Projection of rays- PR

- Field of vision
 - Confrontation test
 - Perimetry
 - Kinetic
 - Static

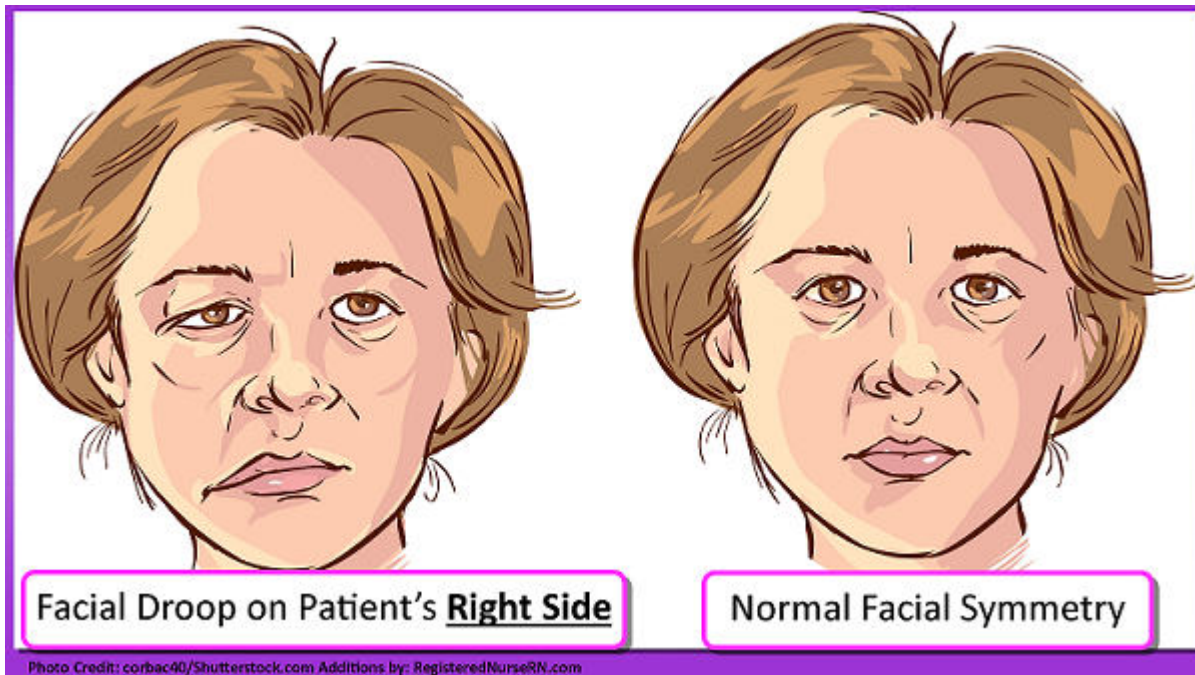


Head posture:

- Face turn -horizontal deviation
- Chin elevation or depression –vertical deviation
- Head tilt to one or the shoulder –torsional deviation



- Forehead

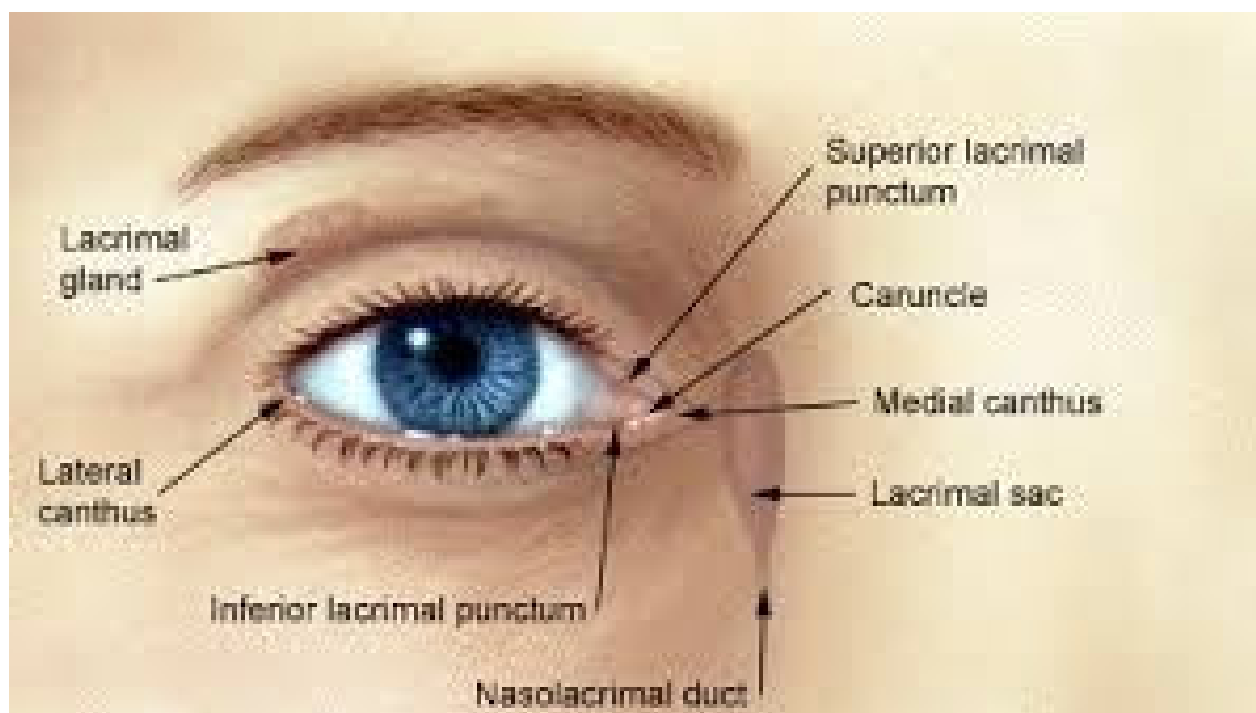


- Eye Brows
Level
Whitening
Absence of lashes

Orbital margins

- Trauma
- Tumors

- Lids and Lashes



DISORDERS OF LASHES

1. Trichiasis
2. Metaplastic lashes
3. Distichiasis
4. Phthiriasis palpebrarum
5. Madarosis
6. Poliosis

Madarosis

Decrease in number or complete loss of lashes



Local causes

- Chronic anterior lid margin disease
- Infiltrating tumours
- Burns, radiotherapy or cryotherapy

Systemic causes

- Generalized alopecia
- Myxoedema
- SLE
- Syphilis
- Leprosy

Following removal

Poliosis

Premature localized whitening of hair



Ocular associations

- Chronic anterior blepharitis
- Sympathetic ophthalmitis

Systemic associations

- Vogt-Koyanagi-Harada syndrome
- Waardenburg syndrome

Abnormalities Of Eyelid Development



- Congenital entropion
- Congenital ectropion

EYELID MALPOSITION

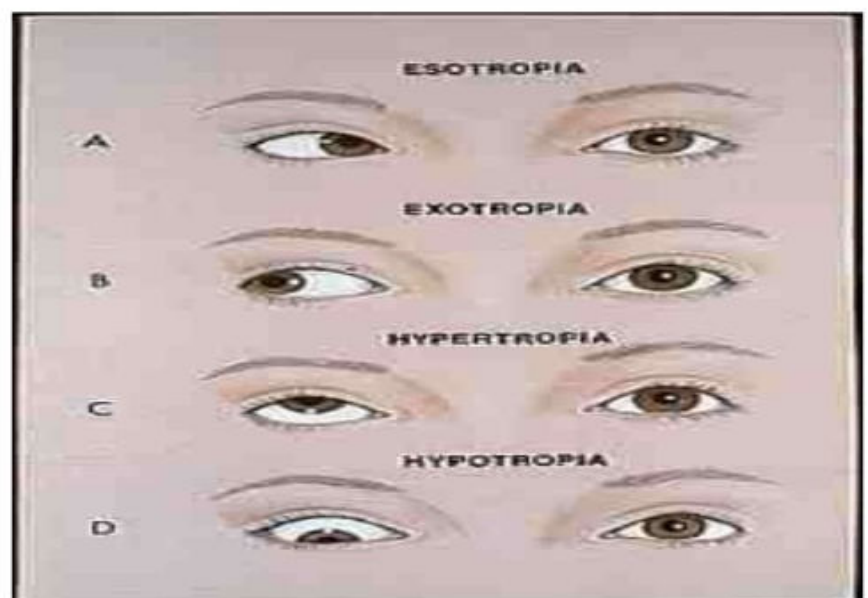
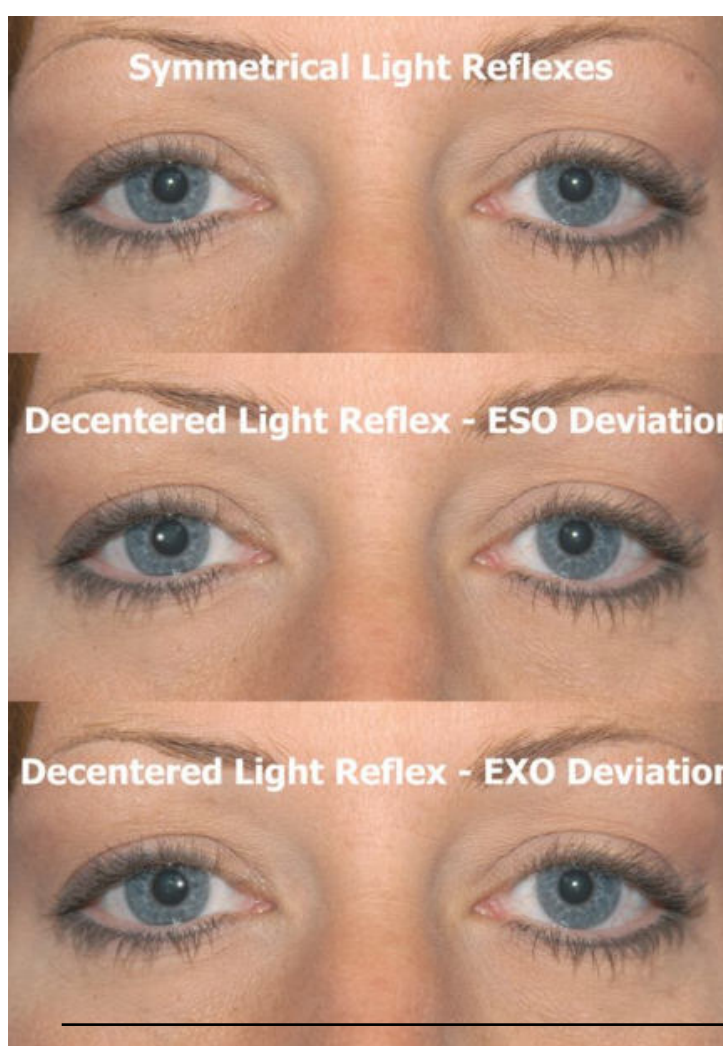
- **Ectropion** - Abnormal eversion of eyelid (usually the lower) away from the globe →
- **Entropion** - Abnormal inversion of eyelid (usually lower) towards the globe →
- **Ptosis** - Abnormally low position of the upper lid →
- **Horner's Syndrome** (ptosis+meiosis+anhidrosis+enophthalmos) →



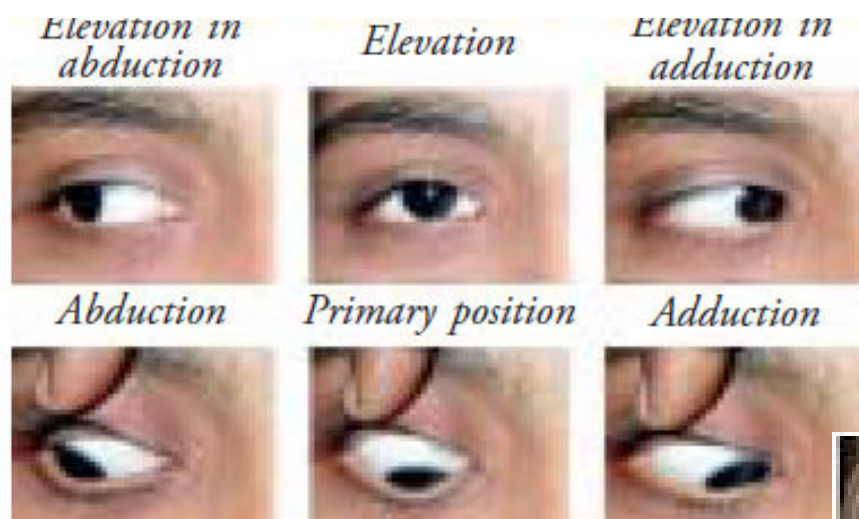
Lagophthalmos

Lid Retraction

Visual Axis – Alignment

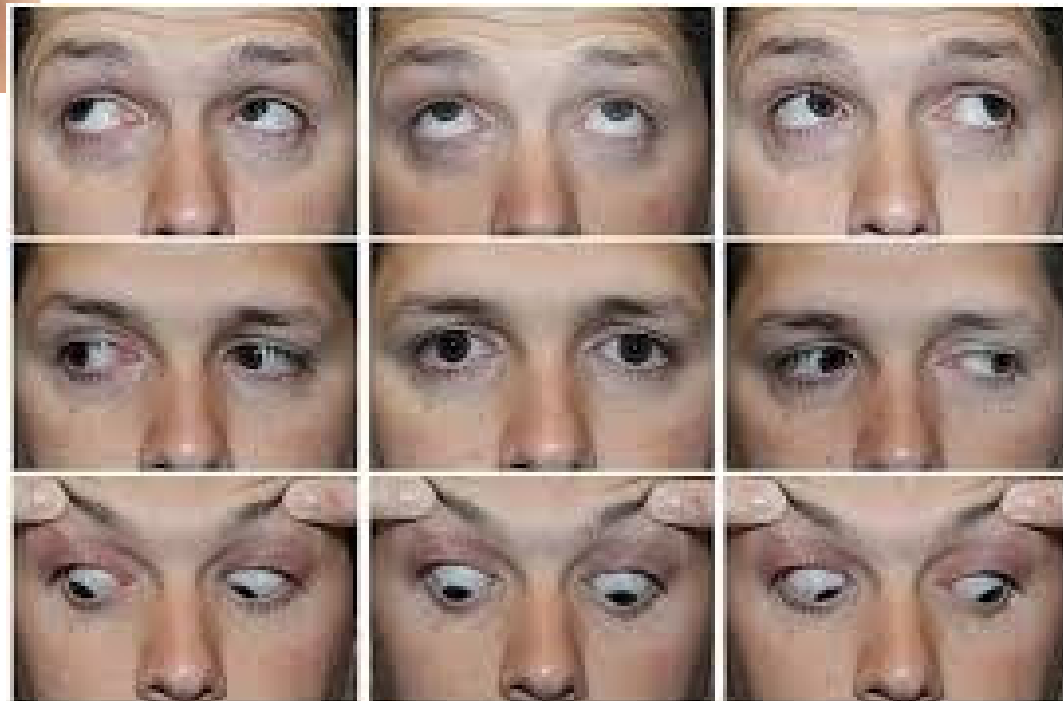


Ocular movements

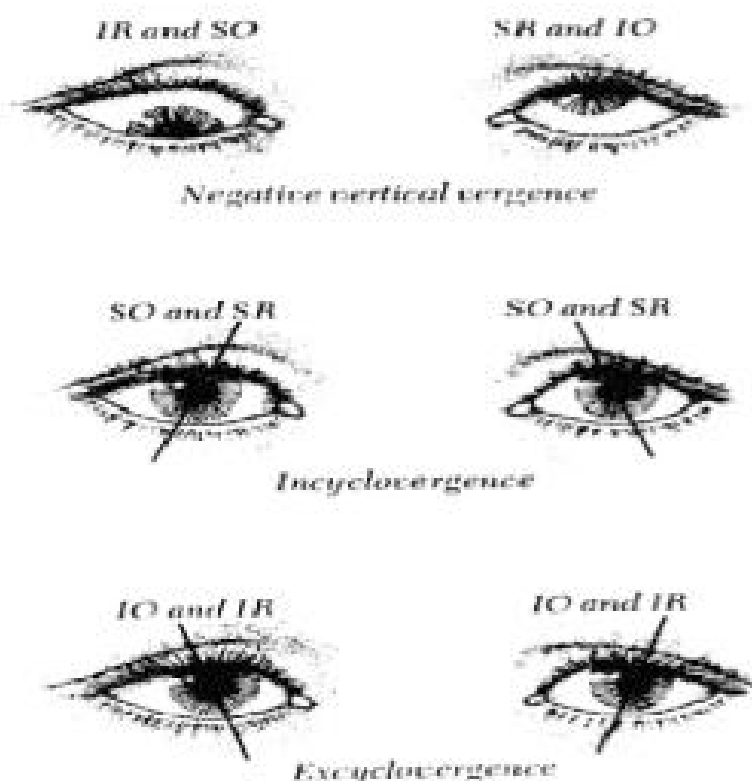
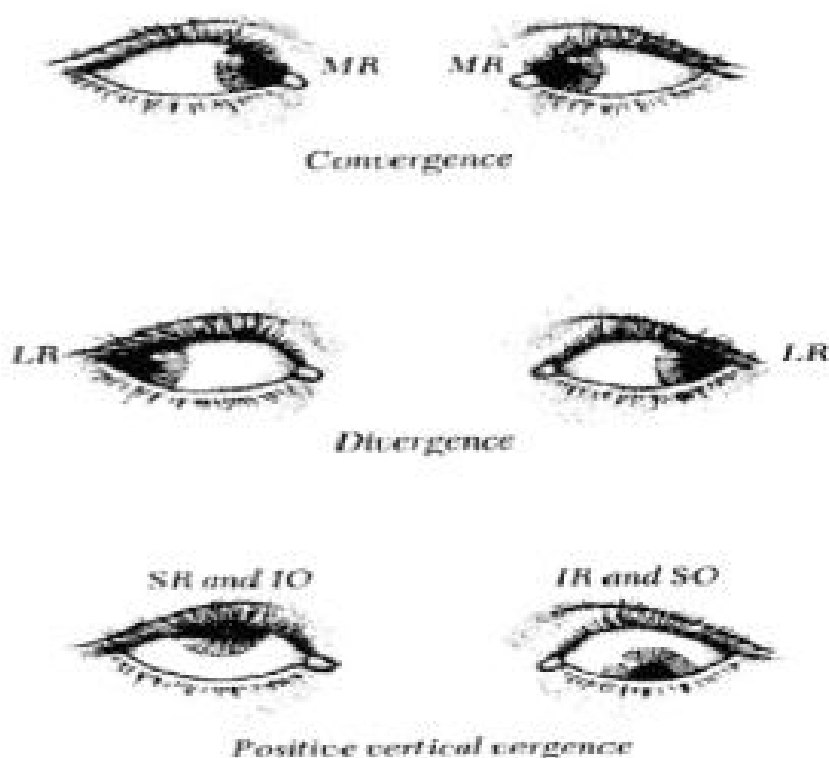


Duction – unilateral movement

Version – binocular movement in same direction



Vergence





- Proptosis
- Enophthalmos



Regurgitation test

- done by applying pressure over the lacrimal sac area with either thumb or index finger and observing the puncta.
- In cases with nasolacrimal duct obstruction like chronic dacryocystitis the contents of the sac regurgitate through the punctum



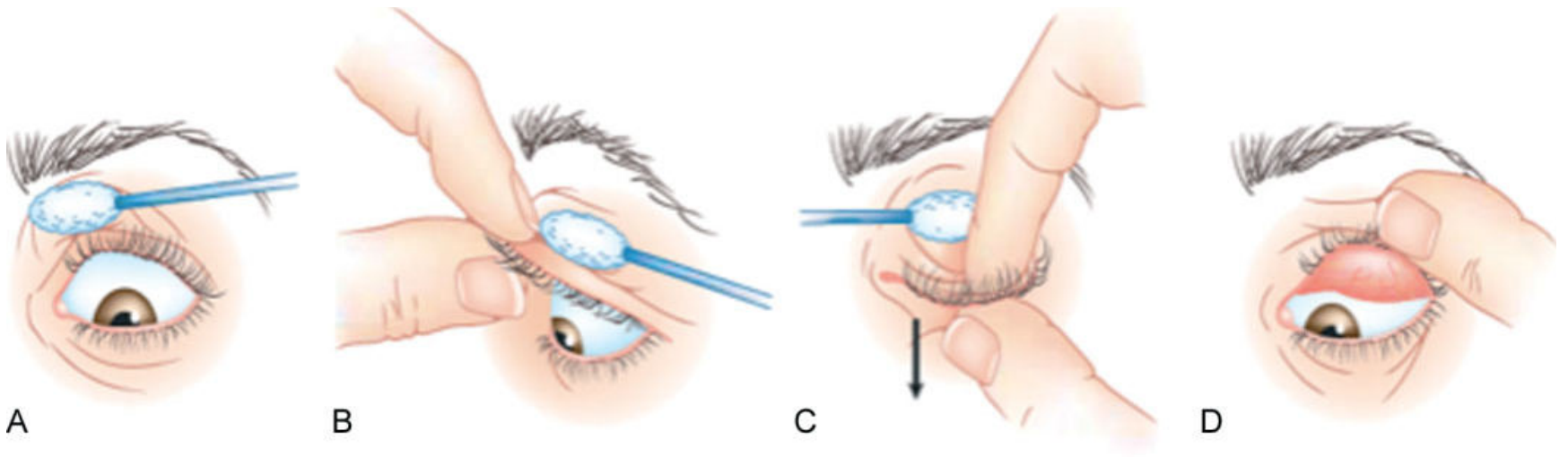
- Conjunctiva
 - Colour
 - Chemosis
 - Congestion

Conjunctiva

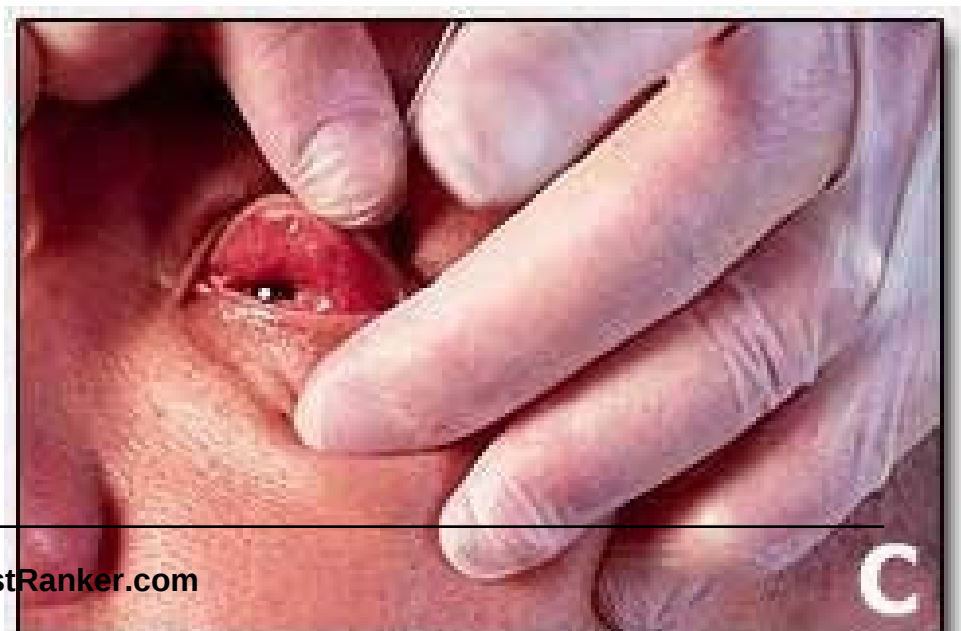
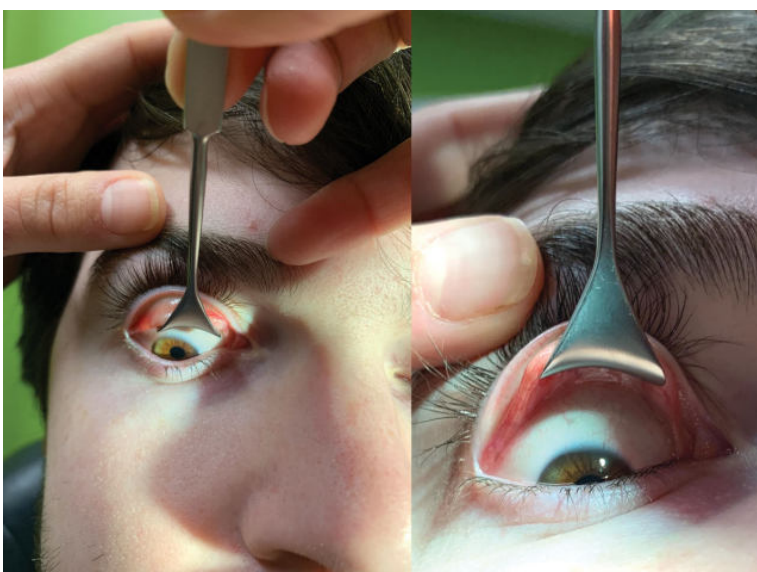
Covers the inside of eyelids and the sclera – does not pass over the cornea; is vascular.

- Normal
 - translucent, flat, sclera visible beneath
- Abnormal
 - Injected - bloodshot
 - Chemosis (oedema)
 - Discharge
 - Subconjunctival haemorrhage – Lacerations
 - Lesions

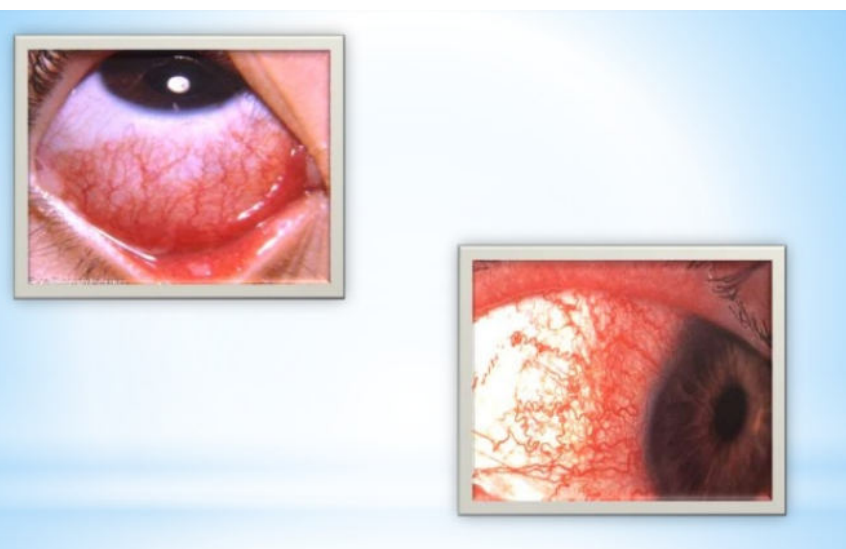
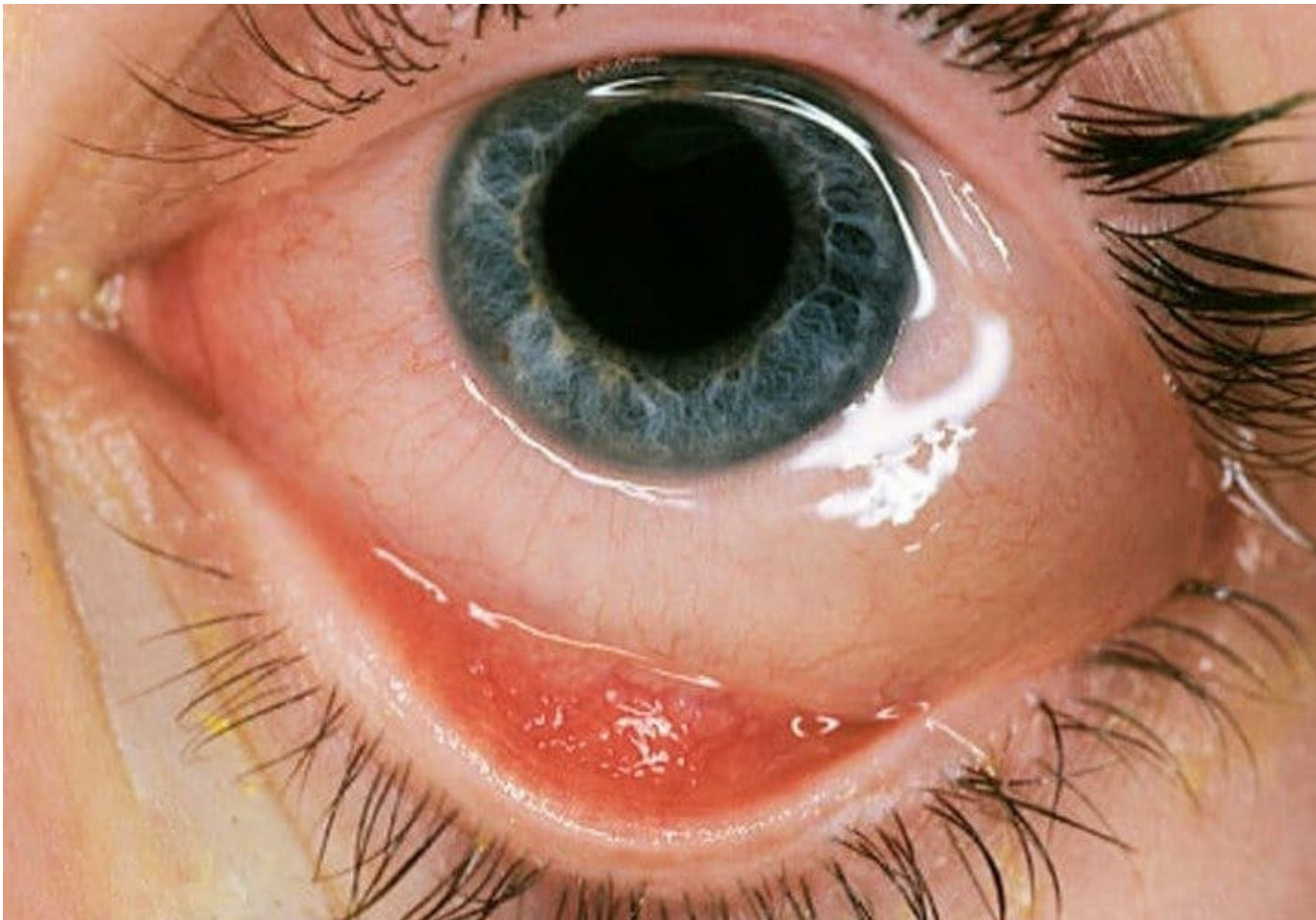
Eversion of lids



Double eversion



Chemosis



Congestion

➤ Clinical pictures in different types of congestion.

Conjunctival congestion	Circum ciliary congestion	Mixed congestion
		

Conjunctival vs ciliary congestion

S. no.	Feature	Conjunctival congestion	Ciliary congestion
1.	Site	More marked in the fornices	More marked around the limbus
2.	Colour	Bright red	Purple or dull red
3.	Arrangement of vessels	Superficial and branching	Deep and radiating from limbus
4.	On moving conjunctiva	Congested vessels also move	Congested vessels do not move
5.	On mechanically squeezing out	Vessels fill slowly from fornix towards limbus	Vessels fill rapidly from limbus towards fornix
6.	Blanching, i.e., on putting one drop of 1 in 10000 adrenaline	Vessels immediately blanch	Do not blanch

Episcleritis

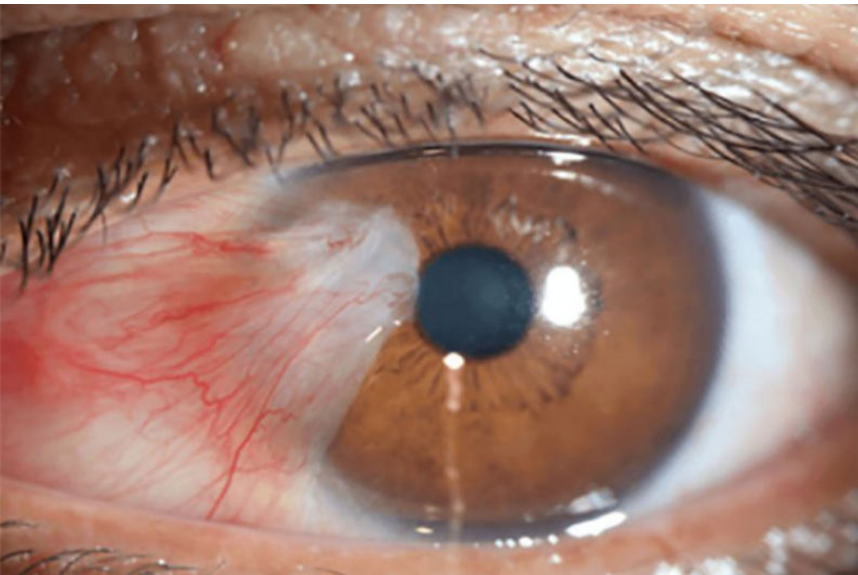


Scleritis



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	Episcleritis	Scleritis
Pathophysiology	Idiopathic inflammation	Autoimmune dysregulation
Symptoms	Acute onset Mild pain Redness, irritation	Subacute onset Severe pain Pain with eye movement Blurred vision/vision loss Photophobia
Physical Exam	Mobile vessels Blanch with phenylephrine drops Reddish hue	Adherent vessels Does NOT blanch with phenylephrine drops Bluish hue Slit lamp may reveal nodules, scleral thinning, and corneal changes Systemic inflammation (joint pain, rashes, etc)
Treatment	Self-limited Consider topical steroids in refractory cases	Ophthalmology consult Systemic steroids/NSAIDs +/- Topical antibiotics

Conjuntival degenerations

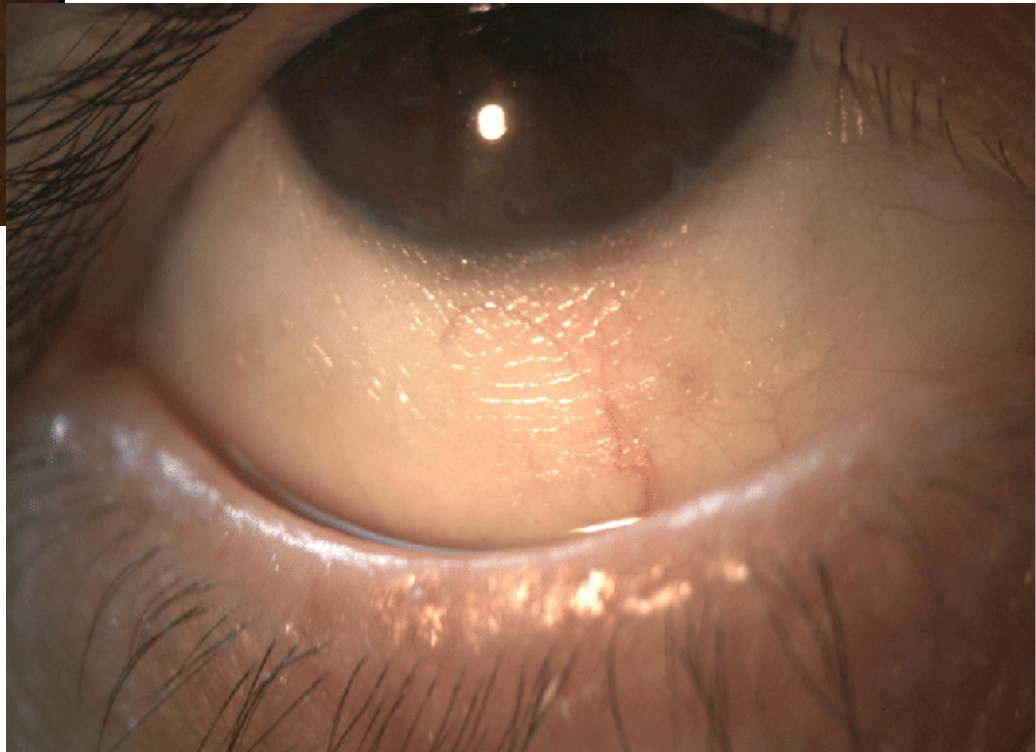


Pterygium

Pinguecula



Vitamin A Deficiency

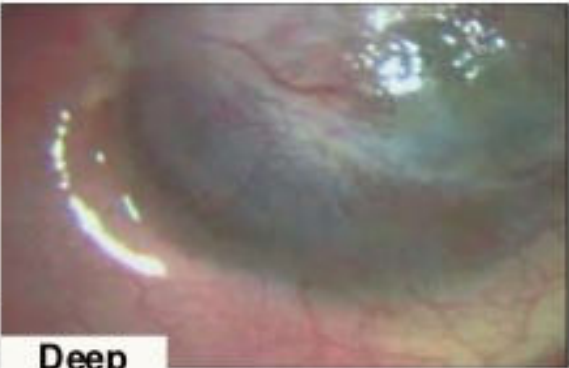
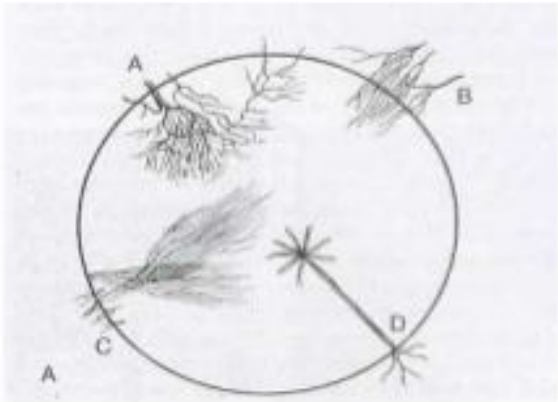


Cornea

- Size - 11.7 mm and 12.6 mm
- Microcornea - $<10\text{mm}$
- Megalocornea - $>13\text{mm}$
- Shape – watch glass
- Surface –
- Transparency
- Sensitivity-
- Sheen

Types of corneal vascularisation

Superficial	Deep
Present below epithelial layer	Lie in corneal stroma
Can be traced with conjunctival vessels	Continuity can't be traced beyond limbus
Pattern- commonly arborising	Terminal loops , brush, umbel
Causes- Trachoma , Phlyctenular kerato - conjunctivitis, superficial corneal ulcer	Interestial keratitis , disciform keratitis, chemical burn, deep corneal ulcer



Anterior Chamber

Shallow –

Deep –

Irregular –

Abnormal Content -



IRIS

- Color-

Heterochromia iridium- Different colour of two eyes

Heterochromia iridis –Different colour of same iris

- Iris Pattern-
- Iris Defects



Pupil

- Size – Miosis, Mydriasis , Anisocoria
- Shape – Irregular, Festooned
- Number - polycoria
- Reaction – Direct, Indirect, Marcus gunn

MIOSIS

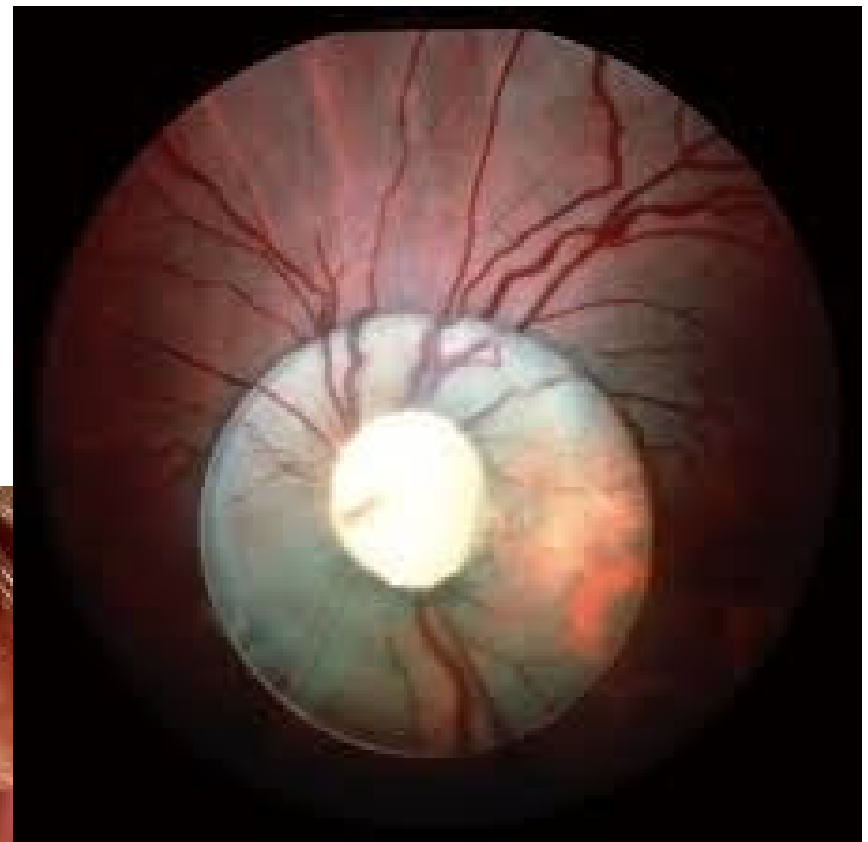
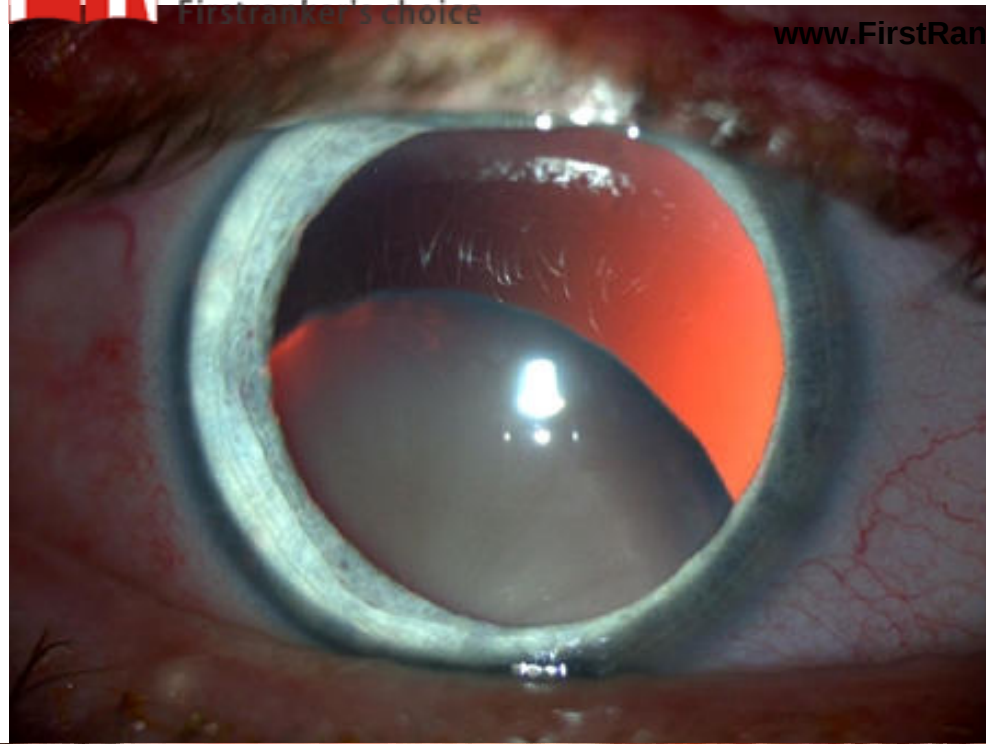
- ▶ parasympathomimetics
- ▶ Systemic morphine
- ▶ Iridocyclitis, horner syndrome, head injury, pontine haemorrhage
- ▶ Senile pupil, strong light, during sleep
- ▶

MYDRIASIS

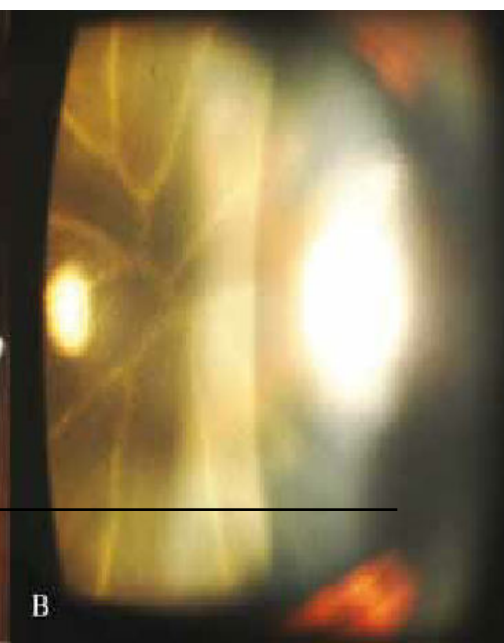
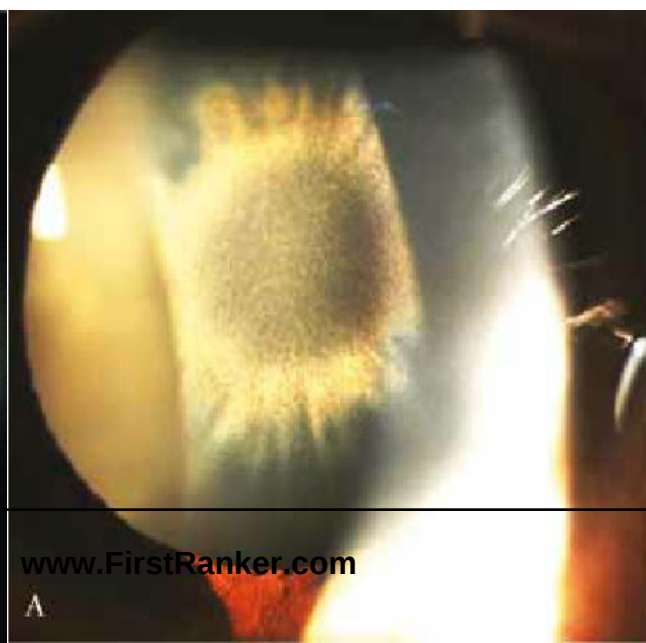
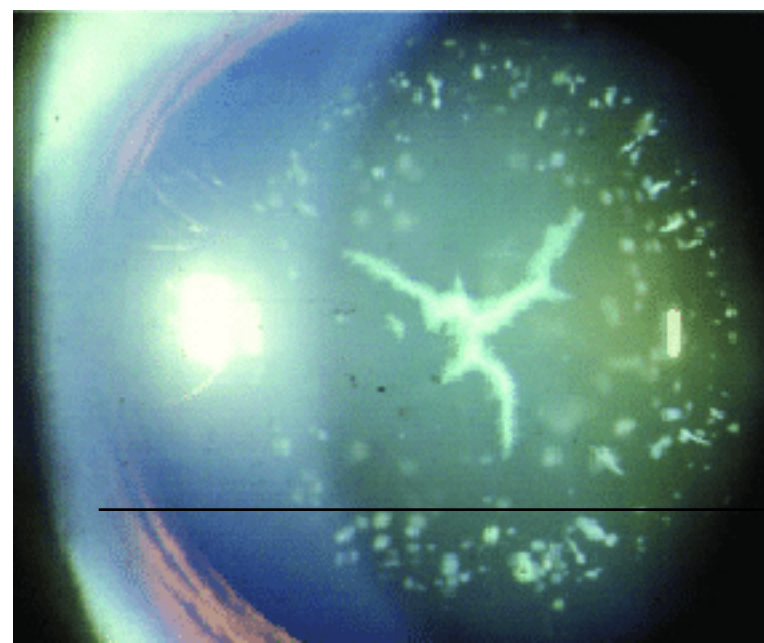
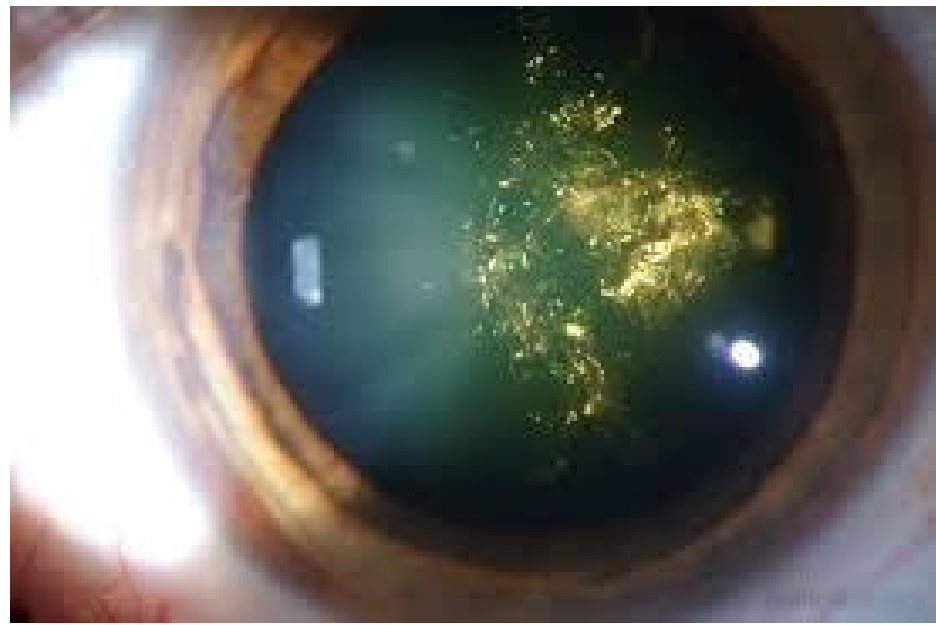
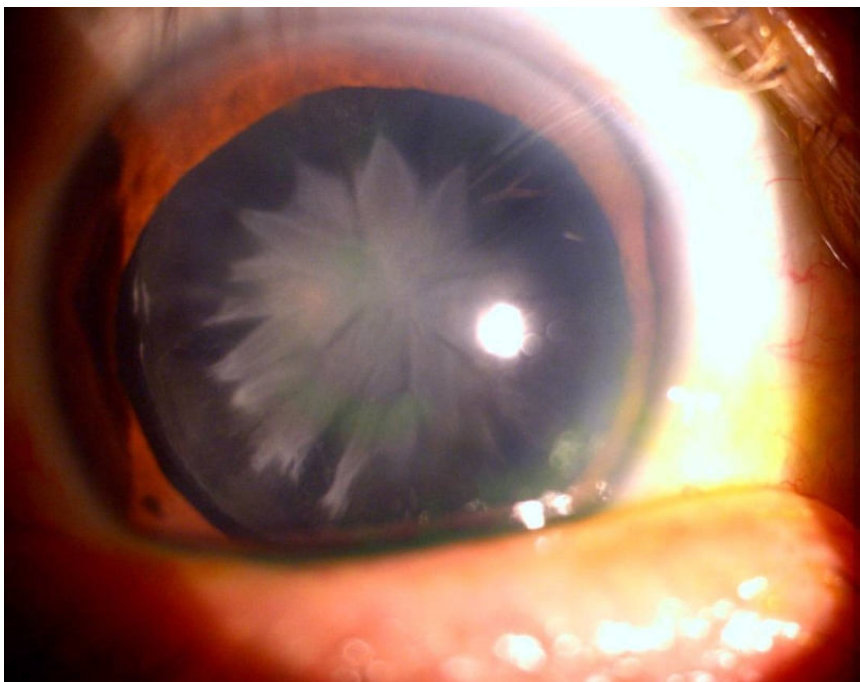
- ▶ Sympathomimetics like adrenaline, phenylephrine
- ▶ Parasympatholytics like atropine, homatropine, tropicamide, cyclopentolate
- ▶ Acute glaucoma, absolute glaucoma, optic atrophy, retinal detachment
- ▶ Internal ophthalmoplegia, 3rd nerve paralysis, belladonna poisoning

Lens

- Position –
Subluxation
Dislocation
- Shape – Biconvex
Spherophakia
Lenticonus
Coloboma
- Color – Brown/ Black , Greyish white , Pearly white, Milky White



- Snow flake cataract
- Sunflower cataract
- Rosette cataract
- Christmas tree cataract



Digital Tension

Indirect method

- **Palpation Method/ digital tonometry**
- Intraocular pressure (IOP) is estimated by response of eye to pressure applied by finger pulp.
- indents easily – low IOP
- Firm to touch – normal IOP
- Hard to touch – high IOP



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