# NOTEBOOK

# Clinicals (ospes)

History Taking

Visual Acuity

Anterior Segment examination

Eye movements

Pupil examination

Slit Lamp Examination

Indirect ophthalmoscopy

Direct Ophthalmoscopy

B scan

Biometry

Perimetry

Extraocular movements

Squint Examination

Retinoscopy

Trial lens box

Eversion of upper lids

Use of topical anesthesia and staining

Intra ocular malignancy

Fundus camera

Tonometry

Lacrimal Regurge Test

Visual fields (confrontation)

Tonometry

Lacrimal Regurgitation Test

# ✡ POAG

1- Prostaglandin Analogues — OD

- Latanoprost
- Travoprost
- Bimatoprost
- Tafluprost

2. β-Blockers — BD

- Betaxolol
- Carteolol

3. Alpha 2 Agonist — BD

- Brimonidine
- Apraclonidine

4- Carbonic Anhydrase Inhibitor — 2-3 times daily

- Dorzolamide

5- Miotics QID

- Pilocarpine
- Carbacol

6. Adrenergic Drugs

- Epinephrine HCl
- Dipivefrin BD

# Important Features

***Chalazion**

- inflammatory lipogranulom of meibomian gland
- painless nodule

***Hordoleum Externum (style)**

-Acute suppurative infection of lash follicle and its associated grands of Zeis and moll.
- painful

*** Hordoleum Internum**

-Acute suppurative infection of Meibomian gland
- painful

# * Blepharitis

## - Inflammation of eyelid margins

* Anterior Blepharitis
  - Infective
    - ↳ crusts
  - Seborrheic
    - ↳ shiny waxy appearance

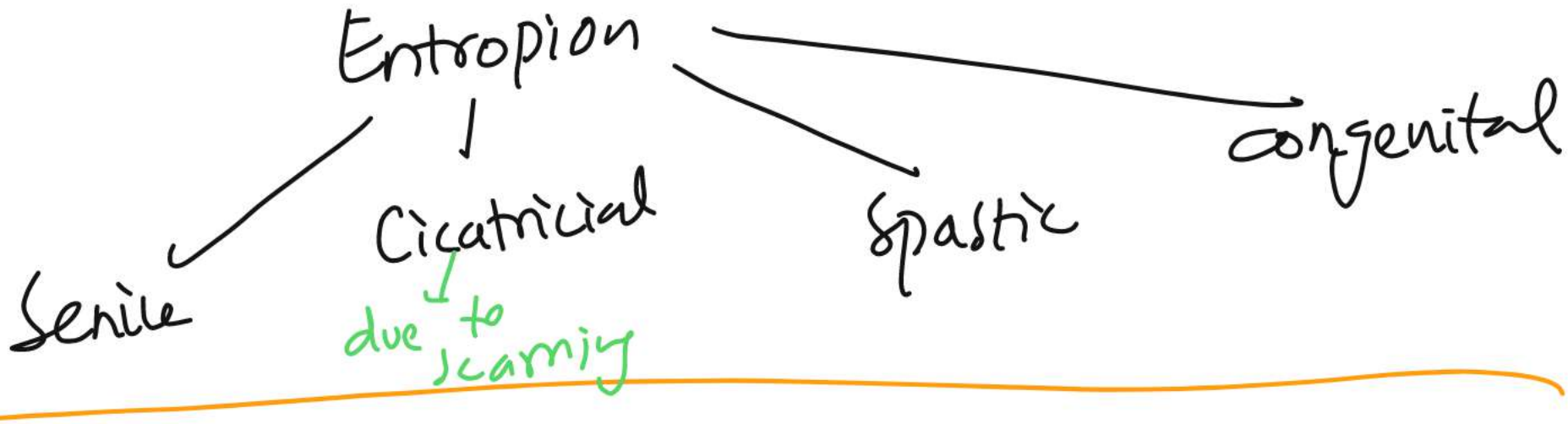
* Posterior Blepharitis
  - ↳ hypersecretion of Meibomian gland
  - ↳ Meibomian Gland orifices capped by small oil globules
  - ↳ oily secretion comes out when glands are massaged

* Trichiasis
  - mis direction of growth of eyelashes towards the globe

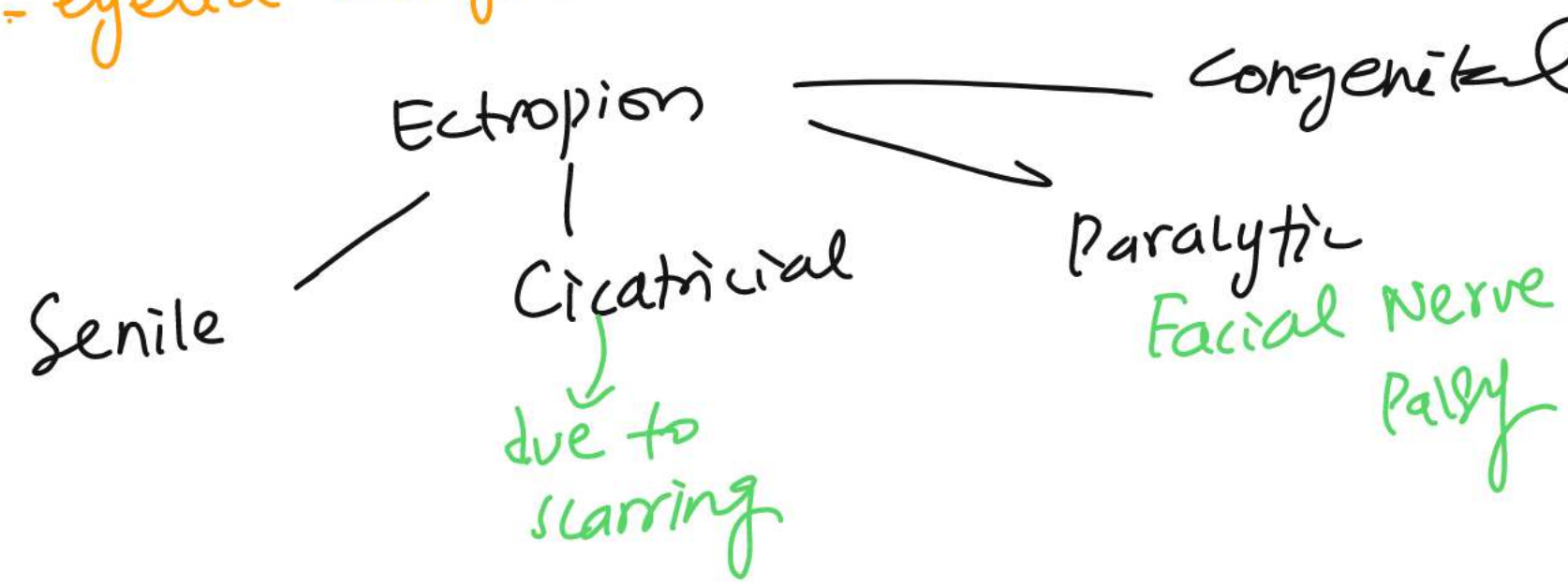
* Entropion
  - eyelid margin turned towards eyeball
  - mis directed lashes

* Ectropion
  - eyelid margins everted away from eyeball
  - Epiphora (watery eyes)
  - Chronic conjunctivitis
  - Exposure keratitis

* Entropion
- eyelid margin is turned towards the eyeball




* Ectropion
- eyelid margin everted away from eyeball



# Ptosis

## Congenital

### Simple Congenital
- Absent eyelid crease
- Reduced levator function

### Marcus Jaw Winking Syndrome
- Retraction of ptotic eyelid with contralateral jaw movement

### Blepharophemosis Syndrome
- Bilateral ptosis
- Telecanthus
- Epicanthus inversus
- Small palpebral fissures

## Acquired

### Neurogenic
- Third Nerve Palsy
- Horner Syndrome

### Myogenic
- Myasthenia Gravis
- Ocular Myopathies

### Aponeurotic

### Mechanical
→ due to ↑ weight of upper eyelid
- Tumor
- Inflammation

## ✱ Benign Tumors

- Squamous cell papilloma
  - sessile or pedunculated protrusions with irregular surface

- Basal cell papilloma (seborrheic keratosis)
  - protrusions usually brown to dark in color, with a greasy irregular surface

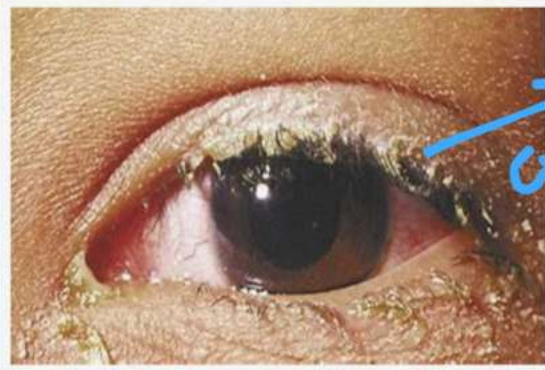
- Pyogenic Granuloma
  - pinkish, pedunculated or sessile mass
  - abnormal response to injury such as trauma, infection or after surgery
  - painful

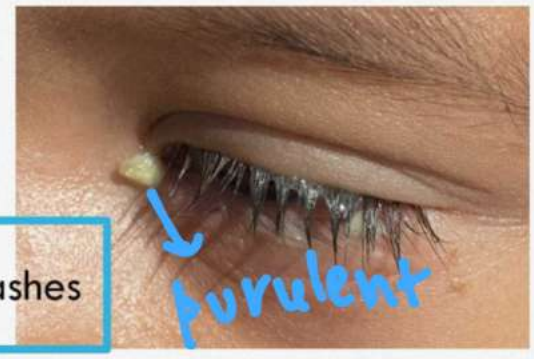
- Keratocanthoma
  - firm pinkish indurated nodule covered with keratin

- Capillary Hemangioma
  - pinkish red lesion, which blanches with pressure and swells on crying

- Xanthelasma
  - slightly raised, creamy yellowish, plaque like lesions

- Neurofibroma
  - = benign nerve sheath tumor
  - - The thickened nerves can be felt through the skin as hard cords or bag-of-worms mass causing S-shaped lid deformity



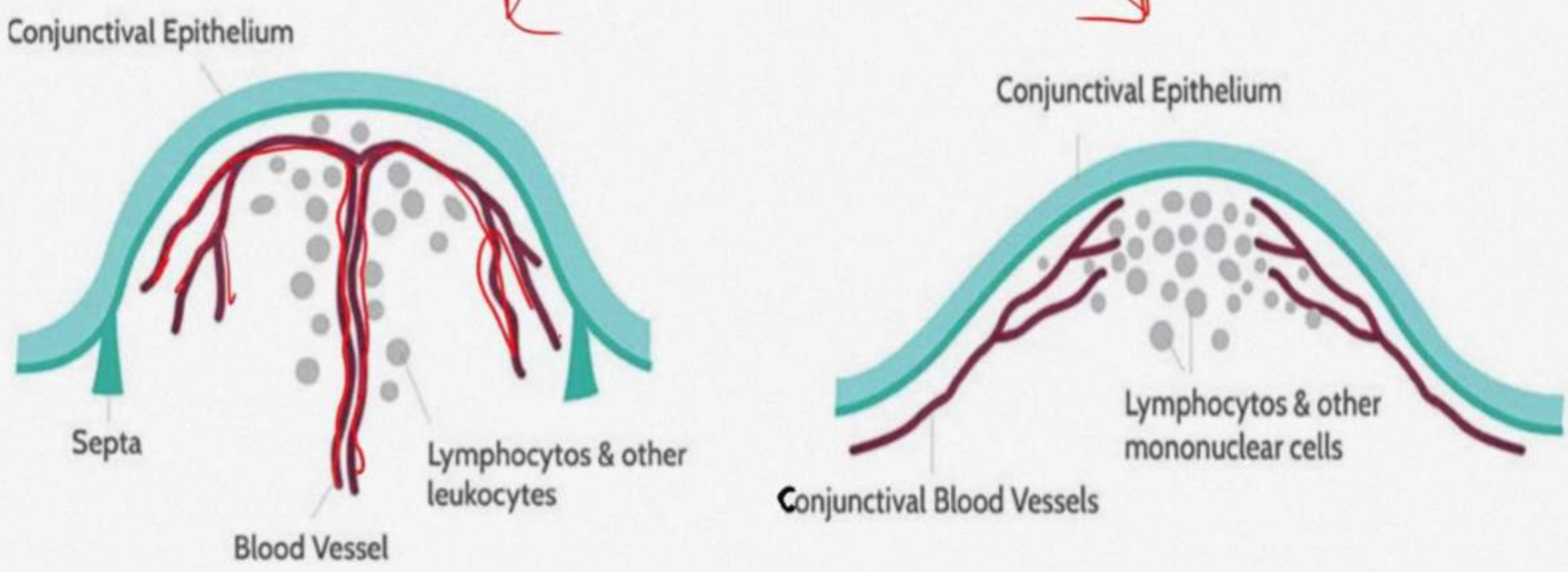




Watery Discharge

Sticking of eyelashes

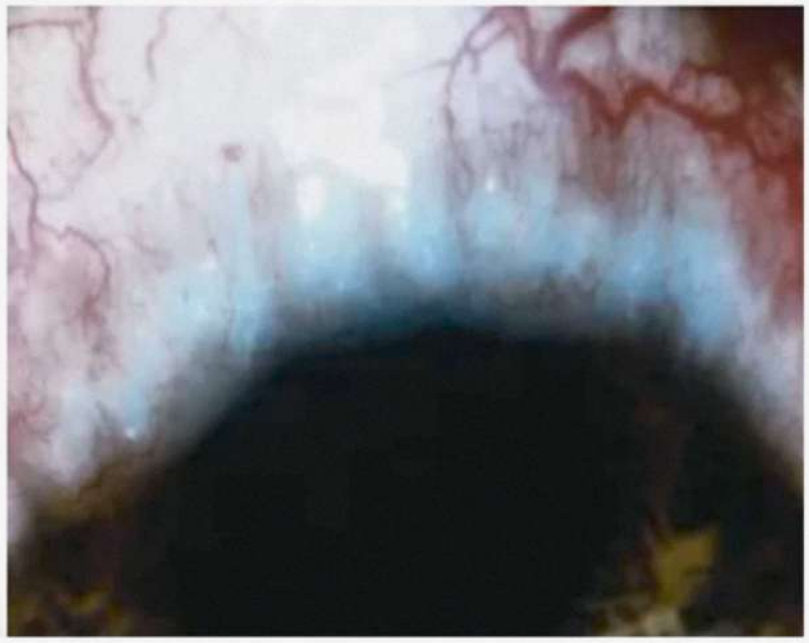
## Gonococcal conjunctivitis

# PAPILLA V/S FOLLICLE




# PAPILLAE

Giant papillae (COBBLESTONE APPEARANCE)

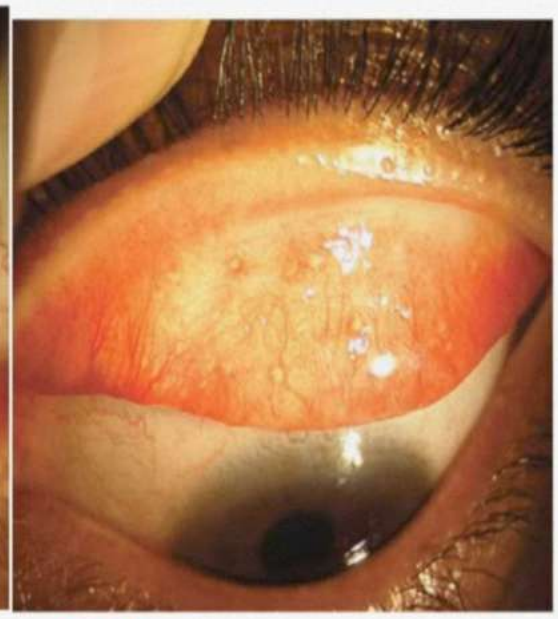


Limbal papillae

Gelatenous appearance

## Translucent grains of rice

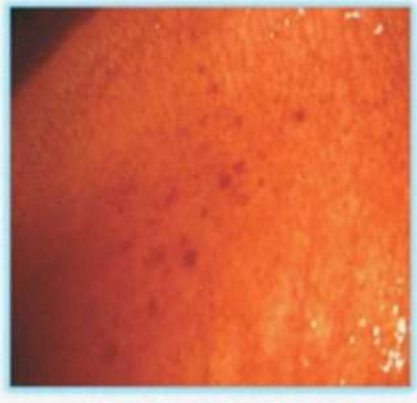
• FIG. 11.2 Follicular conjunctivitis.



• FIG. 11.6 Follicles in the upper palpebral conjunctiva.

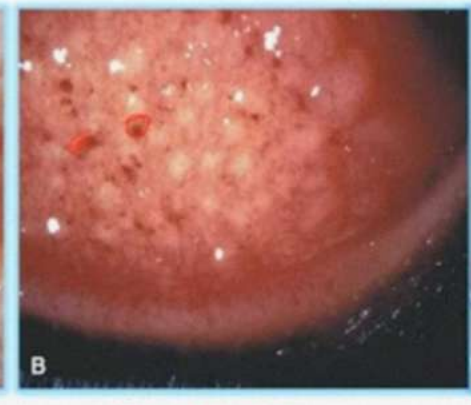
Follicular Conjunctivitis

# CLINICAL SIGNS IN EKC

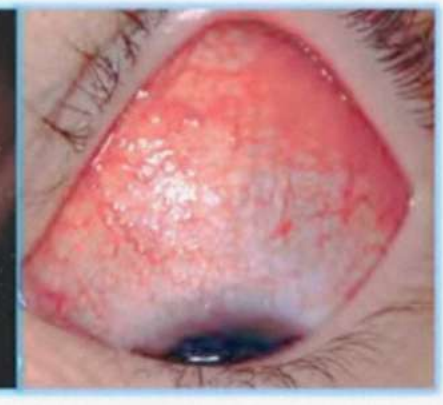


SUBCONJUNCTIVAL HEMORRHAGES

MEMBRANES




FOLLICULAR REACTION / MIXED REACTION



HYPEREMIA

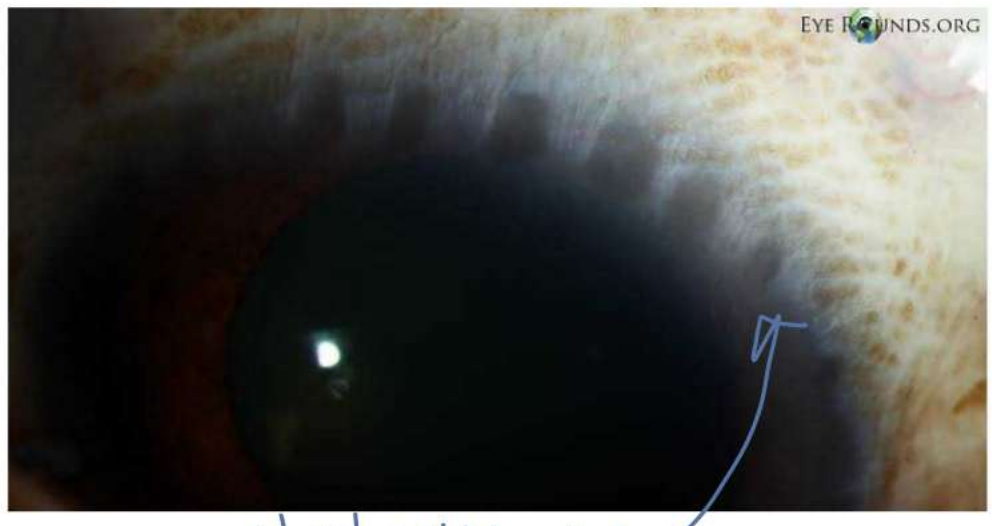
# TRACHOMA

- Follicles on bulbar conjunctivae
  - pathognomonic
  - not always present

- Corneal pannus
- Corneal ulceration
- Conjunctival scarring
- Arlt's line
- Herbert's pits → pathognomonic of trachoma
- Follicles are more numerous on upper palpebral conjunctiva than on lower

**Arlt's Line**

**Trachoma conjunctival scar in sulcus subtarsalis.**




Herbert's pits

# Vernal Keratoconjunctivitis
(Spring Catarrh/ Vernal Catarrh)

- Atopy
- Palpebral form
  - Large papillae with cobblestone or pavement stone appearance
  - Giant papillae
  - Ptosis
  - Mucoid and sticky exudate
- Limbal Form
  - Gelatinous papillae on limbal conjunctiva
  - Trantus dots
- Mixed Form
  - Keratopathy (corneal changes) most common
    - Punctate epithelial erosion
    - Epithelial macroerosion and ulceration
    - Plaque and shield ulcer
    - Subepithelial scarring
    - Keratoconus

# Bacterial Corneal Ulcer

- Pain
- Blurred vision
- Lacrimation
- Photophobia
- Redness of eye
- Halos
- Hypopyon → sterile pus
- Corneal Stain → 2% fluorescein dye
  ↳ pathognomonic sign for diagnosis
- ↑ IOP → due to secondary glaucoma
- Hazy cornea

## Filamentous Keratitis

- grayish white ulcer that has delicate filamentous or feathery edges
- Occasionally, multifocal or satellite lesions may be present

## Candidal Keratitis

- yellow white infiltration associated with dense suppuration that resemble keratitis caused by Gram-positive bacteria

# HSV Keratitis

* Acute epithelial keratitis
  - Corneal Staining with 2% Fluorescein or Rose bengal shows
    - Dendritic ulcer → club shaped ends
    - Geographical (amoeboid) ulcer

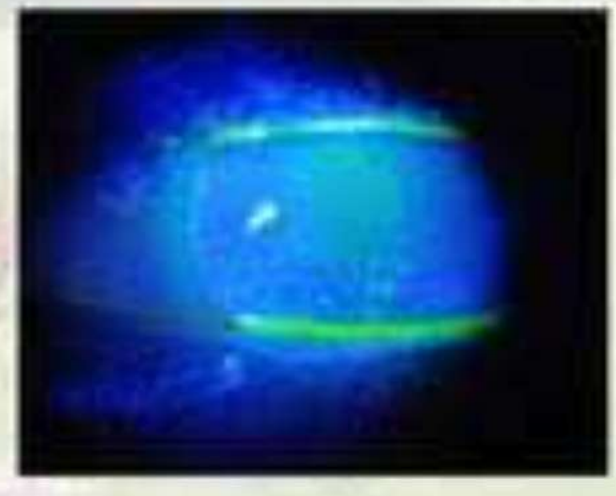
* Stromal Necrotizing keratitis
  - Corneal stroma appear cheesy and necrotic

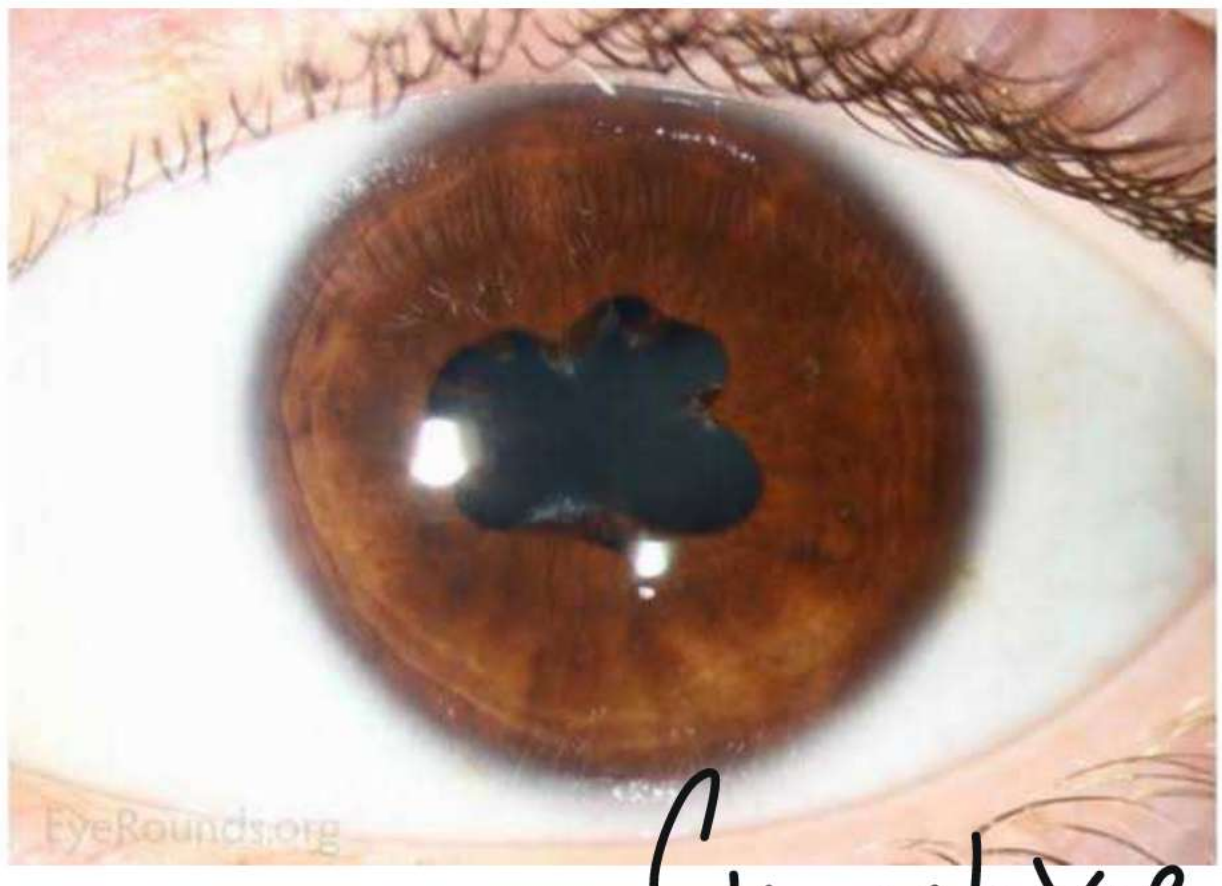
* Disciform keratitis
  - viral endotheliitis
  - disc-shaped, localized greyish area of corneal edema with keratic precipitates underline the area of edema
  - Disciform corneal stroma due to diffusion of aqueous humor
  - surrounding (Wessely) immune Ring

* Kerato uveitis
  - Keratitis associated with signs of uveitis

# SPKs (superficial punctate keratitis)

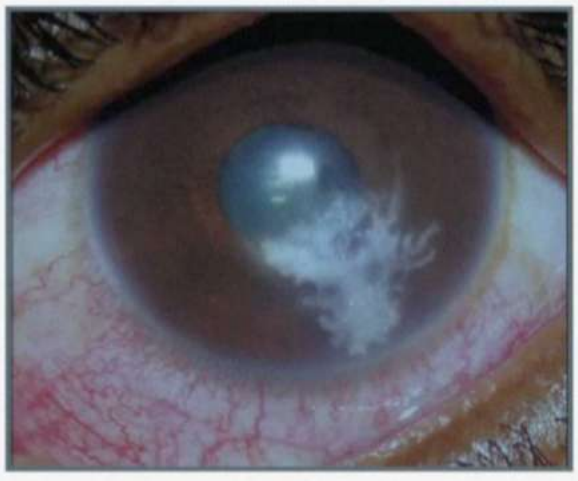
- Superficial puctate keratitis is characterised by occurrence of multiple, spotty lesions in the superficial layers of the cornea.



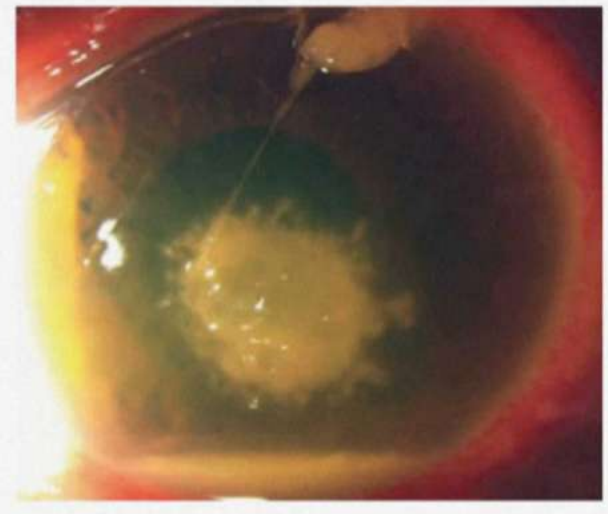



Synechiae

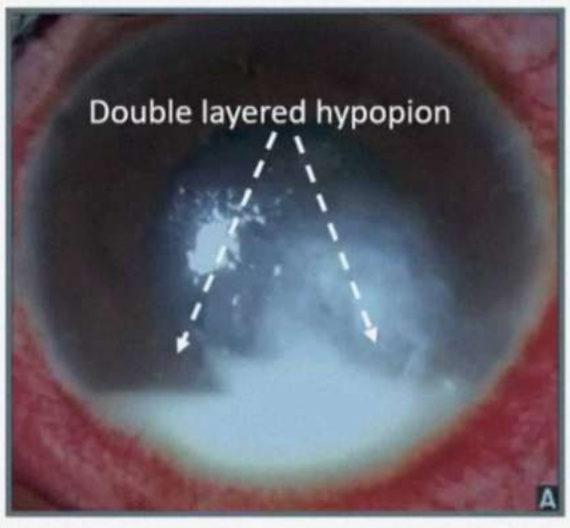
## ❑ Fussarium Keratitis

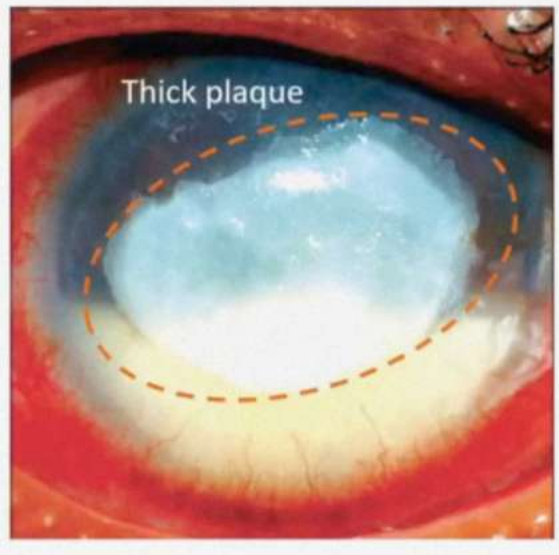


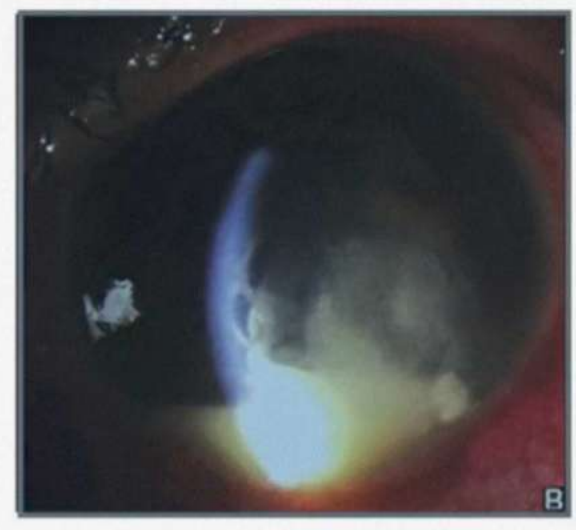
***Note feathering margins***

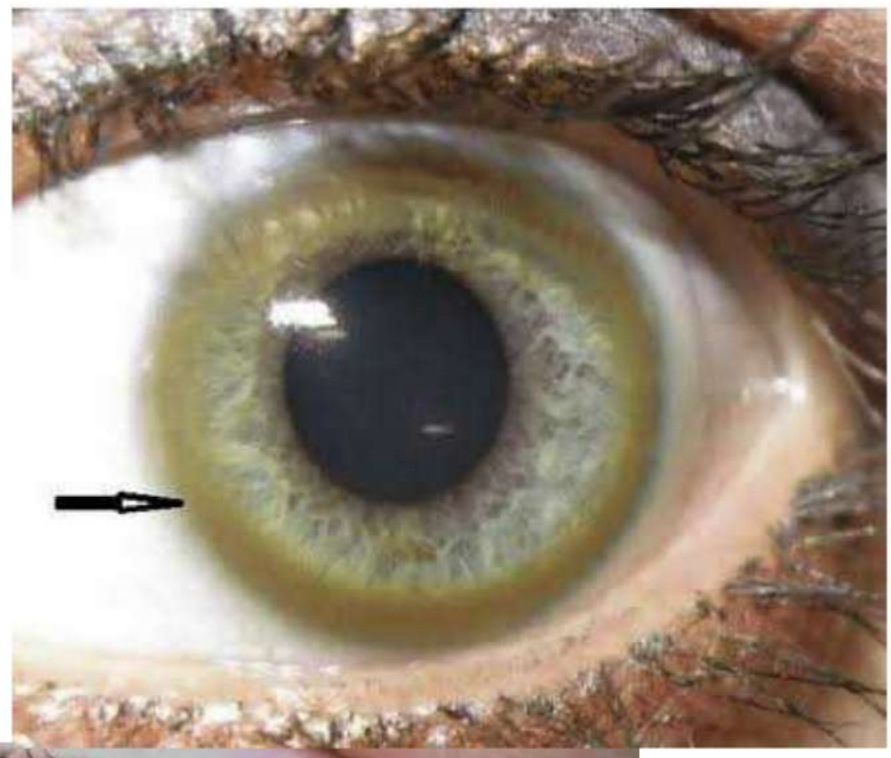


## ❑ Fussarium Keratitis

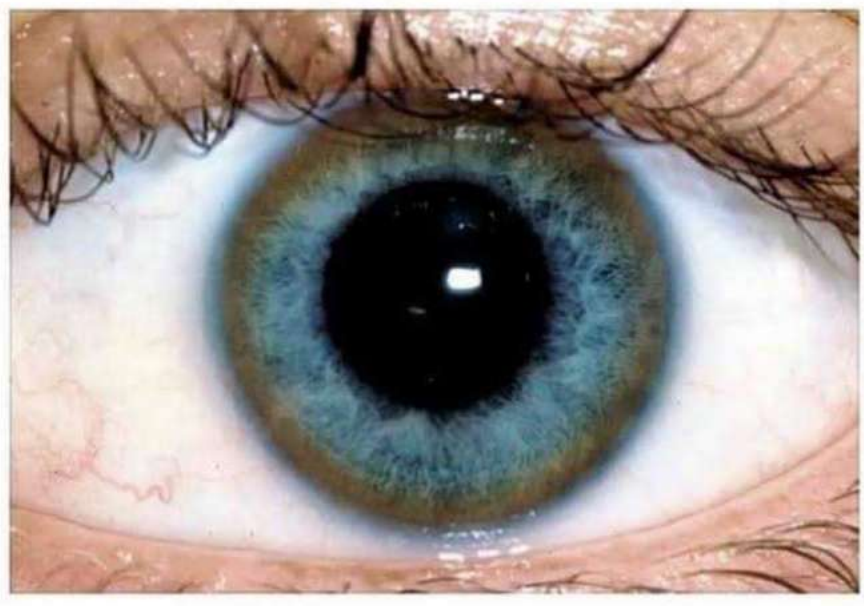


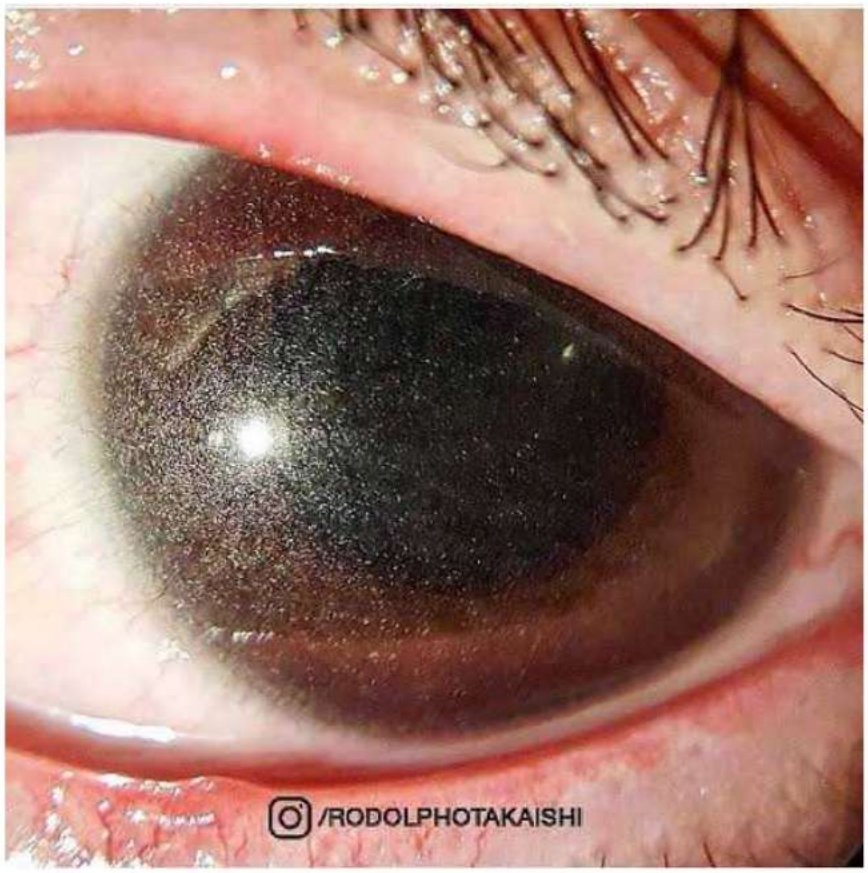





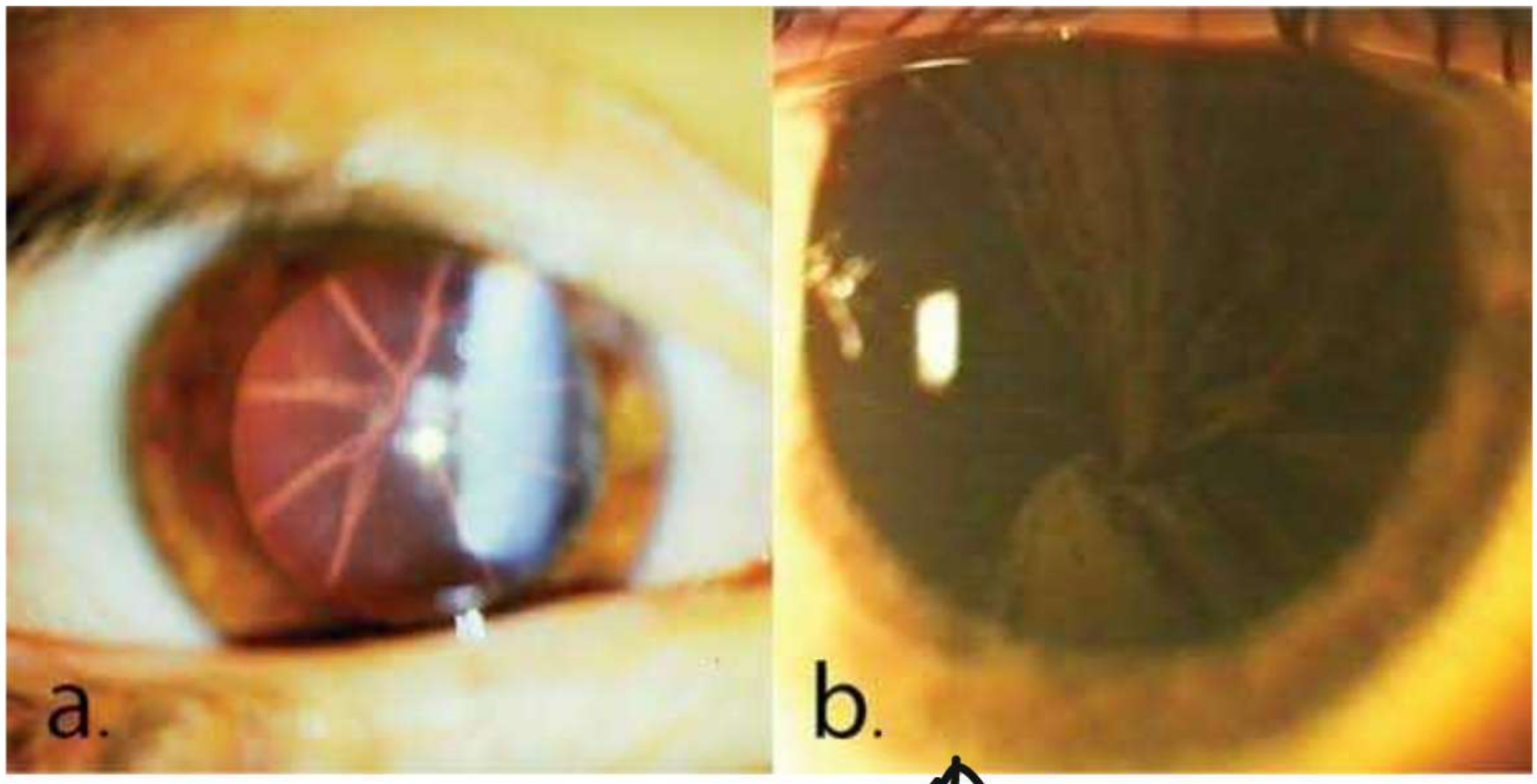
Notice Kayser Fleisher (KF) Ring → brownish yellow zone → seen in Wilson Disease






# Cystinosis

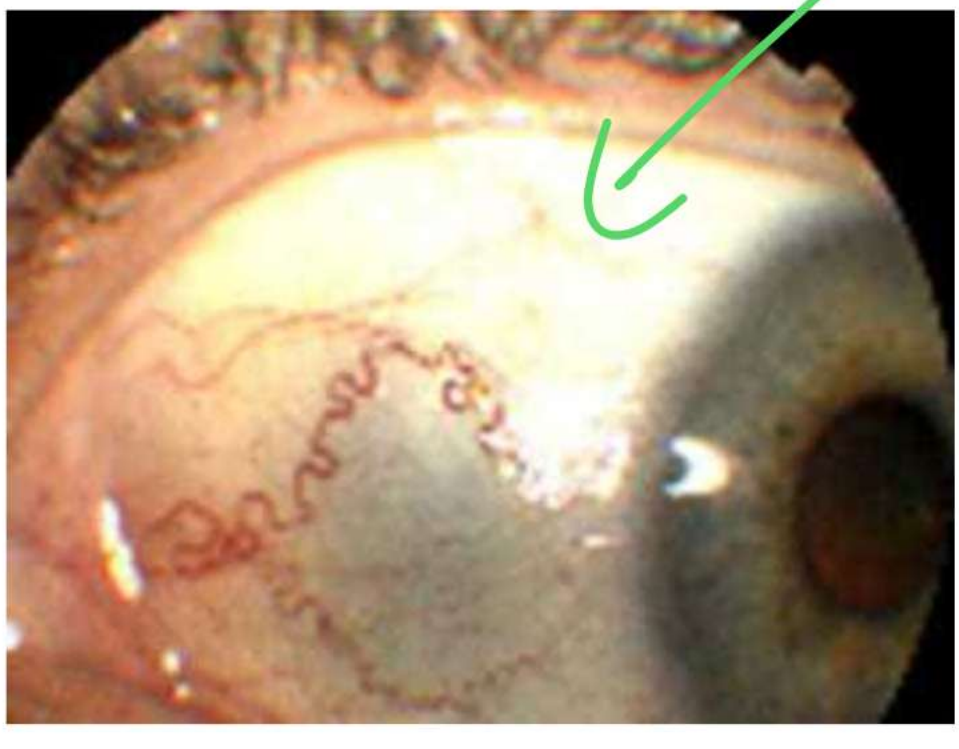
## Note the deposition of crystals in cornea

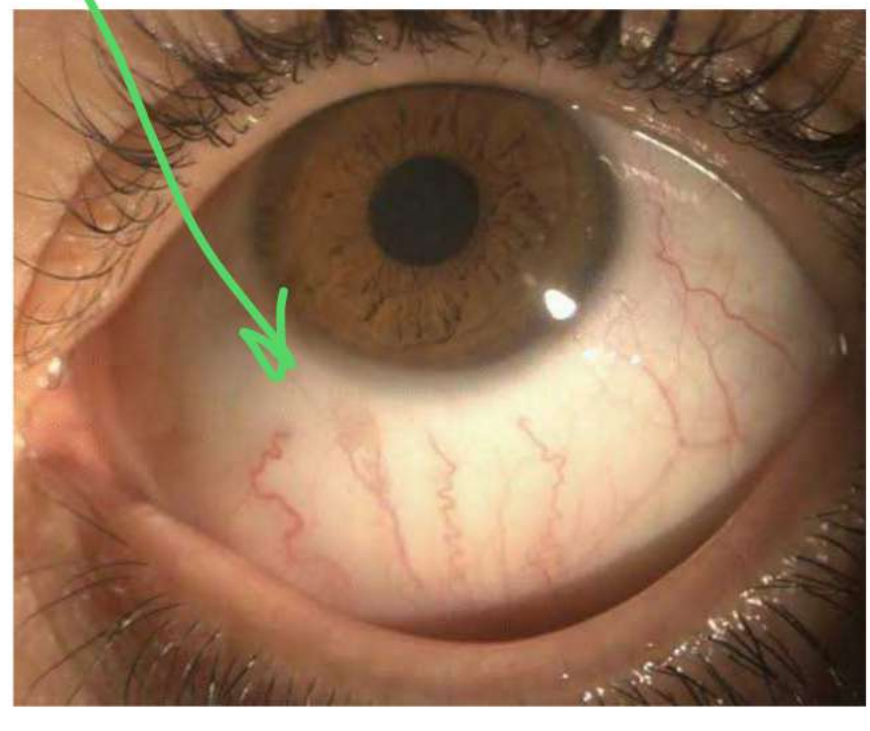



white to Golden brown corneal opacities in vortex (whirlwind) pattern

# Fabry disease

Tortuous Conjunctival vessels





# Fish eye disease

A 17 yr old Male presented with -

-Corneal Opacities

-Low HDL levels

-Visual impairments

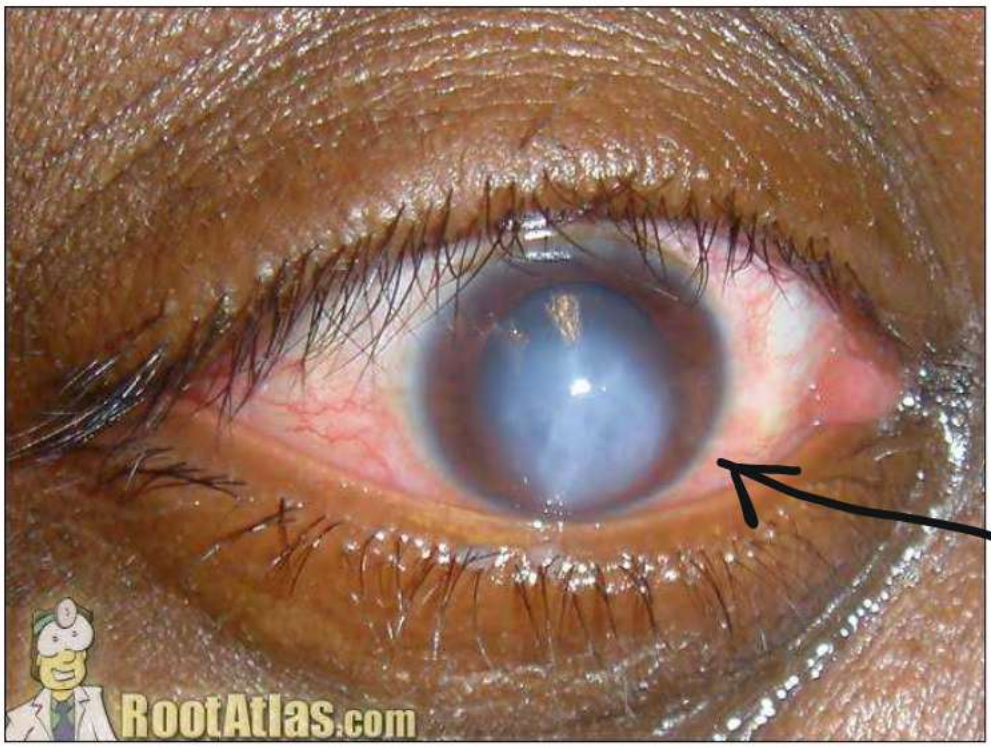
-Hepatomegaly and Splenomegaly absent

## LCAT Deficiency

1a: Peripheral corneal opacification

1b: Slit lamp examination showing opaque dots located centrally in the cornea

Bulging eyes

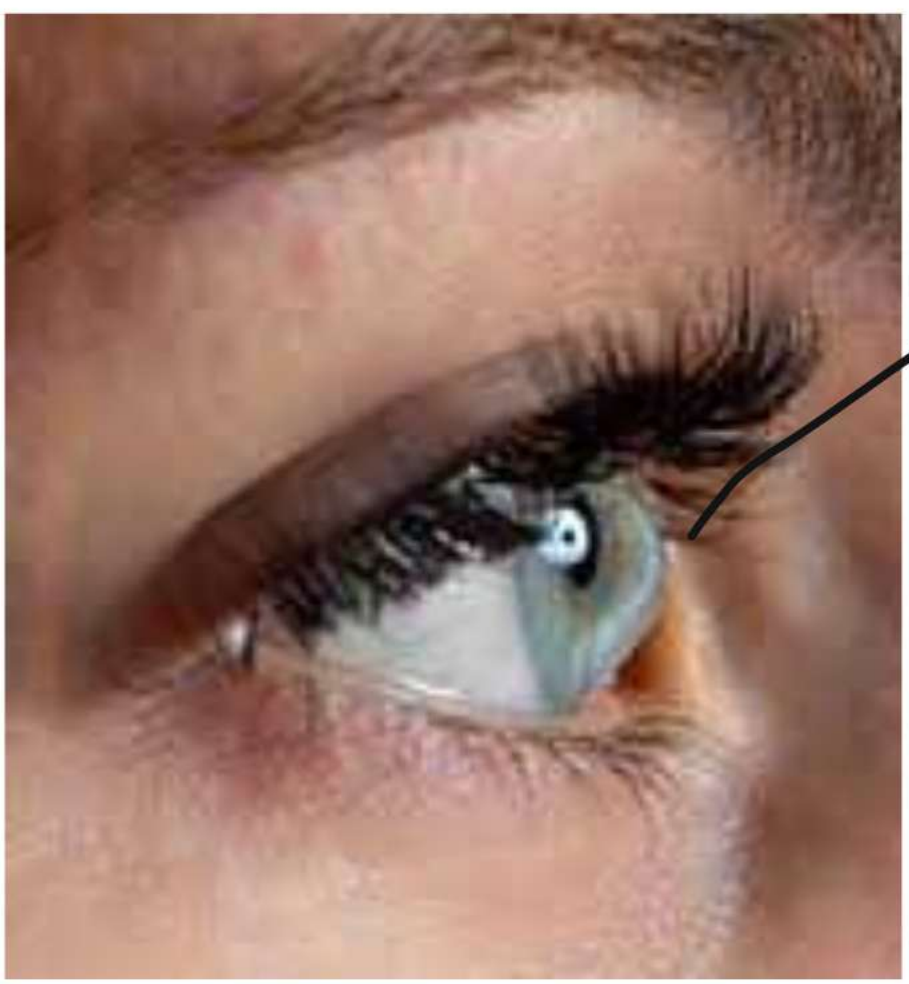



# Keratoconus

*progressive myopia and astigmatism

Acute hydrops

Bulging of cornea



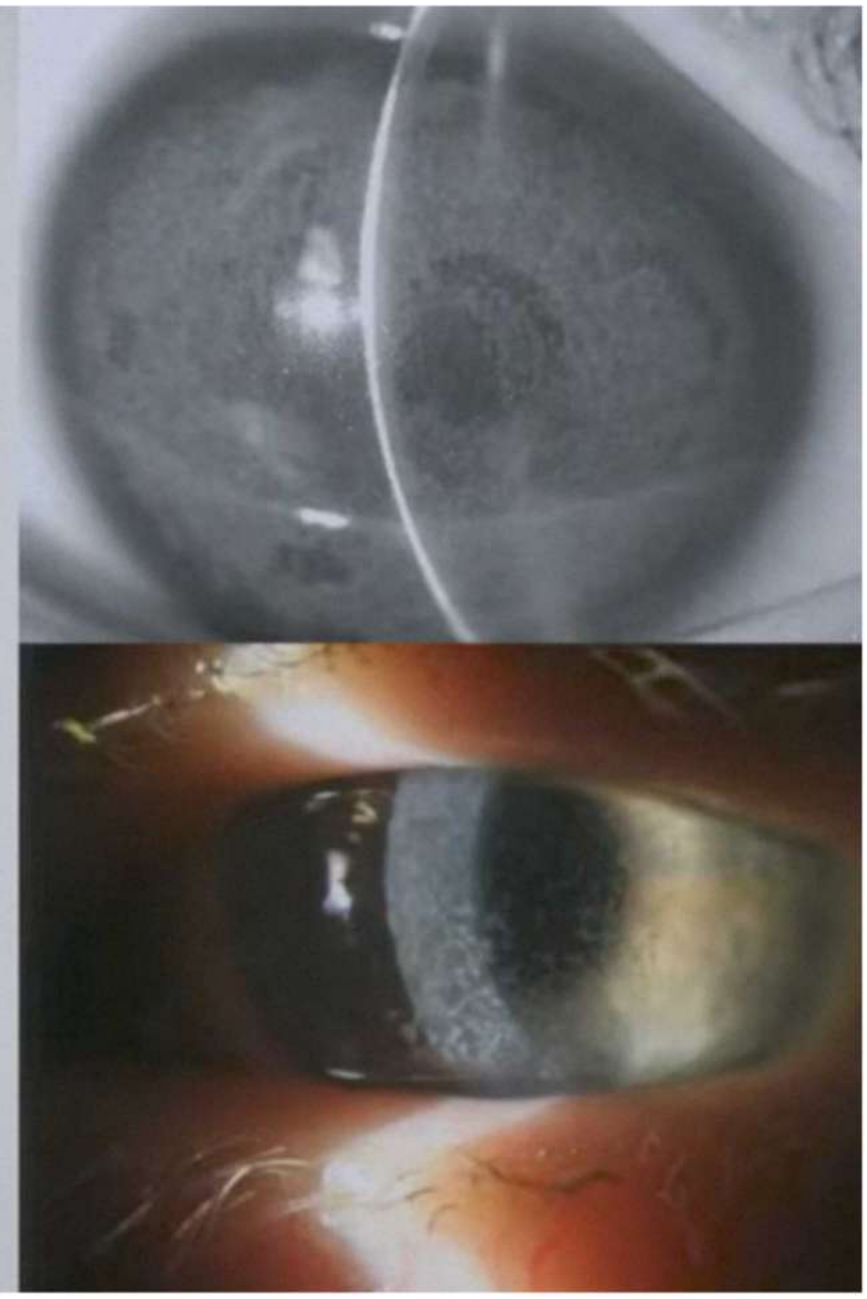
## KERATOMETRY (OPHTHALMOMETRY)

- Kerato = Cornea
- Metry = Measurement

Keratometry is the measurement of the central anterior curvature of the cornea. It is valuable in eye examinations, particularly for detecting and measuring corneal astigmatism.

# Reis-Bucklers Corneal Dystrophy

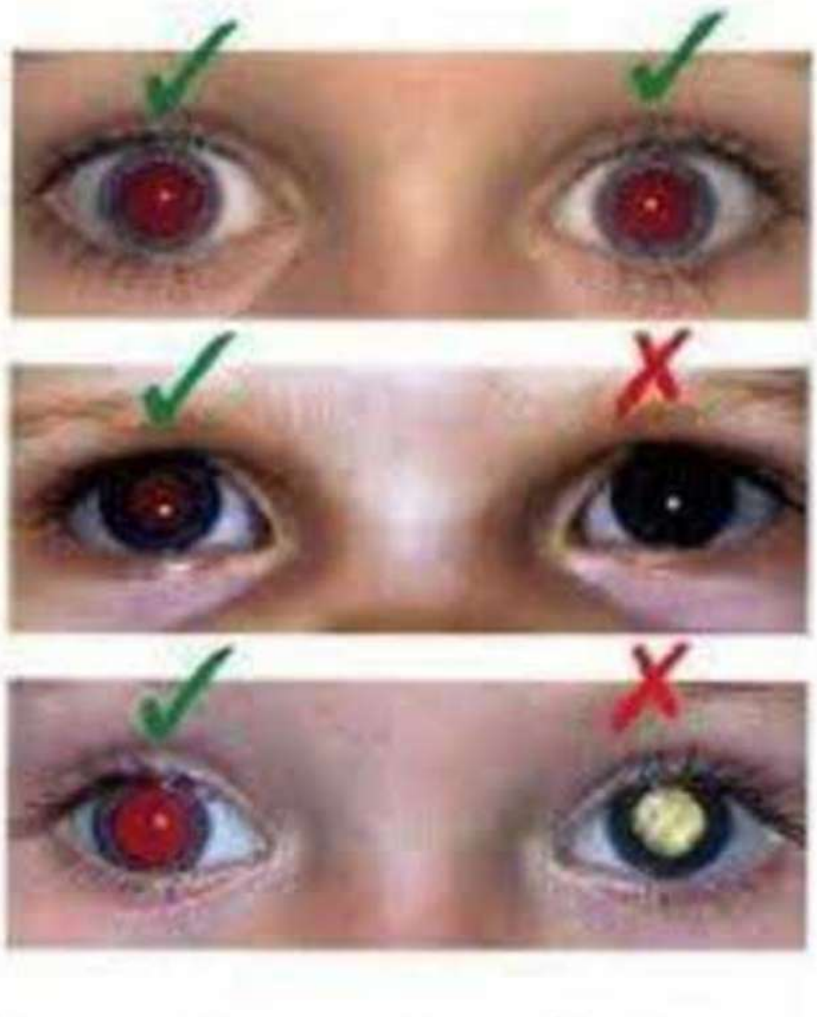
- Inheritance
  - Autosomal dominant
- Genetics
  - Locus 5q31; gene TGFBI
- Clinical Findings
  - Appears in first few years and affects Bowman layer. Confluent, irregular, and coarse geographic opacities. Mostly central. With time these extend peripherally and posteriorly. Posterior cornea normal. Can have severe erosions. Vision reduced by scarring, surface irregularity, and anterior stromal edema.
- Management
  - Initial treatment is aimed at the recurrent erosions. Superficial keratectomy, PTK, ALK, PKP. Recurrence in graft is common.



# Granular Dystrophy

- Inheritiance
  - Autosomal dominant
- Genetics
  - Locus 5q31; gene TGFBI
- Clinical Findings
  - Onset early in life with crumb like opacities. Appear white with direct illumination. With indirect illumination small translucent dots that look like breadcrumbs. Do not extend to limbus, stroma clear in between lesions. Slowly progressive. Erosions.

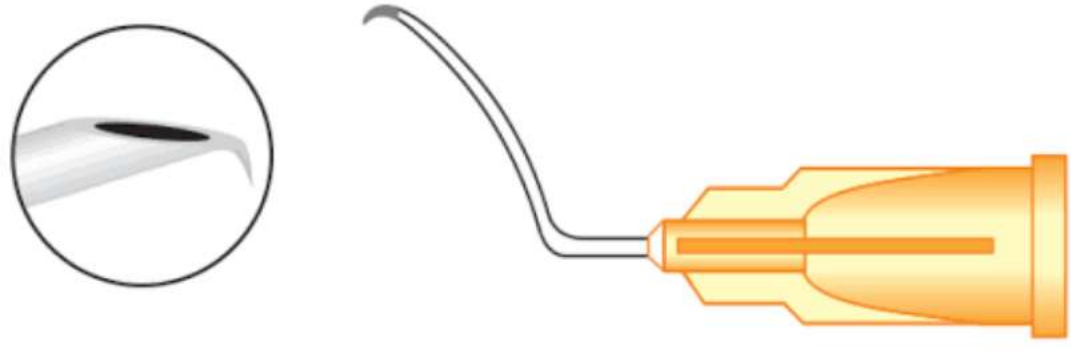
(0.1-4.5 %).




# Red Reflex, also called Fundus Reflex

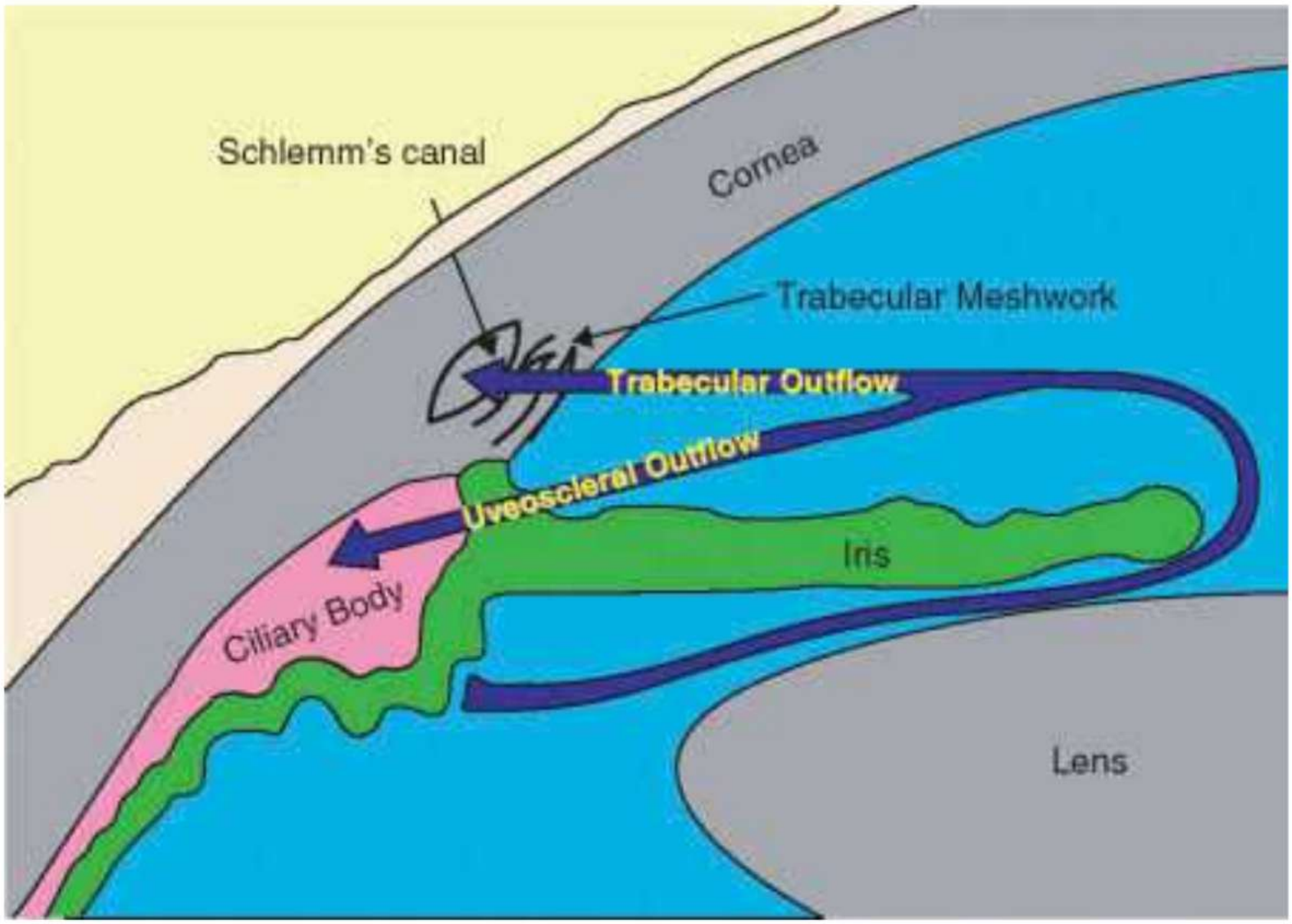
The reflex, more accurately called the fundus reflex, is when light reflecting off the inner back of your eye is visible in your pupils. In people with lighter skin, it appears red or orange. But people with darker skin can have yellow, green or bluish tints in the reflection.

Keratome



Cystotome (formed)


Corneal Scissors


Schlemm's canal
Cornea
Trabecular Meshwork
Trabecular Outflow
Uveoscleral Outflow
Iris
Ciliary Body
Lens

# INDICATIONS OF B Scan

| OPAQUE OCULAR MEDIA | CLEAR OCULAR MEDIA | INTRAOCULAR FOREIGN BODIES | ORBITAL LESIONS |
|---|---|---|---|
| **Anterior segment:**<br>• Corneal opacity<br>• Hyphema/ hypopyon<br>• Miotic pupil<br>• Cataract<br>• Pupillary membrane<br>**Posterior segment**<br>• Vitreous haemorrhage / inflammation | **Anterior segment:**<br>• Iris lesions<br>• Ciliary body lesions<br>**Posterior segment**<br>• Tumors<br>• Choroidal detachment: serous vs. hemorrhagic<br>• Retinal detachment:<br>• Optic disc diseases<br>• Posterior uveitis/ scleritis | Detection/ localization | Tumours<br>Orbital foreign bodies<br>Muscle inflammation |

# Sudden Painful vision loss

Acute CMOKE

Acute → Acute Iridocyclitis

Acute congestive Glaucoma

C → Chemical Injury

M → Mechanical injury

O → Optic Neuritis / Optic Atrophy

K → Keratitis

E → Endophthalmitis / Panophthalmitis

# Sudden Painless Loss of Vision

COMRASH

C → CRAO, BRAO, CRVO, BRVO

O → Optic Neuritis

M → Methyl Alcohol Amblyopia

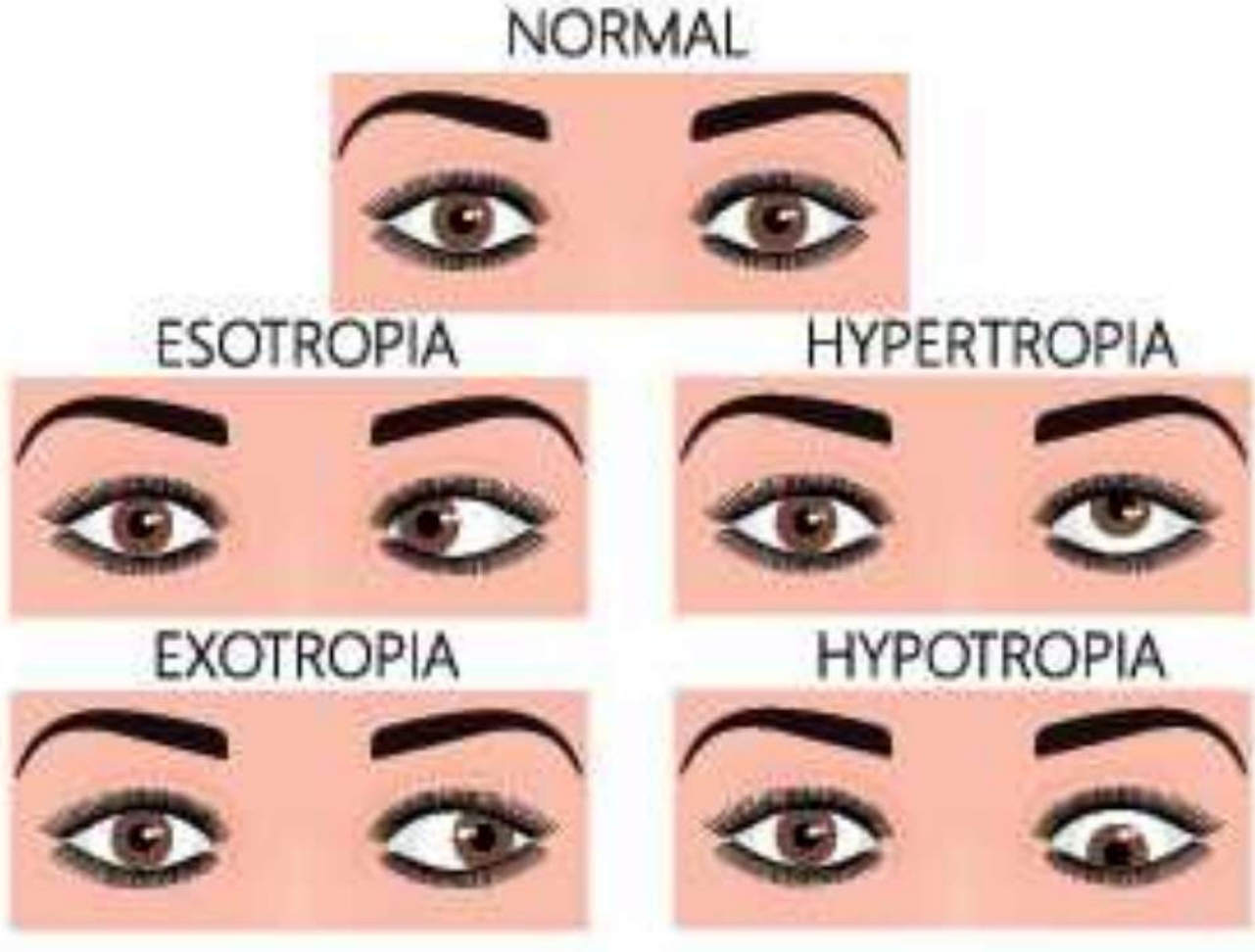
R → Retinal Detachment

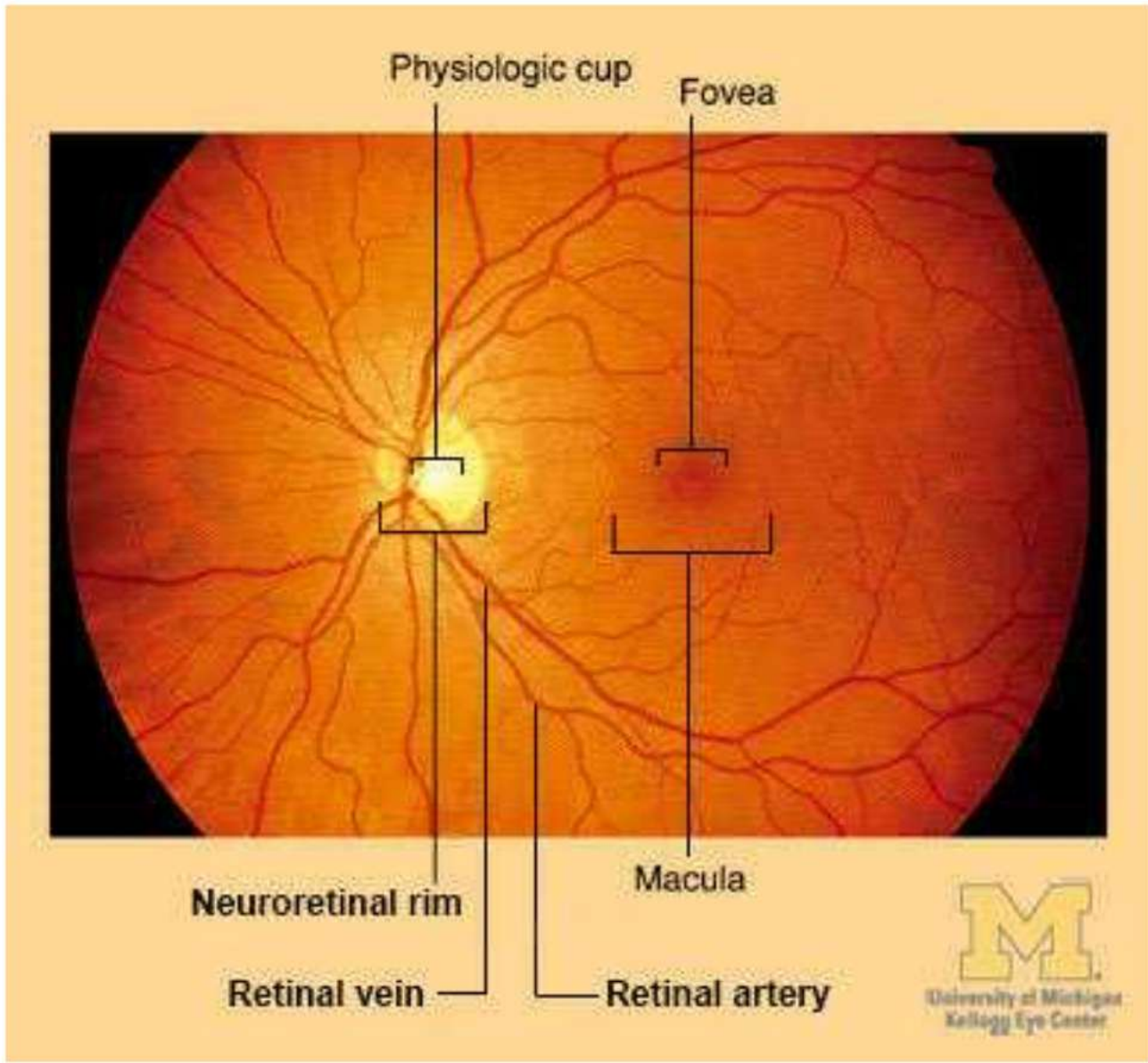
A → ARMD (Exudative Type)

S → Subluxation of lens

H → Hemorrhage (vitreous)

Chalazian clamp


NORMAL
ESOTROPIA
HYPERTROPIA
EXOTROPIA
HYPOTROPIA



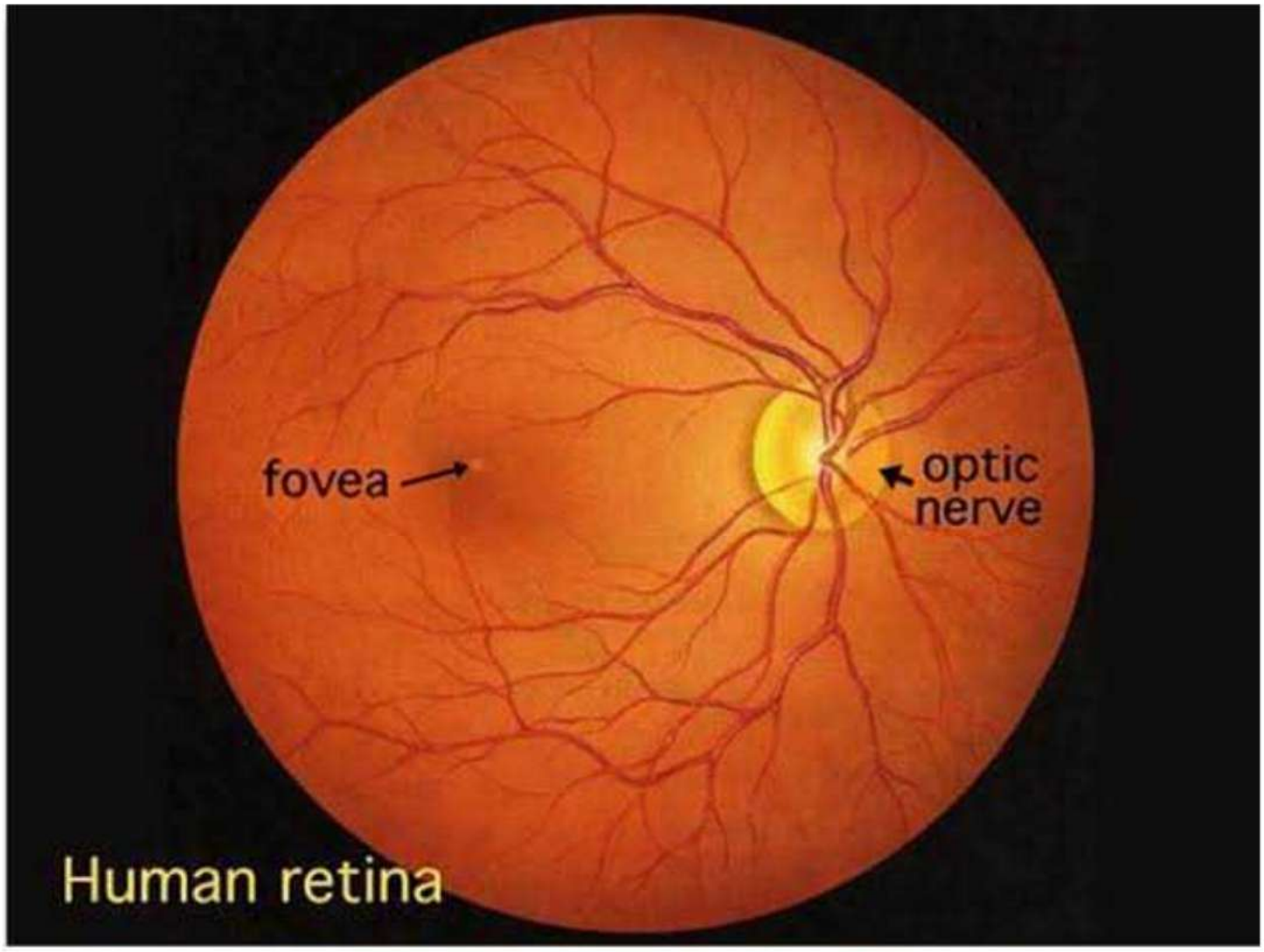
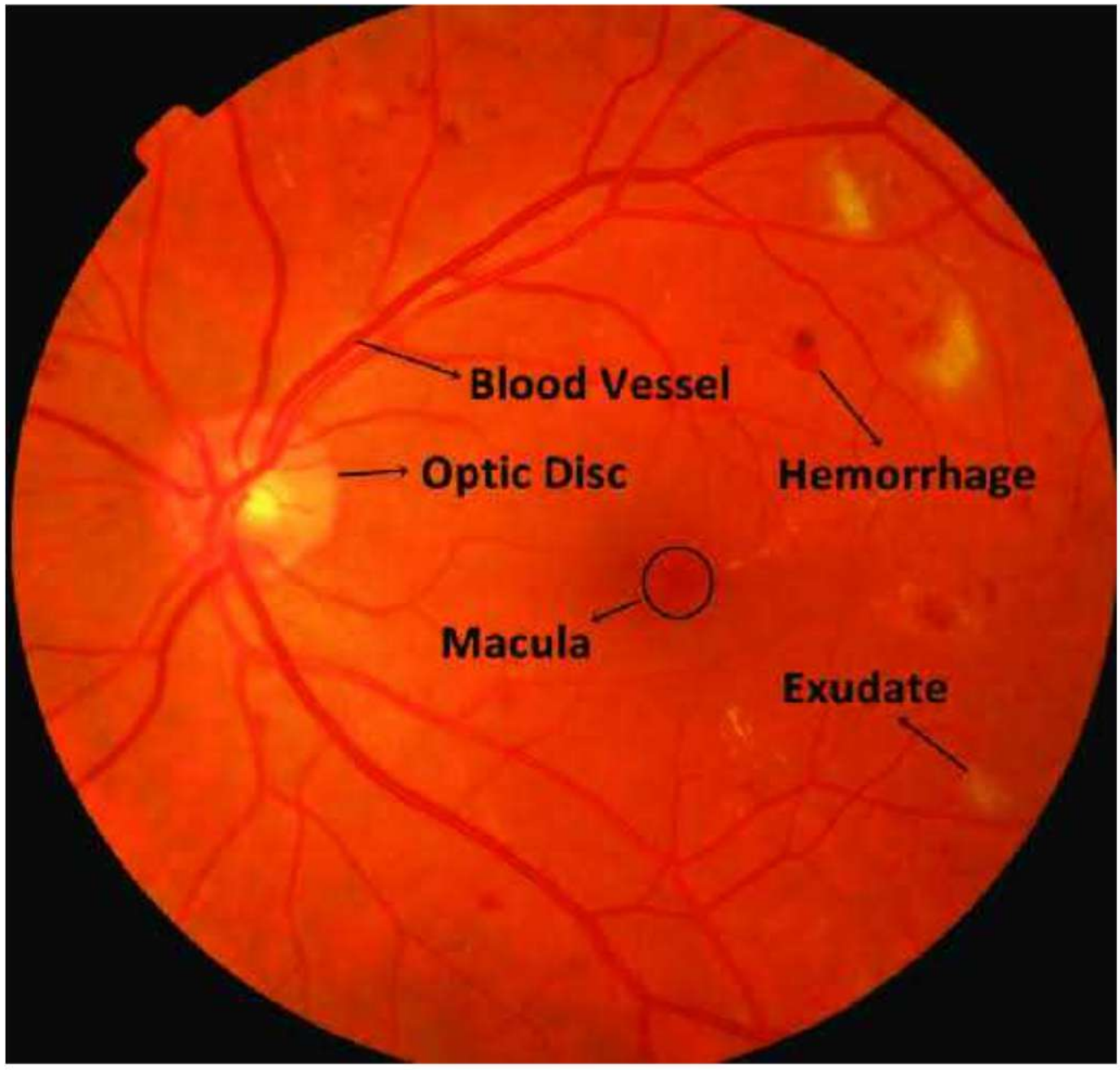
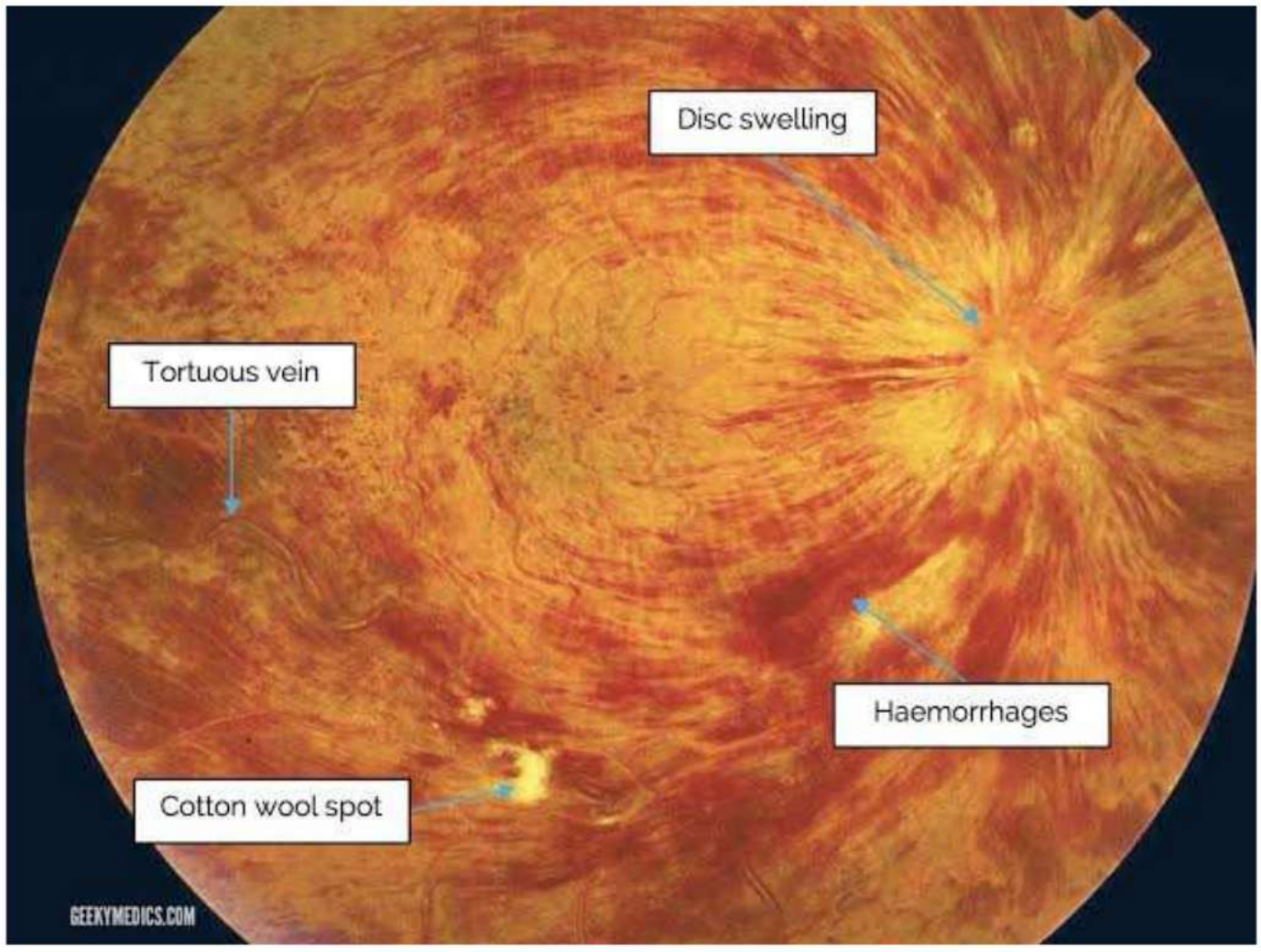
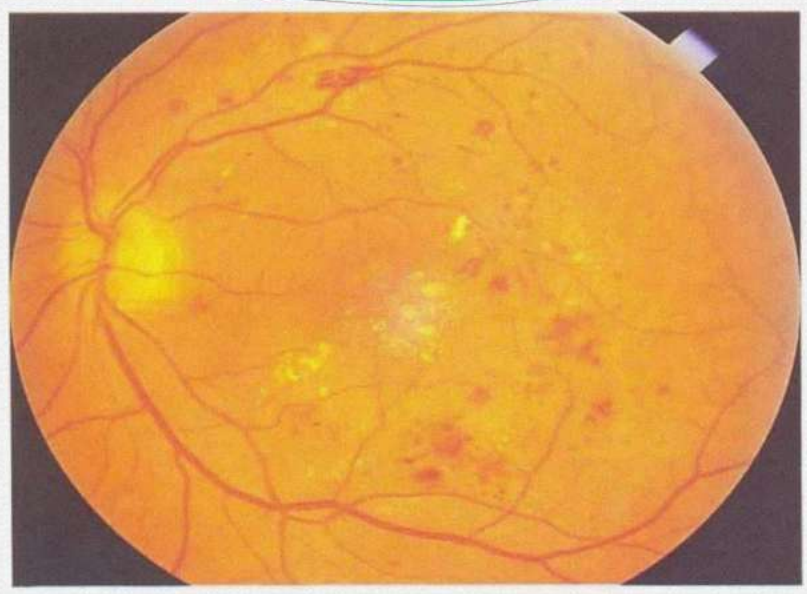




Figure 1. A view of the retina seen though an ophthalmoscope.


Blood Vessel
Optic Disc
Hemorrhage
Macula
Exudate


Disc swelling
Tortuous vein
Haemorrhages
Cotton wool spot
GEEKYMEDICS.COM

C RVO

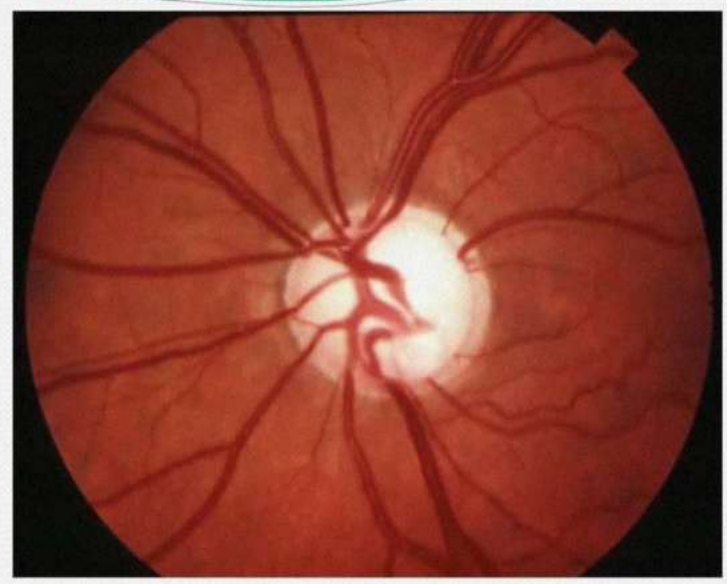


1. What findings are there in this fundus photograph?
2. What is your most probable diagnosis?
3. What is your differential diagnosis?
4. What options do we have to treat this patient?

# STATION: DIABETIC RETINOPATHY

KEY:

1. Retinal hemorrhages, Retinal exudates (Hard exudates) involving macula---------- (1)
2. Diabetic Retinopathy(Non proliferative) with maculopathy-- (1)
3. Hypertensive retinopathy, CRVO, radiation retinopathy------(1.5)
4. ---------- --(1.5)
   a) Control diabetes and systemic risk factors
   b) Anti VEGF injections
   c) Focal macular laser



1. What findings do you see in this photograph?
2. What is your most probable diagnosis?
3. Name any three types of medications (topical) are used to treat this condition?
4. What surgical procedure is the gold standard for treating this condition?

## STATION: OPTIC DISC CUPPING (OPEN ANGLE GLAUCOMA)

KEY:

1. Optic Disc cupping----------1
   (Increased cup-disc ratio)
2. Glaucoma (Open angle) ----------1.0
3.----------2 (Maximum)
   i. Prostaglandin analogues ----------0.5/each
   ii. Alpha-agonists (sympathetic) 0.5/each
   iii. B-Blockers
   iv. Para-sympathetic Pilocarpine)
   v. Carbonic anhydrase inhibitors
4. Trabeculectomy ----------1

1. What findings can be seen in this photograph?
2.What is your most probable diagnosis?
3. What is your differential diagnosis?
4. What are its possible complications?

# STATION: CRVO

**KEY:**

1. Retinal bleeds(diffusely scattered), vascular dilatation/ tortuosity, Hyperemic disc & blurred margins, retinal/macular edema----------0.5/each(Max 2)

2. CRVO----------1
3. Diabetic retinopathy, Hypertensive retinopathy, Radiation retinopathy----------0.5/each (Max 1)
4. Anterior segment neovascularization (NVG),----------0.5/each (Max 1)

   Retinal neovascularization with its sequelae (Vit bleed & TRD)


1. What findings do you see in this photograph?
2. What are your primary concerns in this eye?
3. Is there any risk to the fellow eye?
4. How are you going to treat this eye?

## STATION: OGI WITH UVEAL PROLAPSE

Key

1.OGI (Scleral laceration with uveal tissue prolapse and distorted pupil)----------1.5

2.

a) Reduce pain----------0.5/each (Max 1.5)
b) Reduce inflammation
c) Prevent infection
d) Exclude IOFBs and so its related complications.
e) Restore anatomical integrity (globe repair)

3. Sympathetic ophthalmia---------- 1.0
4. Prepare for GA, Antibiotics, Anti inflammatory ----- drugs, Globe repair after excluding IOFBs -------- 1.0

1. What findings do you see in this photograph?
2. What clinical tests/procedure you would like to perform for this patient?
3. What is the most common underlying cause in children for this condition?

## STATION: RIGHT ESOTROPIA (CHILD)

KEY:

1. Right convergent squint (Esotropia) ----------1

2. ----------1/each (Max 3.0)

   a. VA check including amblyopia
   b. Squint assessment tests (Hirshberg's, Krimsky etc)
   c. Cycloplegic refraction
   d. Fundoscopy

3. Hypermetropia----------1.0

## STATION: DIRECT OPHTHALMOSCOPE

Command Please examine this patient's fundus with direct ophthalmoscope

1. Consent & introduction----------0.5
2. Can hold and turn on correctly----------0.5
3. Use his / her Rt eye, for examining Rt eye of the patient ----------
----------0.5
4. Perform distant direct ophthalmoscopy----------1
5. Perform fundus examination & able to identify disc, vessels and macula----------2.0
6. Thanks to patient ----------`0.5

## STATION PUPIL

Please perform pupil examination of this patient?

## STATION: PUPIL

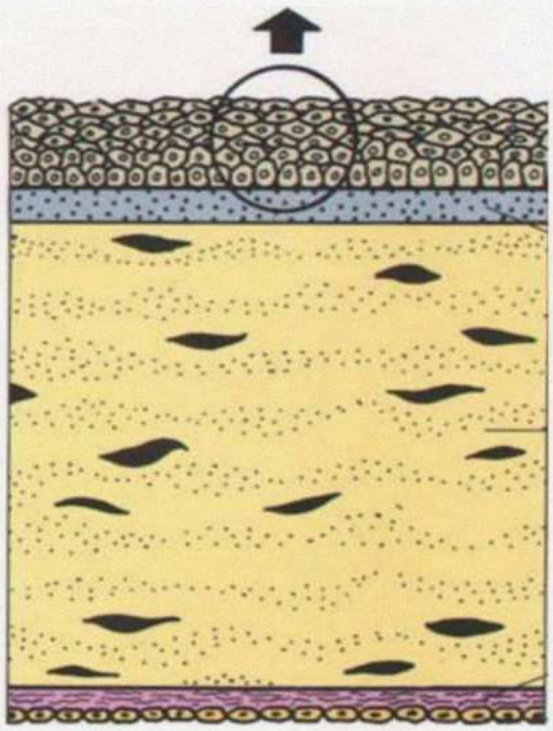
**Key**

1. Consent & introduction----------0.5
2. Light reflex
   a. Direct reflex----------1
   b. Indirect light reflex----------1
   c. Swinging light reflex----------1
3. Near response (reflex) ----------1
4. Thanks to patient----------0.5

# Layers of the eye

- Three layers

1. Outer layer of the eye ball___Consist of
    1. Conjunctiva
    2. Tenon's Capsule
    3. Sclera
    4. Cornea
2. Middle layer of the eye ball--- consist of
    1. Iris
    2. Cillary body
    3. Choroid
3. Inner most layer of the eye ball---consist of
    1. retina



## Layers of the cornea

- Epithelium
- Bowman membrane
- Stroma
- Descemet membrane (posterior limiting layer of cornea)
- Endothelium

# TESTS FOR VISUAL STANDARD

- Visual acuity
- Colour vision
- Visual field
- Binocular function

# VISUAL ACUITY

- A measure of how clearly you can see
- Measured with a letter chart at a distance (usually 6m)
- Decreased by refractive error, cataract, etc

# NORMAL VISION

- Visual acuity is usually measured with a Snellen chart.
- The Snellen chart displays letters of progressively smaller size.
- "Normal" vision is 20/20.
- This means that the test subject sees the same line of letters at 20 feet that a normal person sees at 20 feet

# VISUAL FIELD

- A measure of how well you can see with your side vision
- Decreased with eye disease
  - Glaucoma
  - Retinitis Pigmentosa
- Computerised test

# GENERAL CONCEPT OF LOW VISION AND BLINDNESS

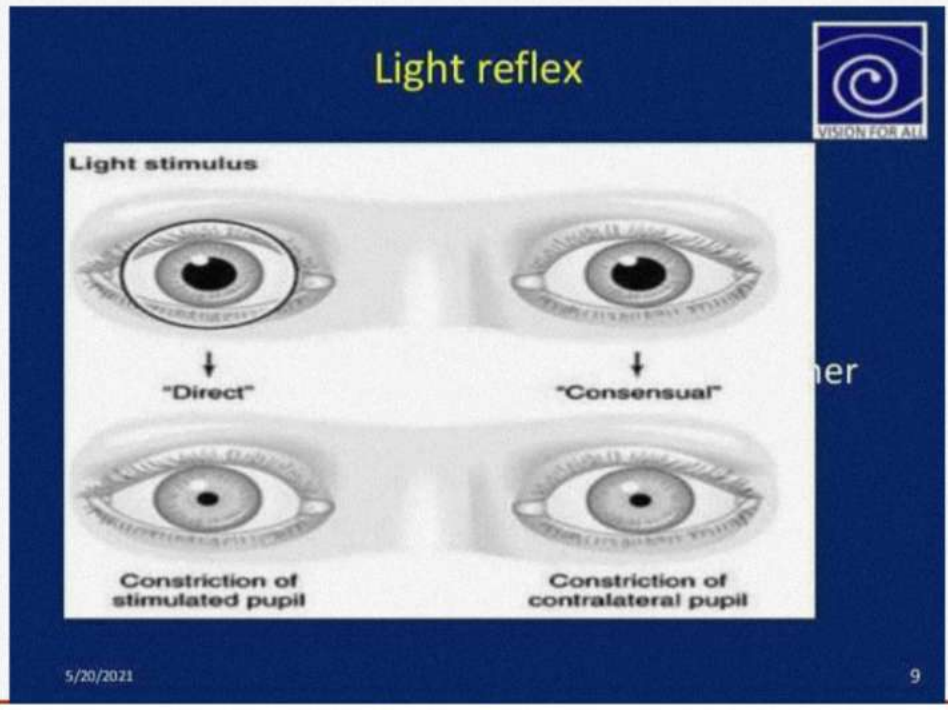
- **Low vision**
- Best corrected visual acuity in the better eye less than 6/18 and/or visual field less than 20 degree from the point of fixation.
- '**Blindness**'
- **defined** as the best corrected visual acuity in the better eye less than 3/60, and/or visual field less than 10 degree from the point of fixation.

# GLOBAL CAUSES OF BLINDNESS

- Cataract ,
- Glaucoma
- DM
- Vascular disease
- Accidents & degeneration of ocular tissue
- Leading causes of childhood blindness
    - Xerophthalmia,
    - congenital cataract,
    - congenital glaucoma &
    - optic atrophy.

# LIGHT REFLEX

- DIRECT
- CONSENSUAL




# NEAR REFLEX

Near reflex is a Triad of:

- Inc. accommodation
- Convergence of visual axes
- Constriction of the pupils

- **Accommodation reflex:**
  - **The patient is asked to look at a distant object and then at an object close to his face.**
  - **Both pupils should constrict and dilate again when distant gaze is resumed**

# Abnormalities of Pupillary Reflexes

PARASYMPATHETIC PARESIS

- AFFERENT PATHWAY DEFECTS
  - Total afferent pathway defect
  - Relative afferent pathway defect
  - Wernicke's hemianopic pupil
- EFFERENT PATHWAY DEFECTS
  - Tonic pupil
  - Oculomotor nerve palsy
  - Pharmacologic mydriasis
- PUPILLARY LIGHT-NEAR DISSOCIATION
  - Argyll Robertson pupil

SYMPATHETIC PARESIS

- Horner's syndrome

# OCT

- non contact non invasive
- micron resolution
- cross-sectional study of retina
- correlates very well with the retinal histology

Principle –

Low coherence interferometry

# Types of oct

- **Time domain**
  - Reference mirror moves
  - 1 pixel at a time
  - Slow
  - Motion artifacts present
  - Less sharp images
- **Spectral domain**
  - Reference mirror stationary
  - 2048 pixel at a time
  - Rapid
  - No motion artifacts
  - Sharper and clear images


## Involutional entropion

- Age related entropion.
- Affects mainly the lower eye lid.

# Involutional entropion

Affects lower lid because upper lid has wider tarsus and is more stable

If longstanding may result in corneal ulceration

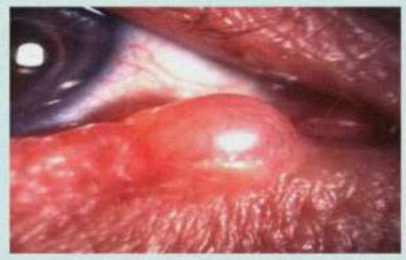
# PARALYTIC ECTROPION

- Caused by facial nerve palsy
- Lagophthalmos leads to exposure keratopathy
- Epiphora is caused by
  Failure of lacrimal pump
  increased tear production resulting from exposure

# MECHANICAL ECTROPION

- Mechanical lid eversion by tumor
- Treatment
  removal of the cause
  correction of lid laxity

# CYSTS

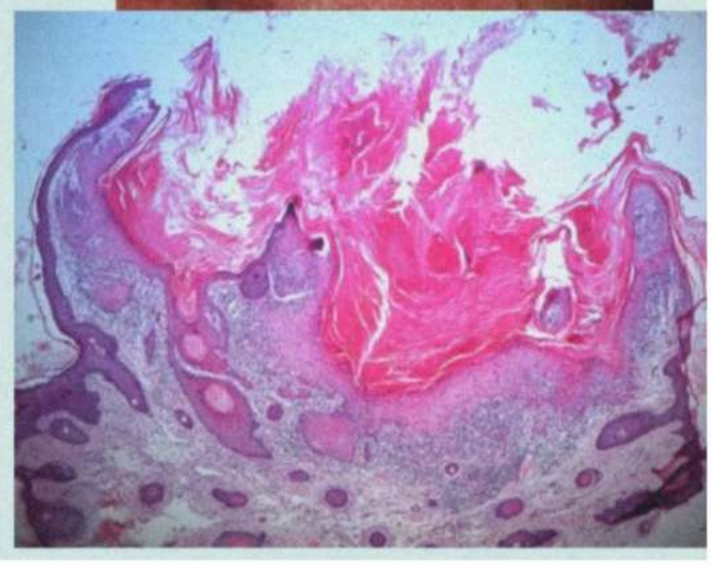


- CYST OF MOLL
- Translucent
- On eyelid margin

- Cyst of Ziess
- Opaque
- On lid margins

## Keratoacanthoma

- Uncommon , fast growing nodule
- Involutes spontaneously with one year
- Rolled margins with a central keratin filled crater
- There may be underlying SCC



# *Capillary haemangioma*

- Rare tumour which presents soon after birth
- Starts as small, red lesion, most frequently on upper lid
- Blanches with pressure and swells on crying
- May be associated with intraorbital extension
- Grows quickly during first year
- Begins to involute spontaneously during second year

# Port-wine stain (naevus flammeus)

- Rare, congenital subcutaneous lesion
- Segmental and usually unilateral
- Does not blanch with pressure

**Associations**

- Ipsilateral glaucoma in 30%
- Sturge-Weber or Klippel-Trenaunay-Weber syndrome in 5%

# Keratoses

## Seborrhoeic

- Common in elderly
- Discrete, greasy, brown lesion
- Friable verrucous surface
- Flat 'stuck-on' appearance

## Actinic

- Affects elderly, fair-skinned individuals
- Most common pre-malignant skin lesion
- Rare on eyelids
- Flat, scaly, hyperkeratotic lesion

## Basal Cell Carcinoma

***The most common malignancy in humans***

***Most frequent periocular malignancy accounting for 90% of eyelid malignancies***

***A slow-growing tumor, and rarely metastasizes but can lead to significant morbidity in the periocular region as a result of orbital invasion or if neglected and treated inadequately***

***Disease of elderly***

# RODENT ULCER

- Central ulceration
- Pearly raised rolled edges
- Dilated vessels over its margins
- Telangectasis

# Squamous cell carcinoma

- Less common but more aggressive than BCC
- May arise *de novo* or from actinic keratosis
- Predilection for lower lid

| Nodular | Ulcerative |
| --- | --- |
|  |  |
| • Hard, hyperkeratotic nodule<br>• May develop crusting<br>• Surface vascularization | • Red<br>• Borders sharply defined, indurated and elevated |


Left preseptal cellulitis resulting from an infected eyelid abrasion


Right orbital cellulitis with ophthalmoplegia

Vascular injection over the insertion of the right medial rectus


Swelling on the lateral aspect of the eyelid and an S – shaped ptosis

# Myasthenia Gravis

A 70 years old lady presented with complains right painless swelling on lids of Right eye.
VA was 6/9 both eyes and she was pseudophakic in both eyes.

QUESTIONS:

1. WHAT ARE YOUR FINDINGS?
2. WHAT IS YOUR DIAGNOSIS?
3. WHAT ARE DIFFERENTIAL DIAGNOSES?
4. How you will confirm the diagnosis.?
5. WHAT ARE THE TREATMENT OPTIONS?

ANSWERS:

1. A hyper pigmented ulcerative lesion with raised rolled margins at the lateral canthus right eye.
   Some hyperpigmented lesions at the medial canthus.

2. Basal cell carcinoma

3. a. Basal cell carcinoma

   b. Squamous cell carcinoma

   c. Malignant Melanoma

4.Biopsy

5. a. Surgery( Excisional)
b. Radiotherapy
c. Chemotherapy

* Basal Cell Carcinoma
- Surgical excision → with 2-4mm margins of normal tissue
- Cryotherapy → for lesions less than 10mm
- Radiation Therapy → for small nodulo-ulcerative lesion
- Laser Microsurgery → $CO_2$ laser
- Chemotherapy
- Topical Imiquimod Cream → Immune Response modifier

* Squamous Cell Carcinoma
- Surgical excision → with 5-6 mm of normal tissue
- Exenteration → when lesion ≥ 2 cm
- Radiation Therapy

A 3 year old male child was brought by his parents for complains of Right White pupil (Leukocoria).

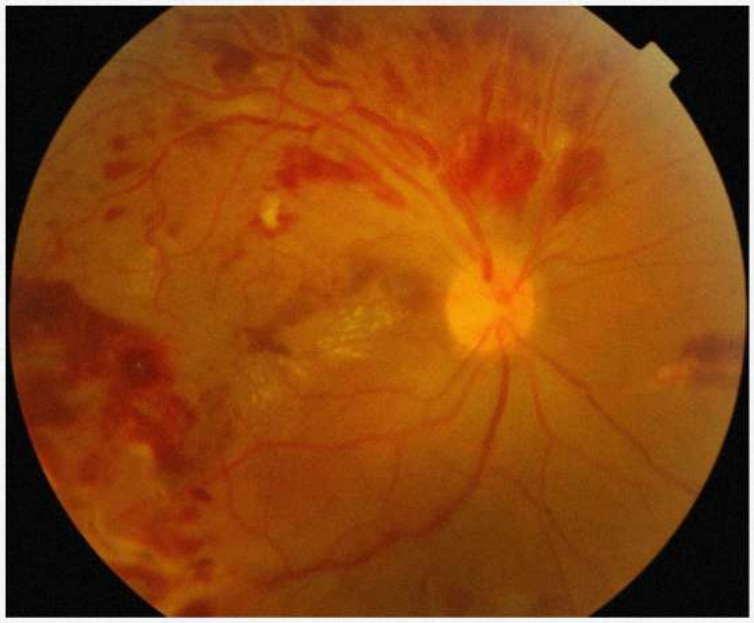
QUESTONS

1. What are Five top differential diagnosis?
2. How you will confirm your diagnosis? Write 3 investigations.

ANSWERS

1. A. cataract
   b. Retinoblastoma
   c. Endophthalmitis
   d. Retinal detachment
   e. Persistent Primary hyperplastic vitreous.

2. A. CT Scan
   b. MRI
   c. X-Ray ornit
   d. Slit Lamp
   e. Direct and Indirect ophthalmoscopy.



A 50 years old patient presented with complains of dimness of vision both eyes for the last 01 year. His VA is CF 5m & CF 5m. Pupils are sluggish and IOP were normal. Above is fundus photograph of his Right eye.

QUESTIONS:

1. What are your findings?
2. What are the differential diagnoses?
3. What systemic investigations will you order?
4. Name different treatment options for diabetic retinopathy.

ANSWERS:

1. a. PALE DISC,
   b. dialated tortous vessels
   c. retinal hemorrhages
   d. retinal eudates
   e. macular Edema

2. a. Diabetic retinopathy
   b. hypertensive retinopathy
   c. Central Retinal Vein Occlusion
   d. Branch Retinal Vein Occlusion
   e. retinal vasculitis

3. FBC ESR CRP
   FBS RBS
   HbA1c
   Lipid Profile
   BP monitoring
   Renal function tests

4. A. Good glycemic control and management of risk factors like raised BP, Lipids.
   B. Exercise
   C. Laser Photocoagulation
   D. Anti- Vascular Endothelial Growth factors

A 20 years old boy presented with complains of Painful nodule on Left Lower lid for the past 3 days.

QUESTIONS:

1. WHAT IS YOUR DIAGNOSIS?
2. What is the Etiology?
3. What are the differential diagnoses?
4. How will you treat this condition?

ANSWERS:

1. Stye/ Hordeolum

2. Infection (Bacterial) of the lid glands (Mebioman, Ziess, Moll)

3. A. Hordeolum
   B. Chlazion
   C. Preseptal cellulitis

4. Warm Compresses
   Analgesic
   Systemic anti biotic
   Topical antibiotics and lubricants

A 50 year old male, farmer by profession presented with complains of Right painful dimness of vision for the last 5 days. There was history of eye trauma 1 week ago while working in the farms.

QUESTIONS:

1. What are your findings?
2. What is your diagnosis?
3. What are the risk factors?
4. How will you manage this condition?

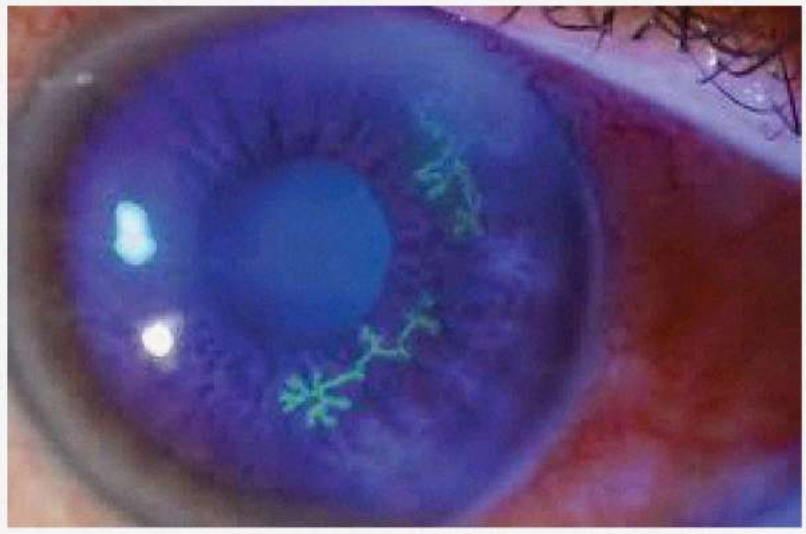
ANSWERS:

1. A. swollen hyperemic comjuctiva (Red eye)
   B. Central corneal opacity
   C. Hypopyon

2. Tramatic corneal ulcer (Keratitis) with hypopyon

3. A. Trauma
   B. Ocular infections especially bacterial and Viral
   C. Chronic Dacryocystitis
   D. Contact Lens Wear
   E. Dry eyes including exposure
   F. Chemical Injury

4. A. corneal scraping for gram staining and fungal hyphae
   B. culture & sensitivity
   C. Topical antibiotics
   D. Cycloplegics
   E. Analgesics
   F. Lubricants



A 35 years old female presented with complains of painful dimness of vision for the last 01 week. There was no history of trauma and past ocular history was in significant. Above is fluorescein stained picture of anterior segment of her Right eye.

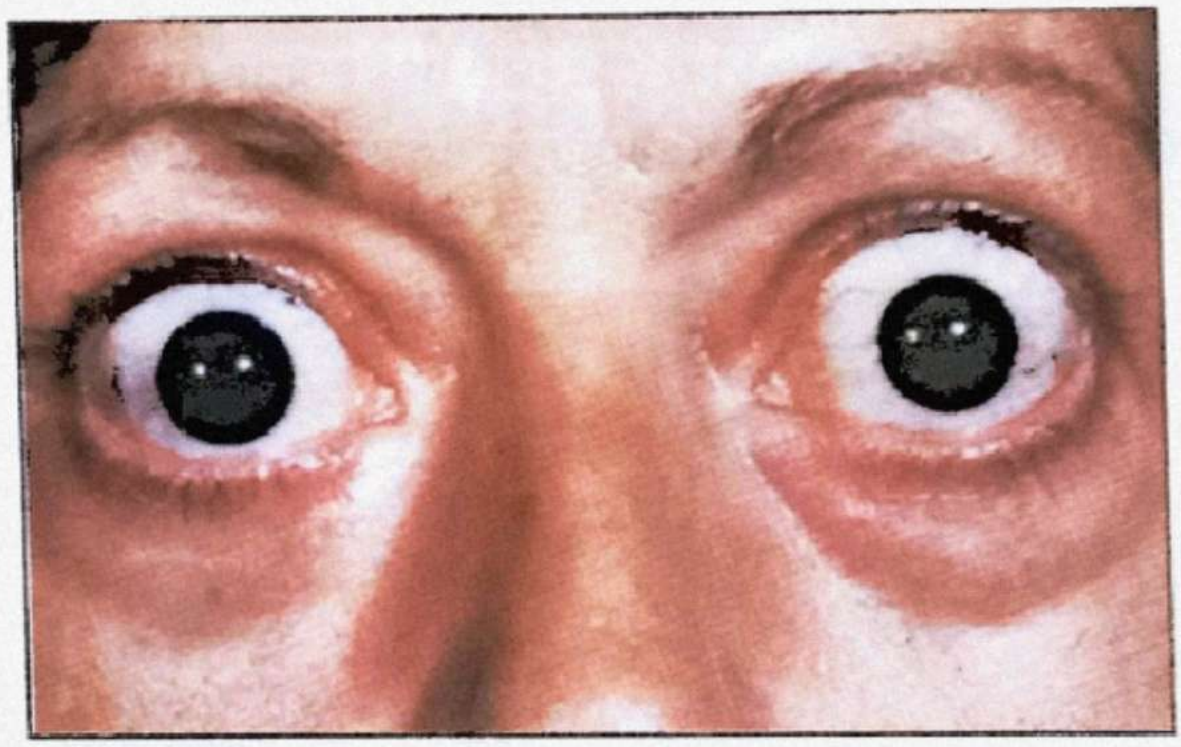
QUESTIONS:

1. What are your findings?
2. What is your diagnosis?
3. Which important examination test will help you in diagnosis?
4. How will you treat this patient?

ANSWERS:

1. Injected hyperemic conjunctiva , clear central cornea with peripheral dendritic corneal ulcer.
2. Herpes simplex viral keratitis
3. Corneal sensitivity test using cotton wisp
4. A. topical antiviral (Acyclovir)
   b. mydriatic
   c. topical antibiotic
   d. lubricants

Look at this photograph and answer the following questions



Q:1. What clinical signs are seen?

Ans: Proptosis, lid retraction

Q:2. What disease would you investigate for?

Ans: Thyroid eye disease

Q:3. What are your findings?

Ans: Prominent eyeballs with lid retraction

Q:4. Can you name this condition?

Ans: Proptosis (Exophthalmos)

Q:5. What are the other complications?

Ans: Hyperthyroidism

Q:6. What is the treatment?

Ans: Control the hyperthyroidism, lubricant for exposure

A six year old female child attending the eye outpatient department (OPD) at midnight with the complaint of severe throbbing pain in the left eye since last day. Her visual acuity is 6/6 in right eye and projection and perception of light in left eye. The left eye is bulging outside eyelids are red and with the following photographic presentation

Q:1. What is the provisional diagnosis?

Ans: Orbital cellulitis

Q:2. How will you define this condition?

Ans: It is an acute infection of orbital soft tissue posterior to the orbital septum

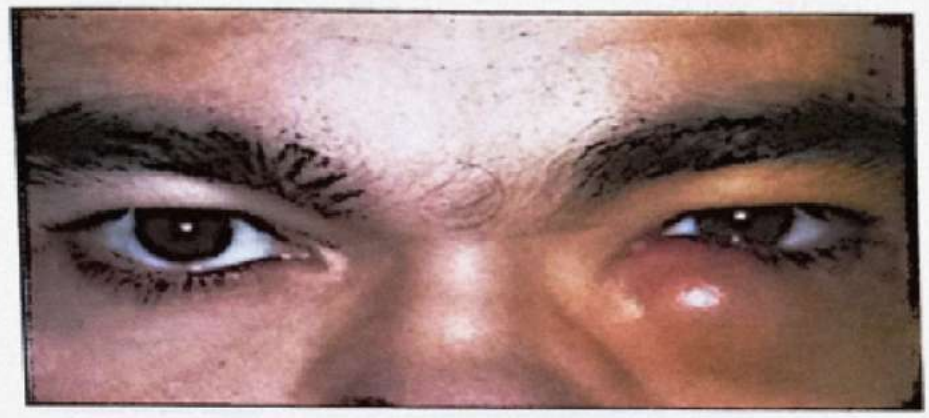
Q:3. What is the etiological factor?

Ans:

a. Sinusitis
b. Preseptal cellulitis
c. Acute hordeolum
d. Dacryocystitis
e. Dental infection
f. Endogenous infective bacteria
g. Post traumatic
h. Post-surgical lacrimal and orbital surgery

# OSCE 7 ACUTE DACRYOCYSTITIS

A twelve year old child presented in the eye outpatient (OPD) department with the following photographic presentation



Q:1. What are you seeing in this photograph?

Ans: The picture shows swelling below the medial canthus of the left eye

Q:2. What is your provisional diagnosis?

Ans: Acute dacryocystitis

Q:3. Define this condition?

Ans: It is a condition in which inflammation of the lacrimal sac occurs, secondary to nasolacrimal duct obstruction leads to accumulation of fluid in the lacrimal sac

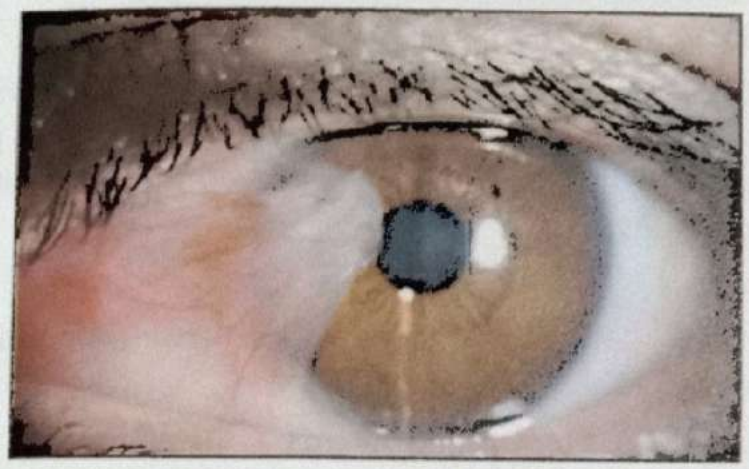
Q:4. What are the common pathogens for this condition?

Ans:

The most common organisms isolated from the lacrimal sacs with dacryocystitis include Staphylococcus aureus, Haemophilus influenza, beta-haemolytic streptococci, Mycobacterial species and Pneumococci

Q:5. What are the differential diagnosis?

Ans: Infected chalazion, preseptal cellulitis, canaliculitis, sinusitis, sebaceous cyst



Q:1. What are you seeing in this photograph?

Ans: Fibrovascular outgrowth from the conjunctiva extending over the cornea

Q:2. What is your provisional diagnosis?

Ans: Pterygium

Q:3. How do you define this condition?

Ans: A wing-shaped growth of benign fibrous tissue with blood vessels fibrovascular typically located on the surface of the sclera by the nasal limbus. In extreme cases, pterygium may grow onto the eye's cornea and interfere with vision

Q:4. What are the differential diagnosis?

Ans:

a. Pannus
b. Conjunctival intraepithelial neoplasia (CIN)
c. Stevens johnson syndrome
d. Neurotrophic keratitis
e. Limbal dermoid

Q:5. What is the microscopic appearance of this lesion?

Ans: An accumulation of degenerated subepithelial tissue which basophilic on H&E staining. Destruction of Bowman's lay by fibrovascular ingrowth is typical. The overlying epitheliu is usually normal but may be dysplastic and often exhibits are of goblet cell hyperplasia

Q:6. What are the pathogenesis of this lesion?

Ans: Pterygium of the conjunctiva is characterized by elas degeneration of collagen and fibrovascular proliferation. It benign outgrowth

Q:7. What are some complications?

Ans: Usually painless. May develop into inflamed lesion wi irritation and foreign body sensation. Advanced pterygi may cause distortion of the surface of the cornea and lead astigmatism

Q:8. What are the etiology?

Ans: Etiology is unknown. Increased incidence noted in areas a people with high UV exposure

Q:9. What are the predisposing factors of this lesion?

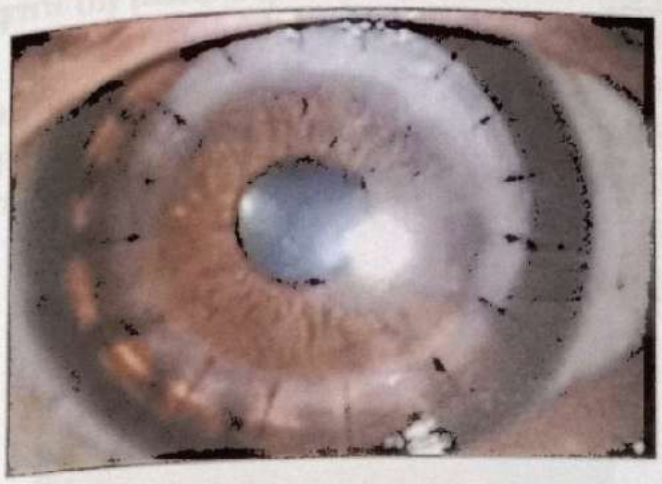
Ans: Risk factors are exposure to sunny, dusty, sandy, or windblo areas. Farmers, fishermen, and people living near the equa are often affected. Males are more affected than fema Incidence is higher in the 20-40 age group while prevalenc higher in the over 40 age group

Q:10. What are the treatment modalities?

Ans: A painless pterygium usually requires no treatment

Symptoms of redness, irritation and pain can be countered topical vasoconstrictor drops, lubricants or ointments

A pterygium that spreads over the cornea and causes vis disturbance



Q:1. What does this photograph show?

Ans: Multiple radial sutures arranged in the periphery of the cornea. They are black in color. There is corneal haze at the interface

Q:2. What procedure has been carried out?

Ans: Penetrating keratoplasty (PK)

Q:3. What is keratoplasty?

Ans: Corneal transplantation or corneal grafting is an operation in which abnormal host tissue is replaced by healthy donor corneal tissue

Q:4. How many types of keratoplasty do you know?

Ans:

a. Full thickness (penetrating keratoplasty)
b. Partial thickness (lamellar keratoplasty)

Q:5. What are the indications of keratoplasty?

Ans:

a. Optical indications e.g. (i) keratoconous (ii) corneal dystrophy (iii) Corneal degeneration (iv) Corneal scarring (v) Pseudomembranous bullous keratopathy

b. Techtonic stromal thinning (ii) Descemetocele

c. Therapeutic (i) Removal of inflamed corneal tissue in eye unresponsive to conventional anti-microbial and anti-vir therapy

d. Cosmetic

Q:6. Name the complications of keratoplasty?

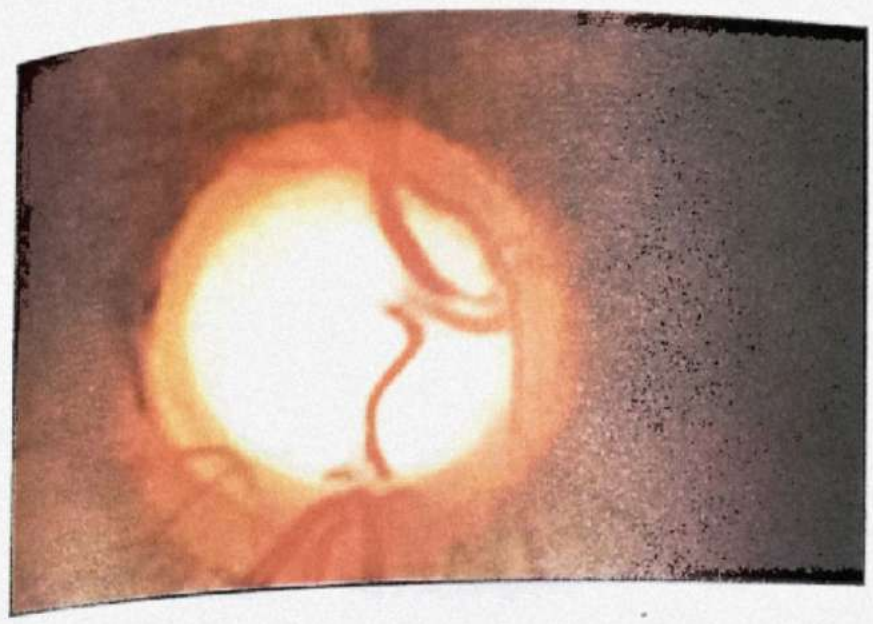
Ans:

a. Early: (i) Flat anterior chamber (A.C) (ii) Iris prolapse (iii) Persistant epithelial defect (iv) Infection

b. Late: (i) Glaucoma (ii) Astigmatism (iii) Retro corneal membrane formation. (iv) Late wound suppression (v) Cystoid macular edema (vi) Recurrence of initial disease process on the graft

c. Graft failure

Look at this pho



Q:1. What is this photograph showing?

Ans: This is a fundus photograph showing glaucomatous optic disc cupping

Q:2. What are you seeing in this picture?

Ans: Optic disc cupping, retinal blood vessels

Q:3. What are your provisional diagnosis?

Ans: Primary open angle glaucoma

Q:4. What are your differential diagnosis?

Ans:

a. Primary open angle glaucoma
b. Chronic closed angle glaucoma
c. Secondary glaucomatous normal tensive glaucoma

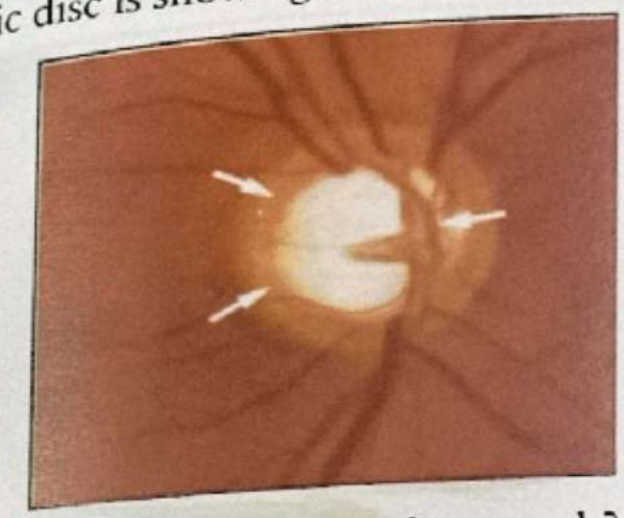
Q:5. What visual field defects can be present in this disease?

Ans: Paraceutae defects, nasal roenne step, arcuate shaped defects, enlargement of scotoma, ring scotoma, small island of central vision left

Q:6. What investigation will you do to evaluate the disease?

Ans: Field examination, fundus photograph, optical coherence tomography

A fifty year old patient came to eye outpatient department (OPD) visited to the eye specialist with a complain of frequent changes in his presbyopia glasses. On examination his visual acuity was 6/6. His intraocular pressure was 24 and 25 mm of Hg. in right eye and left eye respectively. Optic disc is showing following findings



Q:1. Enumerate the findings in the photograph?

Ans:

a. Pale optic disc
b. Oval shape optic disc
c. Cup: disc ratio 0.7
d. Neuro Retinal rim thin
e. Retinal nerve fibre layer (RNFL) wedge defect
f. Nazillization of retinal of blood vessels

Q:2. What could be the most likely cause of these findings?

Ans: Increased intraocular pressure

Q:3. Which investigations would you order to reach the diagnosis?

Ans: Visual field test , Optical coherance tomography (OCT), (Optic nerve head and RNFL)

Q:4. What would happen if you do not treat this patient?

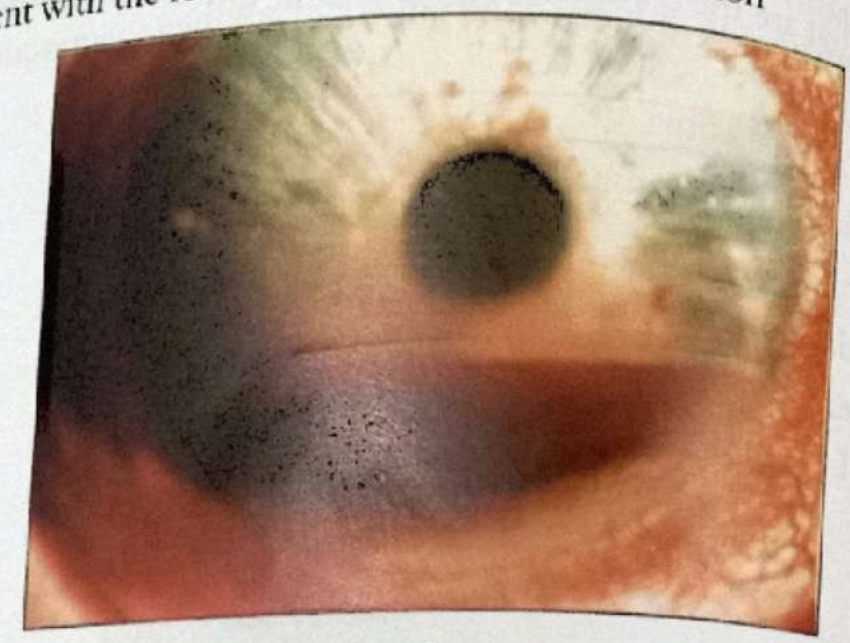
Ans: It can cause blindness

Q:5. What are the treatment options of this condition?

Ans: Medical, Surgical

# OSCE 43 HYPHEMA

A thirty year old male attended the emergency with the complain of severe pain, decrease vision and redness in his left eye after road traffic accident with the following photographic presentation



Q:1. What are you seeing in this photograph?

Ans: Conjunctival congestion and hyphema

Q:2. What serious complication can be presented immediately after trauma

Ans: Globe rupture

Q:3. What late complications can occur in the condition of trauma?

Ans: Complications due to trauma

a. Soft eye
b. Raised intra ocular pressure (IOP)
c. Cataract
d. Corneal staining

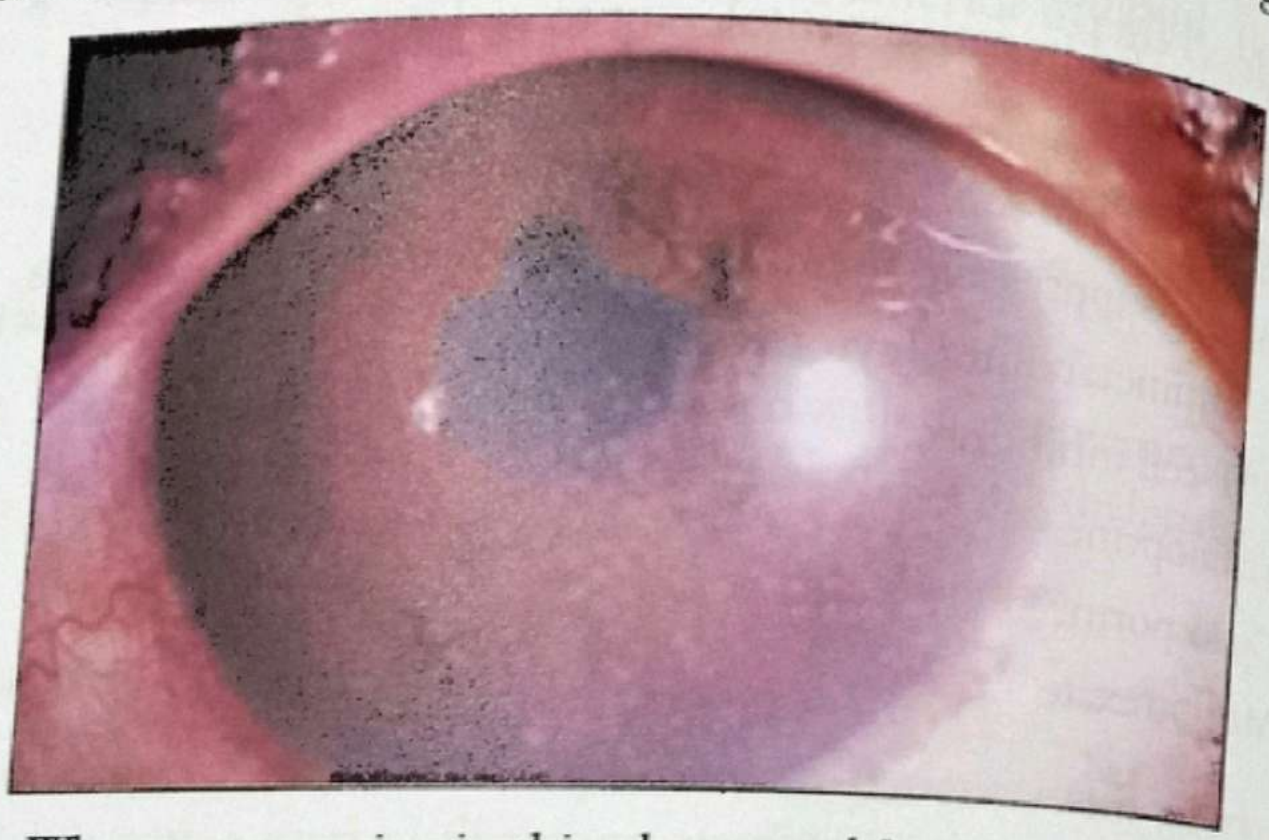
Q:4. How will you manage the patient?

Ans: Bed Rest, Cycloplegic Drugs, Topical Steroids

Q:5. What is the abnormal finding in this photograph?

Ans: Collection of red material in the anterior chamber with fluid level

A thirty five year old female patient attending the eye outpatient department complaining of sudden painful loss of vision in her right eye which was accompanied with redness with the following photographic presentation



Q:1. What are you seeing in this photograph?

Ans: This anterior segment photography showing red eye corneal hazes, keratic precipatets on the cornea small and irregular pupil with posterior synechae

Q:2. Whats your provisional diagnosis ?

Ans: Acute Iridocyclitis

Q:3. What are the differential diagnosis ?

Ans:

a. Iritis,
b. Acute congestive glaucoma
c. Keratitis
d. Acute bacterial conjunctivitis

**INTERACTIVE STATION # _____** **Marks 5**

CHECK THE INTRA OCULAR PRESSURE OF THE Patient?

Q.1 A. Checked Correctly?? (1)

B. What is the process of checking IOP called? (1)

c. How you interpret Digital Tonometry? (1)

D. Define glaucoma? (1)

E. Name Different types of LIG? (1)

↳ Normal → Firm like tip of nose

• Soft like lips

• Hard like Glabella

Key

A. Self Explantory

B. TONOMETRY < Digital < indentation
Instrumental < applenation

C. Normal, Hard , Soft

D. Self Expianatory

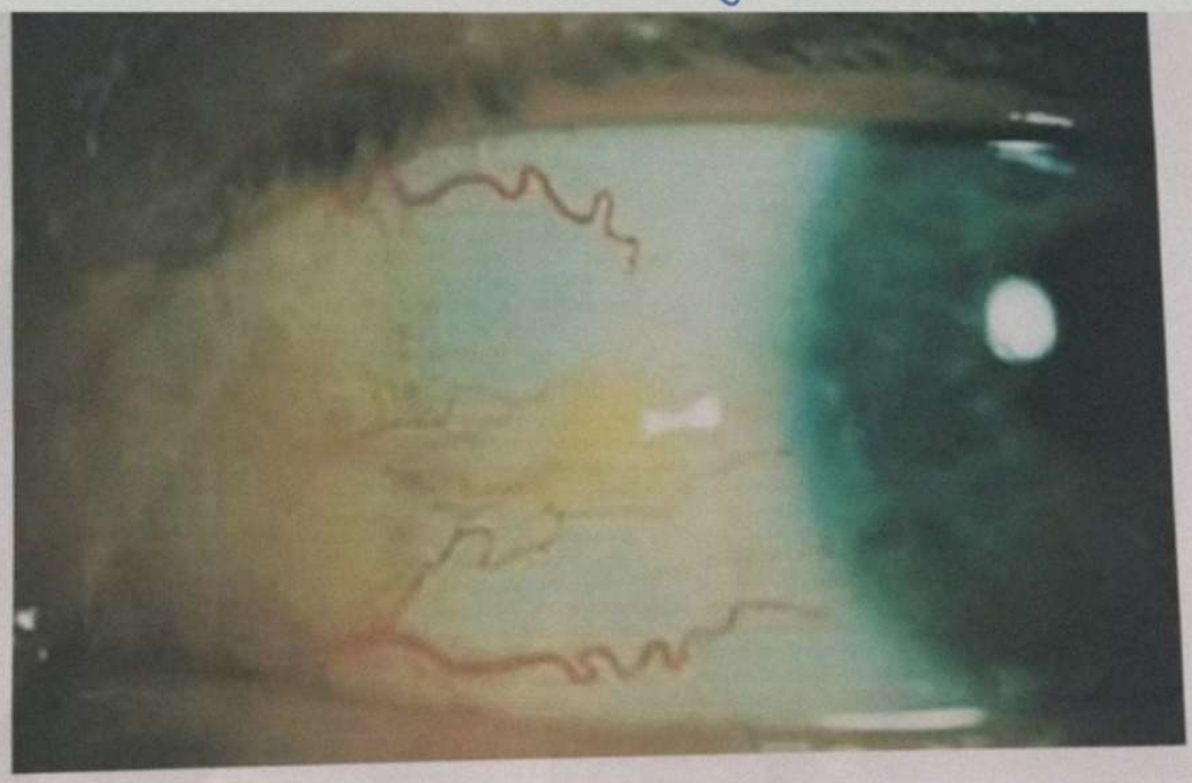
E. Phacomorphic, phacolytic.


QUESTIONS

1) What is this? ① Mydriact (Topicamide).
2) What is its mechanism of action? ① → Blok muscarin By cycloplegic effect
3) What is its onset of action (Time)? 120-30min
4) What is duration of action? 14-10hrs
5) What are the side effects? palpitation, flusing, dry mouth, skin ra
Acute conjective glaucom

(22) 1) Mydriatic (Tropicamide)
2) Muscarinic Blocker.
3) 20 - 30 mins.
4) 4 - 10 hrs.
5) S.E: palpitation, dry mouth, flushing, acute congestive glaucoma.

Pterygium



A middle aged laborer presented to Eye Opd with itching, watering and foreign body sensation in his eyes.

1)What is the most significant risk factor for the condition shown above?

2.What is its histopathology ?

3.How will you differentiate it from its closely related differential diagnosis ?

4.What is the treatment ?

5.How it can be prevented ?

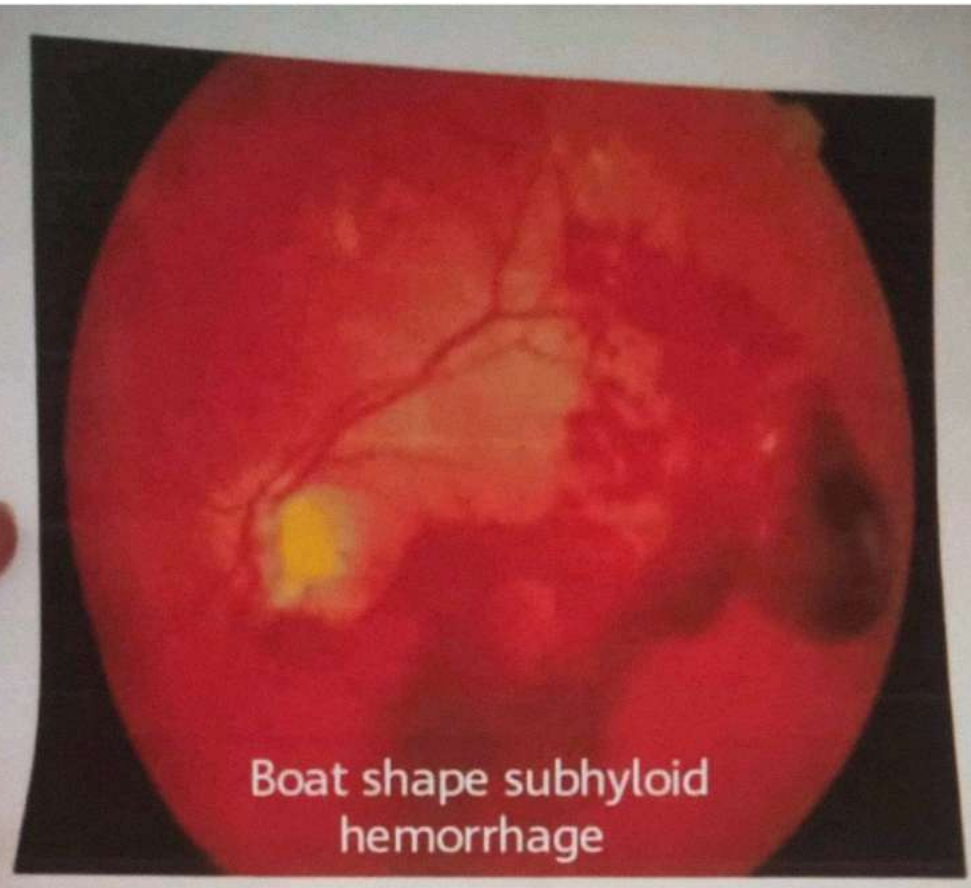
UV light
dry of interpalpebr
tear film

1) dryness hot climates
2) subepithelial collagen deposition
3) pterygium having 3 parts head body and tail arise from conjuctiva and enroach cornea
4) surgical treatment
5) lubrication
hot climates prevention

subepithelial collagen tissue of conjuctiva shows elastic degenerative changes later the the degenerative products is transformed into eosinophilic granular or grossy mass in which calcium granule may deposit

1) What is this instrument called?
2) For what purpose it is used?
3) How is it used?
4) Name the other instrument(s) used along with it?
5) Are other sizes available in this instrument?

1) Chalazion clamp
2) To clamp the chalazion for incision and curettage
3) The open end is placed on the conjunctival side of chalazion and the lid is retracted then.
4) Chalazion scoop
5) Yes




***A diabetic patient, Mr. Abdul, came for eye examination with recent decline in visual acuity.***

***1-What is your most probable diagnosis?*** (1)
***2-What will happen if you left him untreated?*** (1)
***3-He was advised an eye injection. Name that injection used in this patient*** (1)
***4-Can we apply LASER? Name if yes.*** (1)

(5) Name three Causes for This Condition? (1)

(25) 1) Sub-Hyaloid Hemorrhage.
2) Neovascularization, Tractional RD.
3) Anti-VEGF.
4) Yes, if neovascularization ⇒ Argon Laser.
5) Trauma, hematological disorder, CRVO

**A young boy came with itchy eyes and the eye picture is shown**

**1-HOW MANY PAPILLAE SEEN** IN THIS PICTURE
**2-WHAT ARE TWO TREATMNT OPTIONS,**
**3-WHAT are the COMPLICATIONS OF THIS LESION**

**KEY**
**1-37**
**2-SUPRATARSUS STEROID INJECTION, TOPICAL STEROIDS**
**3-SHIELD ULCER, MECHANICAL PTOSIS**

QUESTIONS

1) What is your spot diagnosis? Sub
2) What are its common causes? -
3) ~~How will you manage~~?
4) What is its course? 1- 2 week.
5) Is it a painful condition? No

1- Subconjunctival hemorrhage

2. Trauma, post surgical, Head injury,
Blood clotting disorder or Vit K deficiency,
Blood Thinners (aspirin, warfarin),
Severe HTN, whooping cough

3- Typically Self limiting, spontaneous resolution in
1-2 weeks,
Artificial tears 3-4 times/day

5- No

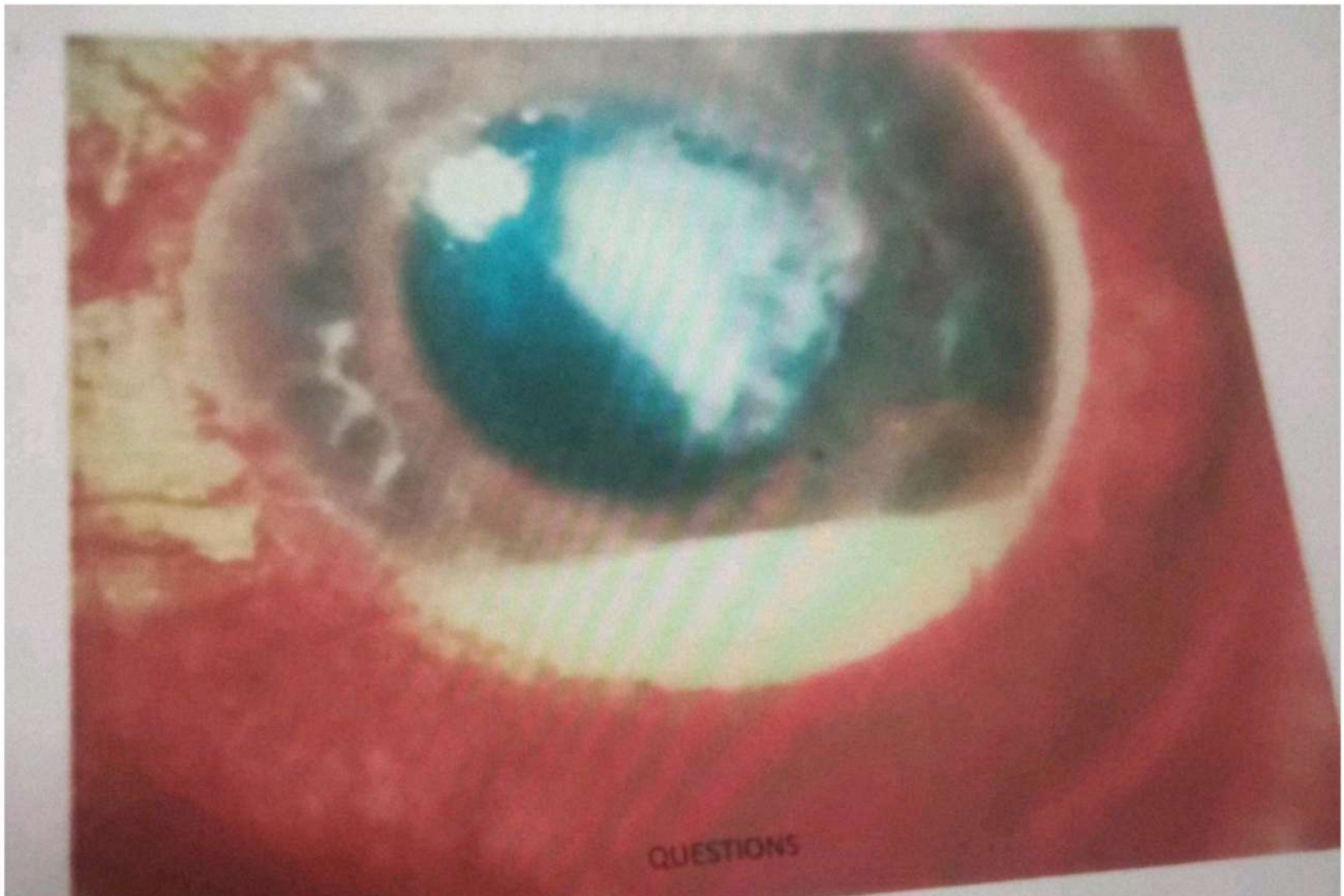
1. Blood in Anterior chamber
   Mild Coneal opacity
2. Hypheacma
3. Trauma
   Hemorrhage

1. What are the findings in this picture? (1)
2. What is this condition called?(2) hypima
3. What are its causes?(2)

drugs
tumor
diabetes

in hpyema iop is very important

pressure more than 30 and for more than 6 days wash



QUESTIONS

1)What are the findings in the photograph ?

2) What is the most likely diagnosis ? ulcer + hypopion

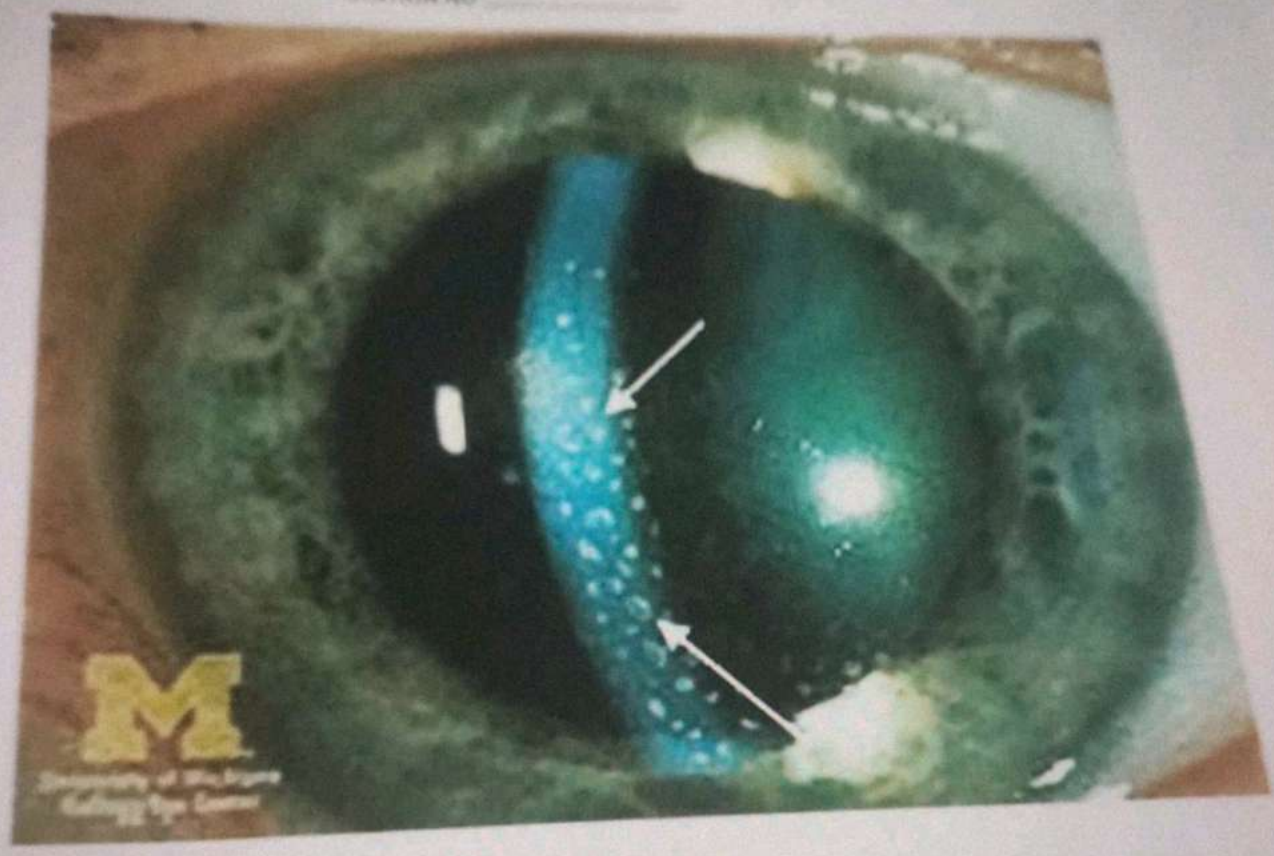
3) What investigations will you do ? stain + culture

4) How will you treat ?

5) What complication(s) may arise if left untreated ?

1) pus in anterior chamber
corneal opacity
ciliary congestion
red conjuctiva chemosis
2) corneal ulcer
3) pus stain and culture
analgasic atropine antimicrobial according to cause
corneal
descemetocele
corneal perforation blindness

STATION NO: _____



QUESTIONS

1) What are the findings in the photograph ?

2) What is the composition of deposits shown by the arrows ?

3) The deposits shown by the arrows point towards which ocular disease ?

4) What are the types of these deposits ?

5) Can these deposits disappear with time ?

1 Circumciliary congestion, KPs and iris nodule ig but not clearly visible

.2.. These are KPs which are actually lymphocytes and neutrophil stuck on cornea

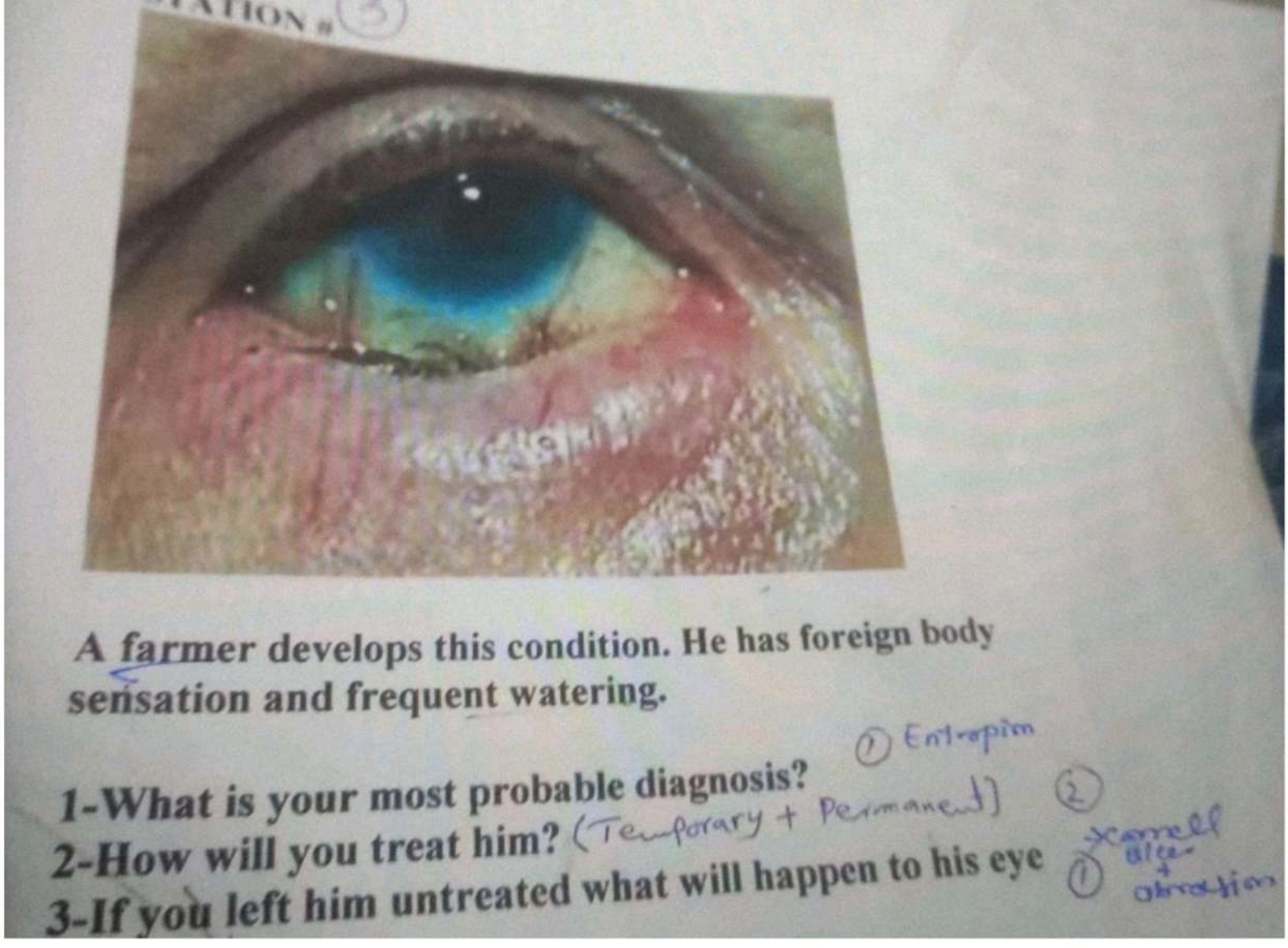
3..uvetis.. Most probably anterior uvvitis

4...diffuse kp and mutton fat kp

glacumatous disc

1. What is the most probable diagnosis keeping in mind optic disc picture? (2)
2. What are the common types of this disease? (1)
3. What are the treatment options?(2)

3) medical pg alpha beta blockers cai adrenergic
laser argon , selective lasers
traveculopasty
surgical trabeculectomy with mytomycin C




1- Entropion with trichiasis (Cicatricial Entropion)

2- Conservative
- Artificial tears during daytime
- Lubricating ointments during night time

Mild Cases:
- Tarsal hinge procedure in which tarsus is cut horizontally and everting sutures are applied to lid margin

Severe Cases: Replacement of contracted conjunctival tissue by mucus membrane graft

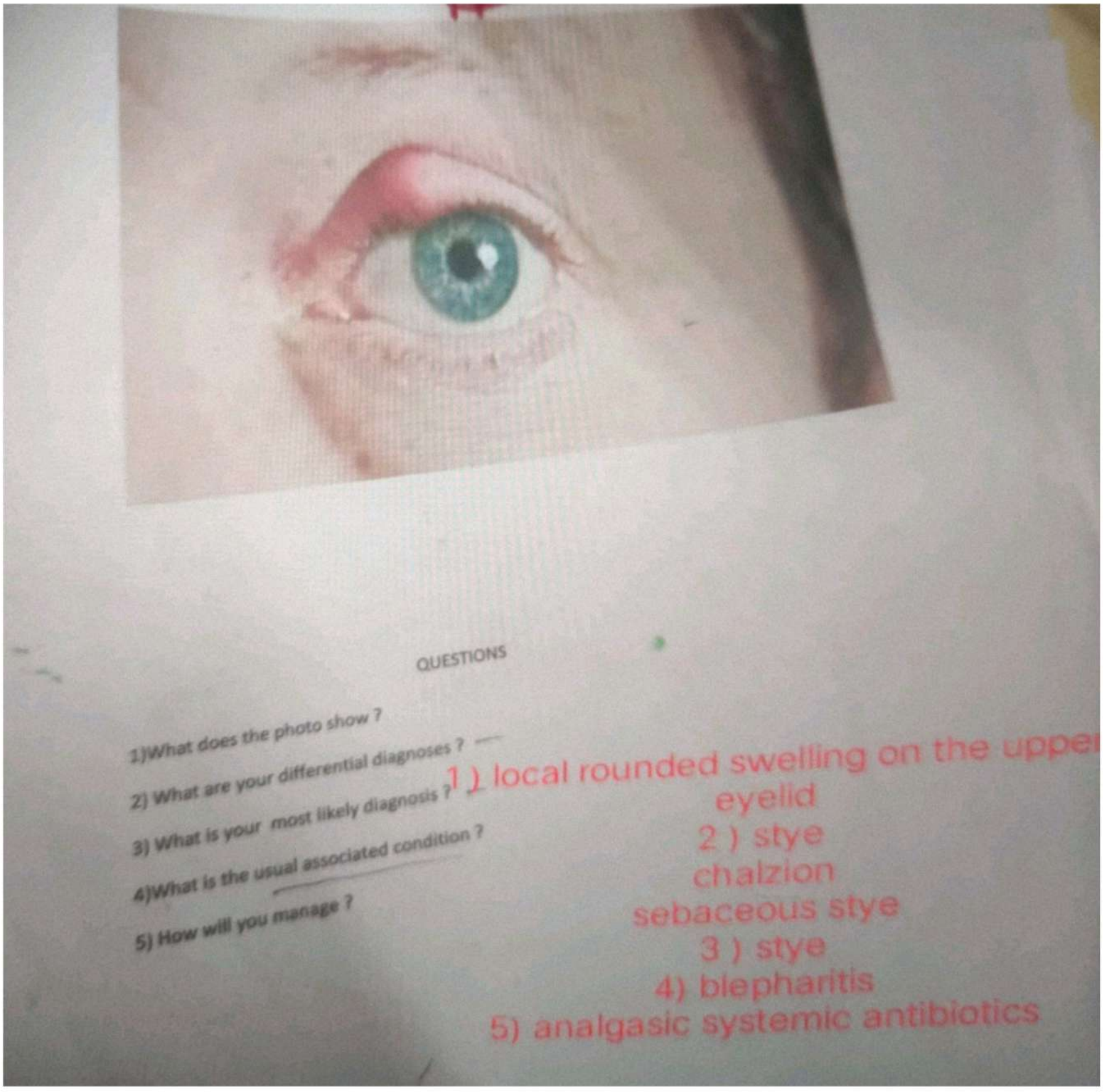
3. Corneal ulceration, corneal scarring
Keratoconjunctivitis sicca
Trichiasis

**This is Mr. Babar a university teacher who came with the complain of diplopia.he was recently operated**

**1-Name the abnormality in this picture** - dislocated lens
**2-How you will correct his diplopia** - Lens reposition
**3-What is the reason for developing this complication after surgery?** - surgical complication. Rupture of posterior filament. ~~Missplacing of lens~~

1- Subluxation of IOL
2- Lens Reposition
3- Incorrect IOL sizing
   High myopia
   Poor IOL positioning
   Insufficient capsular support

Subluxation of IOL cause astigmatism, glare, halos and rings of light and monocular diplopia



QUESTIONS

1)What does the photo show ?

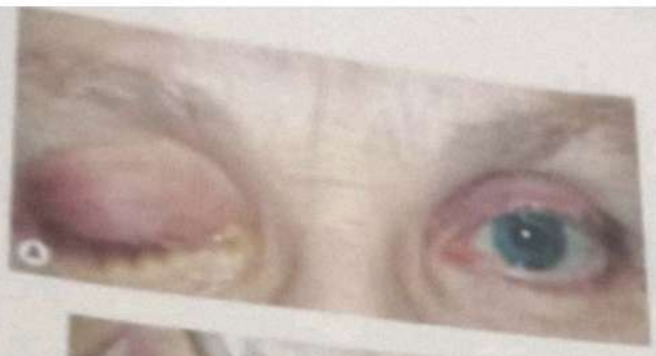
2) What are your differential diagnoses ?

3) What is your most likely diagnosis ?

4)What is the usual associated condition ?

5) How will you manage ?

1 ) local rounded swelling on the upper eyelid
2 ) stye
chalzion
sebaceous stye
3 ) stye
4) blepharitis
5) analgasic systemic antibiotics



These are pictures of 60 yr old diabetic patient with sudden drooping of right eye lid.

1. What are your findings?(1)
2. What is the most probable diagnosis?(1)
3. What are the treatment options?(1)

4. what is the significance of checking pupils in this case? (1)

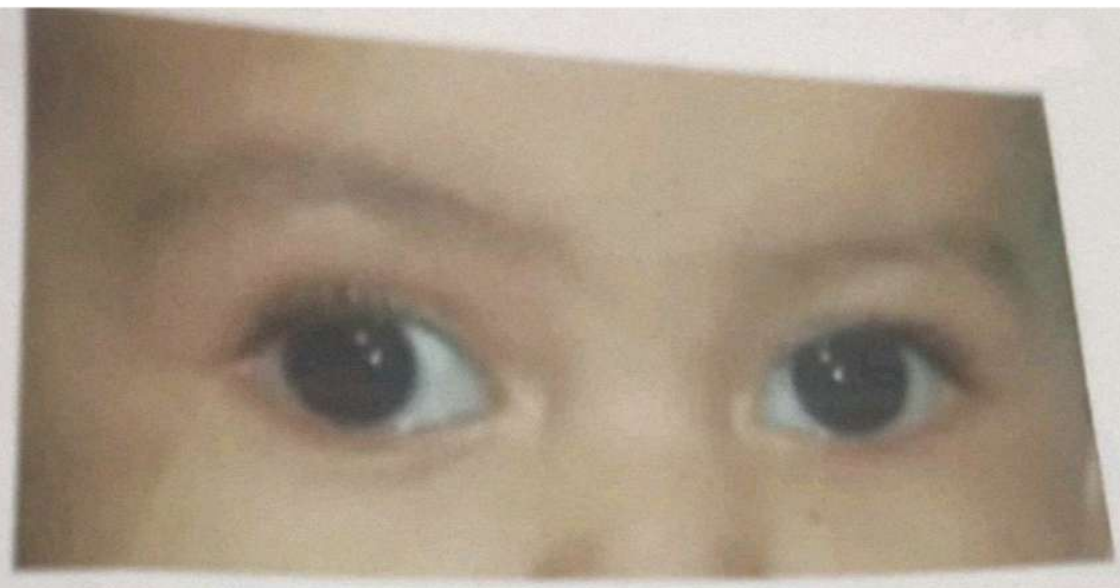
5 what will be the symptom of this pt if the lid is drawn up (1)

ptosis of right eyelid . right eye ball is deviated downlmward and laterally

2) 3rd nerve palsy

3) treat the underlying cause DM HPN tumors aneurysm sarcoidosis meningitis to find out whether pupil involving or pupil sparing

4) diplopia



**This child was brought to you for management. Her parents are concerned about this abnormality**

**1-What is the abnormal finding in this picture?** (1)
**2-What will be your steps of management?** (2)
**3-What is the most common reason for developing this Condition?** (1)

(4) what you will enquire in the family Hx? (1)

• Sperical Lens

Memo

Date

Place

Member

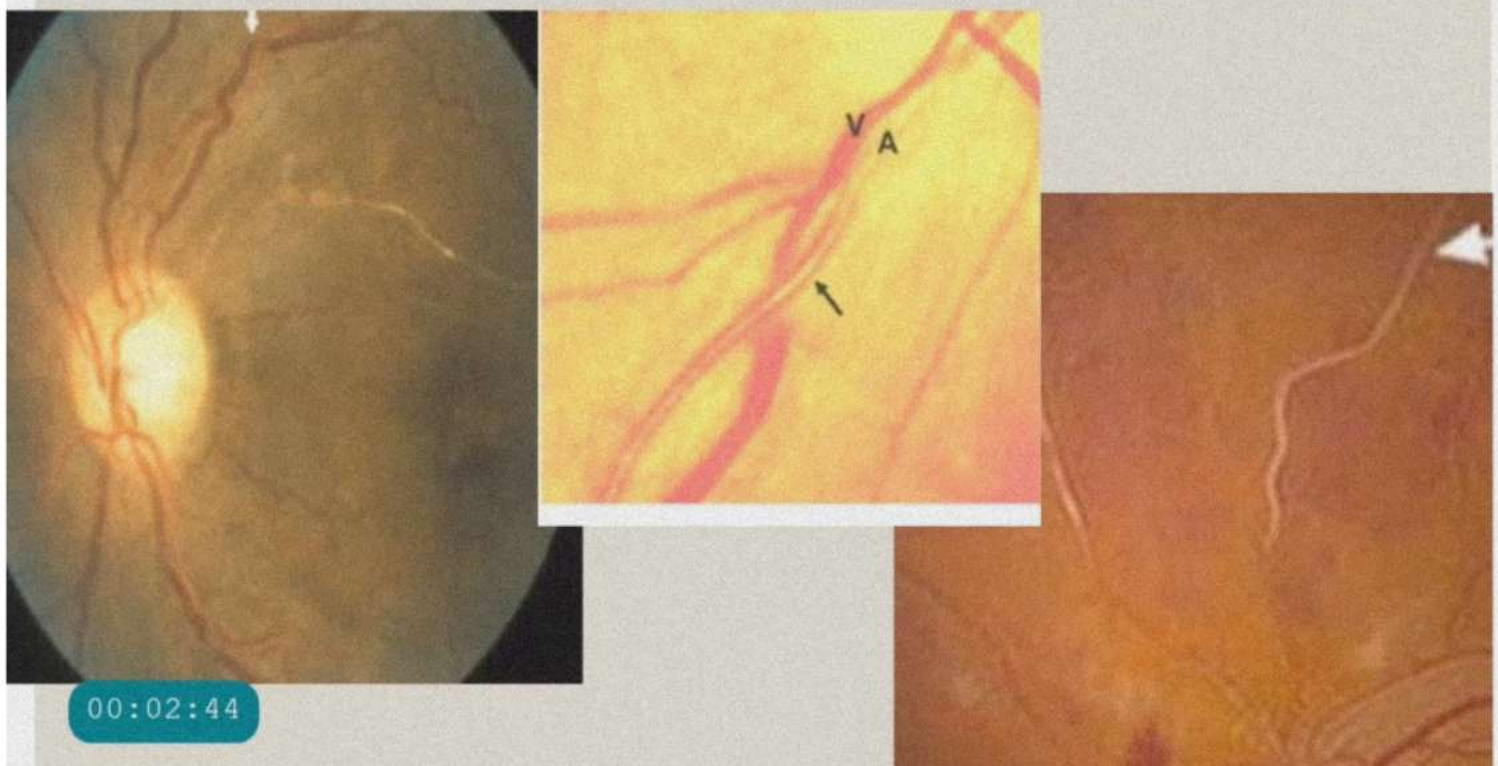
Red Lens

• called negabve lens
• concave
• Show clear & small image
• When moved, the Snellens chart is word also move in that directio (MYOPIC)

Green lens

• called Positive lens

# Hypertensive Retinopathy




## AV SIGNS

- .N.B. Arteriovenous crossing changes in a case of hypertensive retinopathy are:

- Gunn's sign: Tapering of veins on either side of arteriovenous crossing
- Bonnet sign: Dilatation of the veins distal to the arteriovenous crossing.
- Salus sign: Deflection of veins arteriovenous crossing.

00:04:17

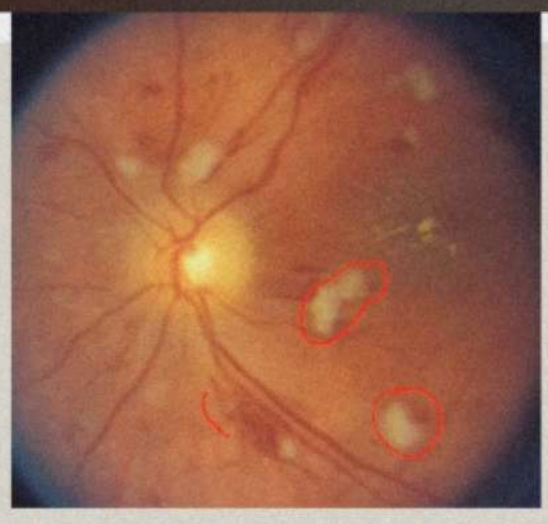
# Hypertensive Retinopathy

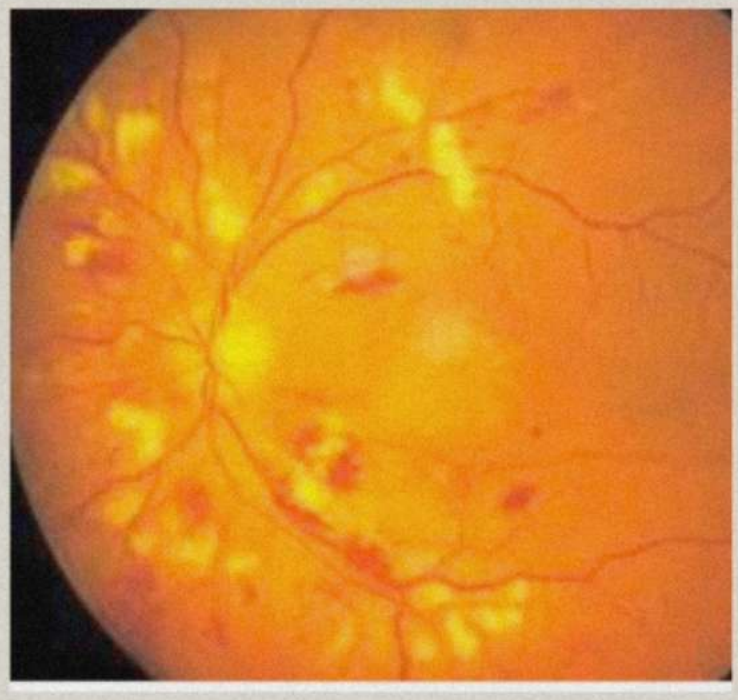
## EXUDATIVE PHASE

Disruption of the blood-~~brain~~ retinal barrier and leakage of plasma and blood causing

- Retinal haemorrhages ( dot blot haemorrhages, flame shaped haemorrhages).
- Cotton wool spots ( secondary to fibrinous necrosis and luminal narrowing).

00:07:25





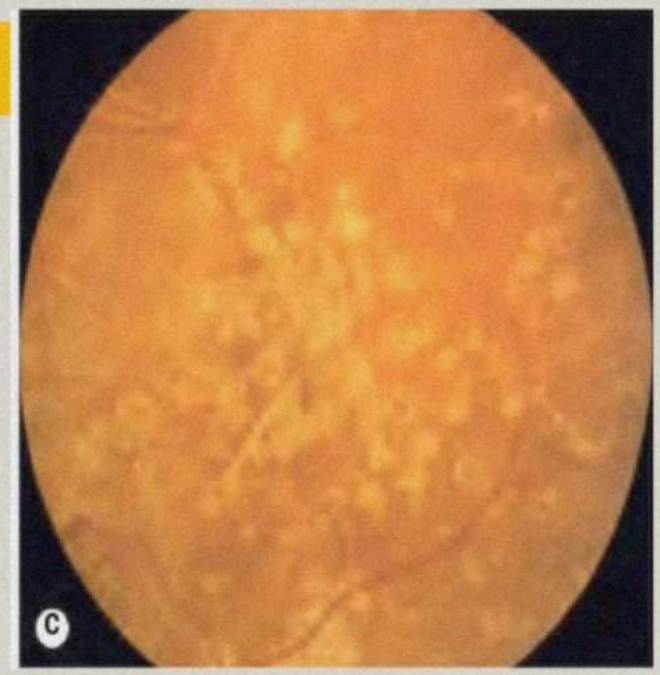
00:08:01

# Hypertensive Retinopathy

## Elschnig Spots

**Elschnig spots** :- are focal choroidal infarcts seen as small black spots surrounded by yellow haloes

00:10:33




20

## SIEGRIEST STREAKS

- **Siegrist streaks:-**

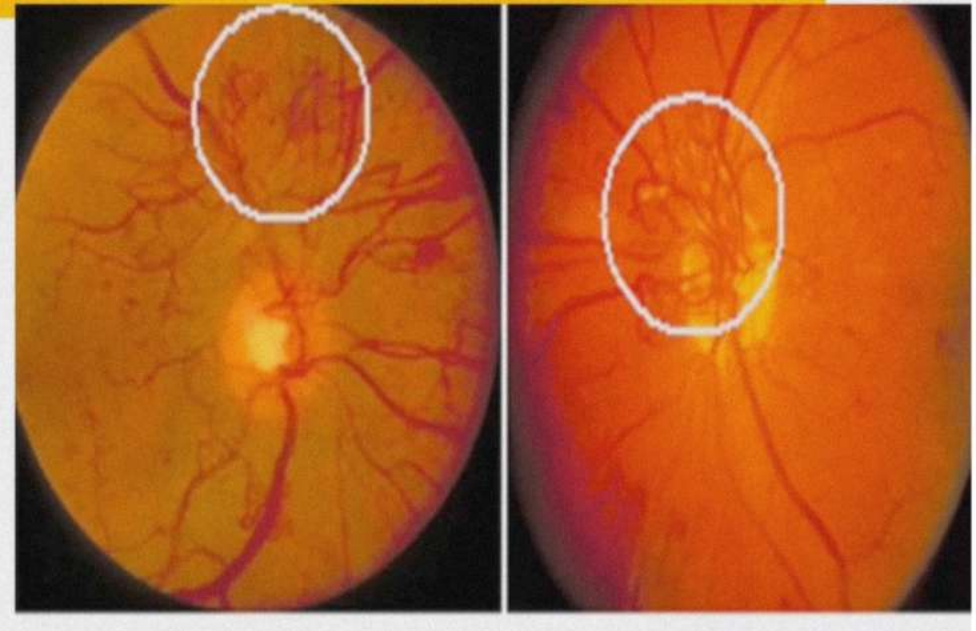
flecks arranged linearly along choroidal vessels and are indicative of fibrinoid necrosis associated with malignant hypertension.

00:11:19

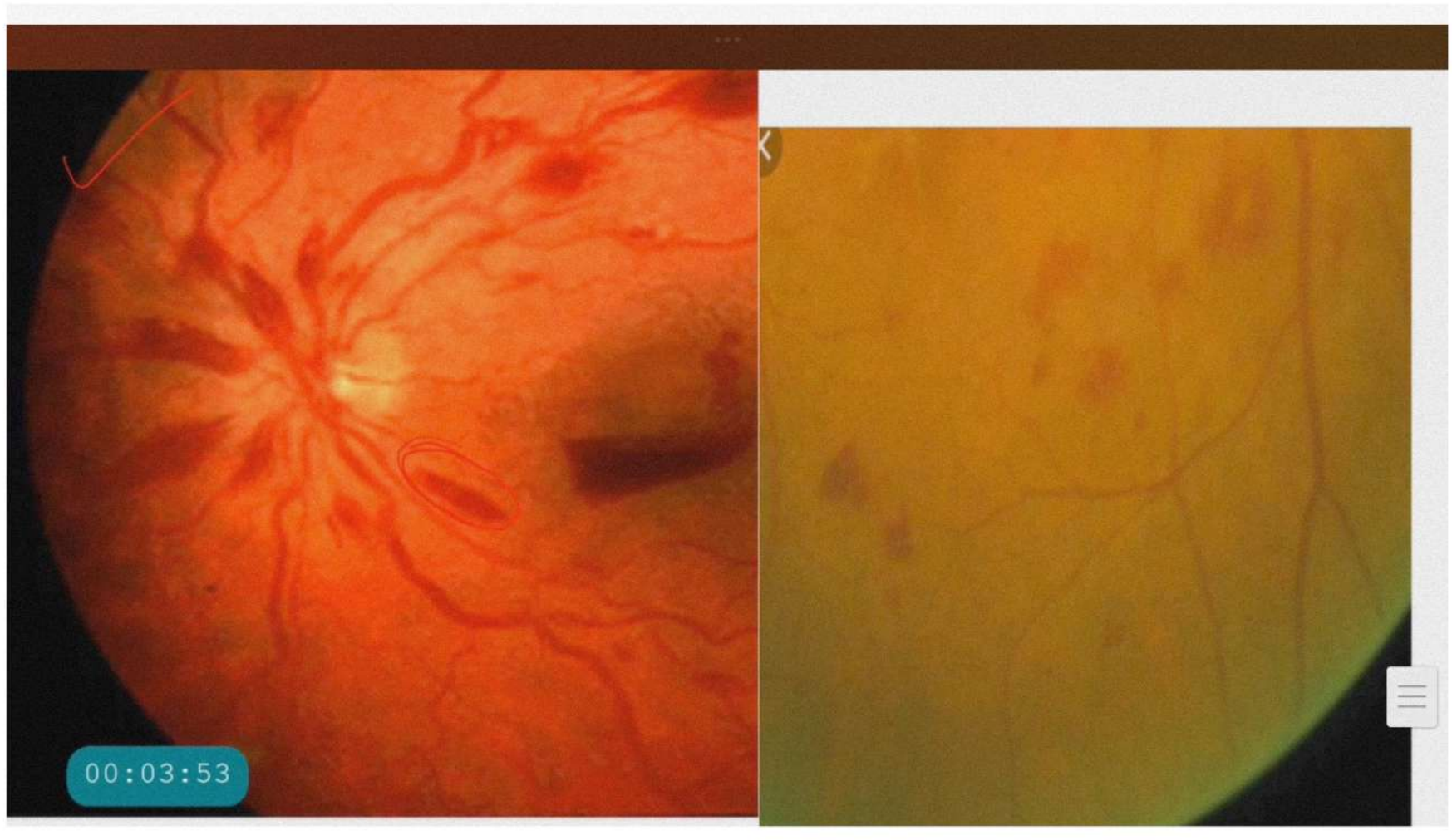
# Diabetic Retinopathy

## NEOVASCULARISATION

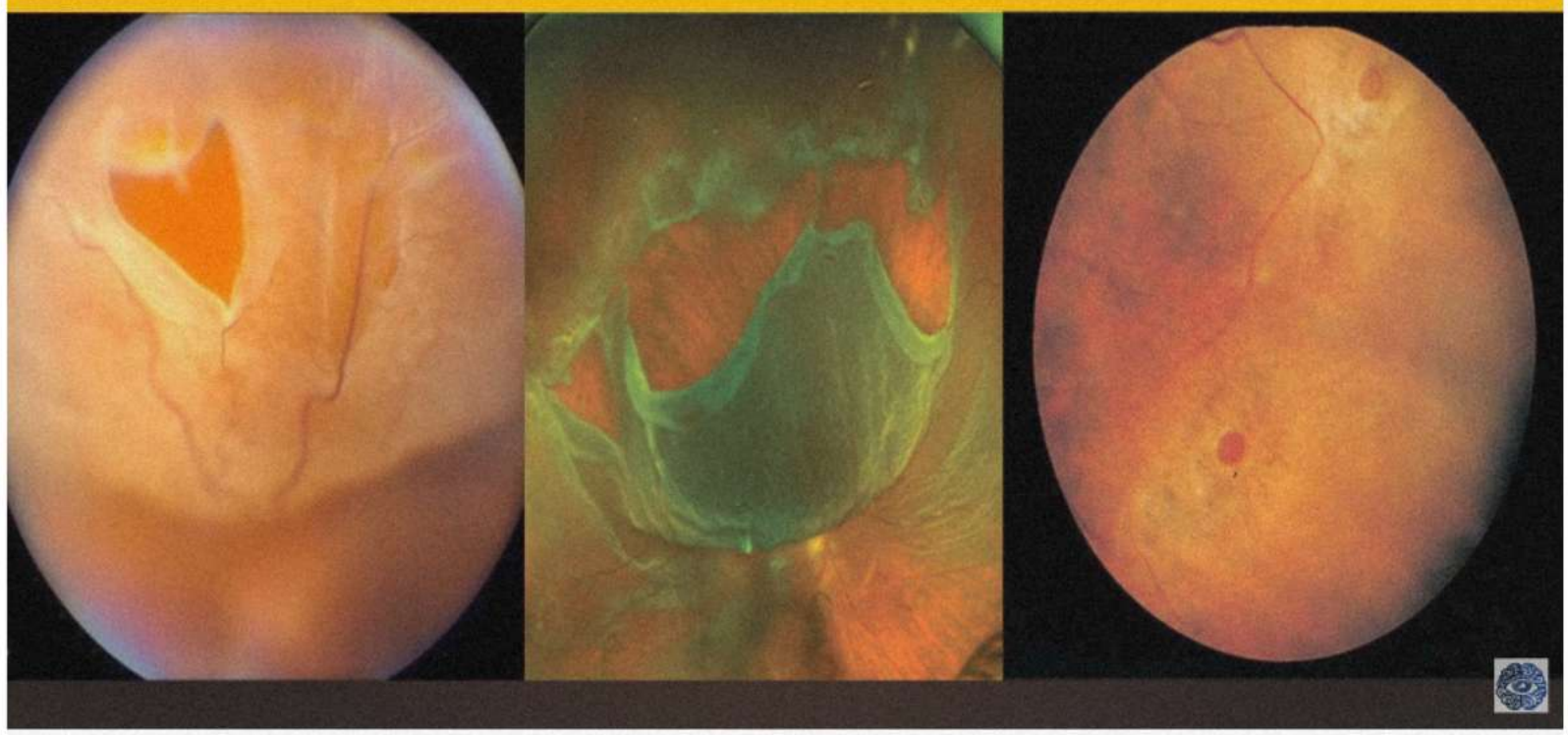
- Vascular endothelial growth factor (VEGF),
- Platelet-derived growth factor
- Hepatocyte growth factor.

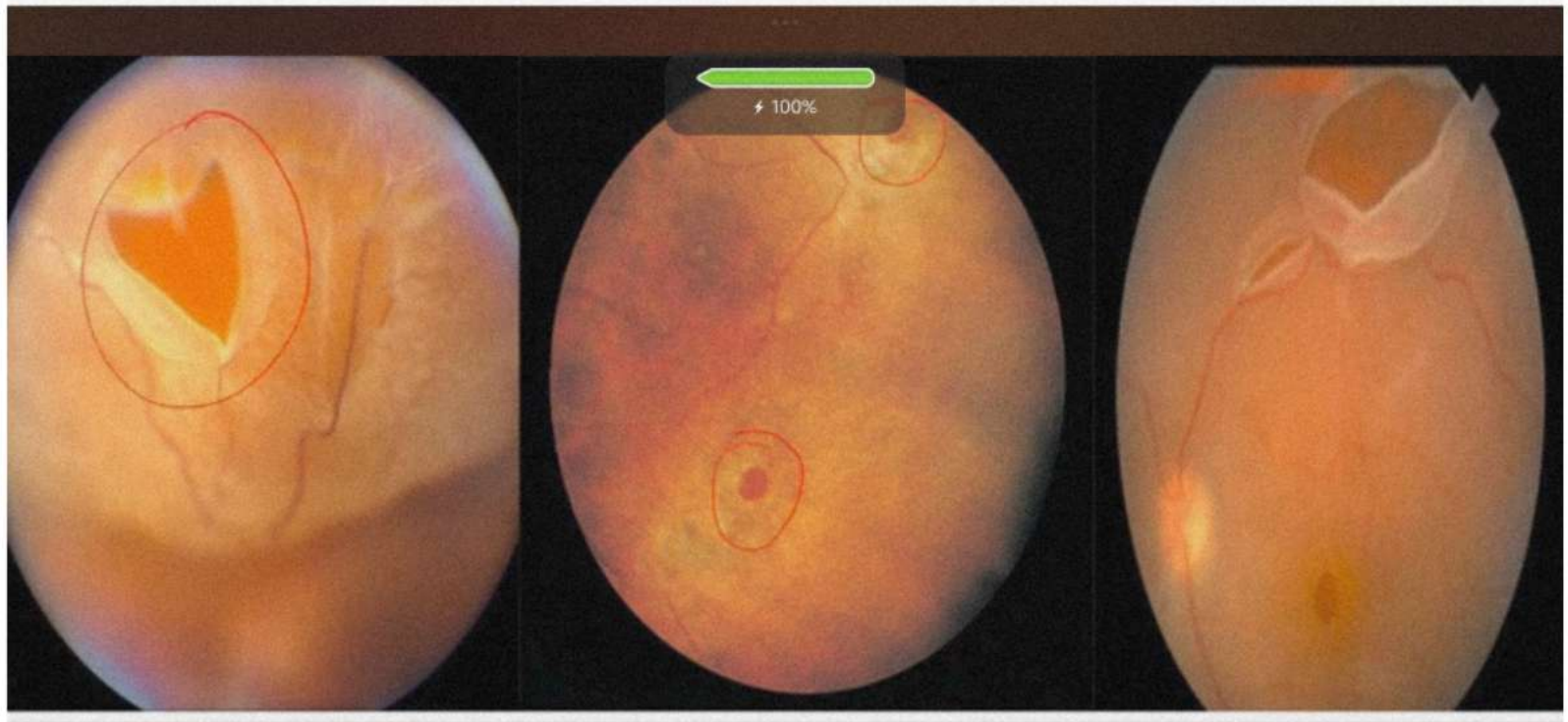


(a) New vessels elsewhere (NVE) (b) New vessels on disc (NVD)

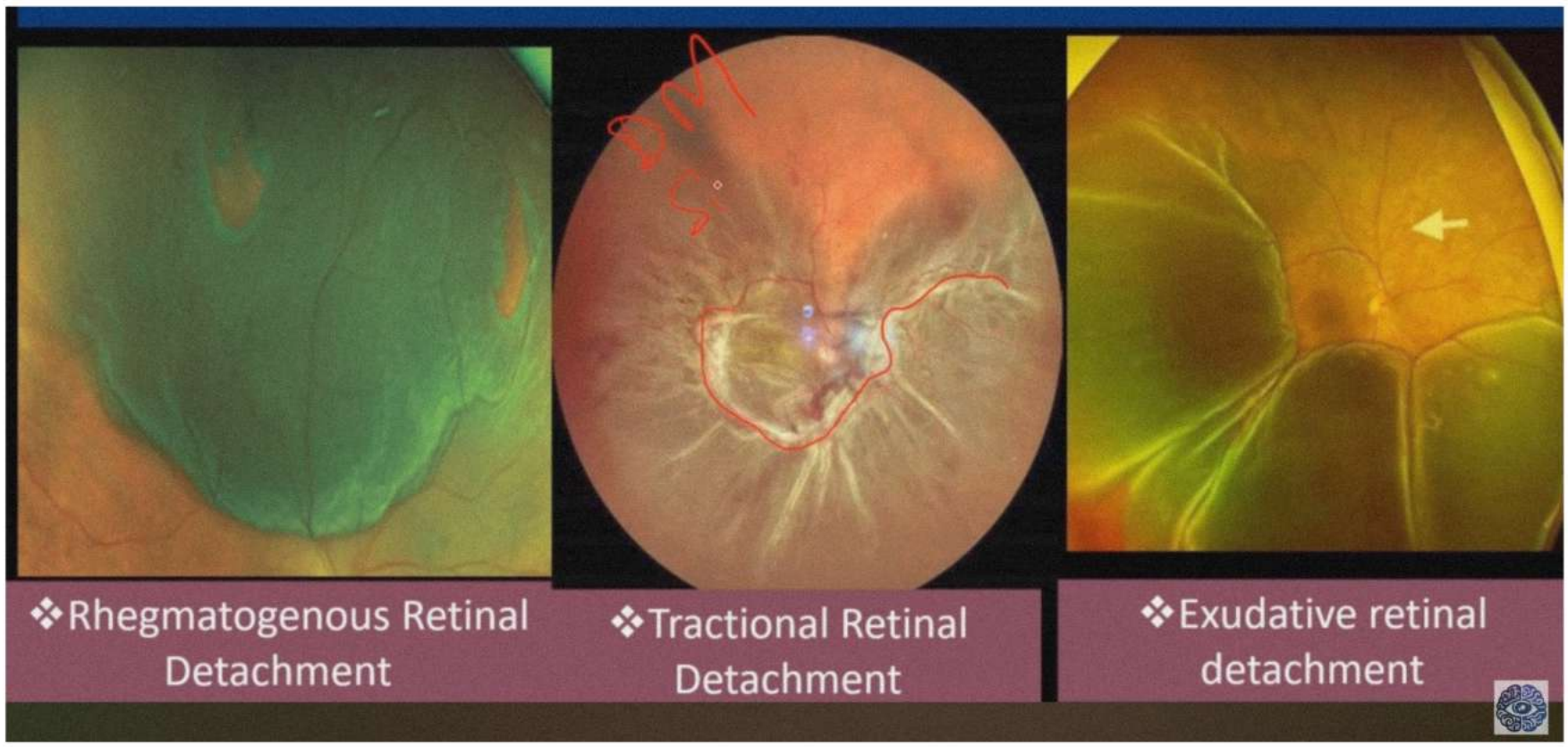


# RETINAL TEARS AND HOLES






**Retinal tears/Holes are breaks in the retina**


❖Rhegmatogenous Retinal Detachment
❖Tractional Retinal Detachment
❖Exudative retinal detachment

# Complications Of Cataract Surgery

## Complications

- **Blindness**
- Glaucoma: phacolytic glaucoma, angle-closure glaucoma
- Deprivation amblyopia in congenital cataract
- Complications after cataract surgery are rare
  - Astigmatism caused by wound incision
  - Dislocation of the intraocular lens
  - Postoperative uveitis, endophthalmitis
  - Cystoid macular edema: an accumulation of fluid at the macula in tiny cyst-like cavities within the outer plexiform layer (Henle's layer) and inner nuclear layers of the retina
  - Posterior capsule opacification (PCO; secondary cataract) after ECCE
  - Rare complications: retinal detachment, progressive Fuchs dystrophy , loss of the eye

We list the most important complications. The selection is not exhaustive.

- Posterior Capsule opacification is treated surgically in children and by Nd-Yag laser in adults

# Imp Points

* Chalazion → Obstruction of Meibomian gland orifice

* Hordoleum Internum → suppurative infection of Meibomian gland

* Posterior blepharitis → hypersecretion of meibomian gland

* Sebaceous Gland Carcinoma → discrete painless nodule (may resemble Chalazion)
  ↓
  arises from meibomian gland

* Cotton wool Spots
  - Diabetic Retinopathy
  - Hypertensive Retinopathy
  - Non ischemic CRVO
  - Ischemic CRVO
  - Papilledema

* Dot blot and Flame shaped hemorrhages
  - Diabetic Retinopathy
  - Hypertensive Retinopathy
  - Ischemic CRVO

* IRMA → Diabetic Retinopathy
* Salus Sign, Gunn sign, Bonnet sign → Hypertensive Retinopathy
* Copper wire and Silver wire appearance of arterioles → Hypertensive Retinopathy
* Elschnig spot, Siegrist streak → Malignant HTN
* Tomato Splashed appearance of Fundus → Ischemic CRVO
* Enlarged foveolar avarcular zone → Ischemic CRVO
* Diminished b wave → Ischemic CRVO, CRAO