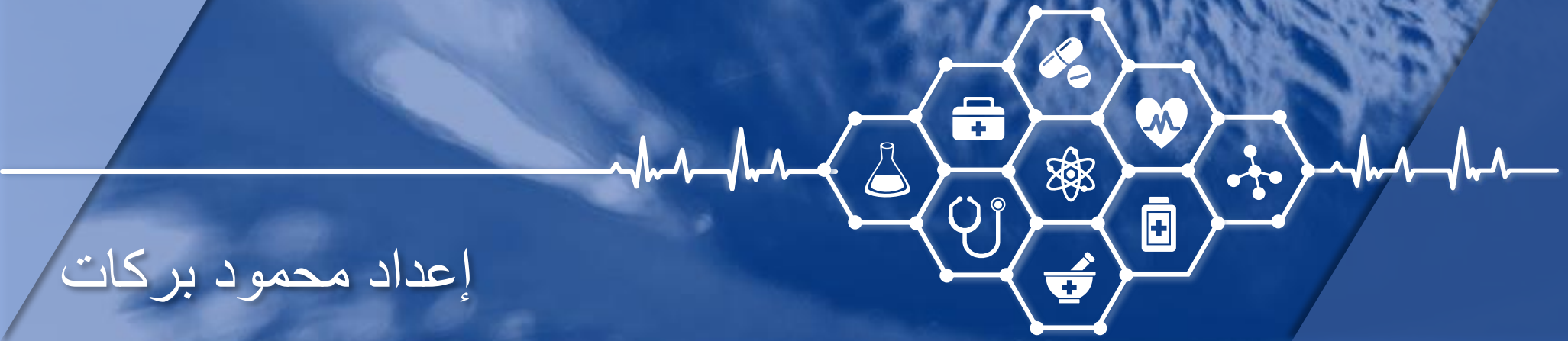
Ophthalmology Mini-OSCE Dossier

2023 edition



إعداد محمود بركات

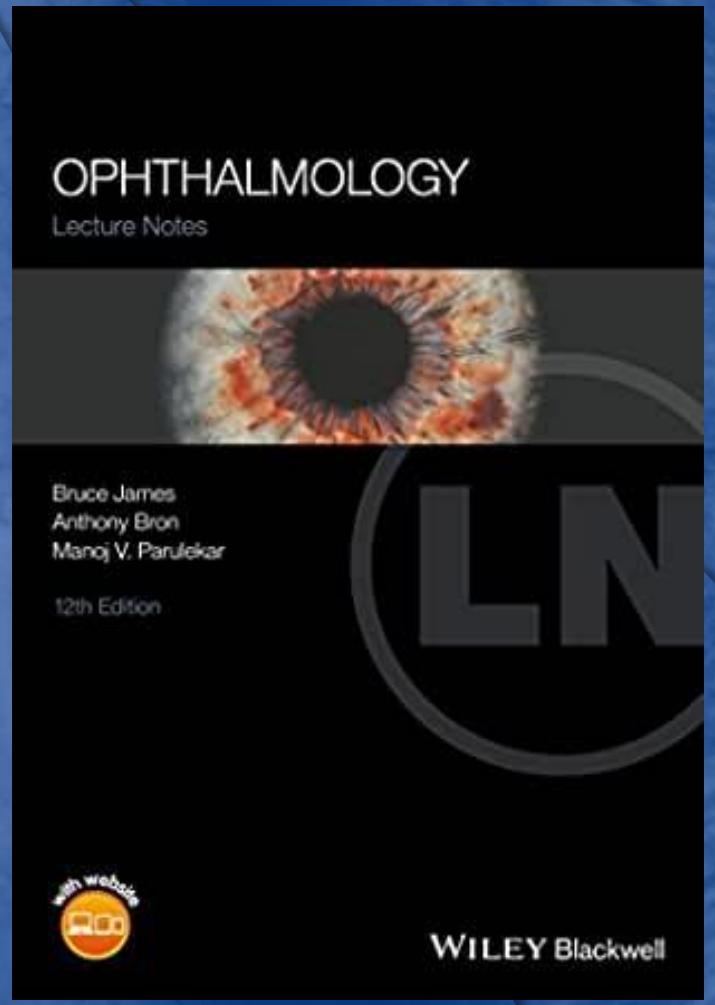
بسم الله الرحمن الرحيم

الملاحظات

- شامل لأسئلة السنوات حتى نهاية 2022
- شامل لملف صور دكتور فواز
- الملف مرتب حسب المواضيع تحت كل موضوع فيه ملاحظات وشرح وأسئلة السنوات
- أسئلة السنوات المكررة تم جمعها ووضع عدد مرات تكرار السؤال في هامش أعلى الصفحة من جهة اليمين
- أي كتابة بصندوق يعتبر هامش للملاحظات
- معاني الألوان: المهم، ملاحظات من عندي أو سؤال من عندي، معلومات زيادة فوق البيعة
- الكلام الي بلغتكم فيه بدوسيه الأشعة قائم برضو على هذا الملف وأي الملفات ثانية اشتغلتها ويا ريت بس هبل

Last update: 01/2023

Sources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Lecture Notes
Bruce James
Anthony Bron
Manoj V. Parulekar
12th Edition
LN
with website
WILEY Blackwell


Ophthalmology
Mini OSCE 2017
Done by :Noor Daher Alhijjaj ☺


All pics from DR Fawaz Sarayreh lectures are collected here in addition of some notes , I hope it will ease your study for miniOSCE exam.
Done by:
MARAH ADEL ALRBATAH
بالتوفيق جميعاً :)


الطب والجراحة
لجنة
OPHTHALMOLOGY
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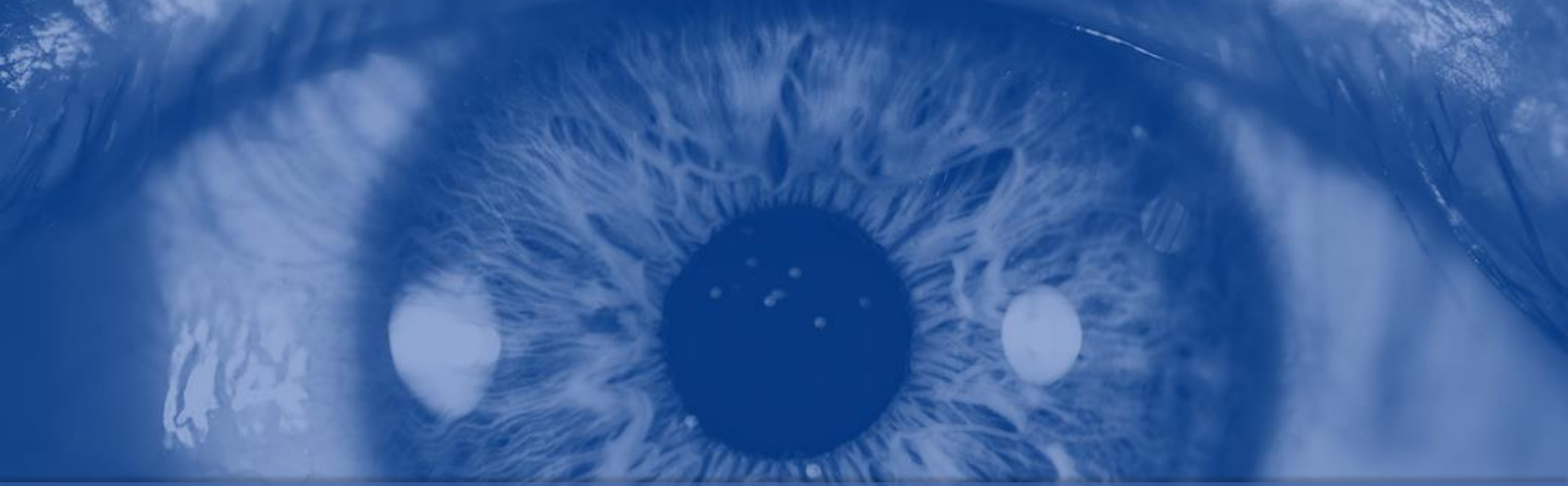


Ophthalmology examination

Essay – Optic nerve assessment

❖What are the tested functions of the optic nerve ?

سنوات (3)

1. Visual acuity
2. Visual field
3. Color vision
4. Pupillary reflex (Light reflex, Accommodation reflex)

❖Define the visual acuity

سنوات (5)

- The ability of the eye to differentiate between to points of light adjacent to each others as a two different points separated by a distance

❖How do we test for visual acuity

سنوات (2)

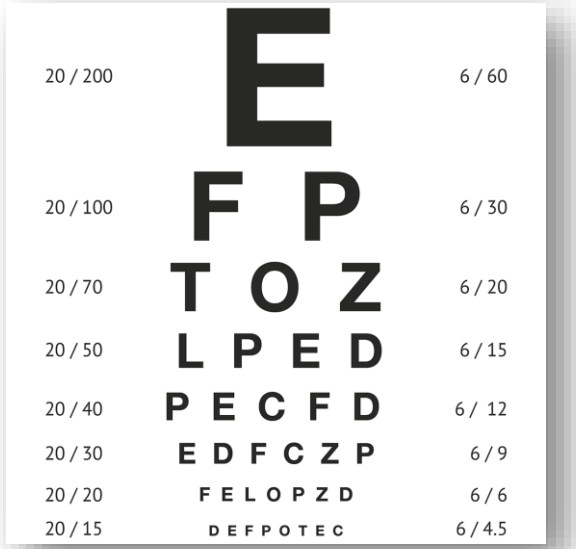
1. Snellen chart from 6m distance
2. If the patient can’t see, we decrease the distance by 1m in each time
3. If the patient can’t see, we use counting fingers
4. If the patient still can’t see, we test light perception

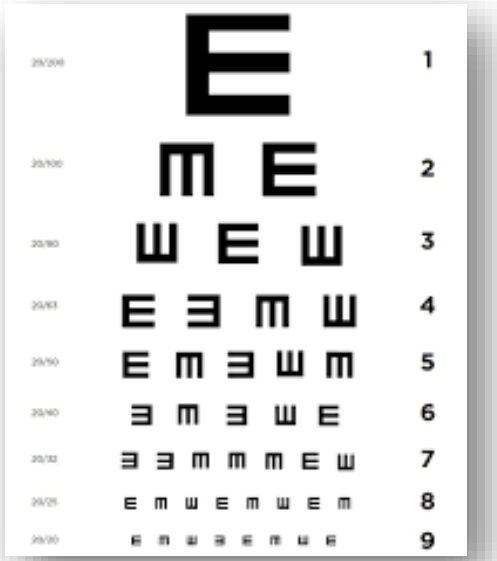
سنوات (1)

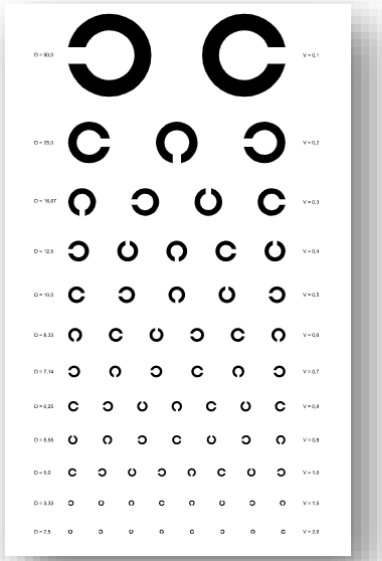
Essay – Visual acuity

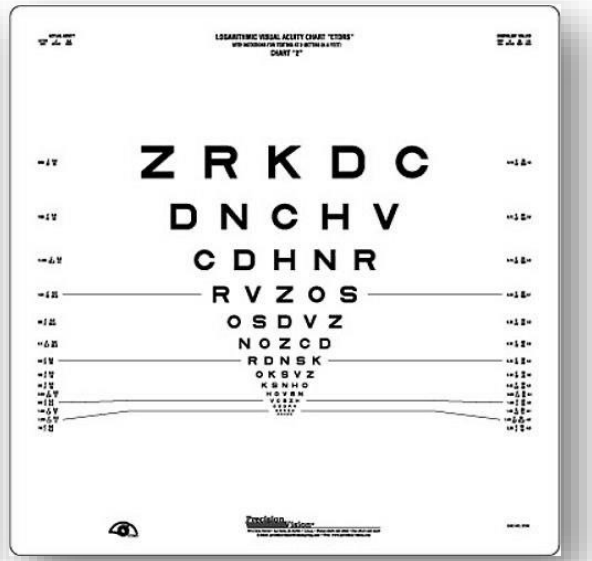
❖Mention 2 visual acuity tests سنوات (1)

1. Snellen chart
2. Tumbling E chart
3. Landolt C chart
4. logMAR









Differences between direct and indirect ophthalmoscope

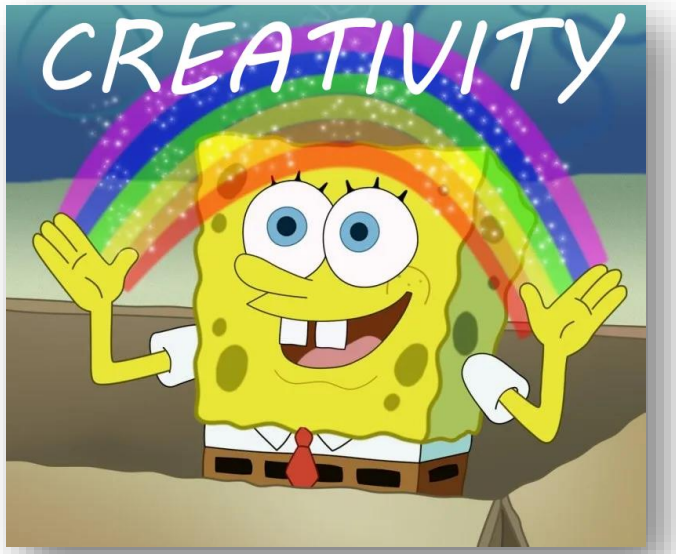
Direct	Indirect
mono-ocular view	bi-ocular view
Limited field of view	wide field of view
high magnification (X15)	lower magnification (x2-5)
Virtual (2d) and erect image	Real (3d) but inverted image (both vertically and horizontally/ upside down and right left)
Has to come close to the patient	Working distance is about 35-40cm

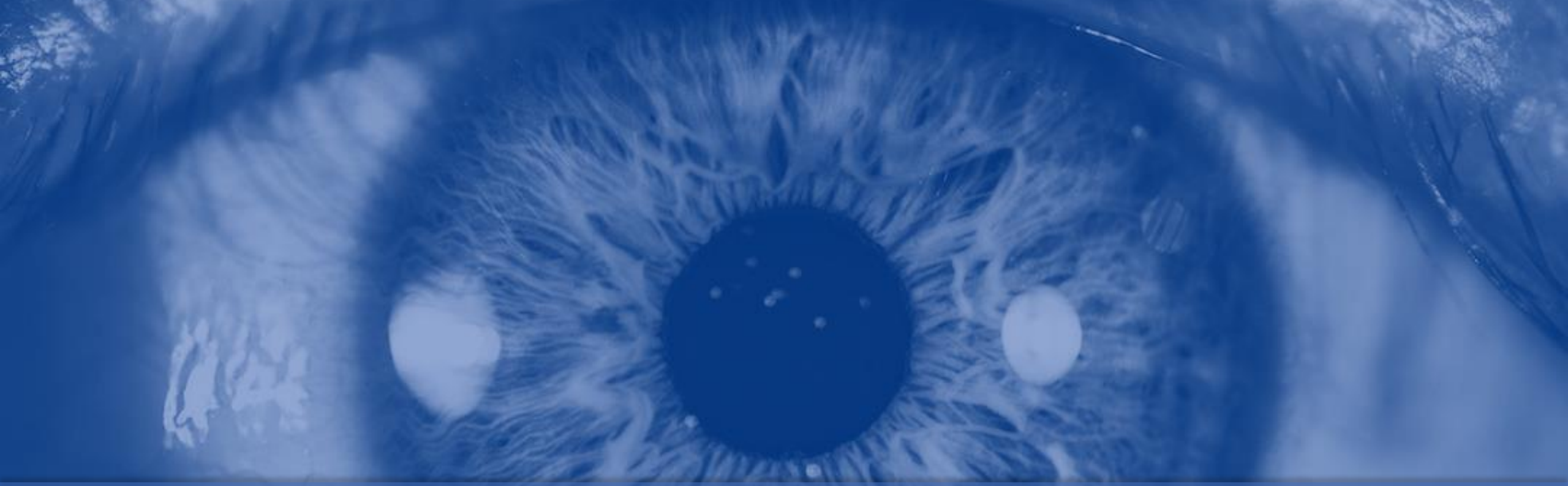
Match the following diseases with visual field defect

- **Optic neuritis** ⟶ Central scotoma
- **Age related macular degeneration** ⟶ Central scotoma
- **Glaucoma** ⟶ Arcuate scotoma
- **Retinitis pigmentosa** ⟶ Concentric visual field defect
- **Central retinal artery occlusion** ⟶ Complete loss of vision
- **Papilledema** ⟶ Blind spot enlargement
- **Pituitary adenoma** ⟶ Bitemporal superior quadrantanopia
- **Pituitary adenoma** ⟶ Bitemporal hemianopia

Why is CT better than MRI in ophthalmology ?

- CT is faster than an MRI and can be useful for defining orbital cellulitis, orbital abscess, idiopathic orbital inflammation, thyroid orbitopathy with compressive optic neuropathy or vision threatening proptosis, and post-surgical or spontaneous retrobulbar hemorrhage.
  - Archive note: googled answer :)





Clinical Optics & Refractions

Essay Q1: Define

- **Emmetropia** is the physiologic state of vision in which the eye is in a relaxed state and rays of light are relayed to the retina with physiologic refraction

سنوات (4)

- **Myopia** is a condition of nearsightedness that causes blurred distance vision due to focusing of light in front of retina

سنوات (1)

- **Hyperopia** is a condition of farsightedness that causes a closer object to appear blurry due to focusing of light behind retina

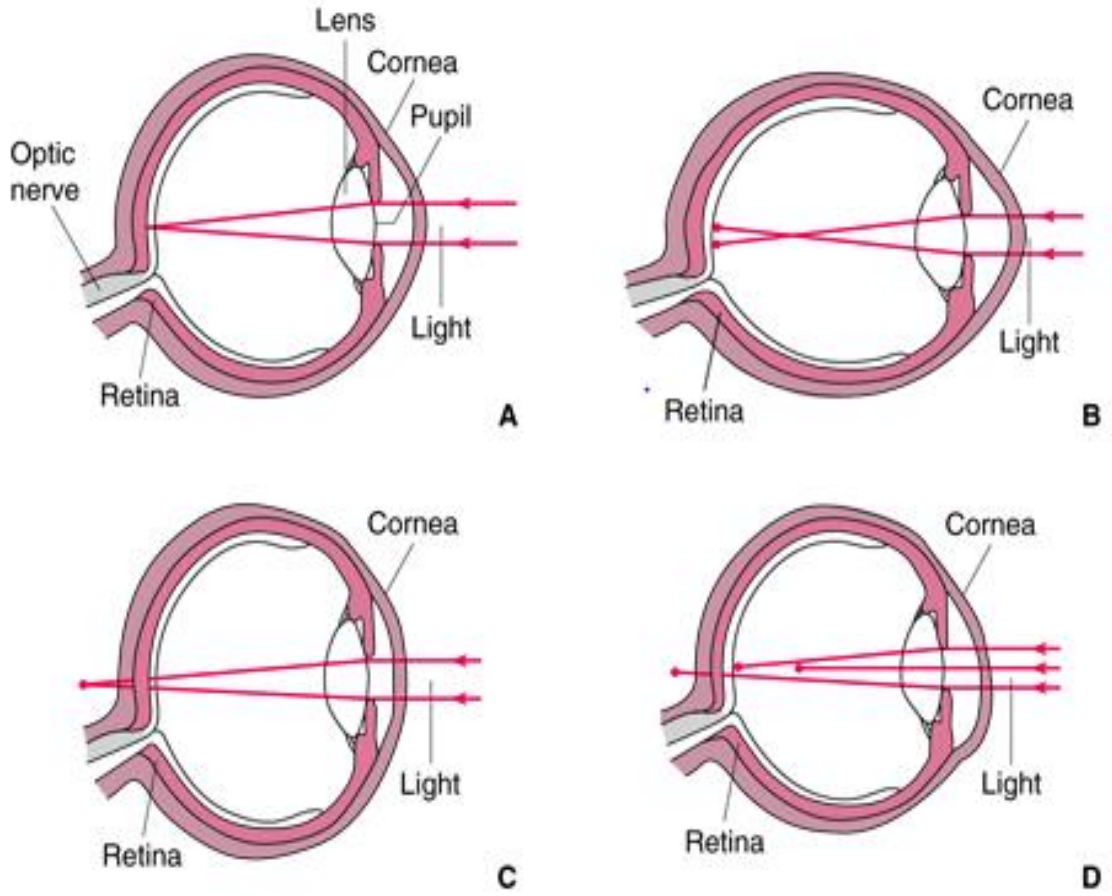
- **Astigmatism** is a condition in which uneven curvature of the cornea hinders even refraction causing the light to focus at different points on each retina resulting in a blurred vision at all distances

سنوات (1)

- **Presbyopia** is loss of the lens' ability to change shape to focus on near objects due to aging

Essay Q2: Draw

(A) Emmetropia; (B) myopia; (C) hyperopia; (D) astigmatism.



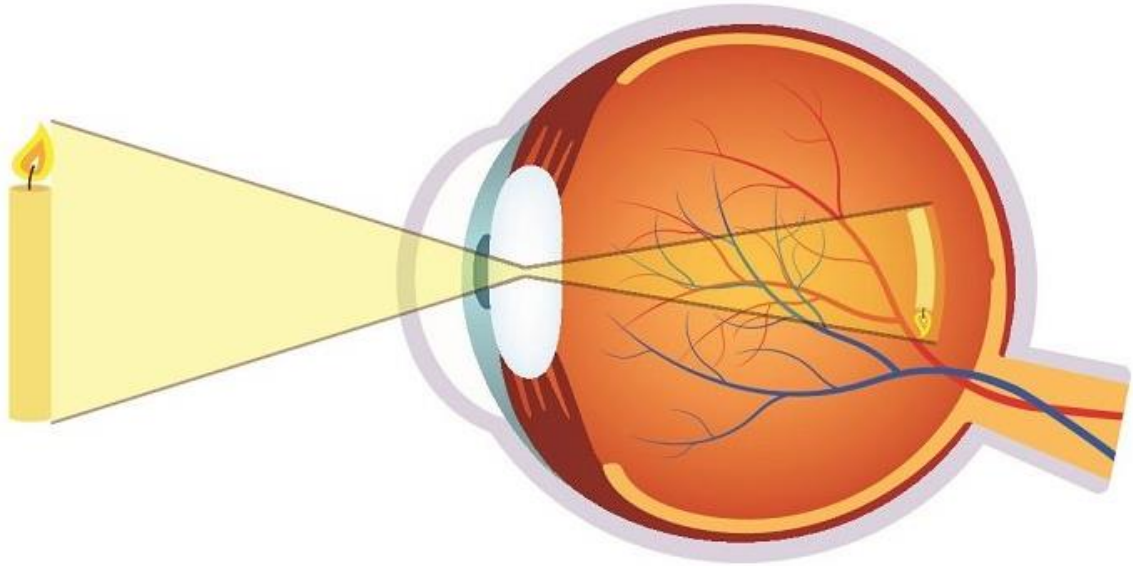
سنوات (1)

Essay questions cont.

- **Give 3 management lines for optic problems**
  - spectacle lenses
  - contact lenses
  - Low-vision aids
  - Surgery
- **Name two types of contact lenses**
  - Soft lenses
  - Hard lenses (rigid lenses)
- **Name two complications of contact lenses** سنوات (2)
  - Dry eye
  - Corneal abrasion & ulcer

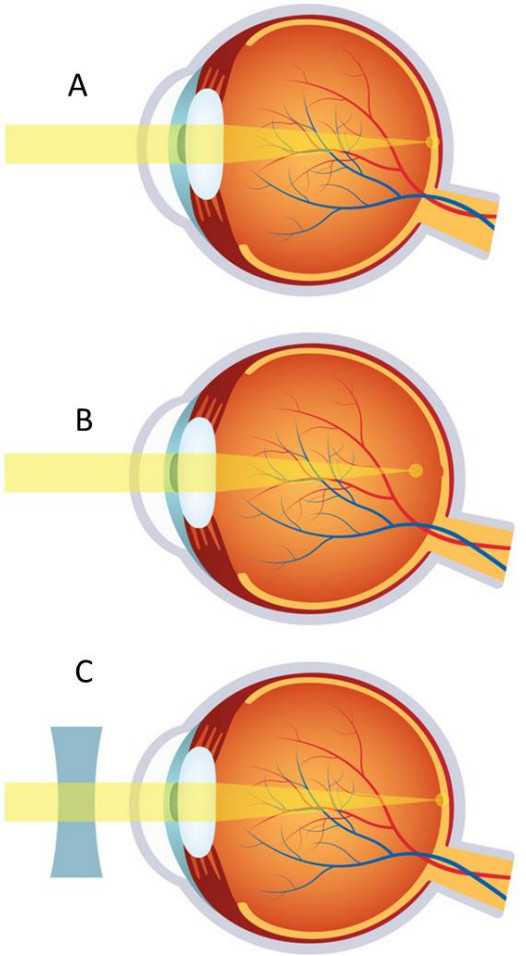
Myopia

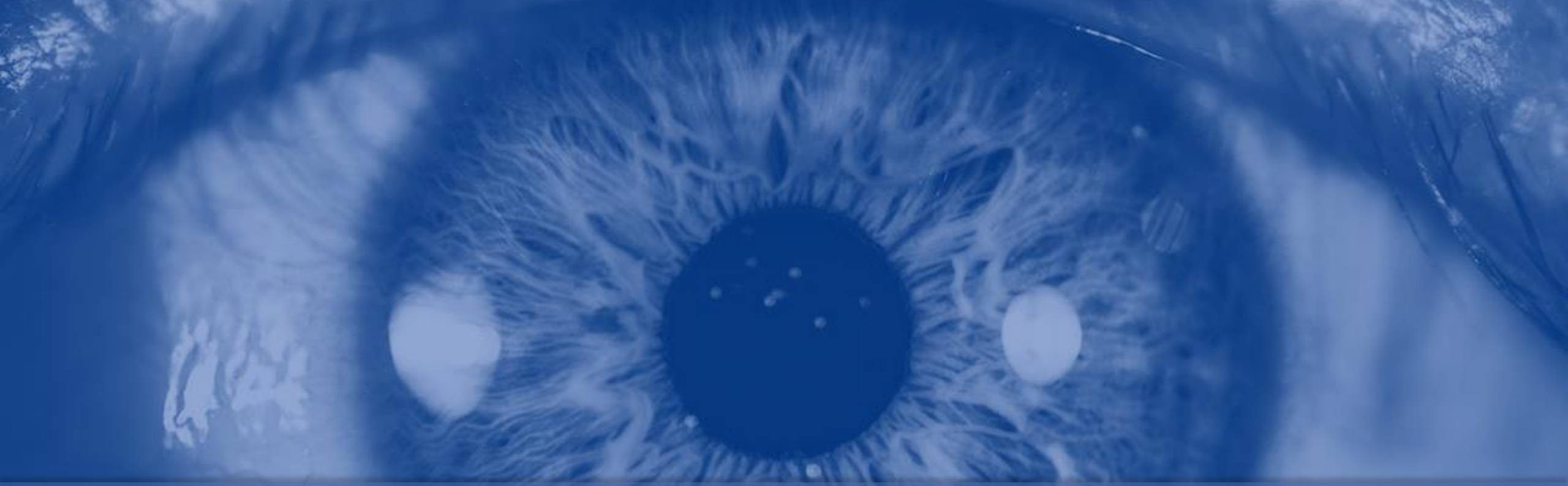
- **Refractive error ?**
  - Myopia
- **Type of lens ?**
  - Concave
- **Method of treatment ?**
  - spectacle, laser



Refractory errors

- What is the refractive state in A, B and C ?
  A. Emmetropia
  B. Myopia
  C. Corrected myopia with concave lens
- How to treat this refractory error
  - Eyeglass
  - Contact lens
  - Surgery

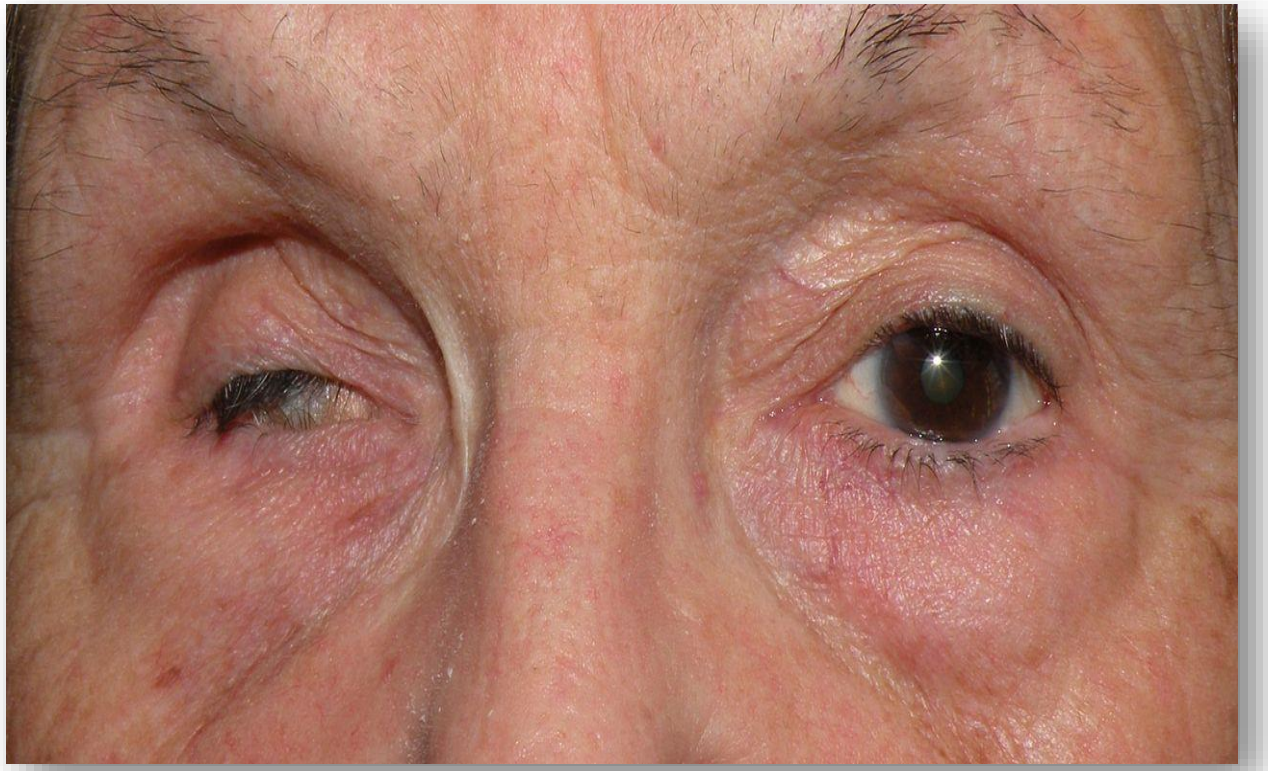




The orbit

Enophthalmos

- **Describe what you see**
  - Shrunken right eye
- **what is the diagnosis ?**
  - phthisis bulbi
  - inflammation
  - Injury
- **Mention the cause**
  - Complication of surgery
- **What is the treatment?**
  - Insertion of prosthesis



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DDx of orbital disease

- **Traumatic orbital disease**: discussed in trauma section
- **Disorders of the extraocular muscles**: discussed in eye movement section
- **Infective disorders**:
  - Orbital cellulitis
- Inflammatory orbital disease
- **Vascular abnormalities**:
  - Caroticocavernous sinus fistula, Capillary hemangioma
- Orbital tumors
- **Dermoid cysts**

Periorbital cellulitis

- **Describe**
  - Peri-orbital inflammation and swelling
- **DDx**
  - Peri-orbital cellulitis
  - Preseptal cellulitis
- **Mention 3 intracranial complications**
  - Meningitis
  - Brain abscess
  - Intracranial hypertension
- **The commonest causative organisms**
  - Staphylococcus and Streptococcus

Periorbital cellulitis cont.

- **Investigations**
  - MRI or CT scan
- **Management**
  - IV broad spectrum antibiotic
  - Abscess drainage
  - Orbital decompression
  - Optic nerve function monitoring

Q: Periorbital cellulitis

- The patient in picture “A” can’t open her eye, +ve RAPD

- **Differential diagnosis ?**
  - Peri-orbital cellulitis
  - Preseptal cellulitis

- **Mention three intracranial complications**
  - Meningitis
  - Brain abscess
  - Intracranial hypertension

- **Describe what you see in picture “B”**
  - Peri-orbital inflammation and swelling (Cellulitis)

Preseptal cellulitis

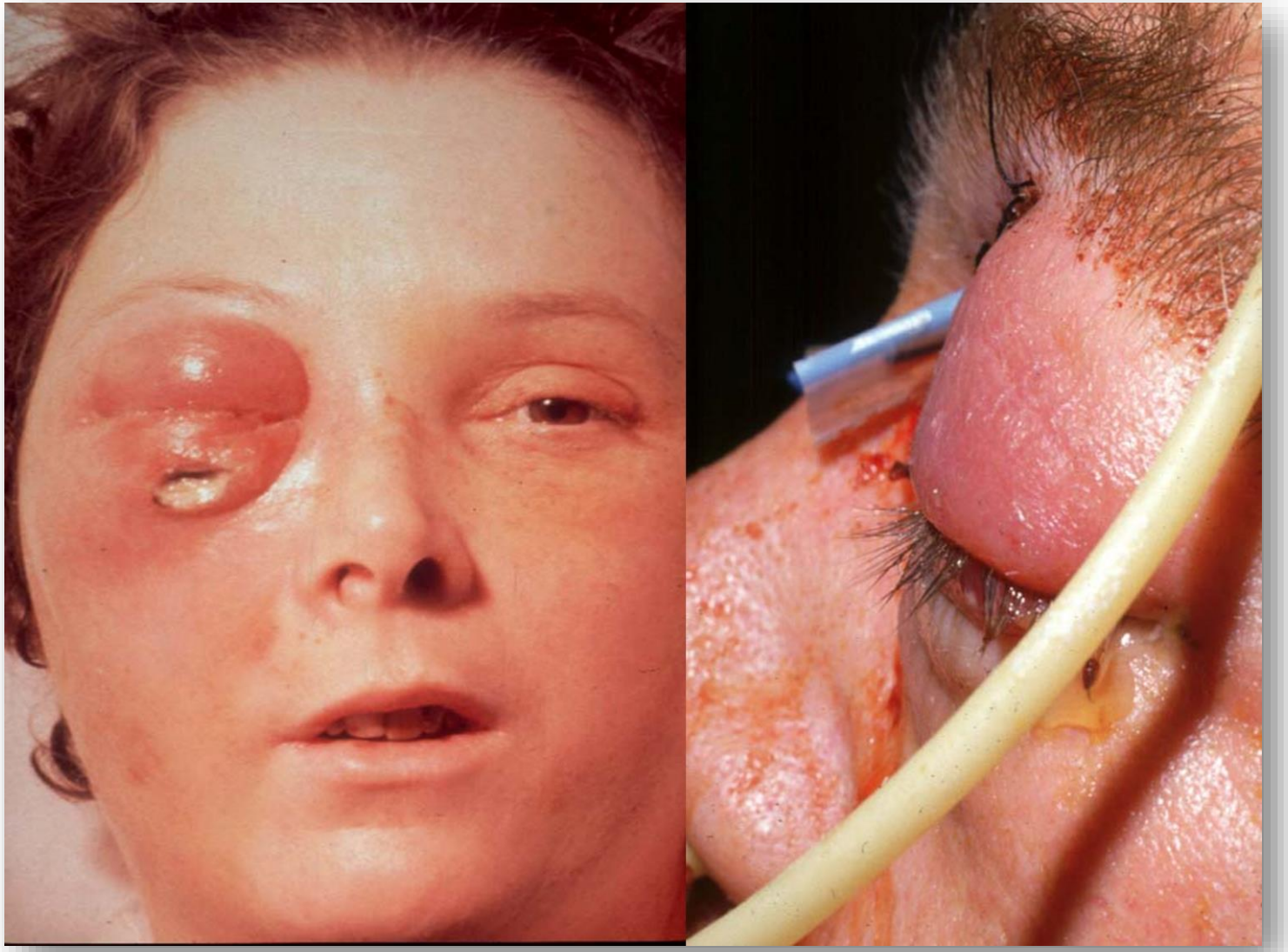
- **Differences between preseptal cellulitis & periorbital cellulitis**
  - A preseptal cellulitis involves lid structures alone
  - It presents with periorbital inflammation and swelling but not the other ocular features of orbital cellulitis.
  - Eye movement is not impaired
- **How to differentiate from the history**
  - Preseptal cellulitis: Periorbital inflammation and swelling and -ve eye movement problems (such as RAPD)
  - Periorbital cellulitis: Periorbital inflammation and swelling and +ve eye movement problems (such as RAPD)

Preseptal cellulitis

- This case was diagnosed as preseptal cellulitis, came back for follow up with worsening of symptoms

- **Differential diagnosis**
  - Orbital cellulitis
  - Insect bite
  - Trauma
  - Preseptal cellulitis
- **If this was a malignant lesion, what is your Ddx ?**
  - BCC, SCC, Sebaceous cell carcinoma
- **Best investigation to confirm the diagnosis**:
  - CT scan, MRI

Orbital cellulites



Orbital mucocele

- Arises from accumulated secretions within any of the Para nasal sinuses
- May need surgical treatment.

Q1: Capillary hemangioma

- **Diagnosis**
  - Capillary hemangioma
- **Mention 2 vision symptoms child suffer from**
  - Proptosis
  - Amblyopia
- **Complication**:
  - Occlusion Amblyopia
- **Management**
  - Spontaneous resolution is the course
  - Treatment may be indicated if occluding the visual axis
  - Local injections of steroid

Q2: Capillary hemangioma

- **Describe what you see**
  - Extensive lesion around the orbit
- **What is your diagnosis ?**
  - Capillary hemangioma
- **How to manage such a case ?**
  - Spontaneous resolution is the course
  - Treatment may be indicated if occluding the visual axis
  - Local injections of steroid

Orbital tumors

- Lacrimal gland tumours
- Optic nerve glioma
- Meningioma
- Lymphoma
- Rhabdomyosarcoma
- Metastasis

Q1: Dermoid cyst

- 6 years old child come with his parents due to mass on his lateral eyebrow border

❖ **DDX of this lesion ?**

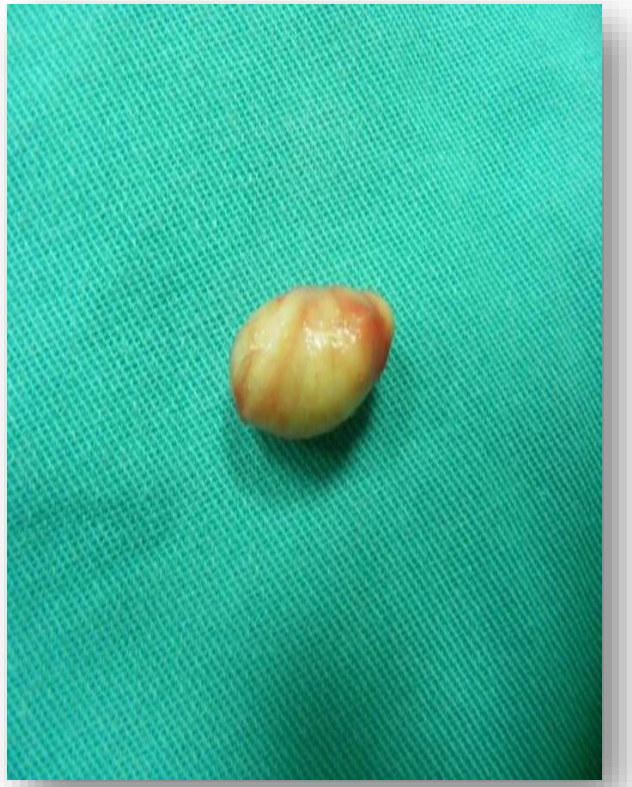
1. Dermoid cyst
2. Lipoma
3. Fibroma

❖ **Is this lesion (congenital/acquired) ?**

- Congenital

❖ **Treatment of this lesion ?**

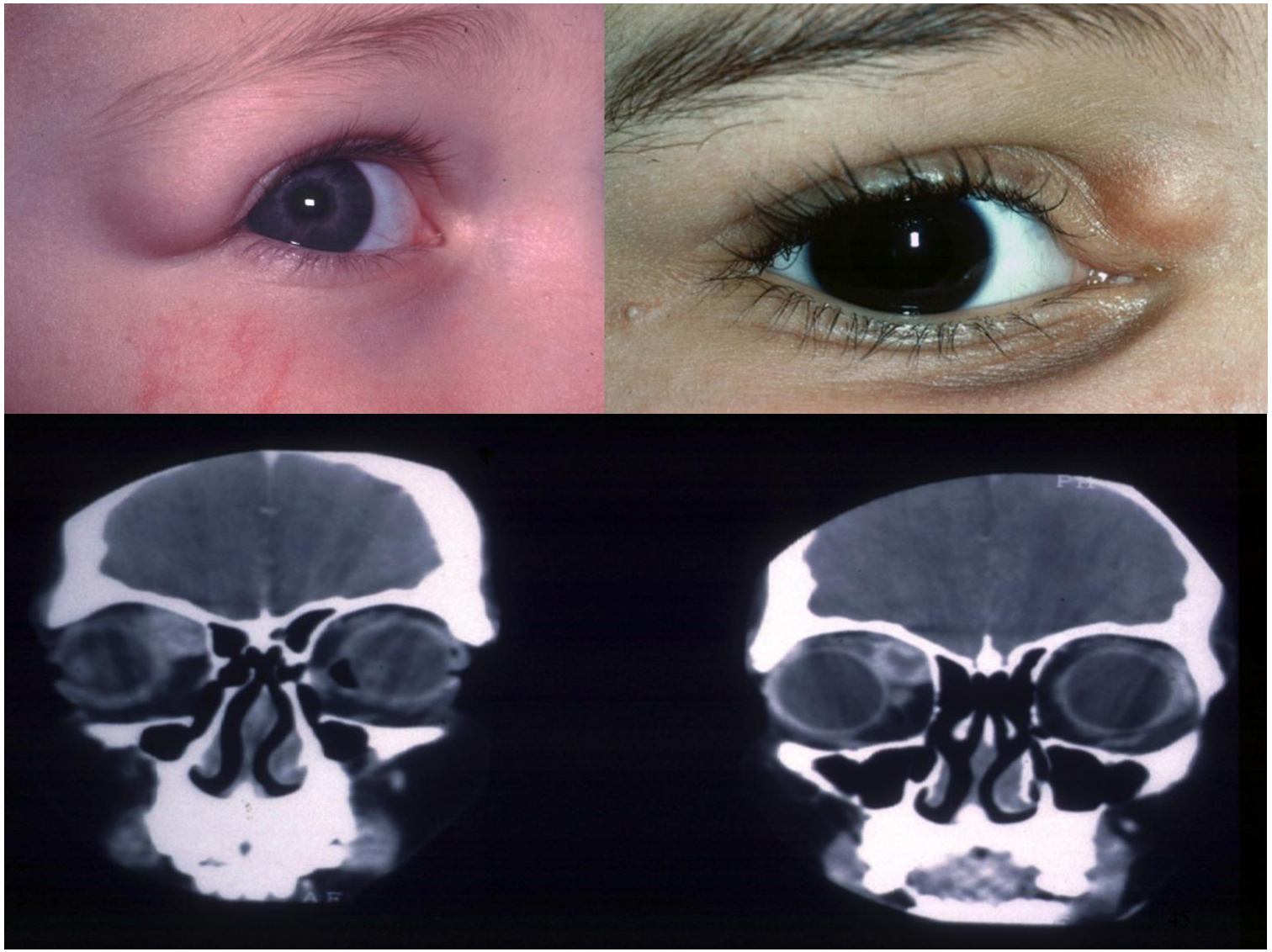
- Excision only

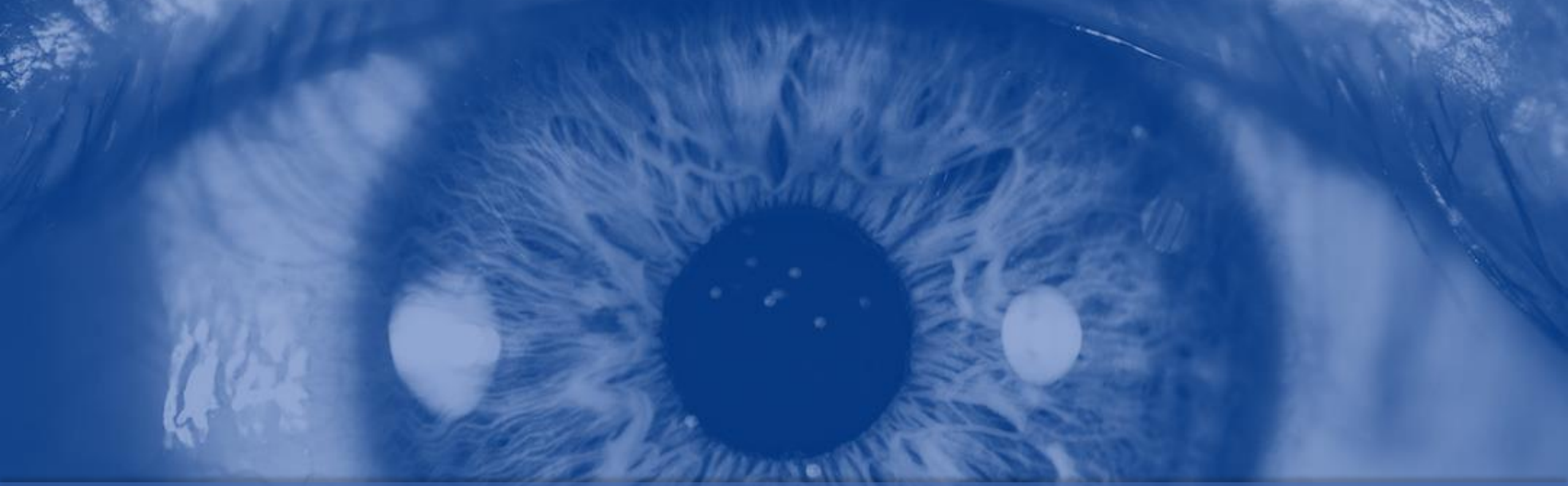


Q2: Dermoid cyst

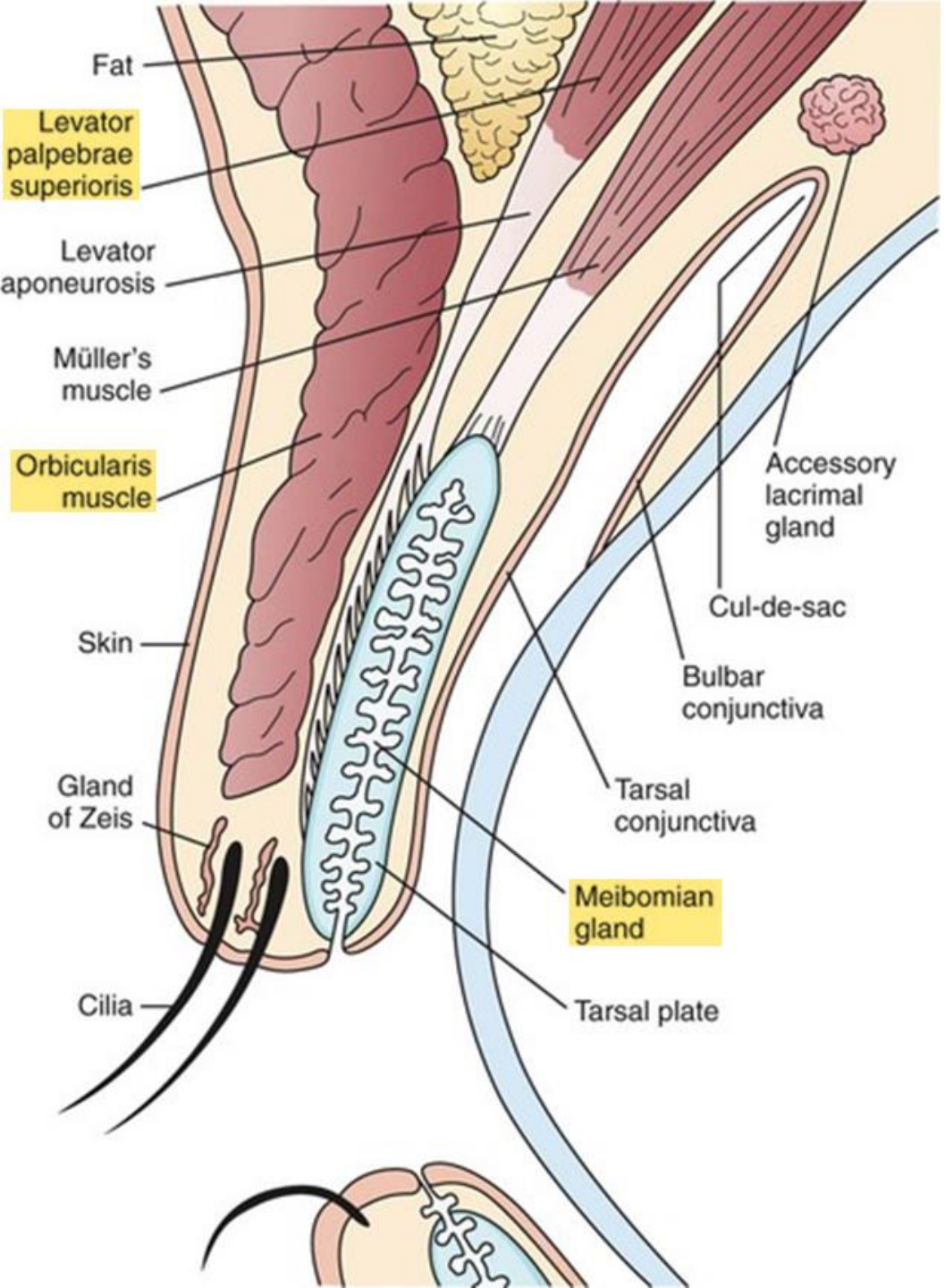
- **Diagnosis**: Dermoid cyst
- **Is it benign or malignant ?** Benign
- **How many germ layers does it contains ?** All 3 layers
- **What is the treatment ?** Excision
- **Why you need to excise it ?**
  1. Cosmetic
  2. It can be uncomfortable
  3. if it ruptured it can cause disseminated infection
- **What investigation should be done before excision**
  - CT scan may be necessary before surgery to identify this deeper connection

Dermoid cyst





The eyelid



Anatomy Questions

- Name the parts highlighted in yellow
- Name the muscle that open the eyelid:
  - Levator palpebrae superioris
- Name the muscle that close the eyelid:
  - Orbicularis oculi

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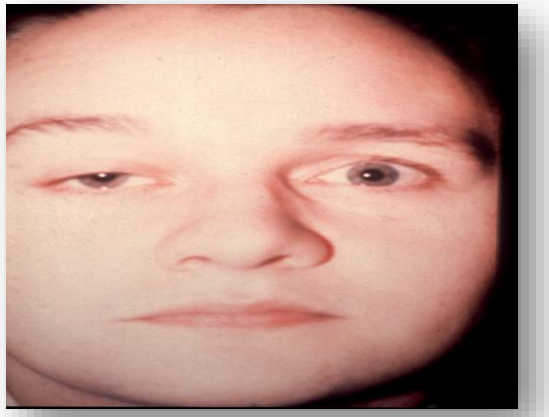
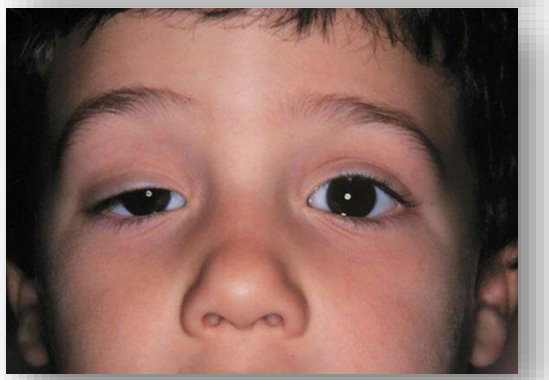
الي بالبنفسجي من ملف صور د. فواز

DDx of eyelid disease

- Abnormalities of lid position
  1. Ptosis
  2. Entropion
  3. Ectropion
- Inflammation of the eyelids
  - Blepharitis
- Benign lid lumps and bumps
  1. Chalazion
  2. Molluscum contagiosum
  3. Cysts
  4. Squamous cell papilloma
  5. Xanthelasmas
  6. Keratoacanthoma
  7. Naevus (mole)
- Malignant tumors
  1. Basal cell carcinoma
  2. Squamous cell carcinoma
- Abnormalities of the lash
  - Trichiasis
- Facial nerve palsy

Q1: Ptosis

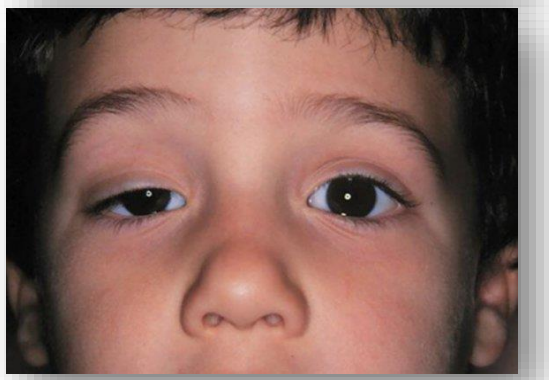




- **Describe**
  - Both pictures are right upper lid ptosis
- **Possible causes: (for more cause check the book)**
  - Tethering of the lid by conjunctival scarring
  - CNIII (Oculomotor nerve) palsy
  - Horner's syndrome
  - Marcus–Gunn jaw-winking syndrome
  - Myasthenia gravis
- **Management:**
  - Treat underlying medical cause (such as myasthenia gravis)
  - Surgical correction (Blepharoplasty)

Q2: Ptosis

- **Describe**
  - Both pictures are right upper lid ptosis
- **Mention signs associated with this condition**
  - Frontalis overaction.
  - Decrease palpebral fissure size.
  - Upper limbus covering >1-2mm.
  - Decreased levator function.(crease)
  - Associated signs of the primary cause
  - Decreased marginal reflex distance.



Q3: Ptosis

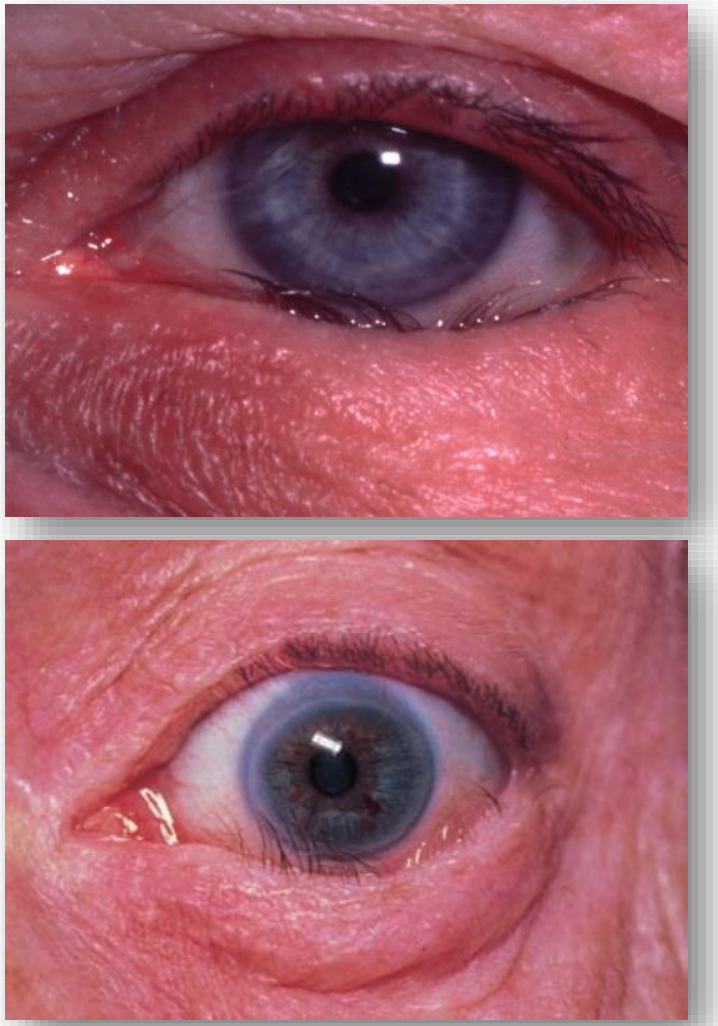
- **Describe**
  - left upper lid ptosis
- **Mention 3 types of ptosis**
  - Congenital ptosis
  - Mechanical ptosis
  - Neurogenic ptosis
  - Myogenic ptosis
  - Aponeurotic ptosis
- **What are indications for surgery?**
  - Cosmetic
  - Blockage of visual access
  - Child with amblyopia

Marcus–Gunn jaw-winking syndrome

- **Diagnosis**
  - Marcus–Gunn jaw-winking syndrome
- **What is the type of this ptosis**
  - Congenital ptosis
- **Treatment**
  - Blepharoplasty
- Pathophysiology
  - In this congenital ptosis there is a congenital mis-wiring of the nerve supply to the pterygoid muscle of the jaw (cranial nerve V) and the levator of the eyelid (cranial nerve III) so that the eyelid moves in conjunction with movements of the jaw

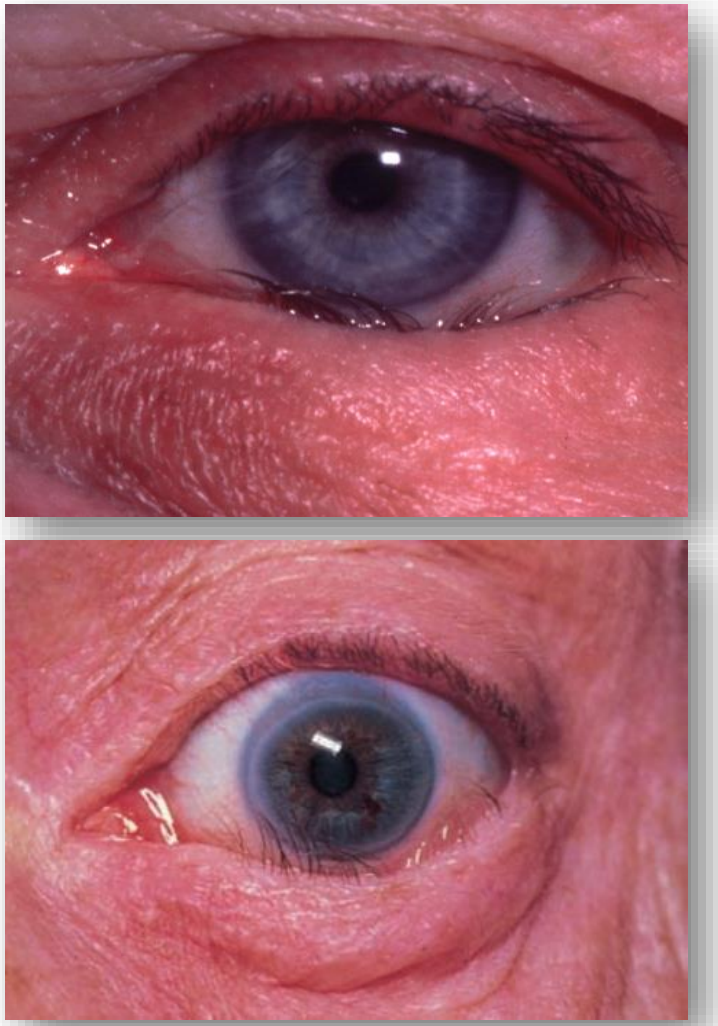
Q: Entropion

- **Describe what you see**
  - Interning of the lid margin and lashes of the lower lid
- **What is the diagnosis ?**
  - Entropion
- **Mention the causes**
  1. Mostly seen in elderly patient with weak orbicularis muscle
  2. Conjunctival scarring



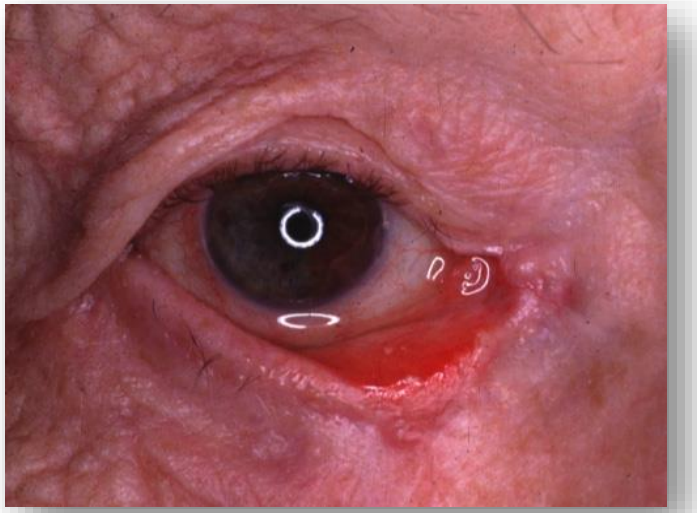
Q: Entropion cont.

- **What are the associated symptoms ?**
  - The interned lashes abrade the cornea and cause redness, irritation and corneal affection
- **What is the treatment ?**
  1. Simple lubricants
  2. Taping of the lid to turn the lashes away from the globe
  3. Injection of botulinum toxin
  4. Surgery (permanent cure)



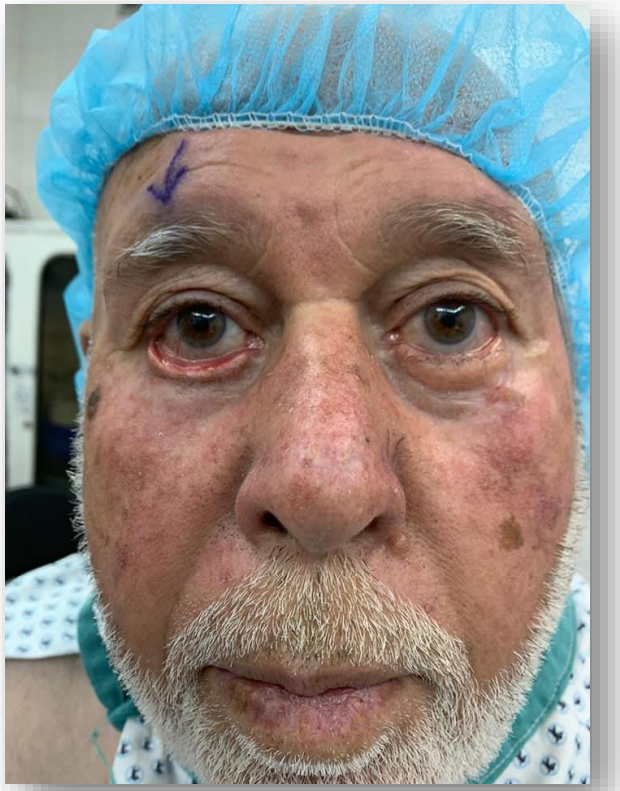
Q1: Ectropion

- **Diagnosis**: Ectropion
- **Causes**
  1. Age-related orbicularis muscle laxity
  2. Periorbital skin scarring
  3. 7th nerve palsy
- **Complications**
  1. Dry eye syndrome
  2. Epiphora
  3. Conjunctivitis
  4. Corneal erosion
- **Treatment**
  - Artificial tears, surgery



Q2: Ectropion

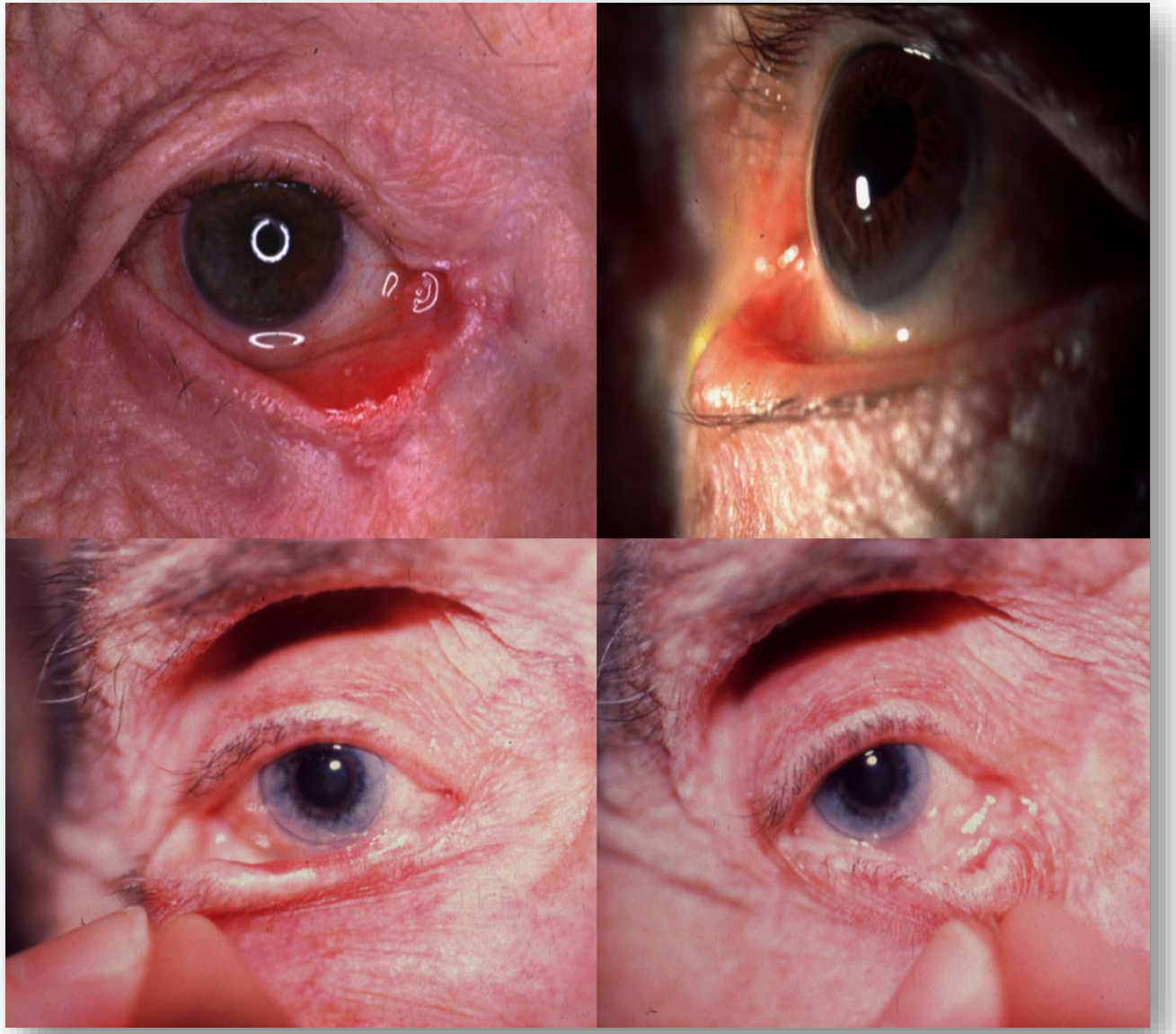
- **Diagnosis**
  - Ectropion
- **3 type of this condition**
  - Cicatricial
  - Senile
  - Congenital



Abnormalities of lid position

- Ptosis is a problem of the upper lid
- Entropion and Ectropion are usually problems of the lower lid
- Entropion: Interning of the lid margin and lashes towards the globe
- Ectropion: Here there is an eversion of the lid away from the globe

Ectropion



Blepharitis

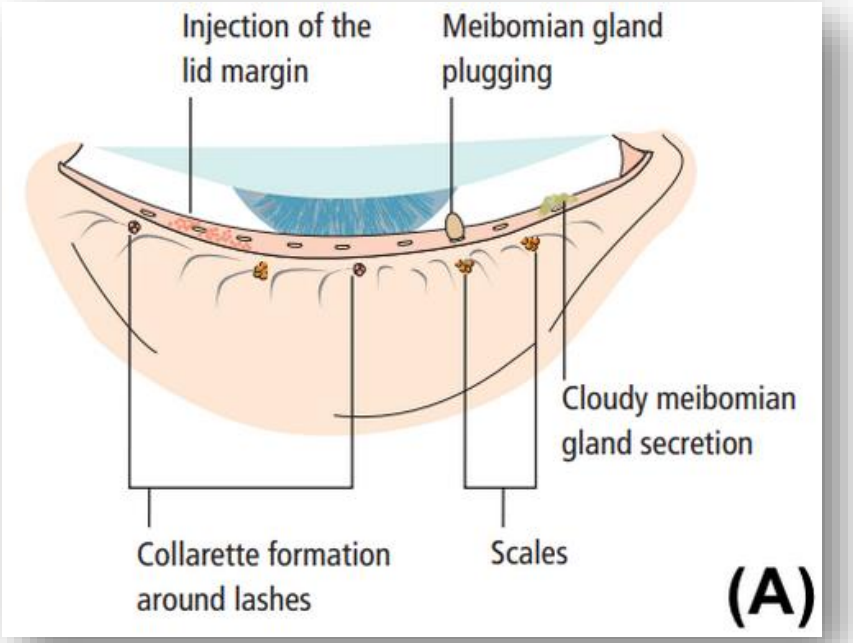
- **Symptoms**:
  - Tiredness, sore eye, FB sensation, Crusting of the lid margin, Tearing
- **Signs**:
  - Scaling of the lid margin
  - Inflammation of the lash follicles
  - Decreased number of lashes
  - Plugging of meibomian gland ducts
  - Foamy tear film and tear film abnormalities
  - In severe cases: blepharokeratitis and marginal keratitis
  - Conjunctival injection
- **Associations**:
  - Seborrheic dermatitis
  - Atopic dermatitis.
- **Treatment**:
  - Lid hygiene for anterior and posterior
  - Warm compresses
  - Topical antistaphylococcal (anterior)
  - Topical steroids
  - Systemic Tetracycline (posterior)
  - Lubricants
  - Mixture of all of these

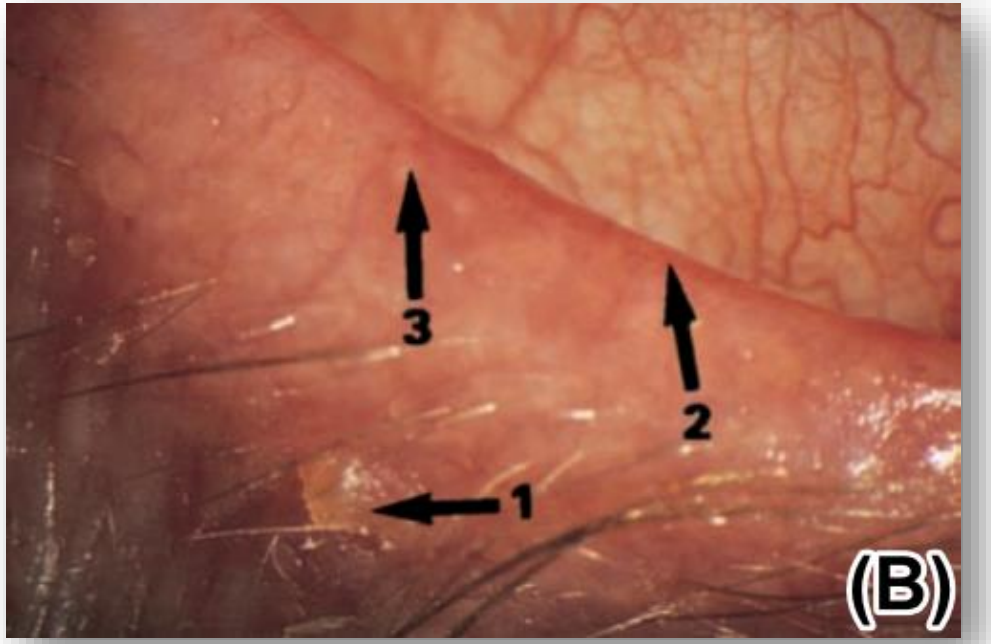
Blepharitis

(A) A diagram showing the signs.

(B) The clinical appearance of the lid margin.

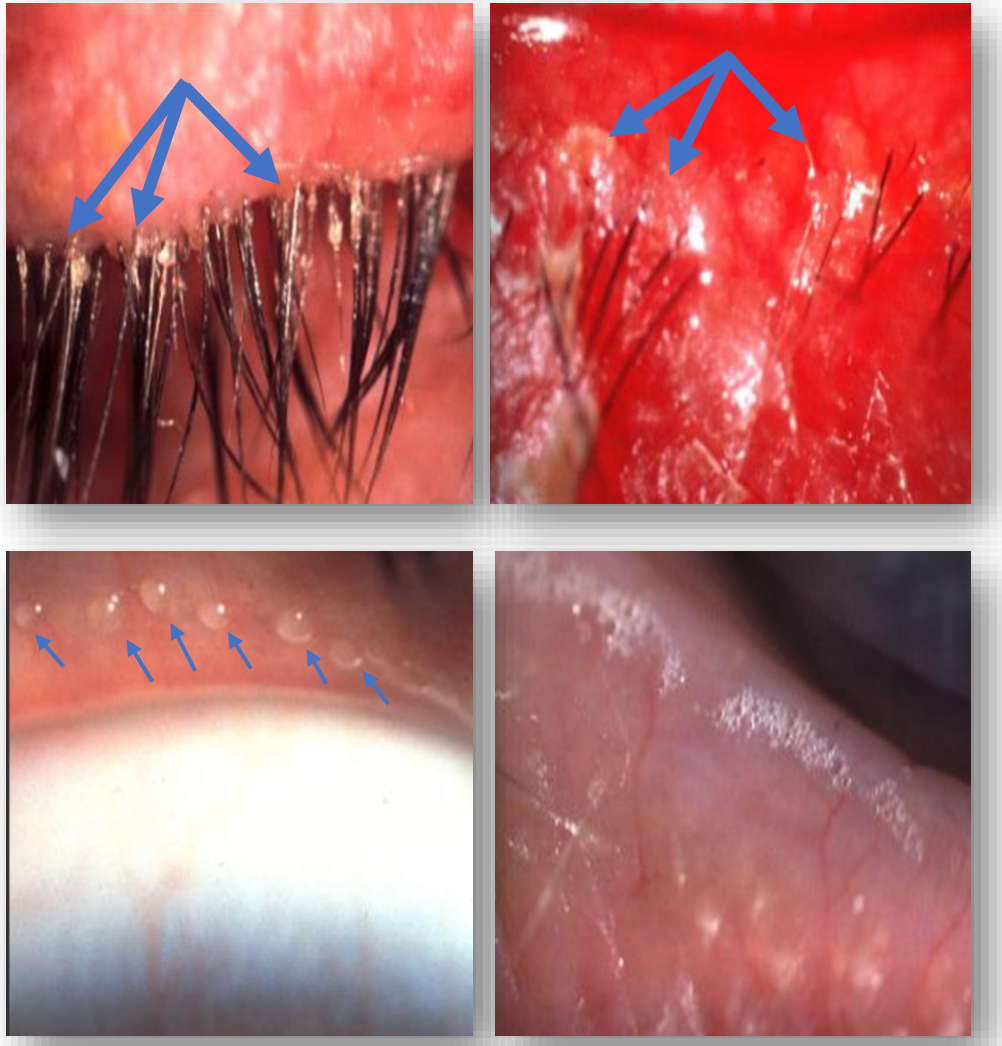
Note (1) the scales on the lashes, (2) dilated blood vessels on the lid margin and (3) plugging of the meibomian glands.





Anterior blepharitis

- Anterior blepharitis signs:
  - Squamous debris
  - Inflammation of the lid margin skin and lash follicles



- Posterior blepharitis signs:
  - Meibomian gland dysfunction

Q: Blepharitis

- **Describe what you see**
  - swollen left upper eyelid
- **What is your diagnosis ?**
  - blepharitis
- **Mention the DDx**
  - Chalazion
  - Sebaceous cell carcinoma
  - Dry eye syndrome

Q1: Chalazion

- This is a common, painless condition in which an obstructed meibomian gland causes a granuloma within the tarsal plate

❖Diagnosis

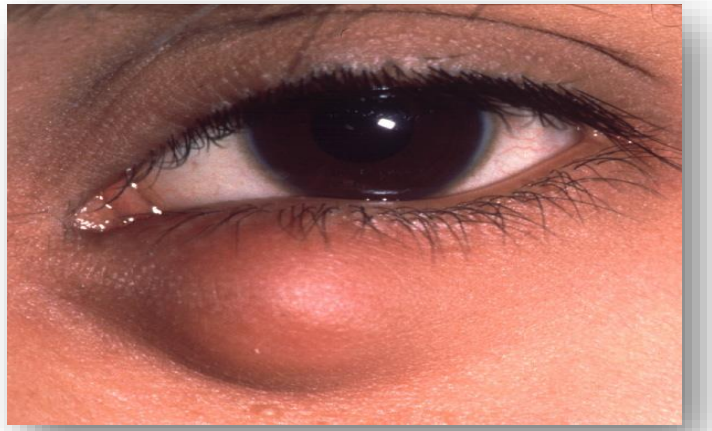
- Chalazion

❖Is it benign or malignant

- Benign

❖Treatment

- Usually resolves spontaneously within 6 months
- If the lesion persists it can be incised and the gelatinous contents curetted away.



Q2: Chalazion

- Recurrent chalazion (excision previously), with cervical LN & decrease of visual acuity (same eye), according to the mass (photo)

- **Mention 3 differential diagnosis?**
  1. Sebaceous cell carcinoma
  2. Basal cell carcinoma
  3. Squamous cell carcinoma
- **Most important investigation to confirm your diagnosis?**
  - Biopsy

Q2: Chalazion cont.

- Recurrent chalazion (excision previously), with cervical LN & decrease of visual acuity (same eye), according to the mass (photo)

❖ **Management?**

- Surgical remove and radiotherapy

❖ **Benign or malignant**

- Malignant

❖ **Is simple excision enough?**

- No

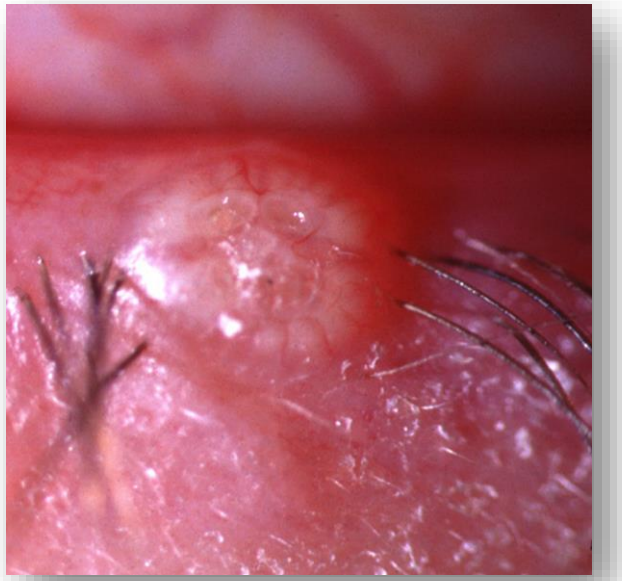
External hordeolum (stye)

- Hair follicle abscess.
- **Cause**: bacterial infection.
- **Treatment**:
  - removal of the lash.
  - worm compresses.
  - topical or systemic AB.

An abscess (internal hordeolum) may also form within the meibomian gland and, unlike a chalazion, this is painful. It may respond to topical antibiotics but usually incision is necessary. A stye (external hordeolum) is an exquisitely painful abscess of an eyelash follicle. Treatment requires the removal of the associated eyelash and application of hot compresses. Most cases are self - limiting, but occasionally systemic antibiotics are required

Molluscum contagiosum

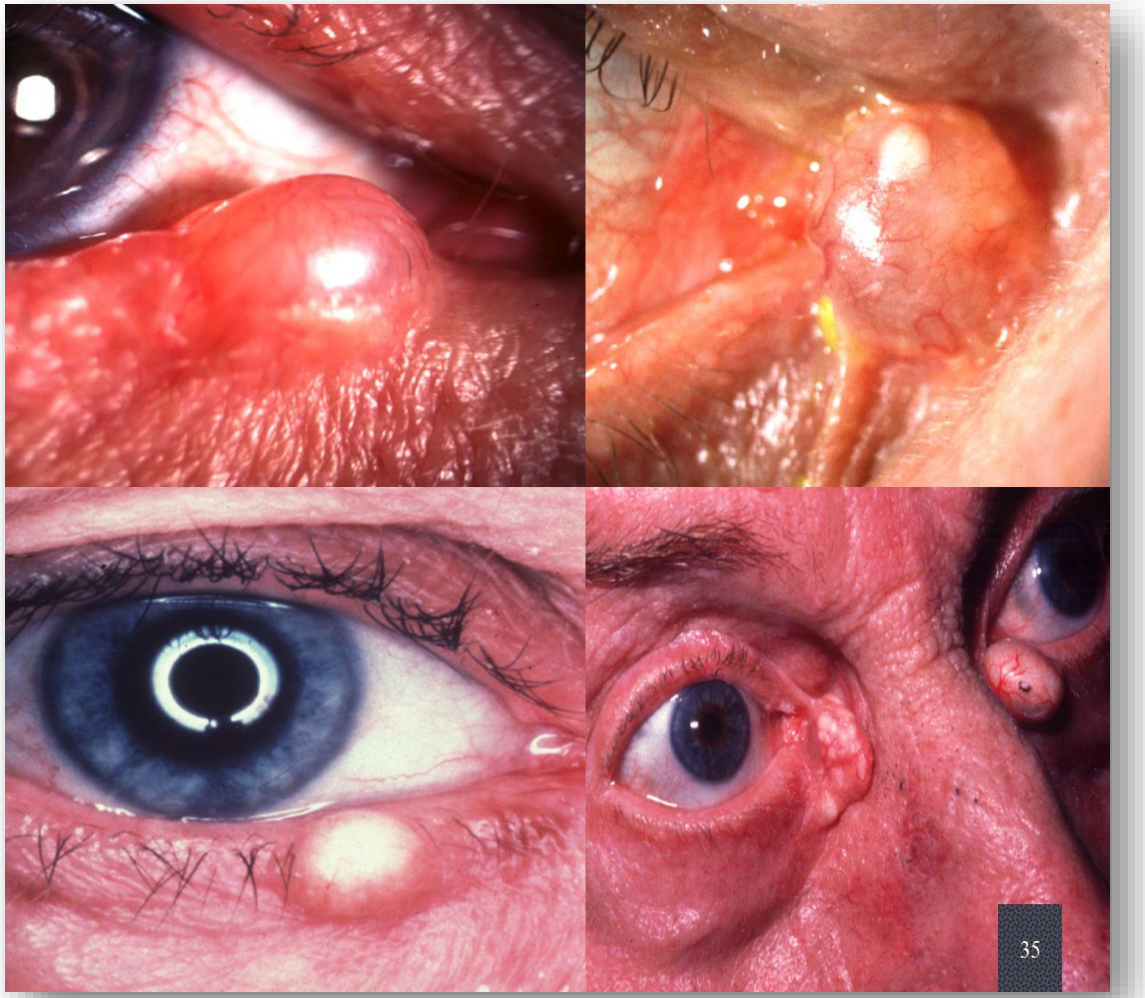
- **Describe**:
  - Umbilicated lesion found on the lid margin.
- **Cause**:
  - POX virus.
- **Treatment**:
  - Excision



- It causes irritation of the eye. The eye is red, and small elevations of lymphoid tissue are found on the tarsal conjunctiva (follicular conjunctivitis).

Cysts

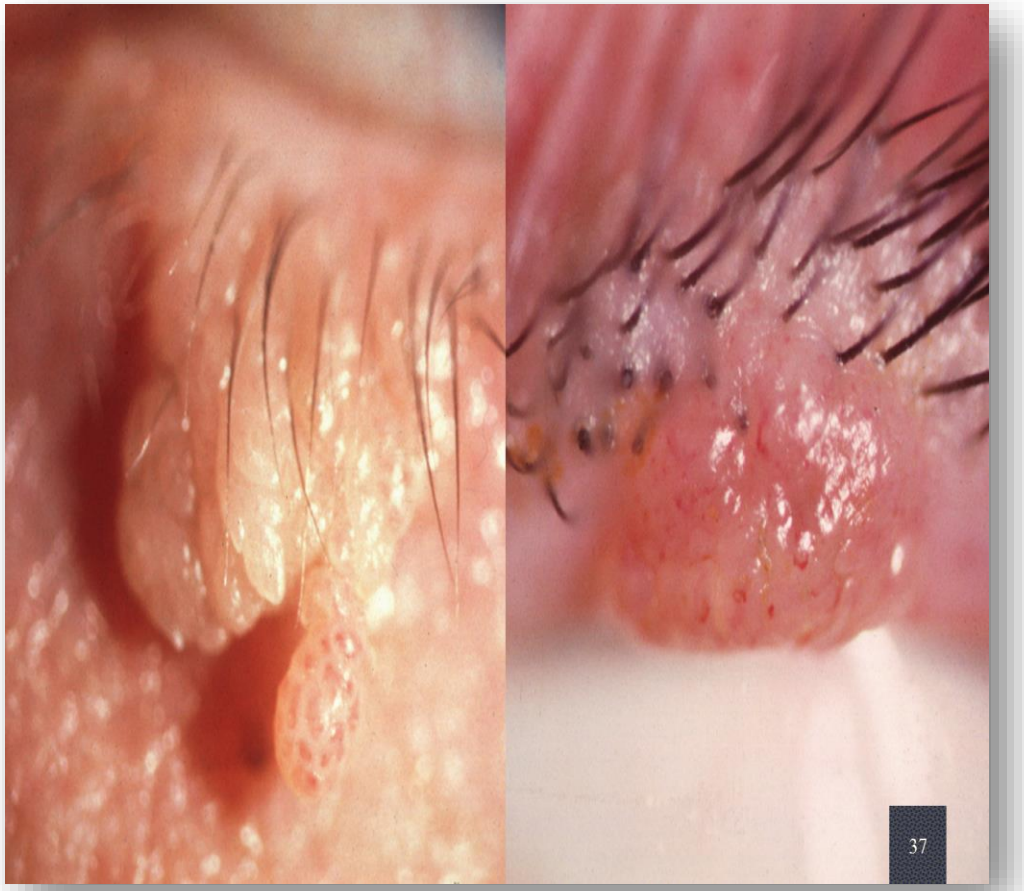
- **Sebaceous cysts** are opaque, painless and may be removed for cosmesis
- **Cyst of Moll**: sweat gland obstruction giving translucent mass
- **Cyst of Zeis**: an opaque cyst caused by accessory sebaceous gland obstruction
- **Treatment**: Surgical excision for cosmetic reasons



Squamous cell papilloma

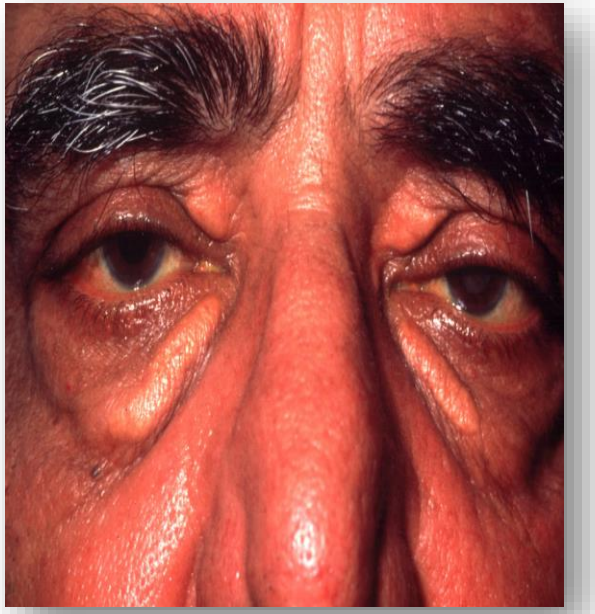
- A common frond-like lesion with fibrovascular core & thickened squamous epithelium.

- It is usually asymptomatic but can be excised for cosmetic reasons with cautery to the base.



Q1: Xanthelasma

- **Definition**
  - Xanthelasma; typically bilateral, yellow, flat plaques on the upper eyelids (nasal side)
- **Causes**
  - Idiopathic
  - Diabetes mellitus
  - Hypercholesterolemia
  - Hyperapobetalipoproteinemia
  - Usually affects postmenopausal women



- **Why this lesion might be removed?**
  - For cosmetic causes.
- **Does this patient need medical or surgical intervention for his case?**
  - No, only for cosmetic causes.

Q: Keratoacanthoma

❖ **Differential diagnosis**

1. Keratoacanthoma
2. Squamous cell carcinoma
3. Basal cell carcinoma

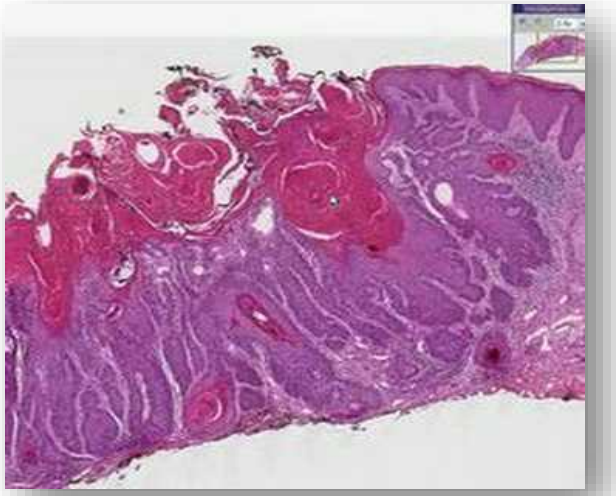
❖ **If this was a benign lesion, what is your Dx?**

- Keratoacanthoma

❖ **Management?**

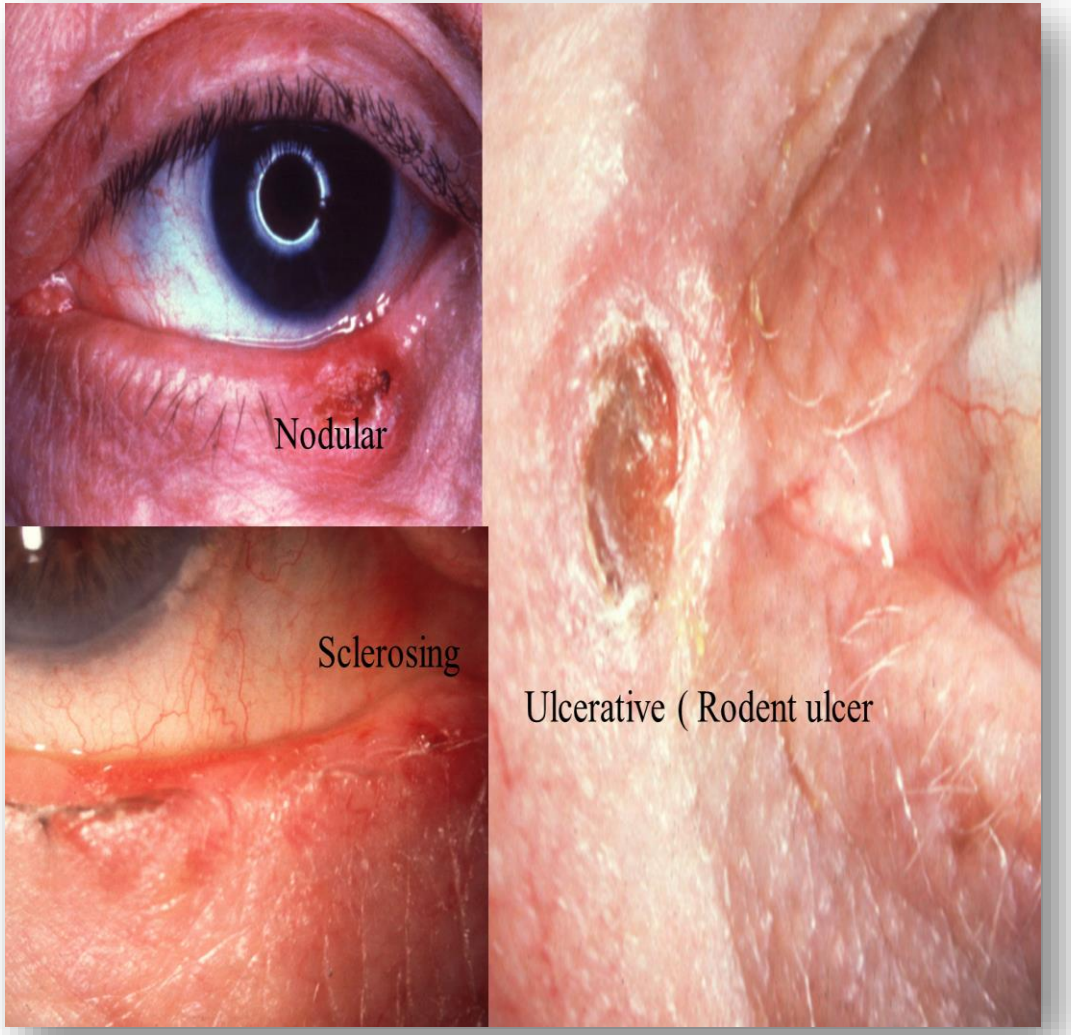
- Surgical excision (cosmetic)

➢ Careful histology must be performed as some may have the malignant features of a squamous cell carcinoma



Basal cell carcinoma

- Most common malignant tumor.
- Painless lesion.
- Can be nodular, sclerosing or ulcerative (rodent ulcer)
- **Risk factor**: UV exposure
- **Treatment**:
  - Excision
  - Frozen section
  - Cryotherapy
  - Radiotherapy
- **Prognosis**: very good unless deep invasive tumor

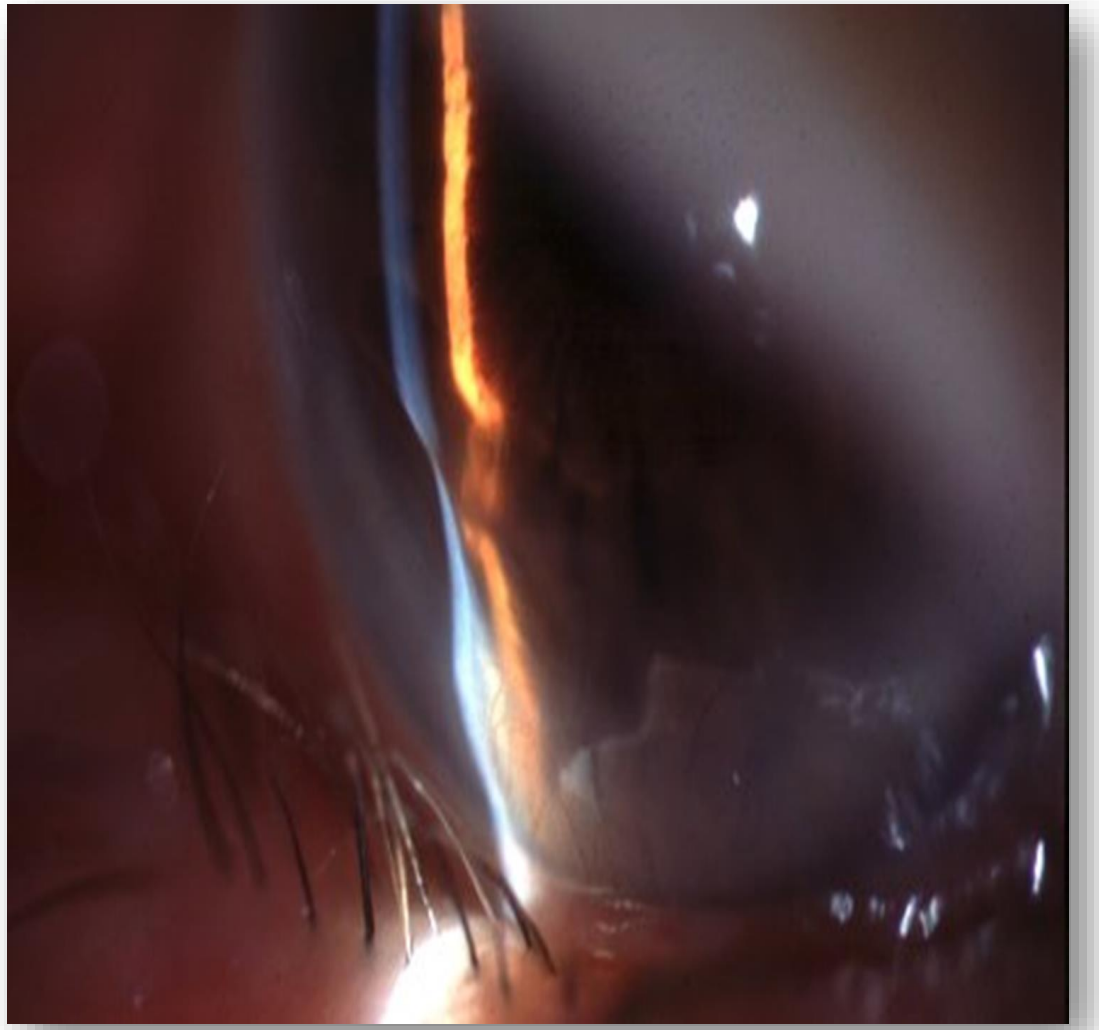


Squamous cell carcinoma

- Less common.
- More malignant.
- Can be metastasize to LN.
- **Risk factor**: Immunosuppression
- **Treatment**:
  - Excision with healthy margin.

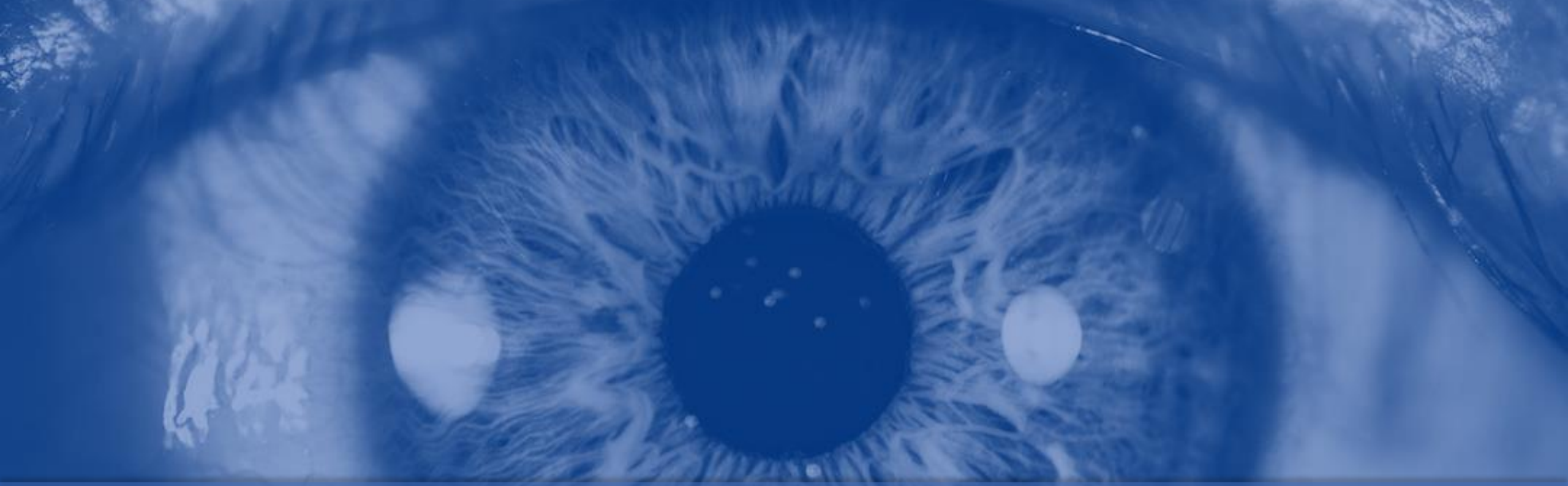
Trichiasis

- Abnormally backward directed eye lashes.
- **Causes**: 1ry or 2ry (trachoma).
- **Treatment**: epilation of the abnormal lashes manually, laser, electrolysis or surgery.



Facial nerve palsy

- What is your diagnosis ?
  - Left sided facial palsy
- Mention 2 eye complications associated with this disease
  - Dry eye
  - Incomplete closure of the eyelid due to orbicularis oris muscle paralysis



The lacrimal system

Congenital nasolacrimal duct obstruction

- Epiphora & matting of the lashes.
- Mucocele formation
- May predispose to dacrocystitis (infection of the lacrimal sac).
- **Treatment**:
  - Spontaneous opening occur in most cases.
  - Lacrimal sac massage accompanied by lid hygiene.
  - Lacrimal sac syringing & probing.

Dacrocystogram

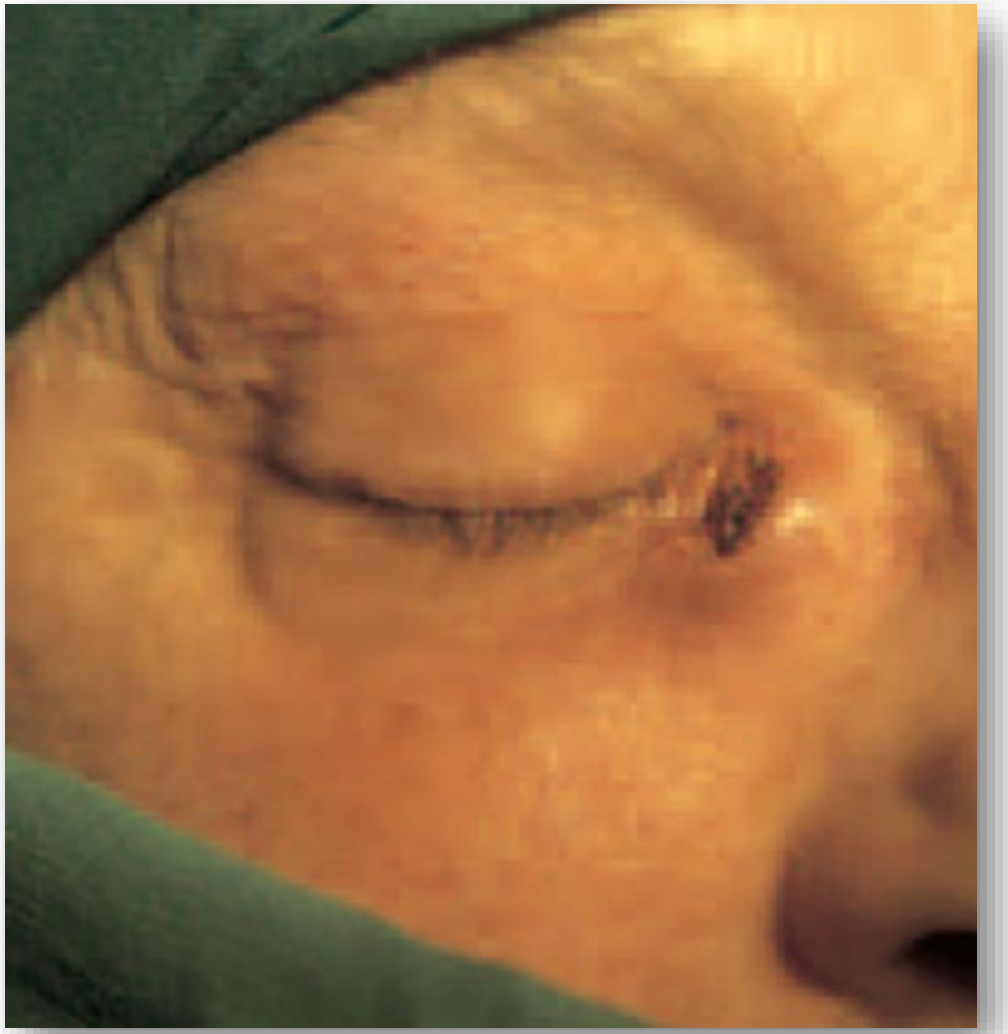
- A special radiographic test to see if there is blockage of the tear canals
- Radiographic dye is injected into the tear canal and then radiographic pictures are taken to determine if the duct is blocked or if there is free flow of tears from the eye into the nose

Dacryocystitis

- Infection of the lacrimal sac predisposed by closure
- **The commonest causative organisms**
  - Staphylococcus and Streptococcus
- Patients present with a painful swelling on the medial side of the orbit, which is the enlarged, infected sac
- **Treatment** is with systemic antibiotics

Dacrocystorhinostomy – lacrimal surgery

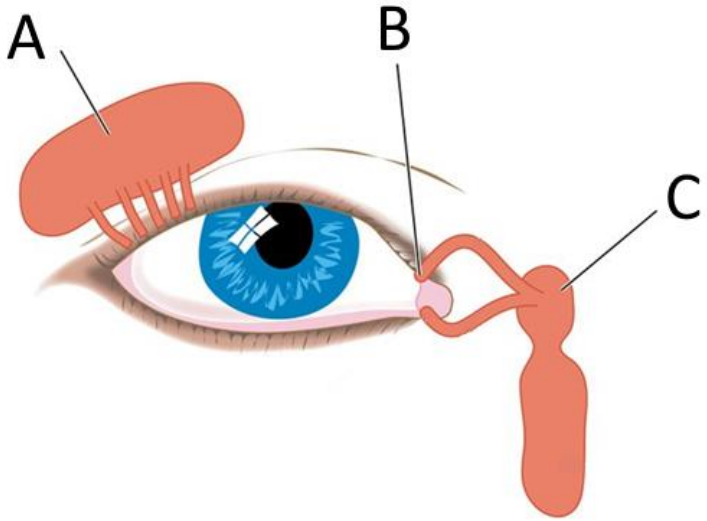
- A straight vertical incision is made medial to the inner canthus.
- **Complications**
  1. Cutaneous scarring
  2. Injury to medial canthus structure
  3. Hemorrhage
  4. Cellulitis
  5. CSF rhinorrhea



Q: The lacrimal system

❖**Identify the structures**

A. Lacrimal gland
B. Superior lacrimal punctum
C. Lacrimal sac

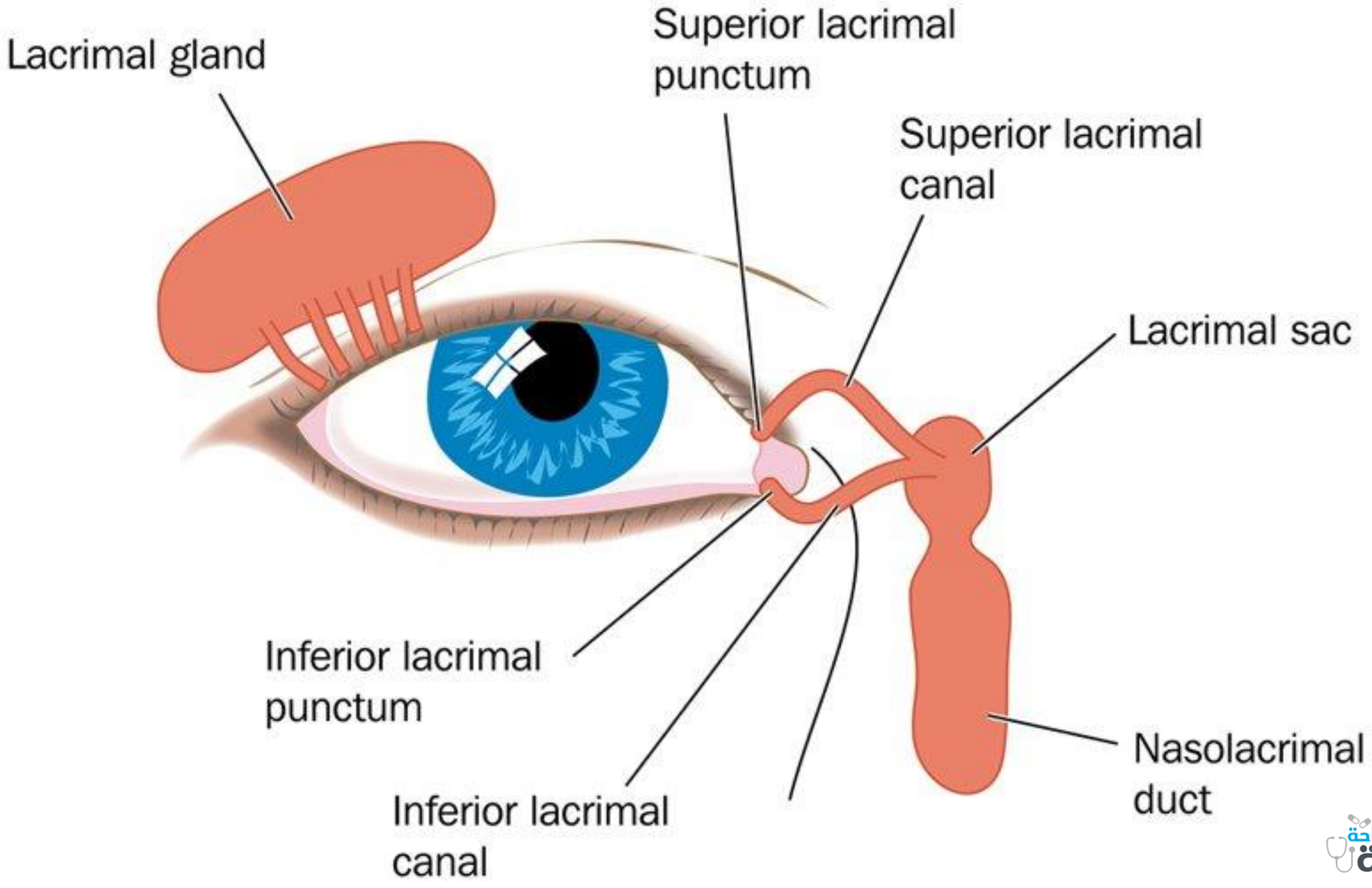


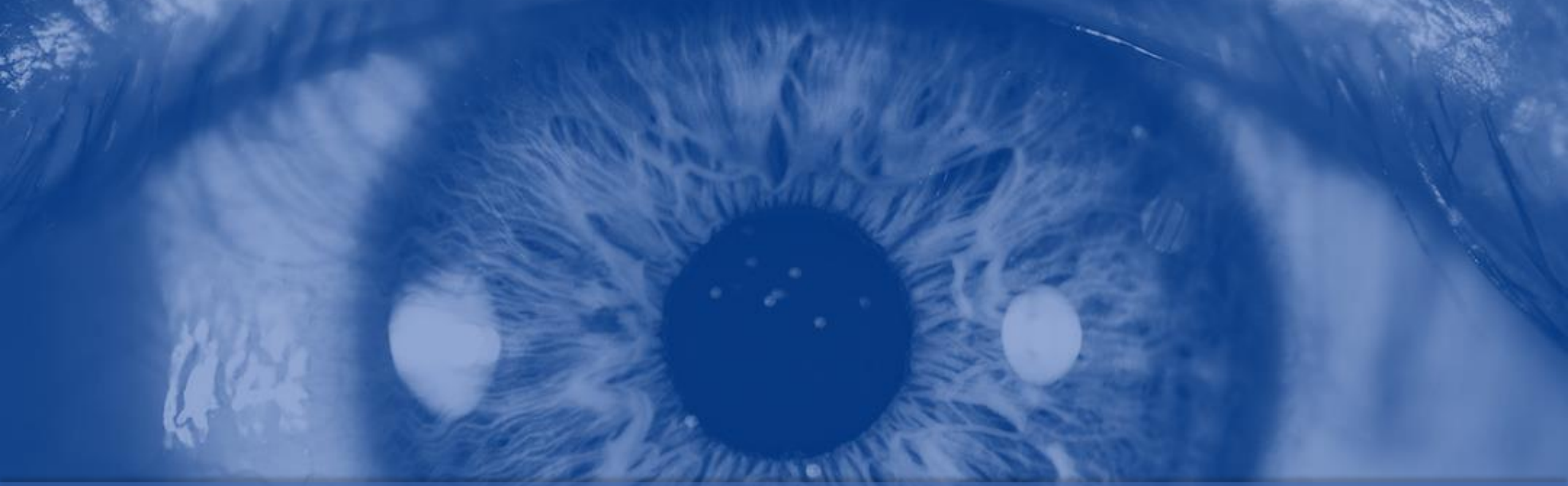
❖**What is epiphora ?**

- Excessive tearing and watering of the eye.

❖**If a 6-month-old child came with with congenital nasolacrimal duct obstruction, what will you tell the parents about treatment ?**

- Spontaneous opening occur in most cases.
- Lacrimal sac massage accompanied by lid hygiene.
- If above failed Lacrimal sac syringing & probing


Lacrimal gland
Superior lacrimal punctum
Superior lacrimal canal
Lacrimal sac
Inferior lacrimal punctum
Inferior lacrimal canal
Nasolacrimal duct



The conjunctiva

DDx of conjunctiva disease

- Inflammatory diseases
  - Bacterial conjunctivitis
  - Ophthalmia neonatorum
  - Viral conjunctivitis
  - Chlamydial infections
  - Allergic conjunctivitis
- Conjunctival degenerations
  - *Pingueculae* and *Pterygia*
- Conjunctival tumors
  - Squamous cell carcinoma
  - Malignant melanoma

Conjunctivitis signs 1

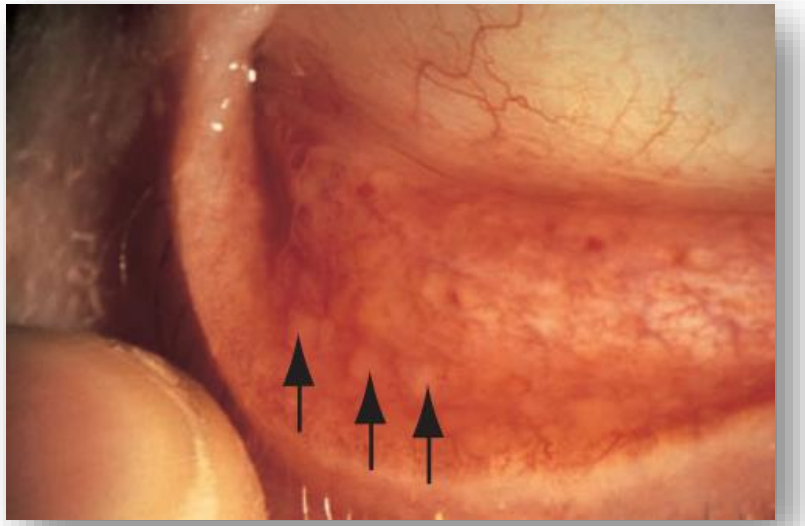
1. Papillae

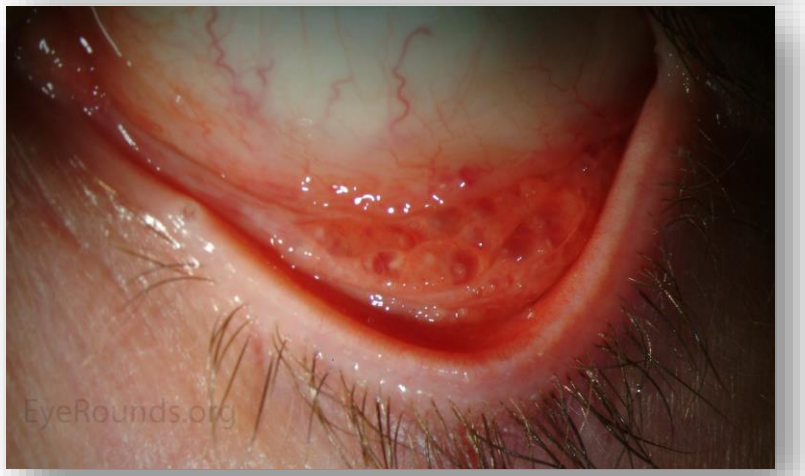
- These are raised lesions on the upper tarsal conjunctiva, about 1 mm or more in diameter with a central vascular core.
- They are a non-specific sign of chronic inflammation.
- Giant papillae are typical of allergic eye disease and are formed by the coalescence of papillae.

Conjunctivitis signs 2

2. Follicles

- These are raised, gelatinous, oval lesions about 1 mm in diameter, found usually in the lower tarsal conjunctiva and upper tarsal border, and occasionally at the limbus.
- Each follicle represents a lymphoid collection with its own germinal center.
- Unlike papillae, the causes of follicles are more specific (ex. viral and chlamydial infections) and they are therefore a clue to aetiology.

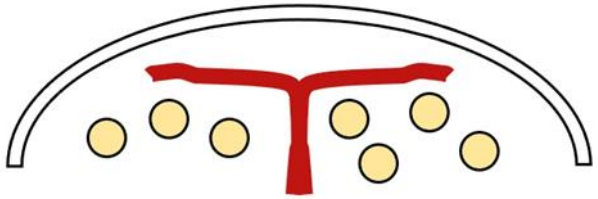




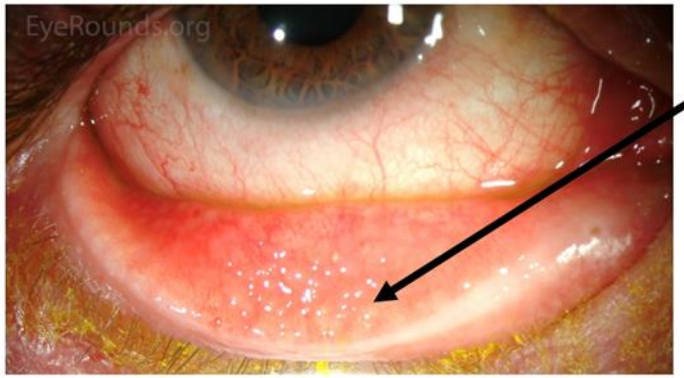
Follicles and Papillae

In reality, it can be hard to tell the difference.

Follicular Reaction



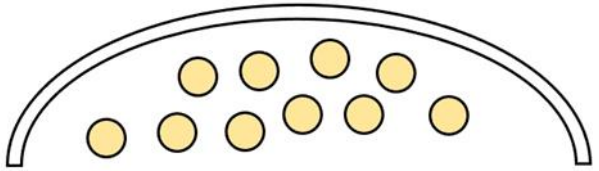
Raised area of inflammation **around** a vessel



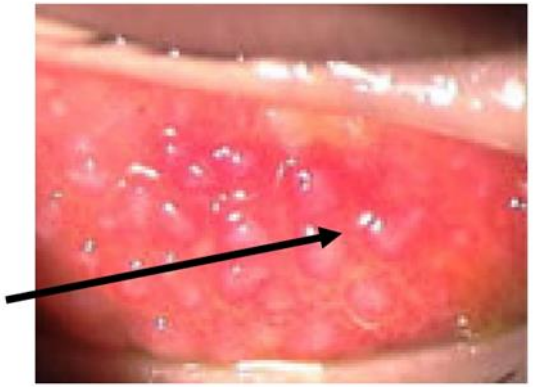
Think
1. Toxins (e.g., Apraclonidine)
2. Viruses (e.g., Adenovirus)
3. Chlamydia

If Chronic:
Inspect lids for Molluscum

Papillary Reaction



Raised area of inflammation **without** a vessel



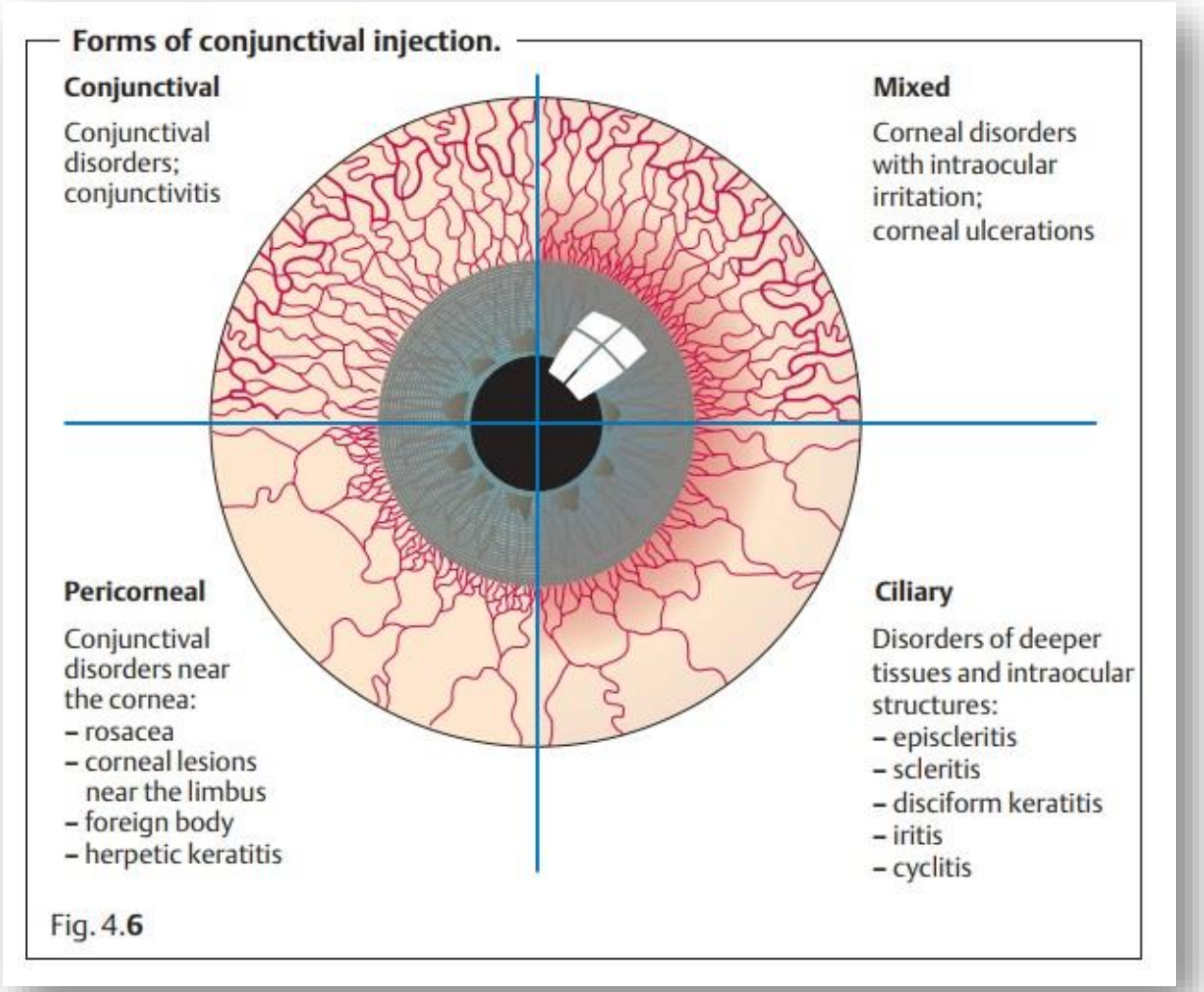
Think
1. Allergic (e.g., AKC, VKC)
2. Foreign Body (including contacts)
3. Superior Limbic Keratoconjunctivitis

Exceptions (Bacteria that cause follicular response:
1. Parinaud Oculoglandular Syndrome (*Bartonella*)
2. Axenfeld conjunctivitis (*Moraxella*)

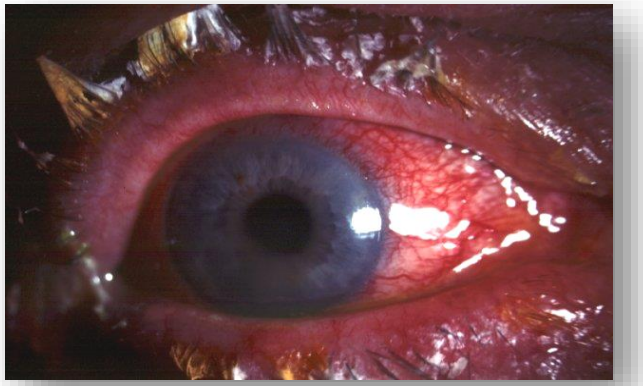
@EyeFlyMD

Conjunctivitis signs 3

3. Dilation of the conjunctival vasculature (termed injection)
4. Subconjunctival haemorrhage, often bright red in color because it is fully oxygenated by the ambient air, through the conjunctiva.



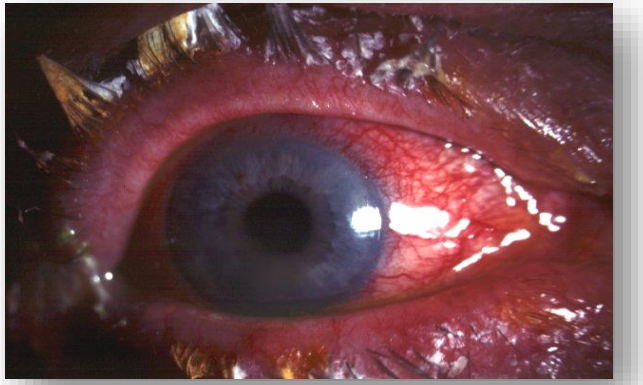
Bacterial conjunctivitis



- **Clinical features**:
  - Redness of the eye
  - Discharge
  - Ocular irritation
- **The commonest causative organisms**:
  - *Staphylococcus* , *Streptococcus* , *Pneumococcus* and *Haemophiles*
- **Management**:
  - Usually, self-limiting
  - Although a broad-spectrum antibiotic eye drop will hasten resolution
  - Conjunctival swabs for culture are indicated in severe disease or if the condition fails to resolve

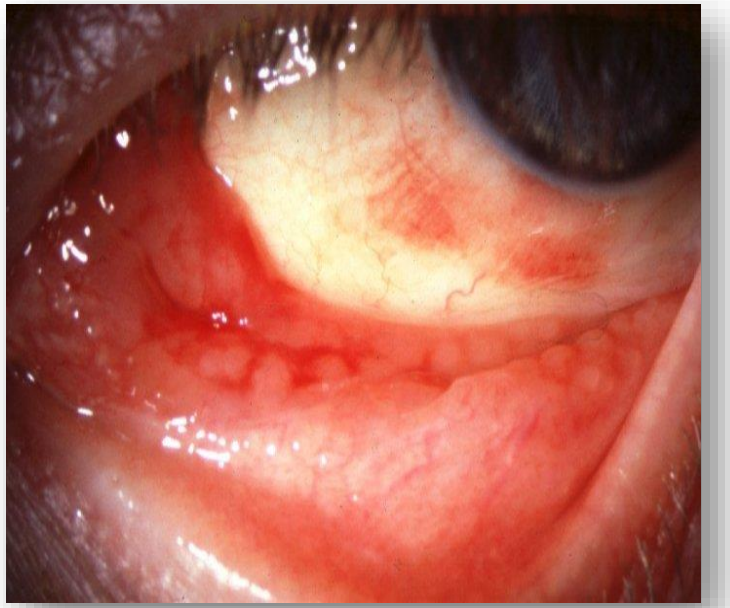
Bacterial conjunctivitis

- **Describe what you see**
  - Muco-purulent Discharge
  - Redness
  - Increase lacrimation.
  - Crusted eyelid and conjunctival injection
- **What is your diagnosis ?**
  - Simple Bacterial conjunctivitis (up)
  - Gonococcal Keratoconjunctivitis (down)
- **What is the treatment ?**
  - Broad spectrum topical antibiotic



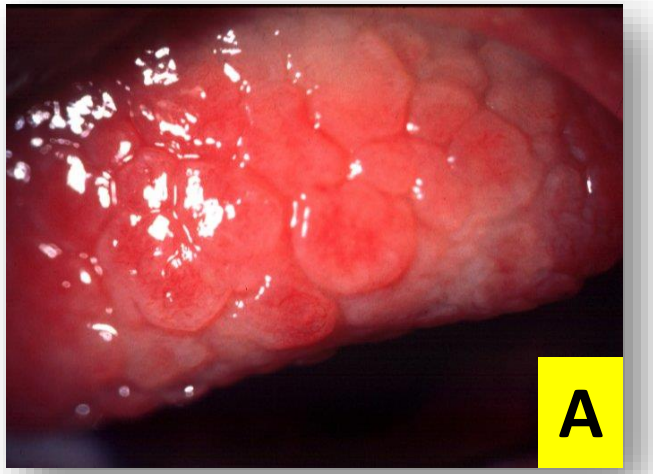
Chlamydial Conjunctivitis (Trachoma)

- **Describe what you see**
  - Follicles: rice like oval ,pale lesions surrounded **by erythema**
- **What clinical condition this finding can be seen in?**
  - Viral conjunctivitis
  - Chlamydial infections (Trachoma)
- **What possible complications you know ?**
  - Corneal vascularization and scarring
- **How do you manage ?**
  - Topical and oral antibiotic (tetracyclin)



Allergic Conjunctivitis

- **Describe what you see in A,B**
  A. Cobble stone appearance + increased lacrimation
  B. Papillae on the upper tarsus of a patient
- **DDx for this condition**
  - Allergic conjunctivitis.
  - Bacterial conjunctivitis
  - Chronic blepharitis
- **Possible complications (Allergic Conjunctivitis)**
  - Keratopathy, corneal opacification, filamentary keratitis
- **Management**
  - Antihistamines
  - Mast cell stabilizers
  - Topical steroids



Allergic conjunctivitis

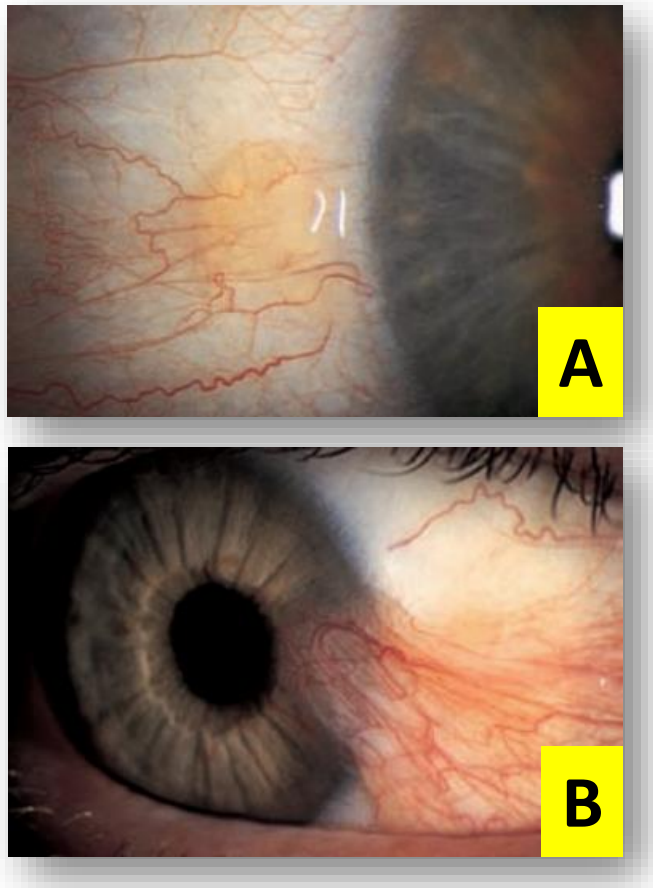
- **What is the diagnosis ?**
  - Allergic conjunctivitis
- **What is the name of this sign ?**
  - Giant papillae
- **Mention three medications to treat**
  1. Histamine H1 receptor antagonists, e.g., azelastine
  2. Combined vasoconstrictor/antihistamine, e.g., naphazoline/pheniramine
  3. Oral antihistamines, e.g., cetirizine
  4. Topical NSAIDs, e.g., ketorolac
  5. Topical mast-cell stabilizers
  6. Corticosteroids (e.g., loteprednol)

Essay questions

- **What is the most common cause of conjunctivitis ?**
  - Viral conjunctivitis
- **Mention other two types of conjunctivitis**
  - bacterial and allergic conjunctivitis

Pingueculae & Pterygia

- Are found on the interpalpebral bulbar conjunctiva.
- They are thought to result from excessive exposure to the reflected or direct ultraviolet component of sunlight.
- Histologically the collagen structure is altered.
- Pingueculae (A) are small, elevated yellowish paralimbal lesions that never impinge on the cornea.
- Pterygia (B) are wing-shaped and located nasally, with the apex towards the cornea, onto which they progressively extend.
- They may cause irritation and, if extensive, may encroach onto the visual axis.
- They can be excised but may recur.

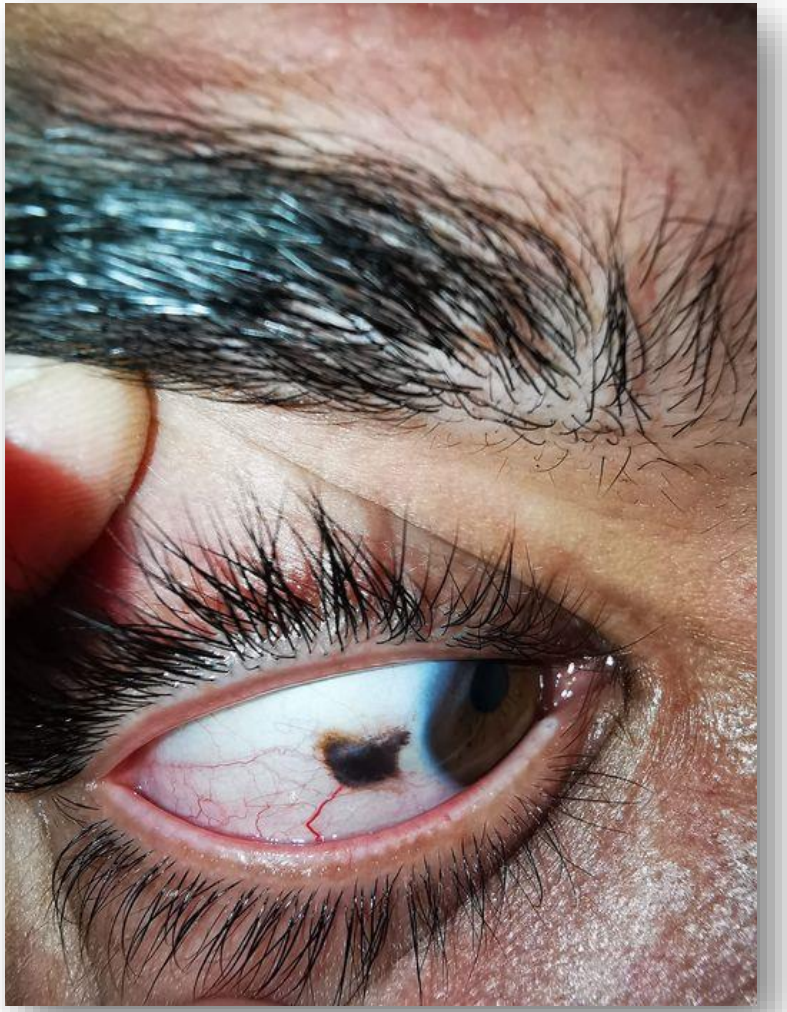


Pterygium

- **Describe what you see**
  - A triangular(wing) shape fibro vascular band located nasally and encroaching over the cornea in the right eye
- **What is the most probable diagnosis?**
  - Pterygium
- **What indications you know for removal?**
  - If unacceptable cosmetically
  - If reaching visual axis
  - If fast growing

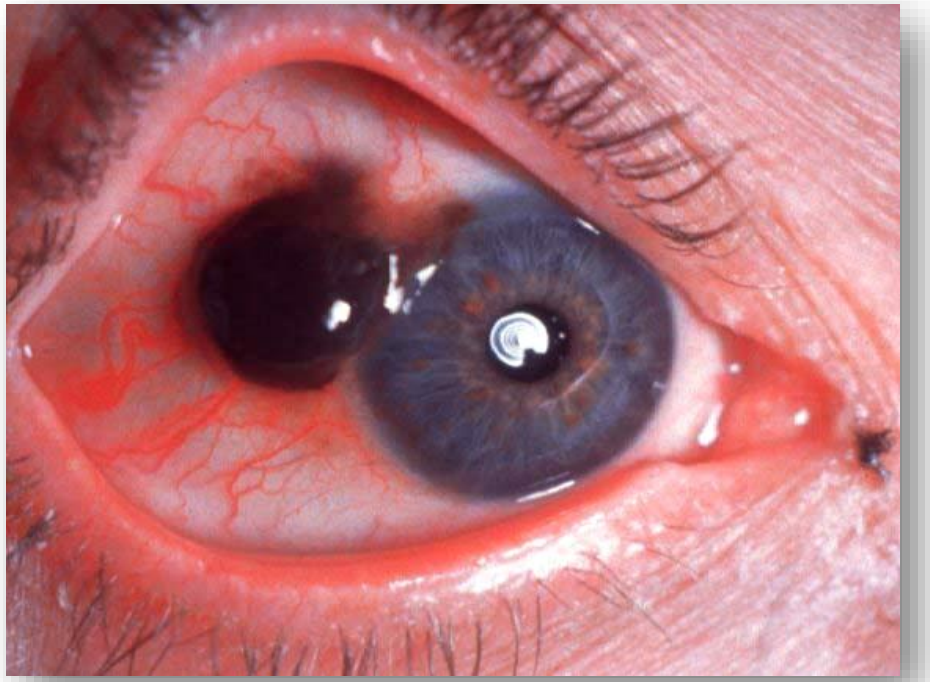
Conjunctival nevus

- **DDx**
  - Melanoma, nevus
- **Signs that indicate this lesion should be removed**
  - change in shape, size, color, pain …



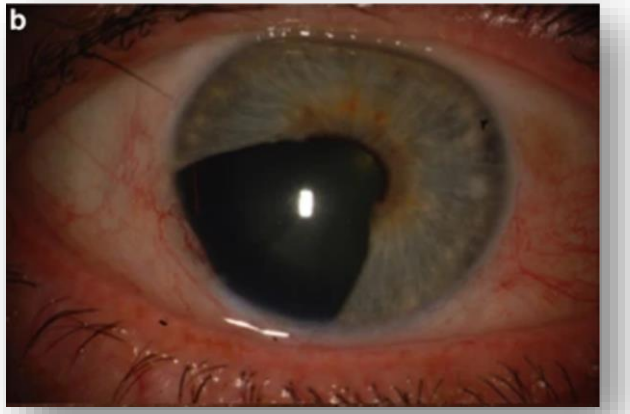
Malignant Melanoma

- **Describe what you see**
  - Round black (brownish) mass (6mm), in the middle of the eye, with feeding B.Vs
- **What is the most likely diagnosis ?**
  - Malignant Melanoma (Conjunctival tumor)
- **Mention differential diagnosis ?**
  - Melanoma, Nevus, Trauma



Malignant Melanoma

- **Describe the findings in the upper picture**
  - Dark irregular mass in anterior chamber cover the iris and the pupil partially
- **Your diagnosis**
  - melanoma
- **Malignant or benign**
  - malignant
- **Type of associated glaucoma**
  - secondary neovascular glaucoma



Cornea & Sclera

الي بالأحمر فقط عليهم أسئلة

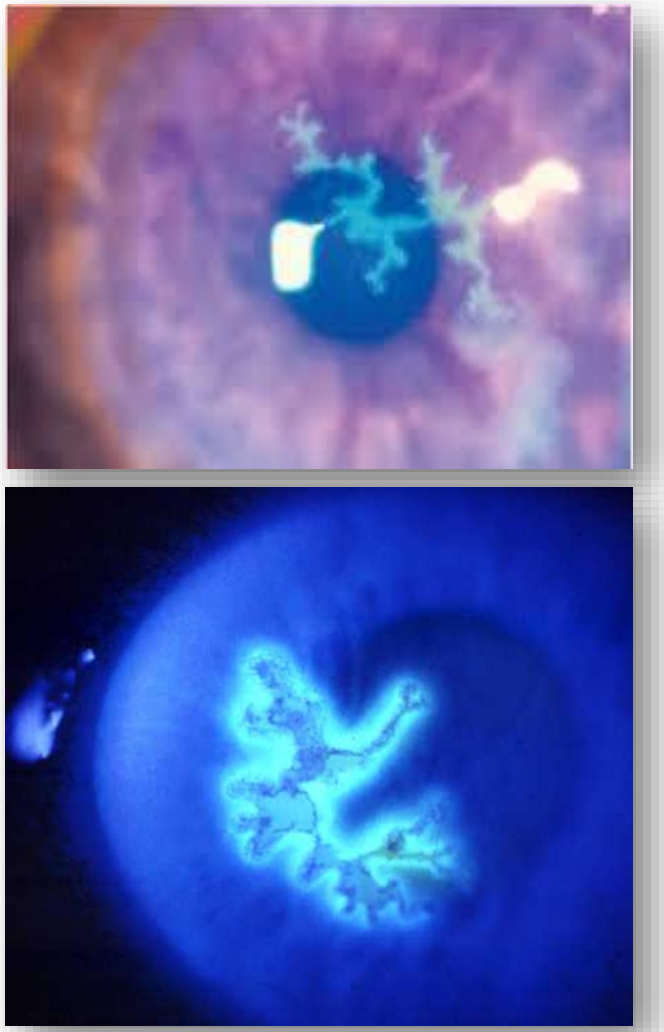
الي بالبنفسجي من ملف صور د. فواز

DDx of corneal disease

- Infective corneal lesions
  - Herpes simplex keratitis
  - Herpes zoster ophthalmicus
  - Bacterial keratitis
  - Acanthamoeba keratitis
  - Fungal keratitis
  - Interstitial keratitis
- Corneal dystrophies
- Disorders of shape
  - Keratoconus
- Central corneal degenerations
  - Band keratopathy
- Peripheral corneal degenerations
  - Corneal thinning
  - Lipid arcus
- Corneal grafting
  - Graft rejection

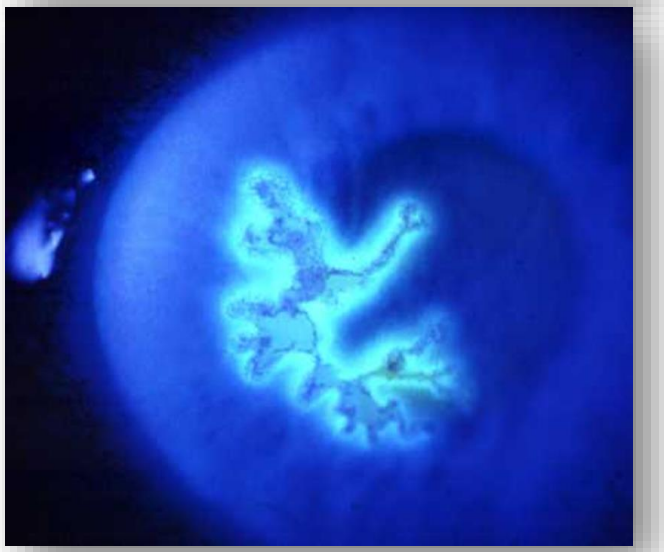
Herpes Simplex Keratitis

1. **What is this finding (Sign name, Describe) ?**
   - Dendritic ulcer
2. **Most susceptible causing microorganism ?** HSV
3. **Diagnosis**: Herpes Simplex Keratitis
4. **DDx**:
   - Herpes Zoster Ophthalmicus
   - Infectious crystalline keratitis
5. **Mention possible complications**
   - Disciform keratitis
   - Permanent scaring
   - Uveitis



Herpes Simplex Keratitis

6. **Management (Treatment) ?**
   - Topical antiviral; acyclovir
   - Avoid steroids
7. **Would it recur?** Yes
8. **Would it affect corneal sensory ?** Yes
9. **What is the stain used ?** Fluorescein



Topical corticosteroids are effective in suppressing the inflammatory response of herpetic keratitis. However, their inappropriate use may result in severe epithelial disease or stromal necrosis, corneal perforation, increased tendency toward recurrence, secondary microbial infections, elevation of the intraocular pressure, and lenticular changes.

Herpes Simplex Keratitis

- Patient present to the clinic with eye pain, redness and discharge that became worse after using TobraDex the was given by a pharmacist

- **Diagnosis**: Herpes Simplex Keratitis
- **Management**:
  - Topical antiviral; acyclovir
  - Avoid steroids
- **Mention 3 complications**:
  - Disciform keratitis
  - Permanent scaring
  - Uveitis

TobraDex = (Tobramycin, Dexamethasone)

Herpes Simplex Keratitis cont.

- Patient present to the clinic with eye pain, redness and discharge that became worse after using TobraDex the was given by a pharmacist

- **Do you think that is it a wise idea to give her TobraDex, and is it contributed to her worsening condition?**
  - No, since they may exacerbate the disease and cause extensive corneal ulceration

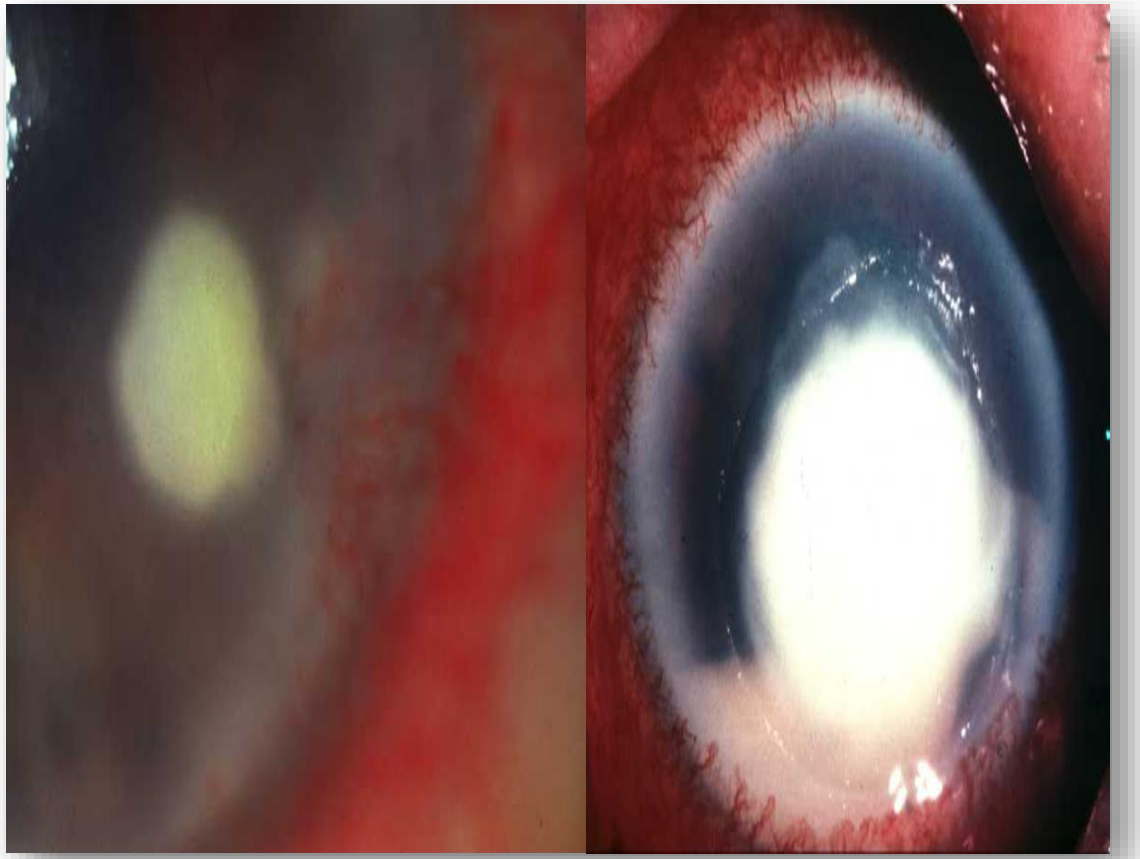
TobraDex = (Tobramycin, Dexamethasone)

Herpes Zoster Ophthalmicus

- **Causing agent**: Varicella-zoster virus (VZV)
- **Clinically**:
  - Usually preceded by vesicular rash at the area of ophthalmic division of the trigeminal nerve distribution, Lid swelling, Keratitis, Iritis, Secondary glaucoma.
- **Treatment**:
  - Systemic antiviral
  - Topical steroids & antiviral
  - Glaucoma treatment if occurred

Bacterial keratitis

- **Signs**:
  - Corneal infiltrate
  - Hypopyon
  - Ciliary injection
  - Purulent discharge
  - Redness
- **Complications**:
  - Corneal perforation
- **Treatment**:
  - Culture & sensitivity
  - Corneal scraps
  - Gram stains
  - Intensive topical antibiotics
  - if complication occurred, we need tissue adhesives & urgent grafting



Acanthamoeba keratitis

- History of Swimming in Public Pool.

❖ **Name of the sign**

- Ring Sign.

❖ **Diagnosis**

- Acanthamoeba keratitis

❖ **Management**

- Chlorohexidine & polyhexamethelene biguanide
- Grafting may be required
- Dangerous: may lead to perineuritis.

Acanthamoeba keratitis

- History of Swimming in Public Pool.

❖ **Name of the sign**

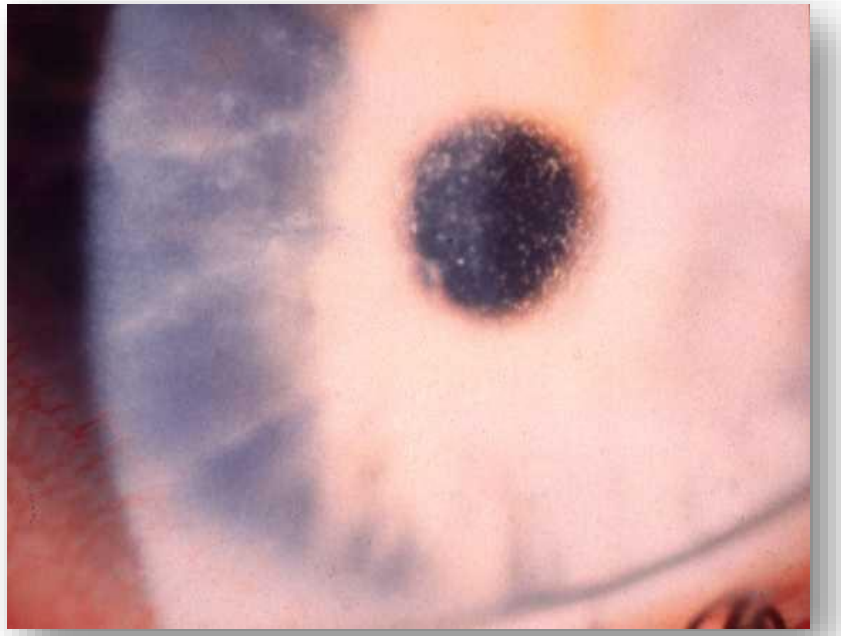
- Ring Sign.

❖ **Diagnosis**

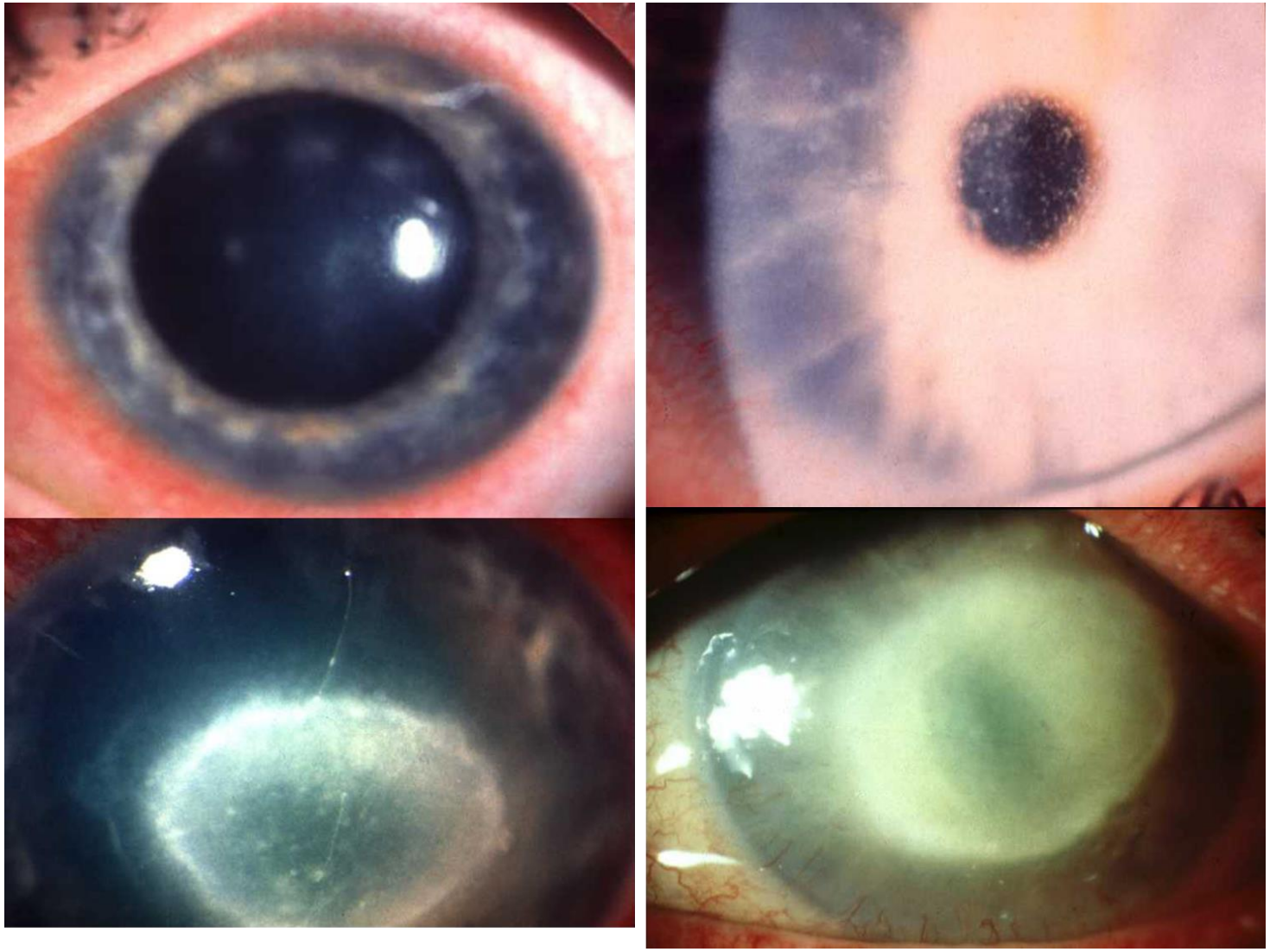
- Acanthamoeba keratitis

❖ **Management**

- Chlorohexidine & polyhexamethelene biguanide
- Grafting may be required
- Dangerous: may lead to perineuritis.

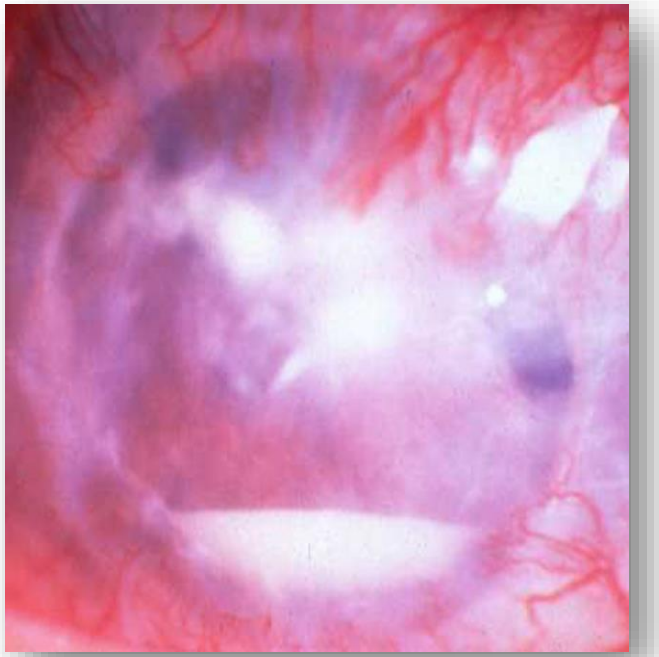


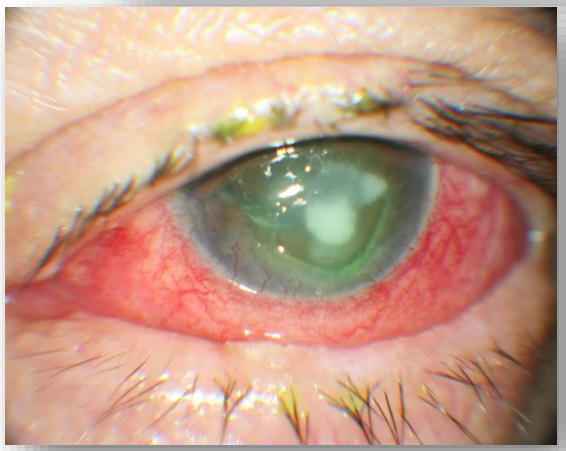
Acanthamoeba keratitis



Fungal Keratitis

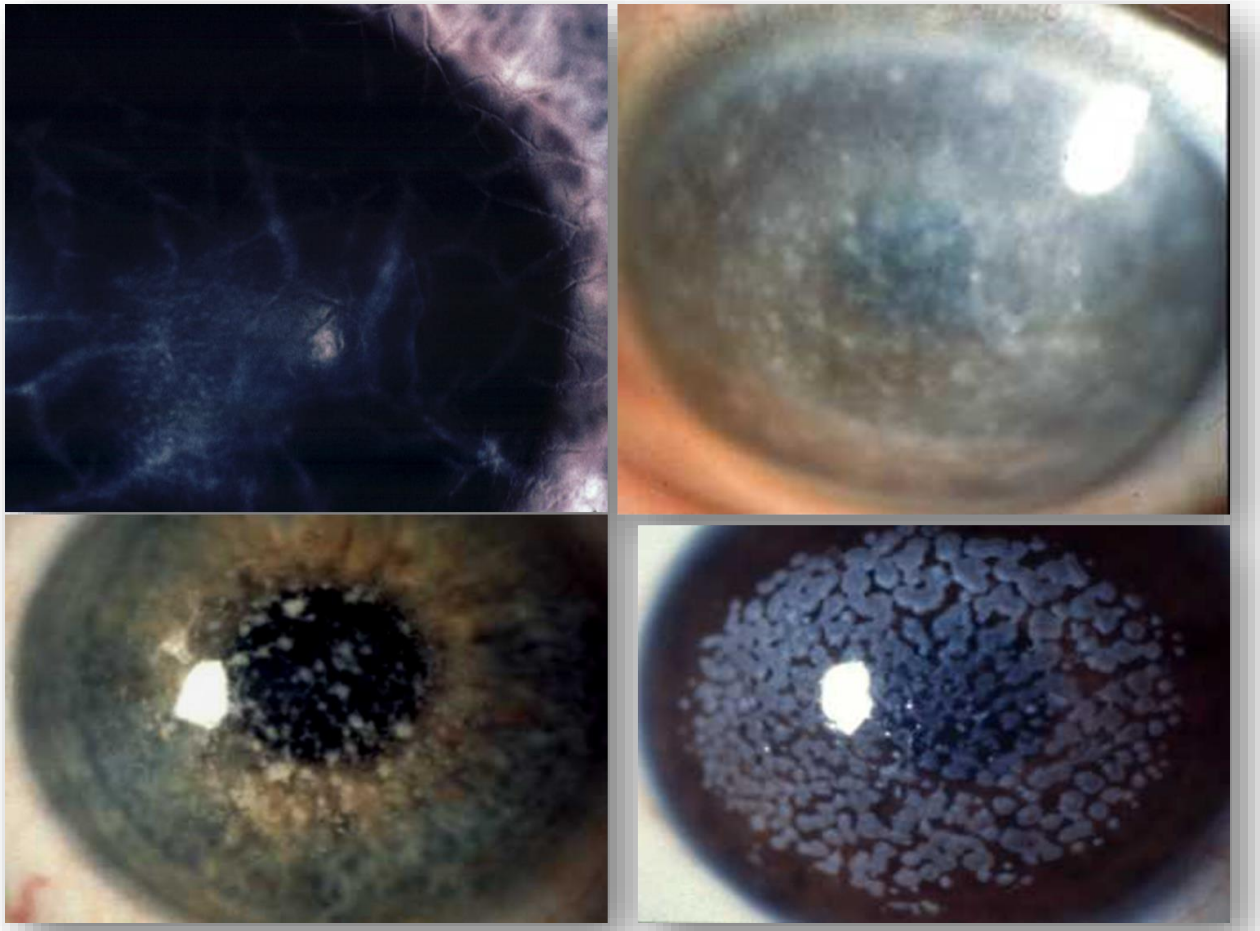
- **Signs**:
  - Hypopyon.
  - The corneal opacity is fluffy and satellite lesions may be seen.
- **Treatment**:
  - Antifungal





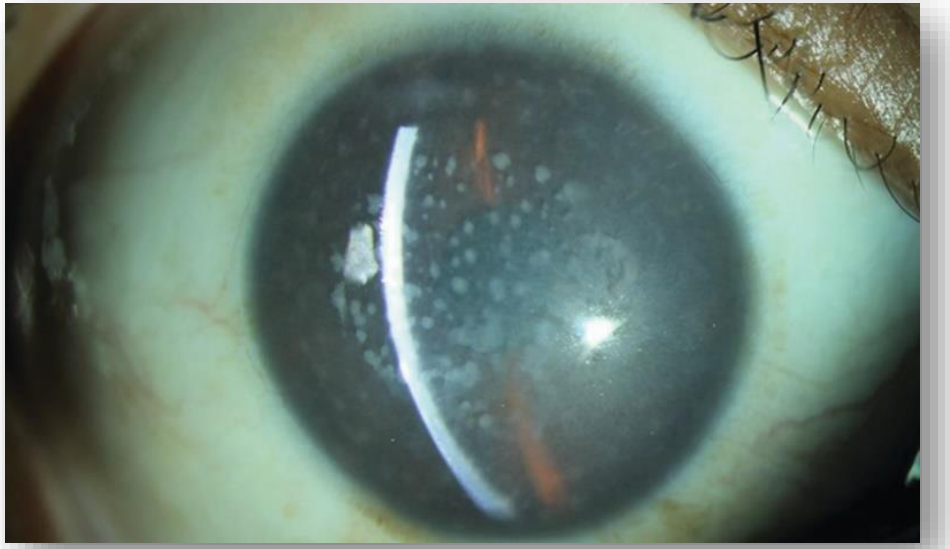
Corneal dystrophies

- Rare inherited disorders.
- Abnormal material accumulates in the cornea.
- Non-inflammatory.



Corneal dystrophy

- **Probable cause ?**
  - Corneal dystrophy (inherited)
- **DDx.**
  1. Interstitial keratitis
  2. Band keratopathy
  3. Bacterial keratitis
  4. Uveitis



Post contact lenses

❖ **Mention 3 differential diagnosis**:

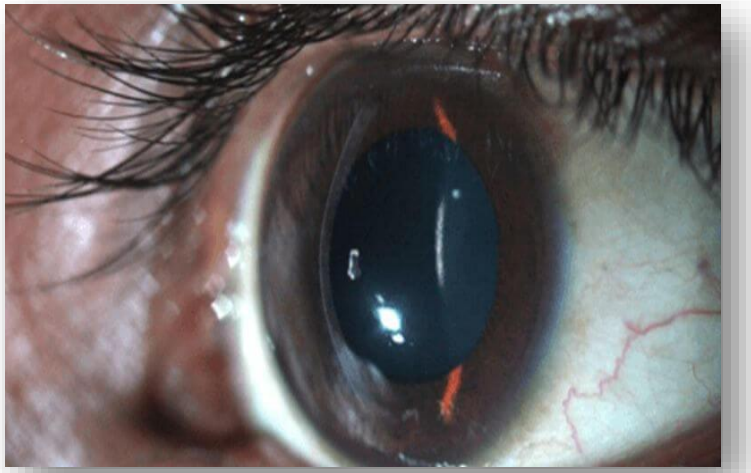
1. Bacterial keratitis
2. Uveitis
3. Corneal dystrophy

❖ **Management**:

- Corneal scraps for Gram staining and culture
- Intensive topical AB
- In severe or unresponsive keratitis, the cornea may perforate. it may need tissue adhesives and sometimes urgent grafting

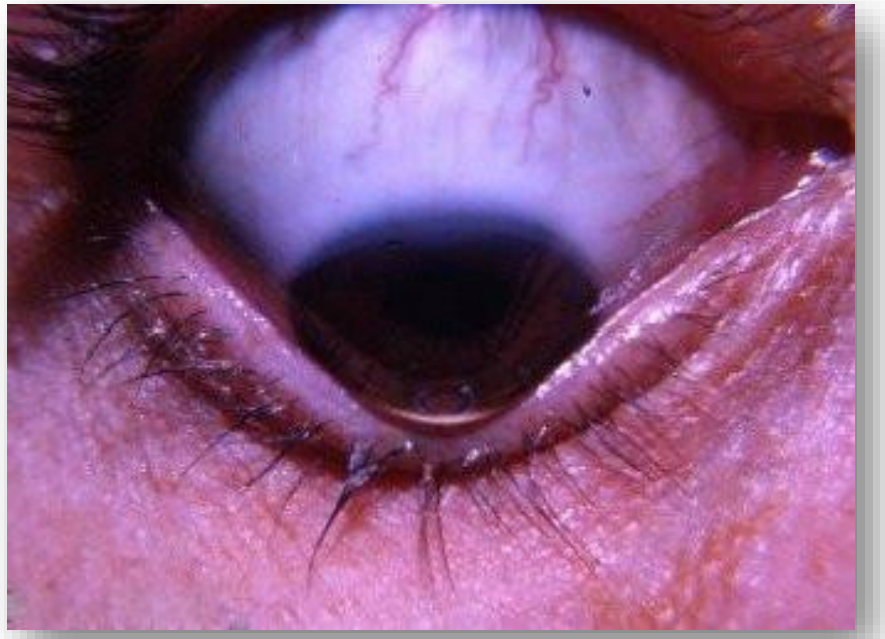
Keratoconus

- **Why can’t this patient develop a normal visual acuity ?**
  - Because increase curvature of the cornea
- **Diagnosis**
  - Keratoconus
- **Mention two signs you can notice at your clinic**
  - Munson's sign
  - Rizzuti's sign
- **What treatment options you know for such a case ?**
  - Contact lenses or glasses
  - Corneal graft in severe cases
  - Corneal cross-linking



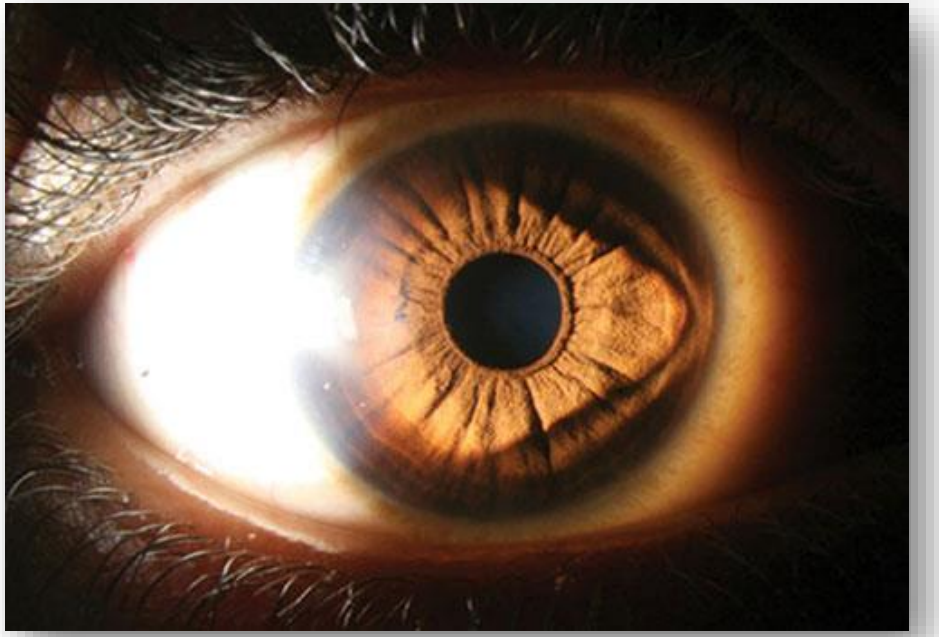
Keratoconus – Munson's sign

- Munson's sign is a V-shaped indentation observed in the lower eyelid when the patient's gaze is directed downwards.
- The medical sign is characteristic of advanced cases of keratoconus and is caused by the cone-shaped cornea pressing down into the eyelid.



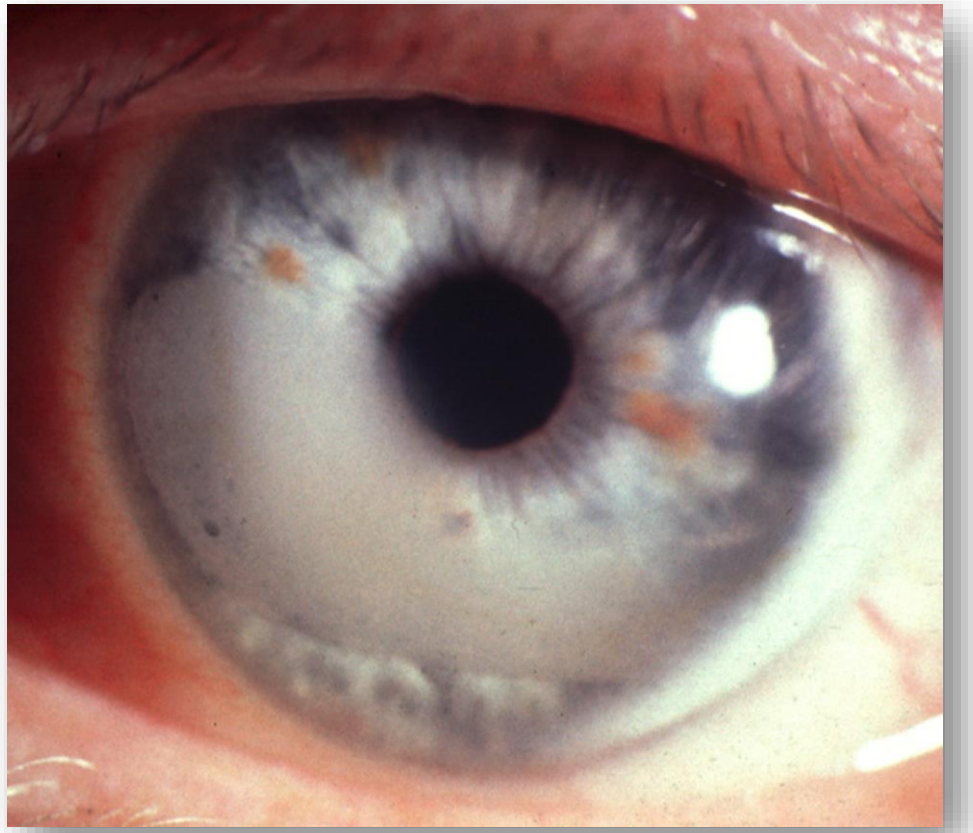
Keratoconus – Rizzuti's sign

- It is a sharply focused beam of light near the nasal limbus, produced by lateral illumination of the cornea in patients with advanced keratoconus



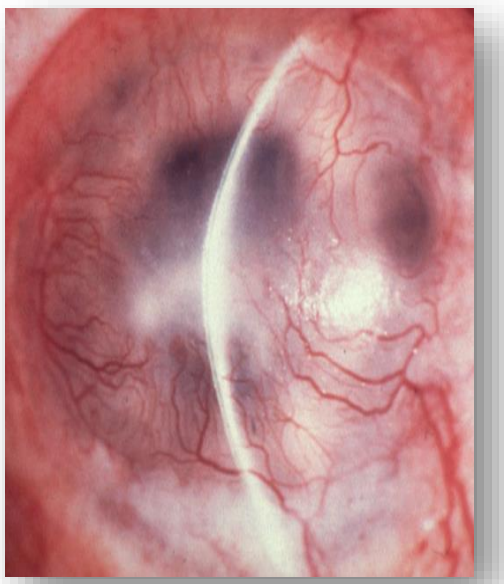
Band keratopathy

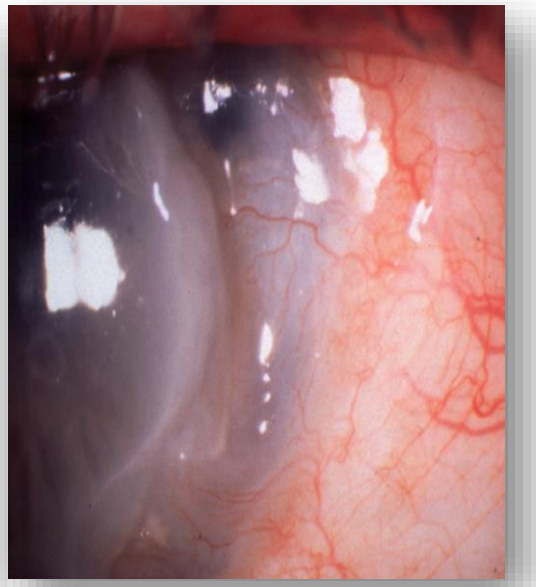
- Subepithelial deposition of calcium.
- **Associations**:
  - Hypercalcemia
  - chronic IO inflammation.
  - Glaucoma.
- **Treatment**:
  - Chemical chelation
  - Eximer laser.

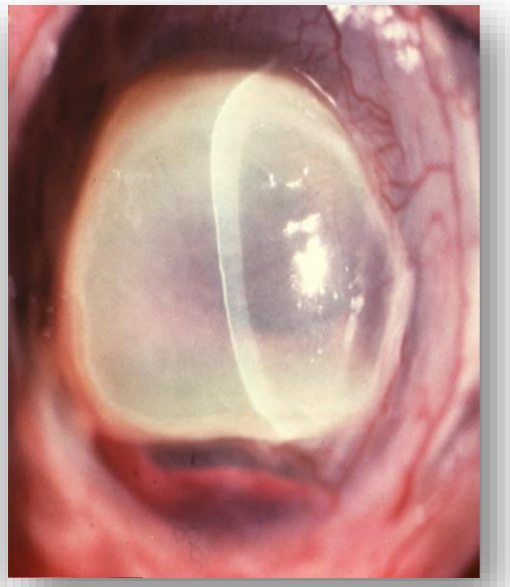


Corneal thinning

- **Mooren's ulcer (crescent-shaped ulcer)**:
  - immunological painful peripheral corneal thinning.
- **Treatment**:
  - immunosuppressive treatment.

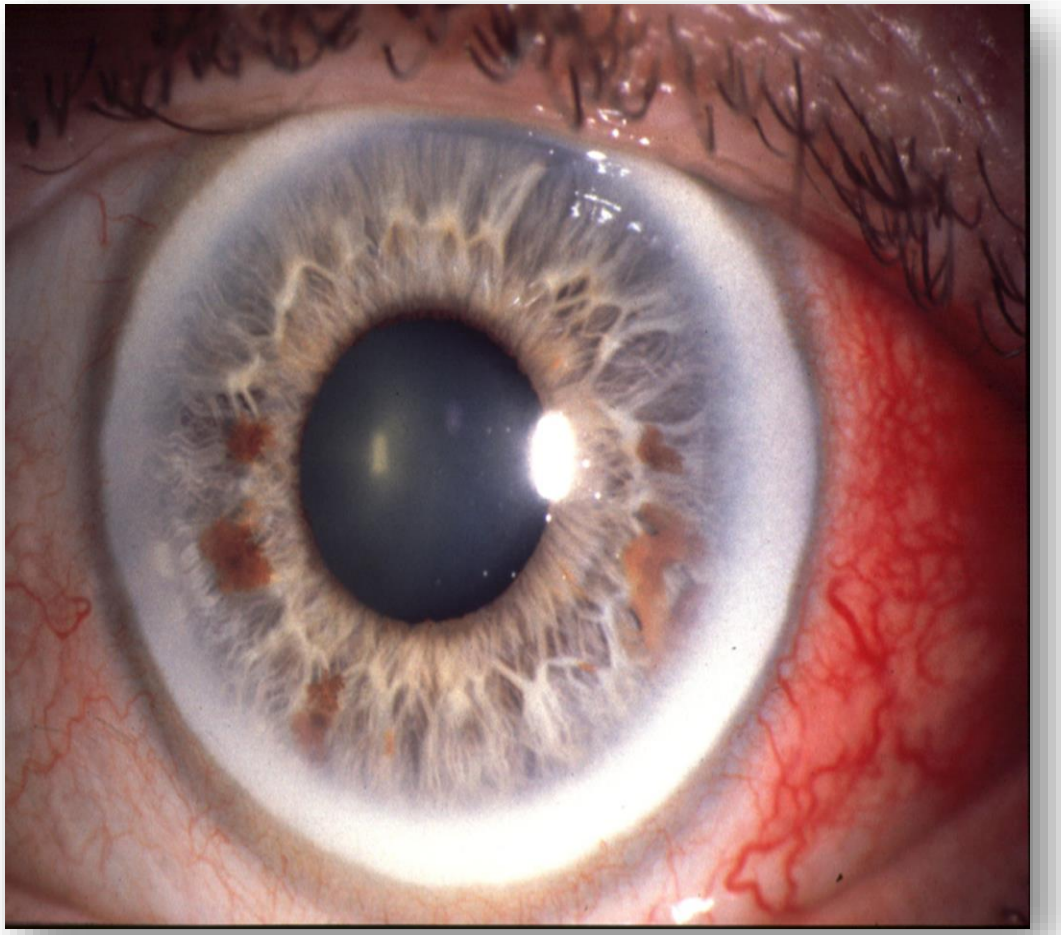






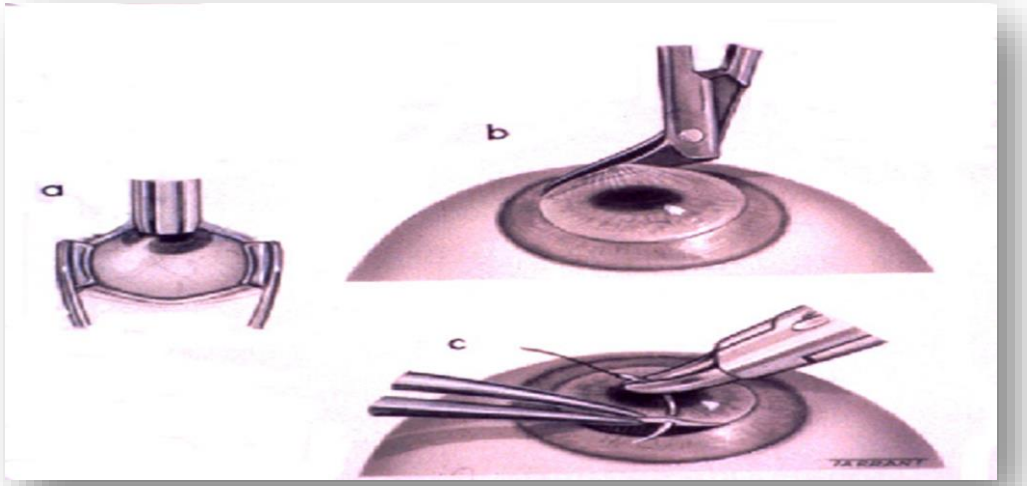
Lipid arcus

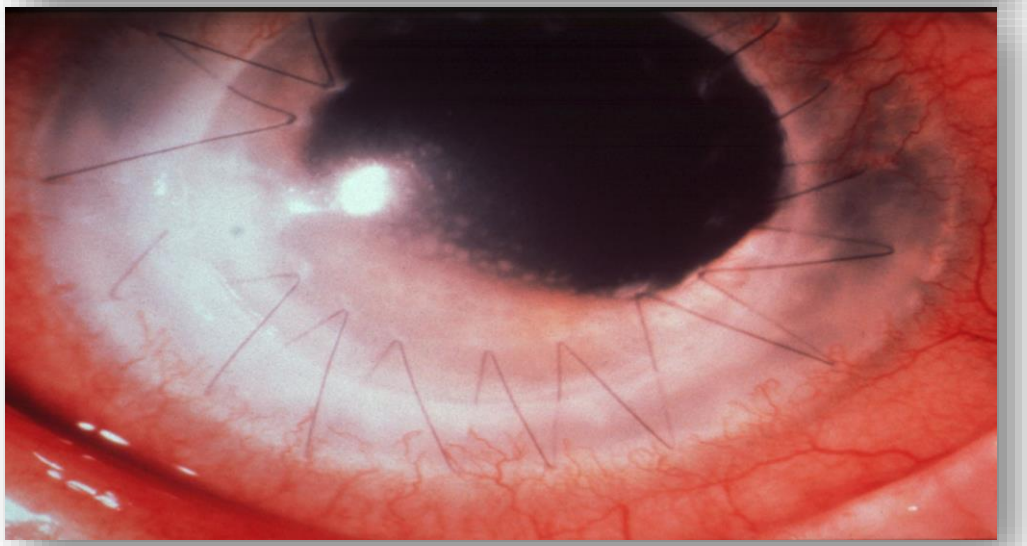
- Lipid deposition that is separated from limbus by clear cornea.
- It’s a sign of hyperlipidemia.
- No treatment is needed.



Corneal Grafting

- Indications:
  1. Restore corneal clarity.
  2. Removal of infected cornea.
  3. Restore corneal regularity.
- Complications:
  1. Rejection
  2. Glaucoma
  3. High astigmatism





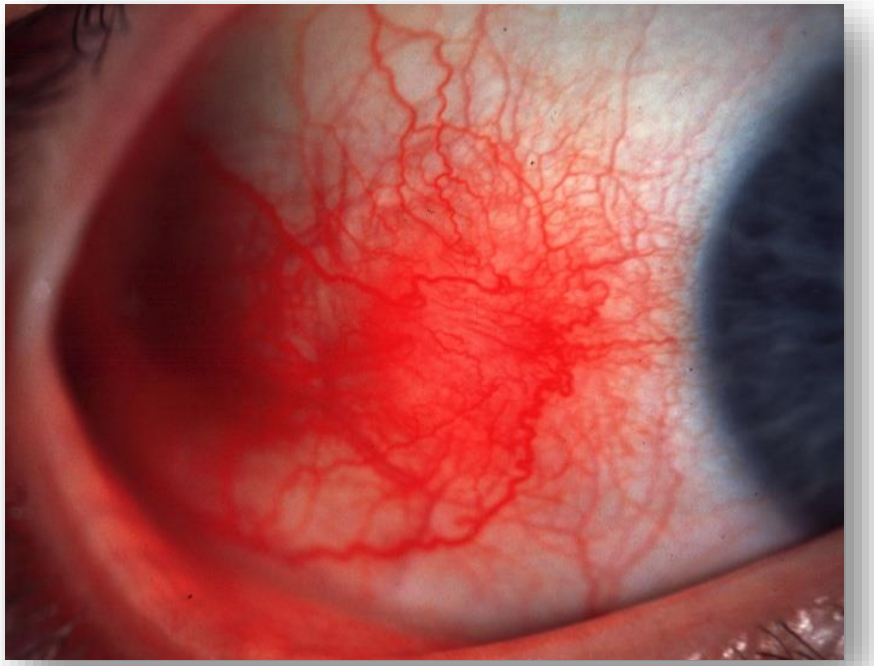
DDx of sclera disease

- **Episcleritis**
  - This inflammation of the superficial layer of the sclera causes mild discomfort.
  - It is rarely associated with systemic disease. It is usually self-limiting.
- **Scleritis**
  - This is a more severe condition than episcleritis and may be associated with the collagen vascular diseases. It is a cause of intense ocular pain.
  - Both inflammatory areas and ischemic areas of the sclera may occur.
  - Characteristically the affected sclera is swollen.
  - The following may complicate the condition: scleromalacia, keratitis, uveitis, cataract formation, glaucoma.
  - Treatment may require high doses of systemic steroids, or in severe cases cytotoxic therapy and investigation to find any associated systemic disease.
  - Scleritis affecting the posterior part of the globe may cause choroidal effusions, or may simulate a tumor

Episcleritis

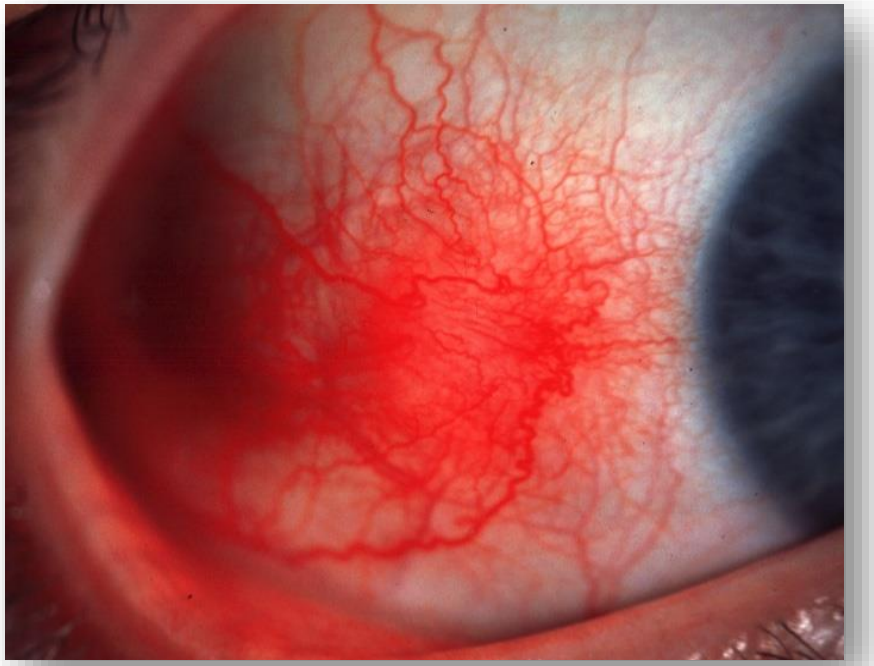
➢This picture shows the right eye of a 26 years old male

1. **Describe what you see ?**
   - Localized redness of the sclera in the temporal side of the eye with no associated discharge
   - Focal Conjunctival injection
   - Conjunctival injection
3. **Diagnosis**
   - Episcleritis
4. **Differential diagnosis**
   - Scleritis
   - Conjunctivitis



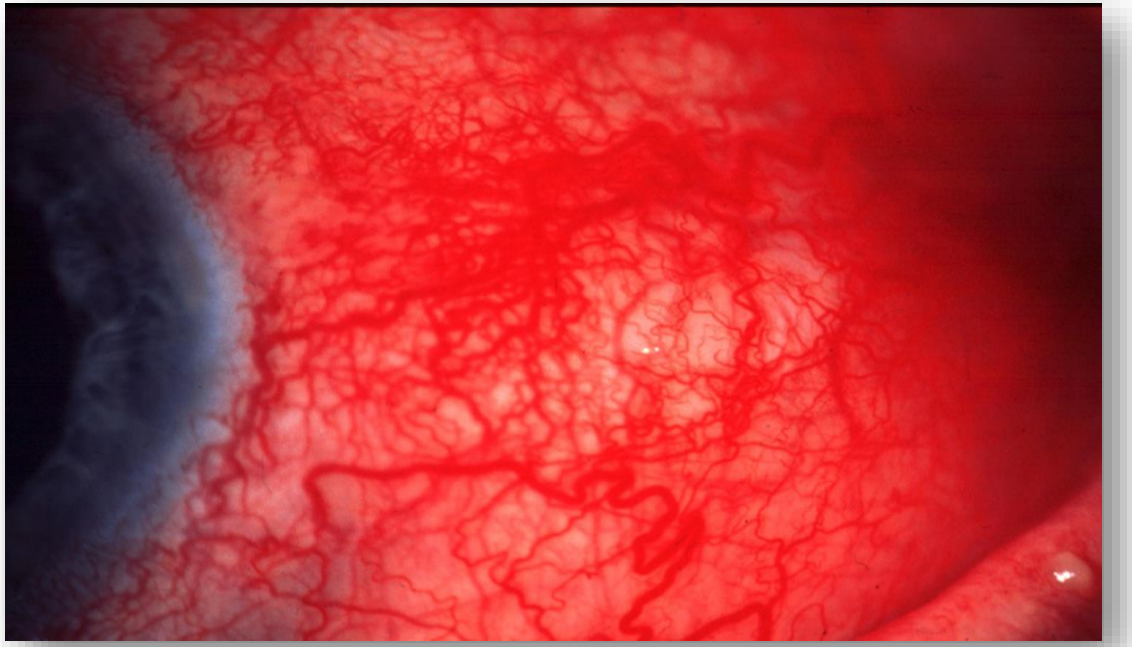
Episcleritis

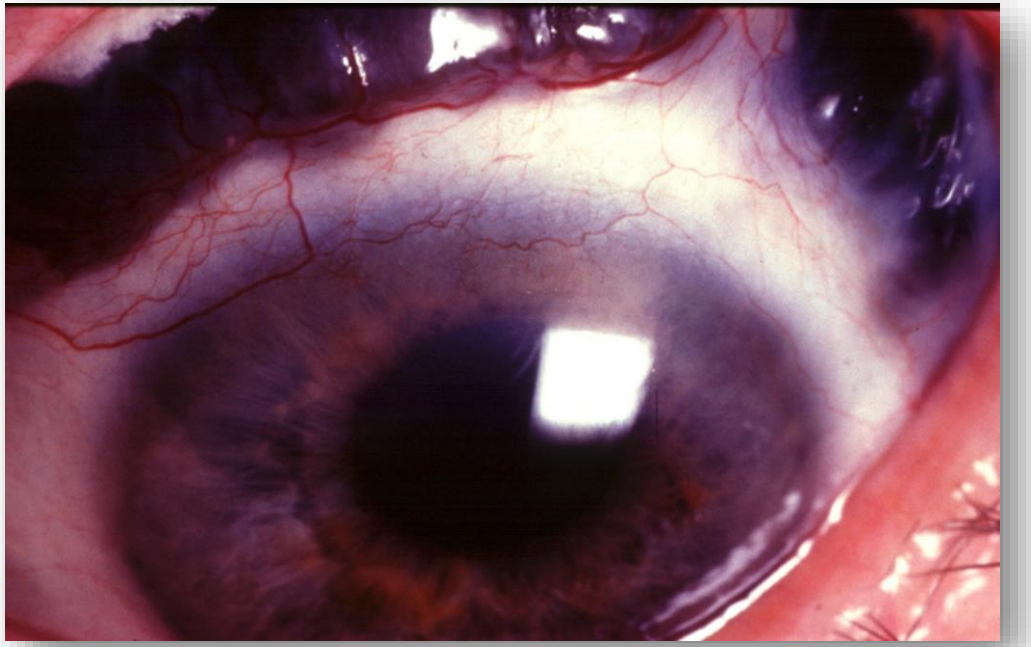
➢This picture shows the right eye of a 26 years old male

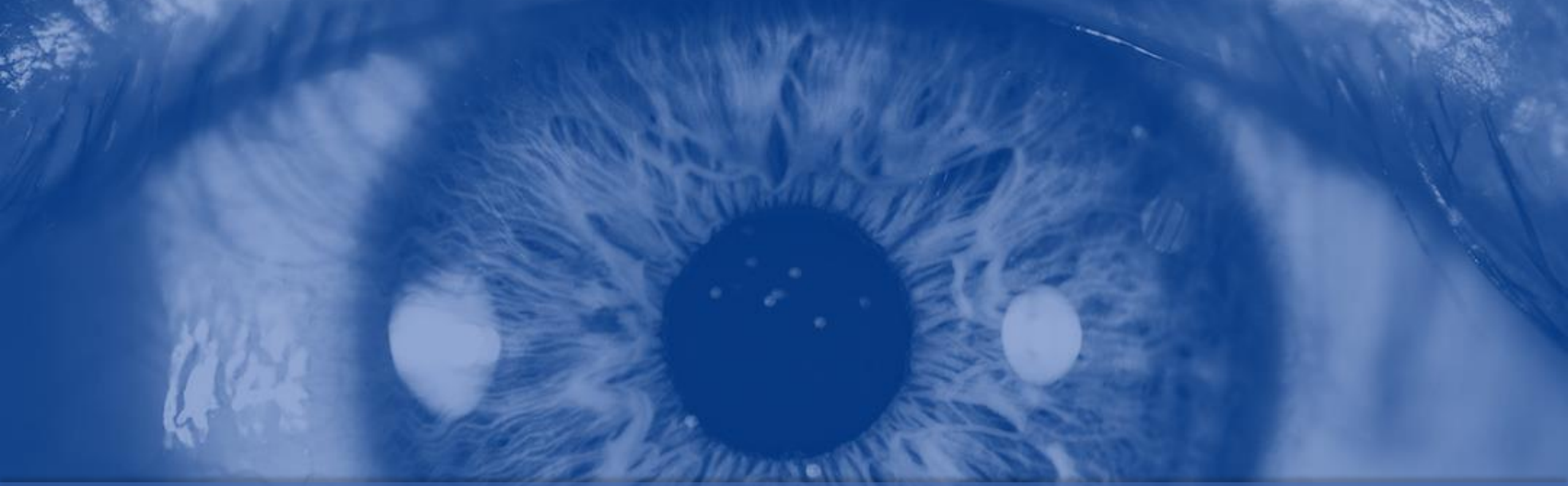


3. **Complications**
   - Scleromalacia (thinning)
   - Keratitis
   - Uveitis
   - Cataract
   - Glaucoma
4. **Degrees of red color ?**
   - More than one layer
5. **Management**
   - High dose steroids
   - Immunosuppressive agents
   - Treatment of complications

Scleritis







The lens & Cataracts

DDx of lens disease

- Cataracts
- Change in lens shape
  - Abnormal lens shape is very unusual.
- Change in lens position (ectopia lentis)
  - Weakness of the zonule causes lens displacement. The lens takes up a more rounded form and the eye becomes more myopic.
  - This may be seen in trauma, inborn errors of metabolism (ex. homocystinuria), certain syndromes (ex. Marfan syndrome)
  - The irregular myopia can be corrected optically, although sometimes an aphakic correction may be required if the lens is substantially displaced from the visual axis.
  - Surgical removal may be indicated, particularly if the displaced lens has caused a secondary glaucoma, but surgery may result in further complications.

Cataracts 1

❖Definition

- Cataract is the name given to any light-scattering opacity within the lens wherever it is located.

❖Ocular conditions associated with cataract

- Trauma
- Uveitis
- High myopia
- Topical medication (particularly steroid eye drops)
- Intraocular tumor

❖Symptoms

- Painless loss of vision
- Glare
- In some instances, a change in refraction
- In infants, cataract causes amblyopia

Cataracts 2

❖Signs

- Visual acuity is reduced
- **Leukocoria**
- Appears black against the red reflex when the eye is examined with a direct ophthalmoscope
- Slit-lamp examination allows the cataract to be examined in detail, and the exact site of the opacity in the lens can be identified

❖Systemic causes of cataract

- **Diabetes**, other metabolic disorders, systemic drugs, infection, myotonic dystrophy, Atopic dermatitis, systemic syndromes, congenital, X-radiation

❖**Types of cataracts**: Nuclear, cortical, posterior subcapsular cataract

❖**Stages of cataracts**: Immature, Mature, Hypermature

❖**Definitive Treatment**: Surgery

Cataracts Surgery

❖Mention 3 surgeries for cataracts extraction?

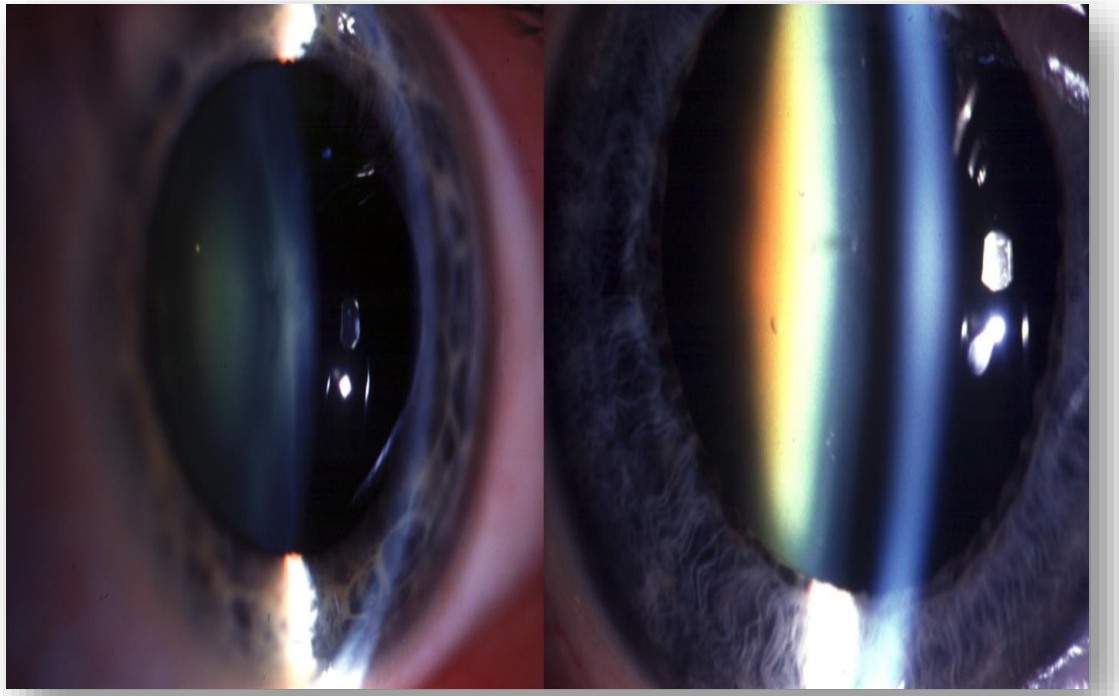
- Phacoémulsifiassions
- Extra-capsular cataracts extraction (ECCE)
- Intra-capsular cataracts extraction(ICCE)

❖What are the complications of the surgery, and when do they occur ?

1. Vitreous loss (intraoperation)
2. Iris prolapse (immediate postoperative period)
3. Endophthalmitis (within a few days of surgery)
4. Cystoid macular edema (following surgery)
5. Retinal detachment (intraoperative, early or late)
6. Opacification of the posterior capsule (in the months following surgery)
7. Postoperative astigmatism

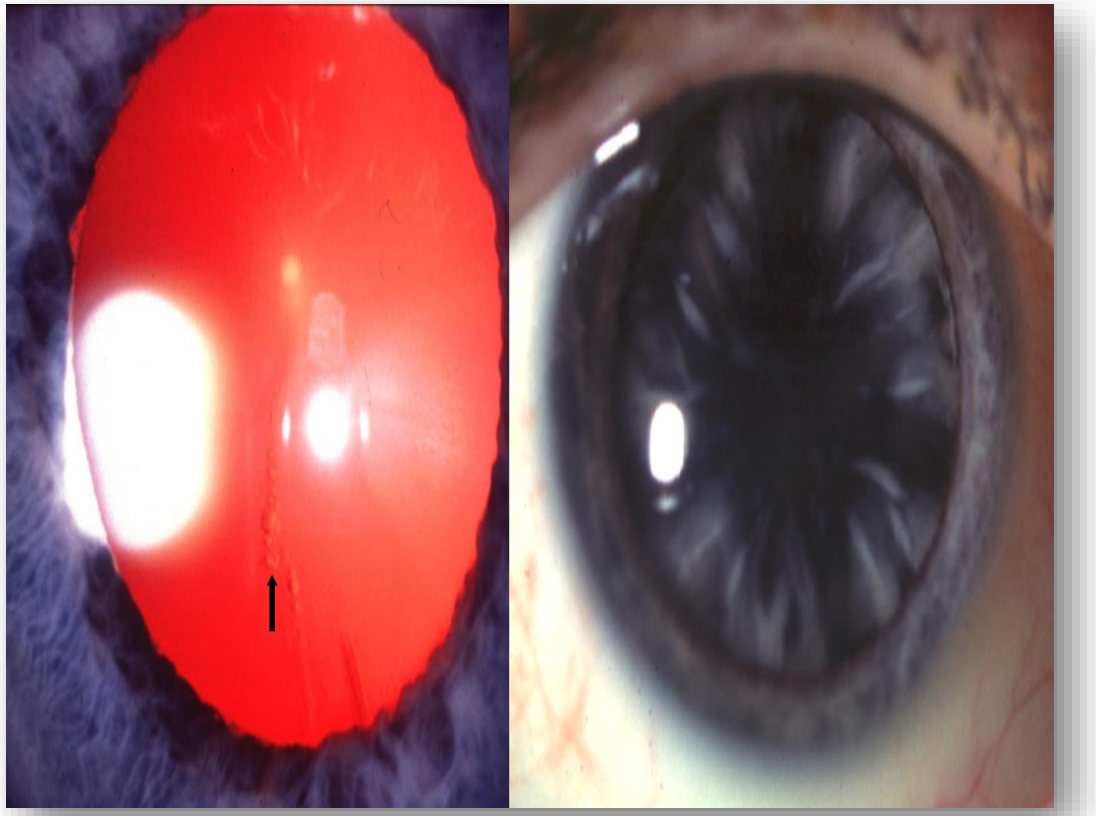
Nuclear cataracts

- Affecting the center of the lens
- Initially yellow then brown
- Increasing nuclear opacification
- Causes increasing myopia



Cortical cataracts

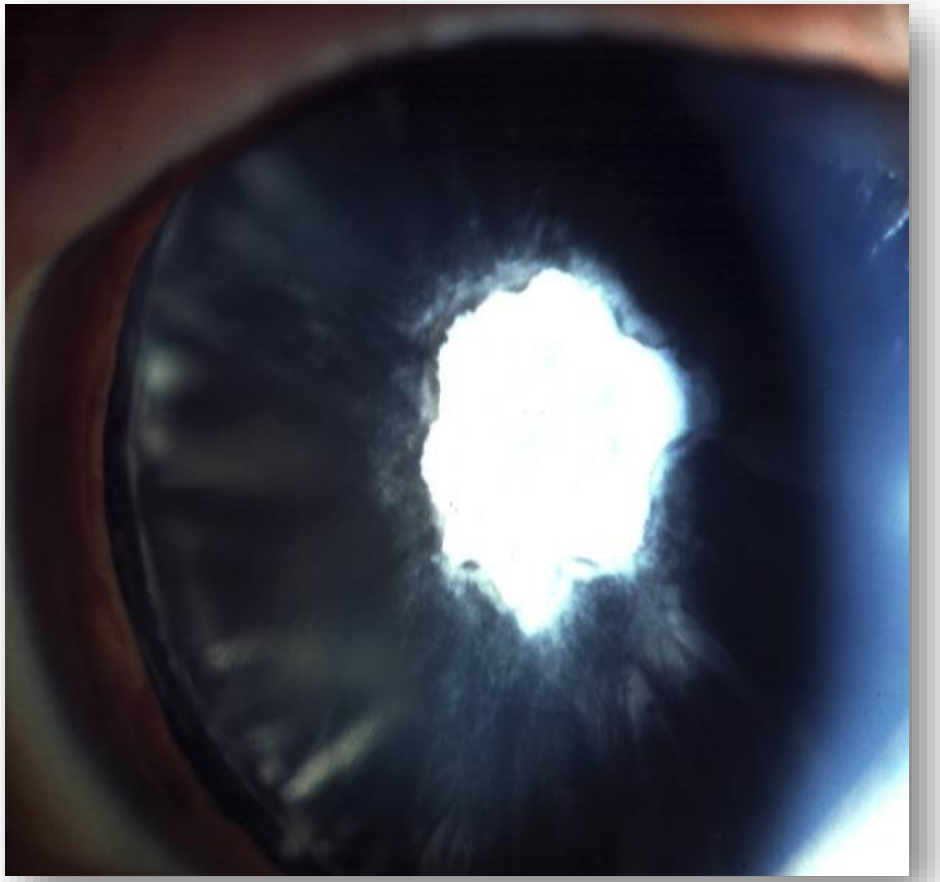
- Affects the edges of the lens.
- Progressive radial spoke-like opacities.



Initially vacuoles and clefts

Atopic dermatitis

- Shield anterior subcapsular plaque.
- Wrinkles in anterior capsule.



Q1: Cataracts

- **What is the diagnosis ?**
  - Cataract
- **Name of sign ?**
  - Leukocoria
- **What is complication of the surgery ?**
  1. Vitreous loss
  2. Iris prolapse
  3. Endophthalmitis
  4. Postoperative astigmatism
  5. Macular edema
  6. Retinal detachment
  7. Opacification of the posterior capsule

Q2: Cataracts

- 60-year-old man presented to your clinic, with blurred vision, visual acuity in his left eye is 20/200, the last HbA1c reading was 8.5

❖ **From what he is complaining according to the picture?**

- Mature cataract

❖ **Mention 3 surgeries for his condition? (Types of cataract extraction)**

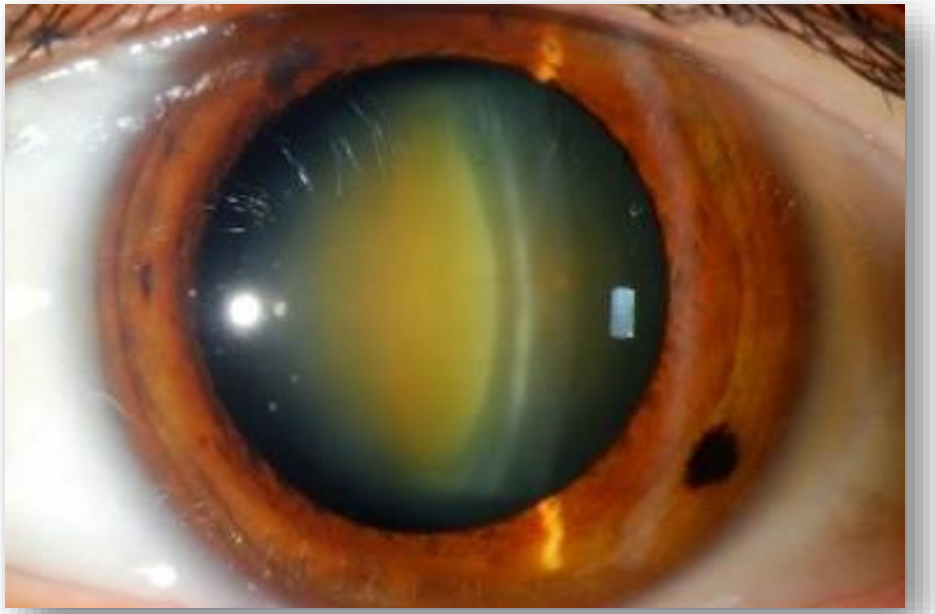
- Phacoémulsifiassions
- Extra-capsular cataracts extraction (ECCE)
- Intra-capsular cataracts extraction(ICCE)

❖ **Mention 2 complications may occur during surgery?**

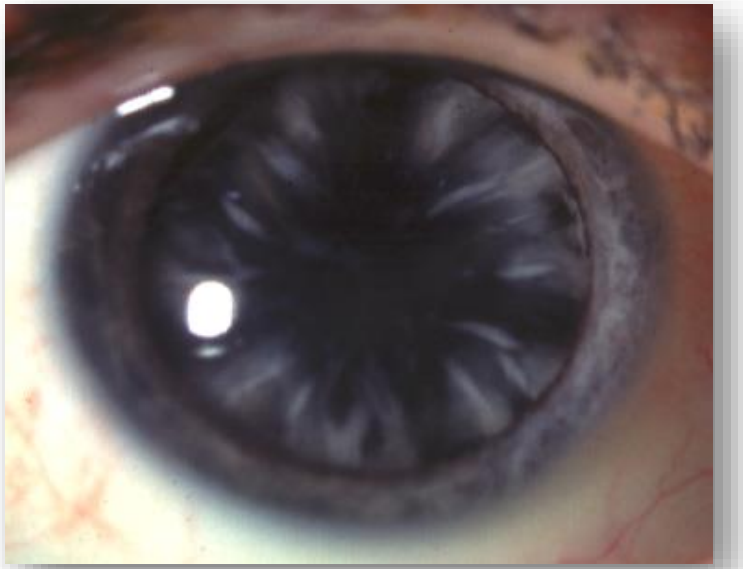
- Vitreous loss
- Retinal detachment

Q3: Cataracts

- **Diagnosis**
  - Nuclear cataract
- **Mention 3 surgeries for his condition?**
  - Phacoémulsifiassions
  - Extra-capsular cataracts extraction (ECCE)
  - Intra-capsular cataracts extraction(ICCE)
- **Mention 2 complications may occur during surgery?**
  - Vitreous loss
  - Retinal detachment
  - Macular edema



Q4: Cataracts



- **Describe what you see**
  - Radial spoke-like opacities of the lens
- **What is the most probable diagnosis?**
  - Cortical cataract
- **Management**
  - Phacoémulsifiassions
  - Extra-capsular cataracts extraction (ECCE)
  - Intra-capsular cataracts extraction(ICCE)
- **What possible early complications for the surgery used to treat such a condition ?**
  - Vitreous loss
  - Retinal detachment
  - Macular edema

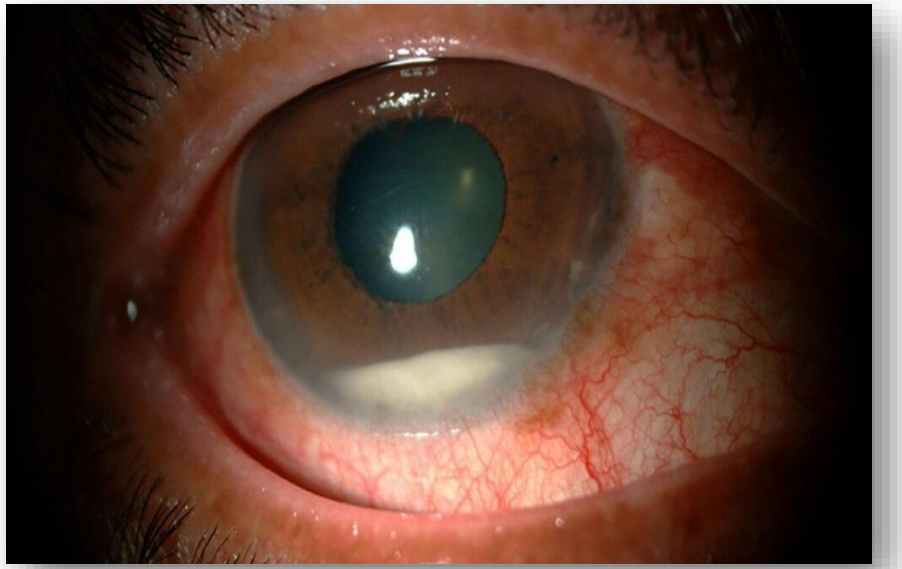
Q5: Contusion cataract

- **Describe what you see**
  - Rosette-shaped Opacification
- **What is the most likely diagnosis?**
  - Contusion cataract

لاحظ شكلها عكس الcortical cataracts

Q1: Endophthalmitis

This case come after cataract surgery



- **Describe what you see**
  - Hypopyon
  - Ciliary injection
- **Most likely diagnosis ?**
  - Endophthalmitis
- **Management ?**
  1. Admission
  2. Aspiration
  3. Intraocular antibiotic
  4. Systemic antibiotic
  5. Immediate pars plana viterectomy

Q2: Endophthalmitis

❖**Describe what you see**

- Whitish discoloration of the cornea(opacity), hypopyon, conjunctival injection

❖**What the possible diagnosis ?**

- Bacterial endophthalmitis

❖**How do you manage such a case ?**

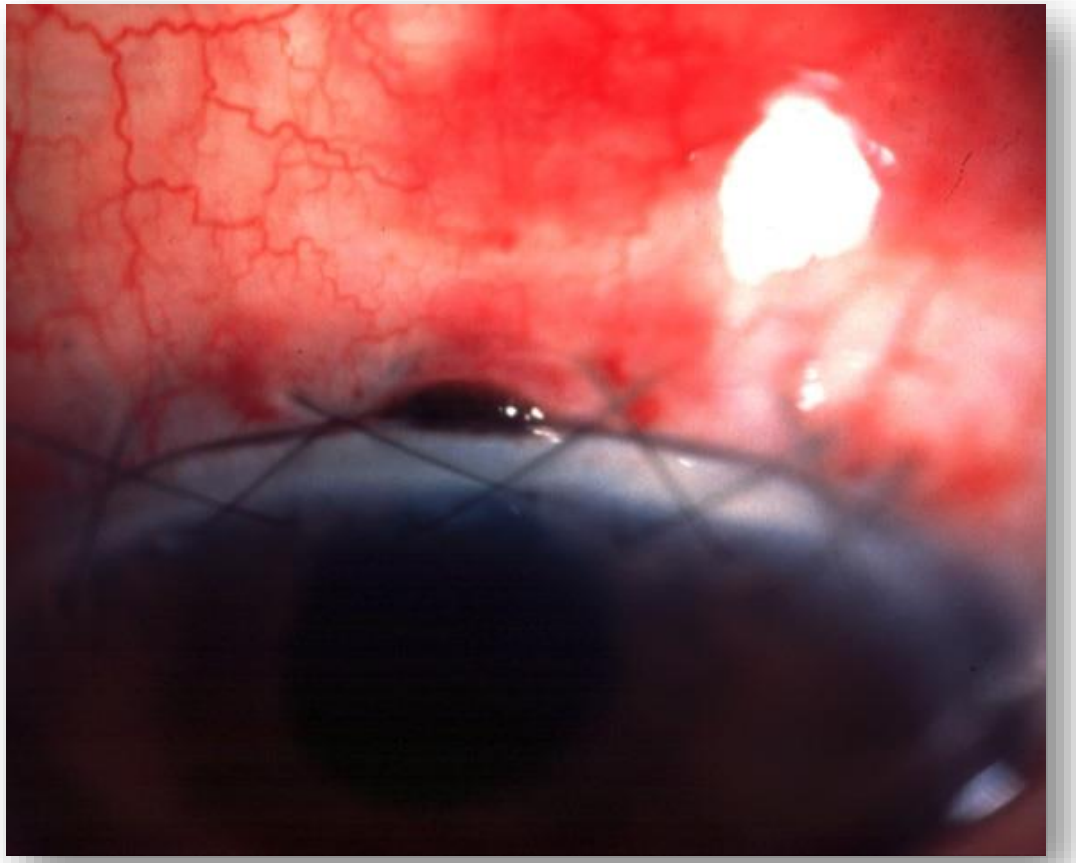
1. Admission
2. Aspiration
3. Intraocular antibiotic
4. Systemic antibiotic
5. Immediate pars plana viterectomy

❖**What is the DDx ?**

1. Bacterial keratitis
2. Fungal keratitis
3. Uveitis
4. Acanthamoeba
5. Endophthalmitis

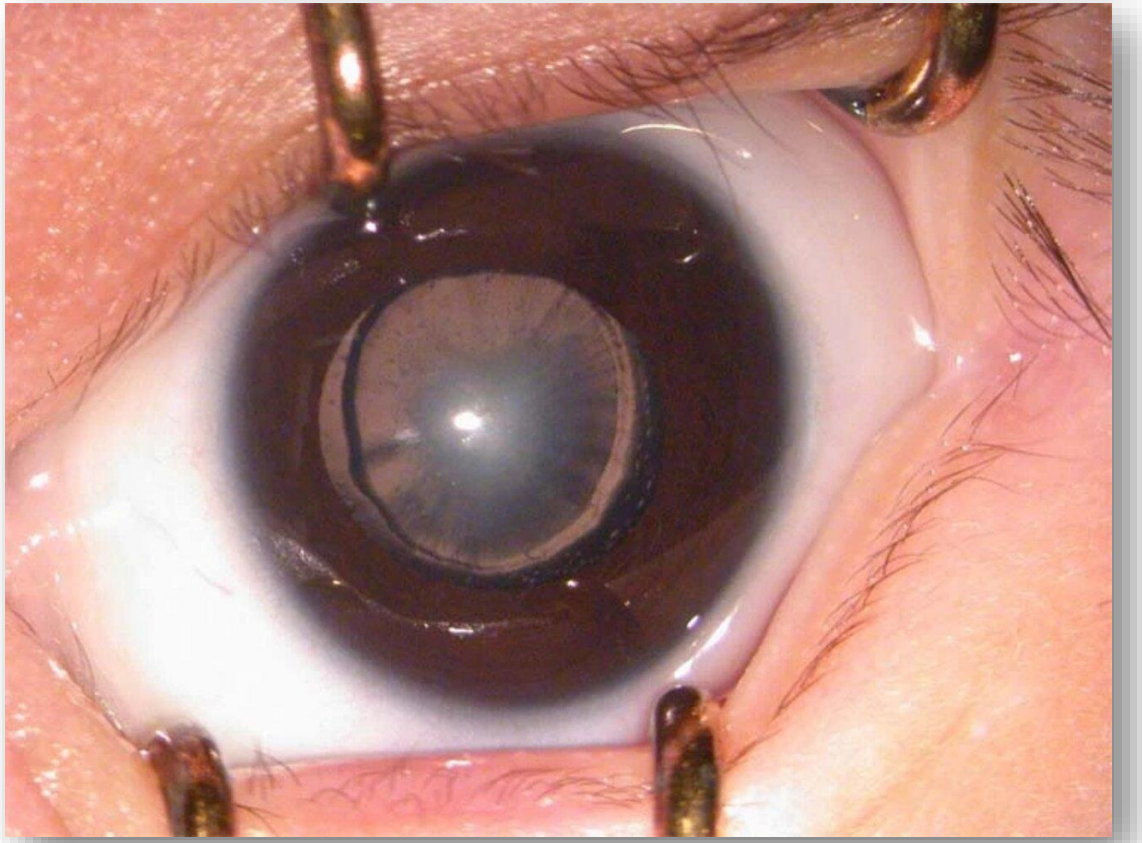
Iris prolapse

- Describe what you see
  - Iris prolapse
- Mention the cause
  - Post cataract complication (inadequate suturing of incision)
- What is the treatment?
  - Excise prolapsed iris tissue.
  - Resuture incision.



Congenital cataracts

- Congenital cataracts manifest differently than acquired cataracts.
  1. Leukocoria
  2. Strabismus
  3. Nystagmus
  4. Delay in motor skill development
  5. Deprivation amblyopia



The pupil is dilated. Cloudy white opacification of the nucleus of the lens is visible. The red reflex is impaired.

Change in lens position

سنوات (2)

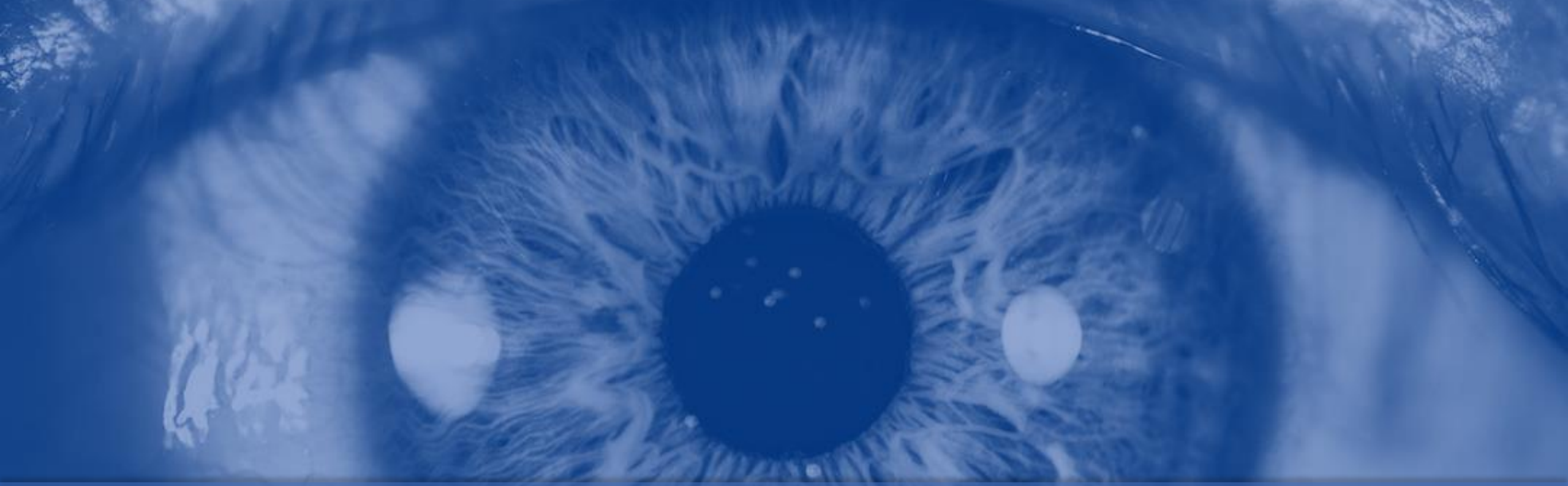
Lens Subluxation

- This a 16-year-old male wearing +10 glasses in both eyes, the patient history was significant of presence of mitral valvular prolapse, the patient is tall and thin, anterior segment examination is shown in the picture

- **What is the most likely condition that cause the obvious picture**
  - Marfan syndrome
- **Name of this sign:** Subluxated lens
- **Does it cause retinal detachment?** yes
- **Causes of this signs** سنوات (3)
  1. Marfan syndrome
  2. long standing glaucoma
  3. hyper mature cataract
  4. trauma

Lens replacement

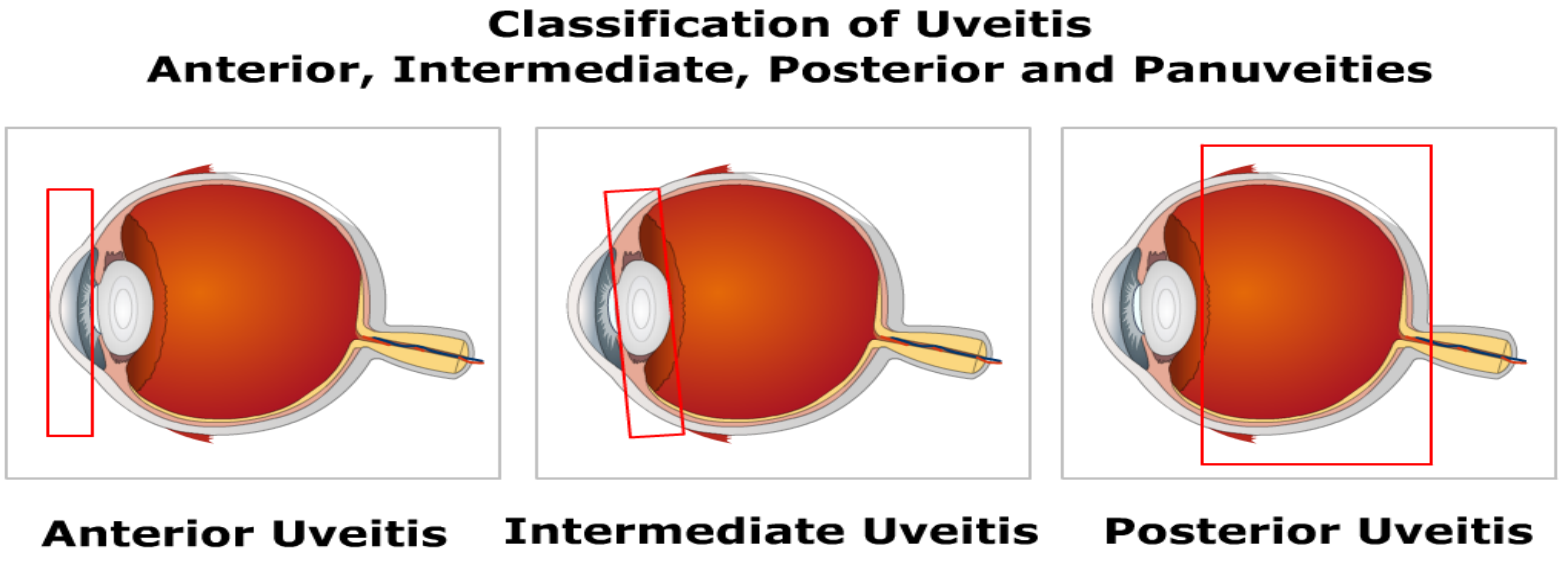
- **What surgery done for this patient?**
  - Lens replacement (maybe with intra capsular cataract extraction)
- **Three indication**
  1. cataract
  2. Lenticular malposition (Subluxation of the lens)
  3. Lenticular malformation (Coloboma)



Uveitis

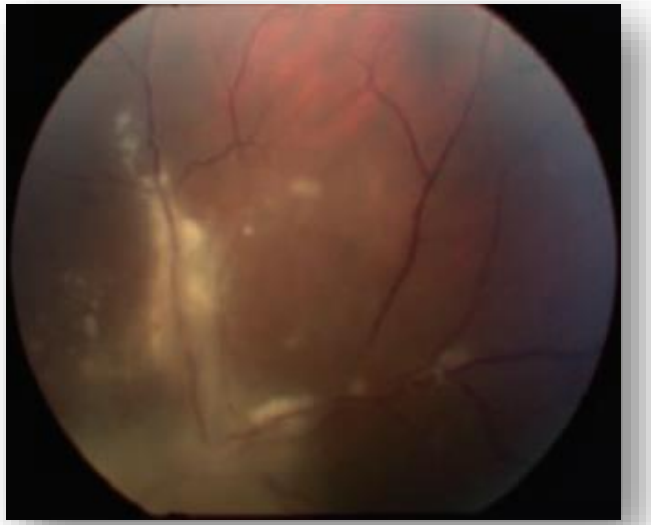
Anatomical Classification of Uveitis

- Inflammation of the iris, accompanied by increased vascular permeability, is termed iritis or anterior uveitis
- An inflammation of the ciliary body is termed cyclitis , of the pars plana is pars planitis and of the vitreous is vitritis. As a group these are termed intermediate uveitis
- Inflammation of the posterior uvea is termed posterior uveitis and may involve the choroid (choroiditis) , the retina (retinitis) or both (chorioretinitis)
- A pan-uveitis is present when inflammatory changes affect the anterior chamber, vitreous and retina and/or the choroid



Signs of uveitis

- **On examination**:
  - The visual acuity may be reduced
  - The eye will be inflamed, mostly around the limbus (ciliary injection) →→→→→→→→→→→→→→→→
- **Signs of anterior uveitis**
  - Nest slide
- **Signs of intermediate and posterior uveitis** →
  - There may be cells in the vitreous.
  - There may be retinal or choroidal foci of inflammation
  - Macular oedema may be present

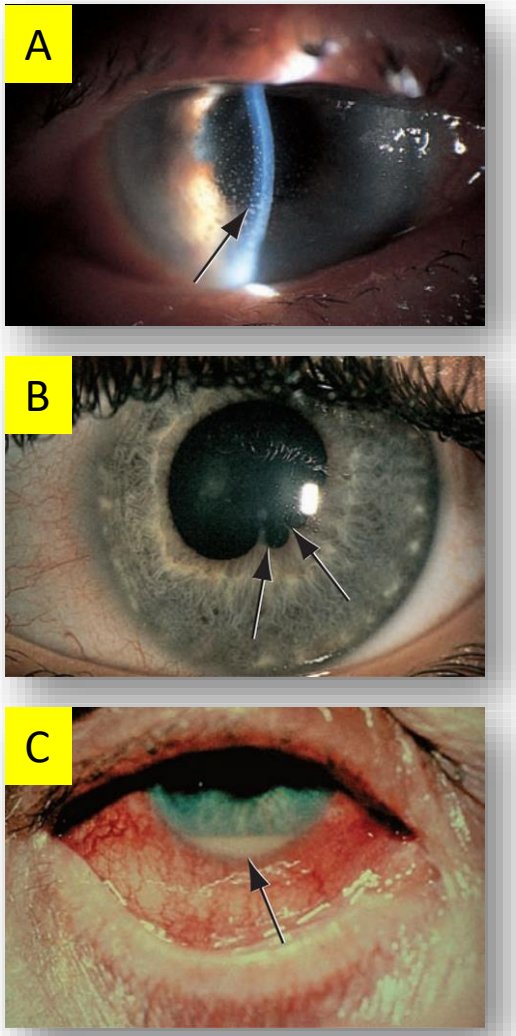


Signs of anterior uveitis

A. Inflammatory cells may be visible clumped together on the endothelium of the cornea, particularly inferiorly (keratic precipitates or KPs)

B. The iris may adhere to the lens and bind down the pupil (posterior synechiae or PS). Peripheral anterior synechiae (PAS) between the iris and the trabecular meshwork or cornea may occlude the drainage angle. The intraocular pressure may be elevated by PAS or increased aqueous protein

C. Slit-lamp examination will reveal aqueous cells and a flare due to exuded protein. If the inflammation is severe there may be sufficient white cells to collect as a fluid level inferiorly (hypopyon).



Uveitis causes

❖ ***Infectious:***

- ✓Toxoplasmosis.
- ✓PO infections.
- ✓Fungal.
- ✓HIV & CMV
- ✓TB.
- ✓Syphilis.
- ✓Herpetic.
- ✓Metastatic infection.
- ✓Toxocara.

❖ ***Systemic disease:***

- ✓Ankylosing spondylitis.
- ✓Sarcoidosis.
- ✓Bechet disease.
- ✓Inflammatory bowel disease.
- ✓Psoriatic arthritis.
- ✓Juvenile chronic arthritis.

❖ ***Ocular diseases:***

- ✓Advanced cataract.
- ✓Retinal detachment.
- ✓Sympathetic ophthalmitis.
- ✓Angle closure glaucoma.
- ✓Intra-ocular tumors (Malignant melanoma & Retinoblastoma).

Q1: Keratic precipitate

- This patient is complaining from blurred vision, she told you that she has recurrent ulcers in her mouth

❖ **Name of this lesion?**

- Keratic precipitate

❖ **What is the most likely diagnosis?**

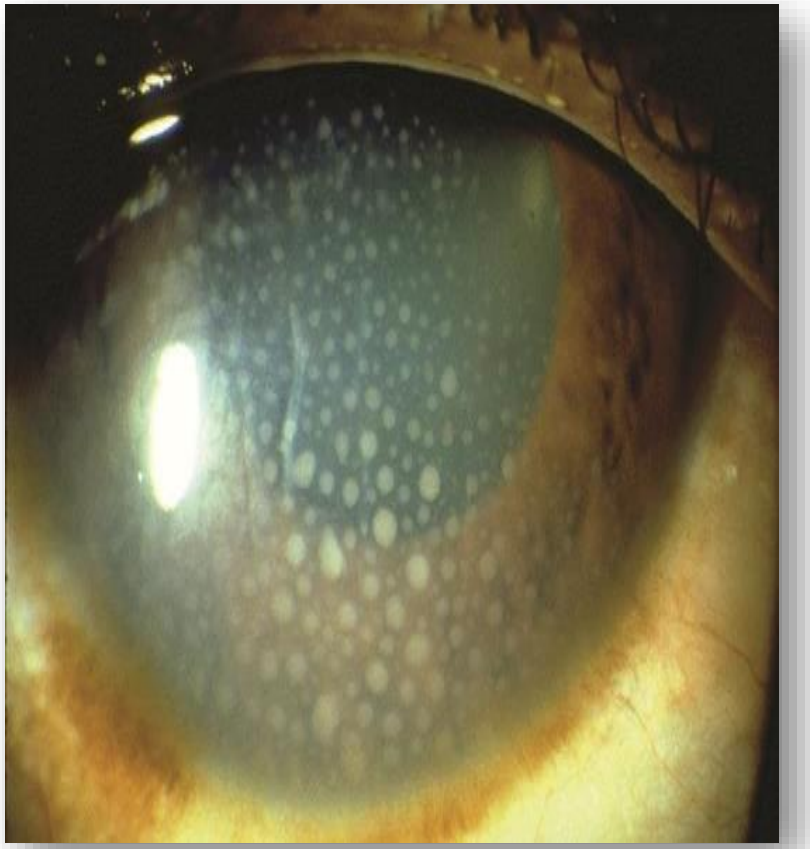
- Uveitis

❖ **What drugs that you would give her before referring her to ophthalmologist?**

- Steroid, immunomodulation agents.

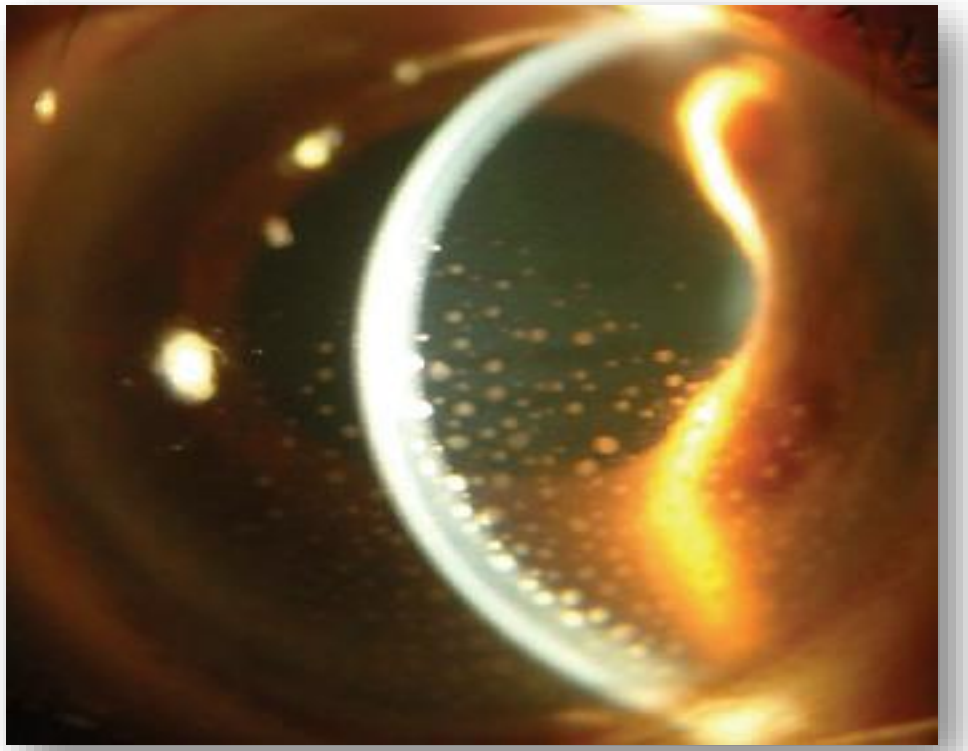
❖ **DDX for this lesion?**

- Corneal dystrophy, bacterial infection of cornea



Q2: Keratic precipitate

- **Describe what you see**
  - Keratic precipitate
  - Clumped inflammatory cells on the corneal endothelium
- **DDX**
  - Uveitis, trauma
- **Management**
  - Topical, systemic and injection steroid
  - Dilating eye drops (Mydriaticum)
  - Antibiotics and antiviral
  - Immunosuppressive



Q1: Hypopyon

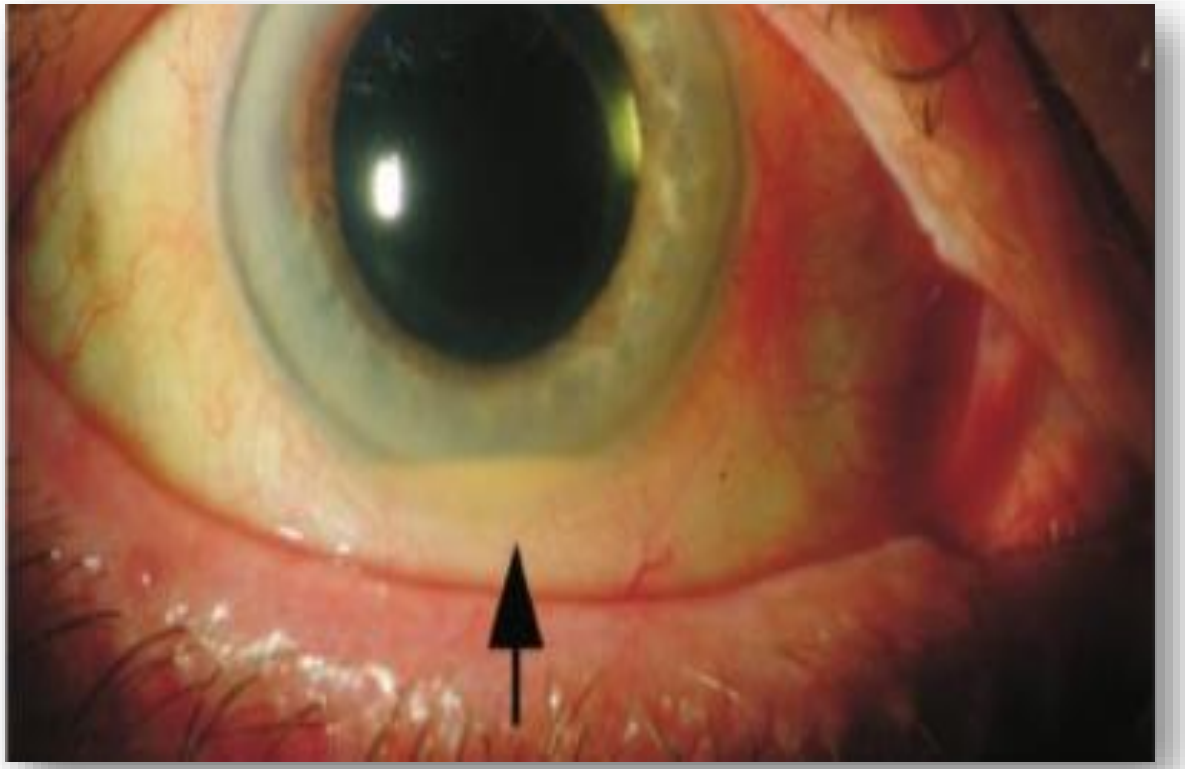
- **What are the findings seen ?**
  - Hypopyon
  - ciliary injection
- **What initial medications you will give ?**
  1. Intraocular antibiotic
  2. Systemic antibiotic
  3. Topical steroid
- **Management**
  - Admission
  - Intraocular antibiotic
  - Systemic antibiotic
  - Aspiration
  - Pars plana vitrectomy

Q2: Hypopyon

- **Name this sign**
  - Hypopyon
- **First line of management, His IOP 27 mmHg**
  - Anti-Glaucoma and immediate pars plana viterectomy with intraocular antibiotic
- **If you know that this patient has X-Ray with calcification of sacroiliac joint, what is your diagnosis?**
  - Ankylosing spondylitis

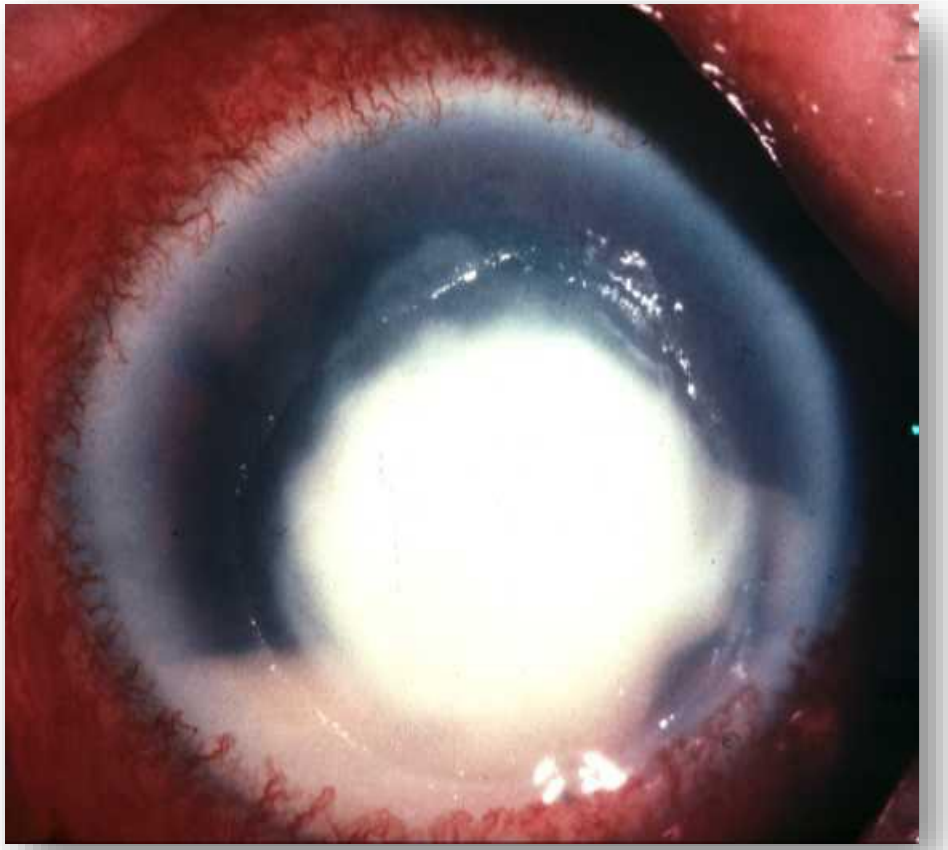
Q3: Hypopyon

- **Important sign**
  - Hypopyon
- **DDx**
  - Bacterial keratitis
  - Fungal keratitis
  - Uveitis
  - Acanthamoeba
  - Endophthalmitis



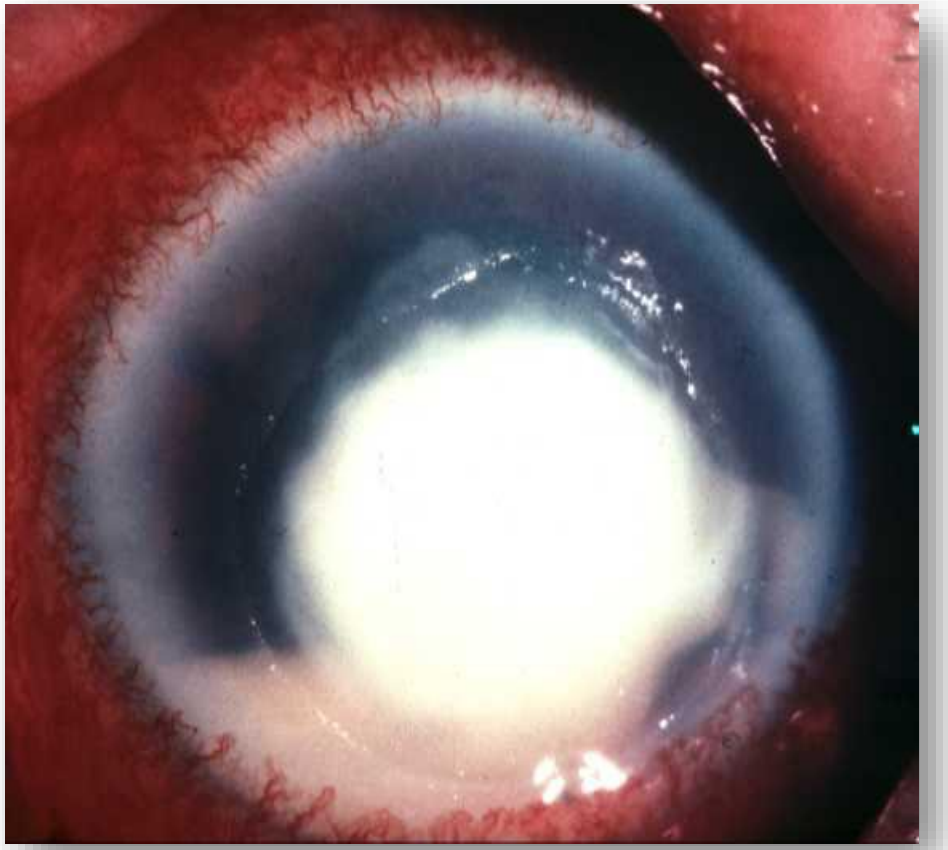
Q4: Hypopyon

- **Describe 2 clinical signs ?**
  - Corneal infiltrate (opacity)
  - Hypopyon
  - Ciliary injection
- **If you know that it was gram negative diplococci what's the possible cause ?**
  - Neisseria Gonorrhea.
- **Treatment**
  - Topical gentamycin or bacitracin
  - Intravenous cefoxitin or cefotaxime



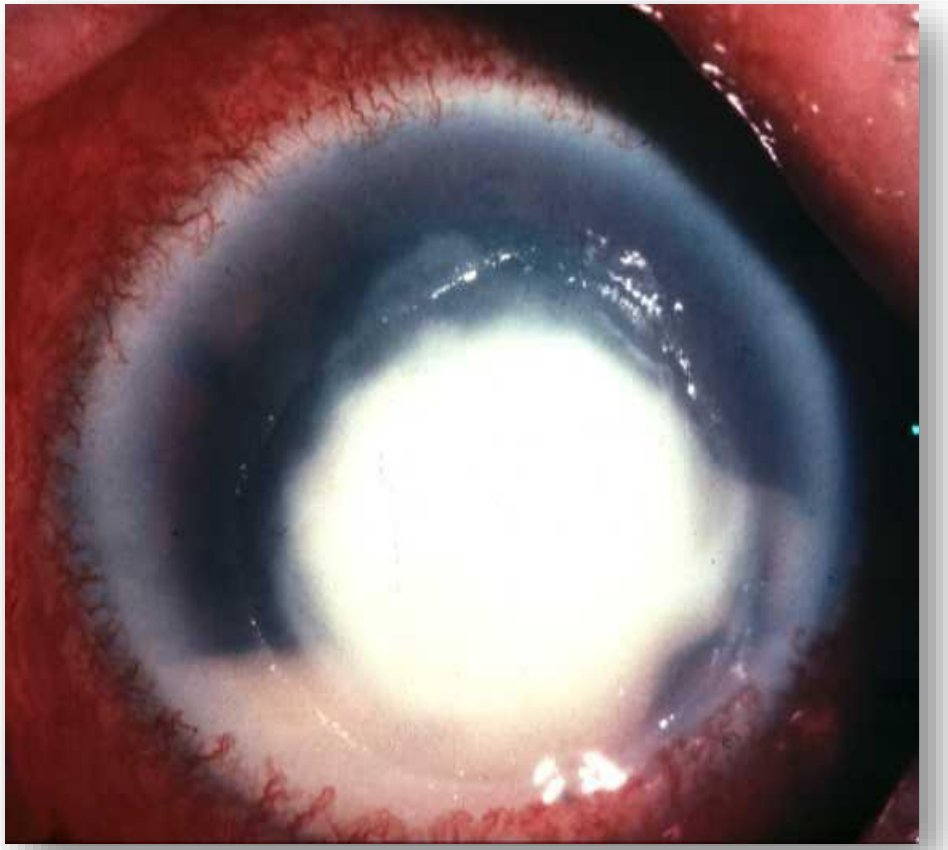
Q5: Hypopyon

- **Describe what you see ?**
  - Corneal infiltrate(opacity)
  - Hypopyon
  - Ciliary injection
- **What is your differential diagnosis ?**
  - Bacterial keratitis
  - Endophthalmitis
  - Uveitis
- **Symptoms**
  - Severe pain
  - Visual impairment
  - Purulent Discharge



Q5: Hypopyon cont.

- **What possible ophthalmic associations and complications you know ?**
  - corneal perforation
  - Corneal scaring
- **Management**
  - Admission
  - Intraocular antibiotic
  - Systemic antibiotic
  - Aspiration
  - Pars plana vitrectomy



Mention 2 diseases associated with HLA-27 ?

1. Inflammatory bowel disease
2. Psoriatic arthritis
3. Reactive arthritis
4. Ankylosing spondylitis

Glaucoma

Write the anatomic parts

Physiology of aqueous humor circulation.

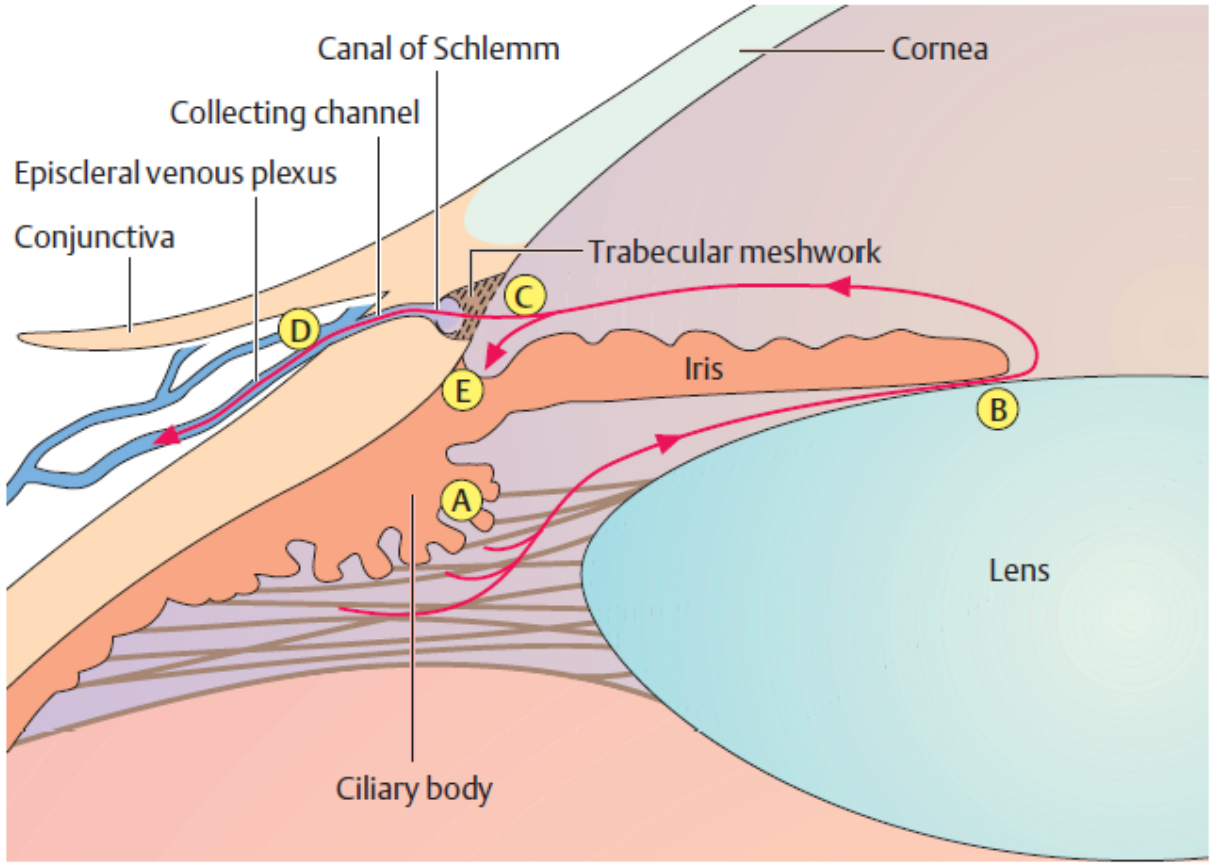


Fig. 10.1 As it flows from the nonpigmented cells of the ciliary epithelia Ⓐ to beneath the conjunctiva Ⓓ, the aqueous humor overcomes physiologic resistance from two sources: the resistance of the pupil Ⓑ and the resistance of the trabecular meshwork Ⓒ.

Essay questions 1

سنوات (7)

❖Definition of glaucoma

- A group of eye diseases characterized by progressive optic neuropathy that results in a specific pattern of irreversible optic disc changes and visual field defects. Frequently associated with raised intraocular pressure.

سنوات (2)

❖What is the normal Range of IOP ?

- Normal IOP: (11-21) mmHg

سنوات (1)

❖What is the effect of glaucoma in papillary reflex ?

- Papillary reflex is reduced in eyes with glaucoma

سنوات (1)

❖What are the conditions increasing the risk of having glaucoma?

- Diabetes mellitus
- Eye surgery or injury
- Hypertension
- Use of steroid

Essay questions 2

سنوات (3)

❖Types of glaucoma

- Primary
  - Open angle glaucoma
  - Acute & chronic Closed angle glaucoma
- Secondary
- Congenital

سنوات (2)

❖Mention three causes of secondary open angle Glaucoma:

- Psudoexfoliative glaucoma (most common cause)
- Melanoma
- Hyphemia
- Sickle cell disease
- Uveitis
- Pigment dispersion syndrome

Essay questions 3

سنوات (1)

❖ **What treatment modalities you know for open angle glaucoma ?**

- Medical: Anti Glaucoma Drugs
- Laser: Argon laser trabeculoplasty, Selective laser trabeculoplasty
- Surgery: Trabeculectomy, Trabeculoplasty

سنوات (2)

❖ **Mention 3 Anti Glaucoma Drugs**

- Acetazolamide /pilocarpine /timolol /latanoprost

سنوات (1)

❖ **What is the management of acute closure glaucoma ?** (brief answer)

- Decrease IOP by anti Glaucoma Drugs
- Formation an opening in the iris
- Surgical drainage procedures

Essay questions 4

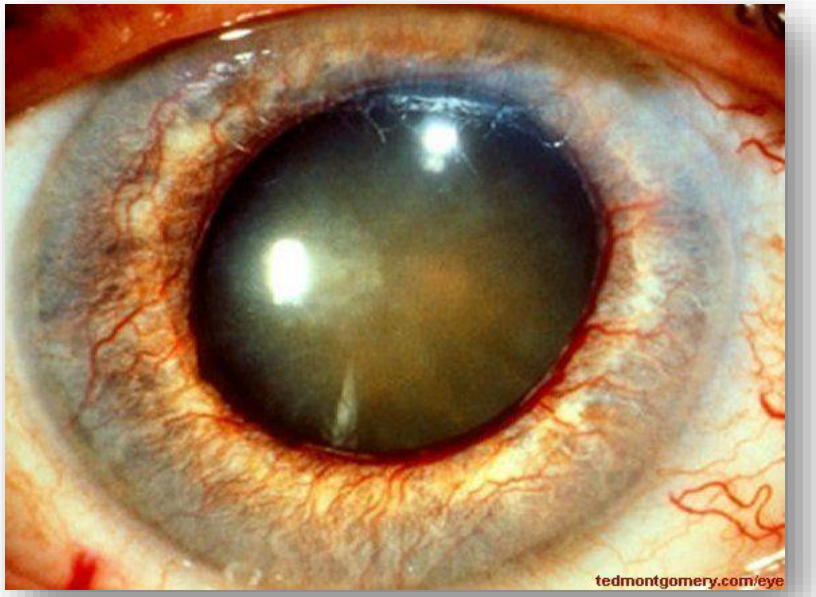
سنوات (1)

❖ **What is the management of acute closure glaucoma ?** (detailed)

- Decrease IOP
  - Intravitreal acetazolamide or hyperosmotic agents,
  - Topical antiglaucoma especially Pilocarpine,
  - Beta blocker
- Formation an opening in the iris (peripheral iridotomy) either by laser or surgery
- Surgical drainage procedures (trabelectomy, valve) if peripheral iridotomy
- Prophylactic Peripheral Iridotomy to the fellow eye

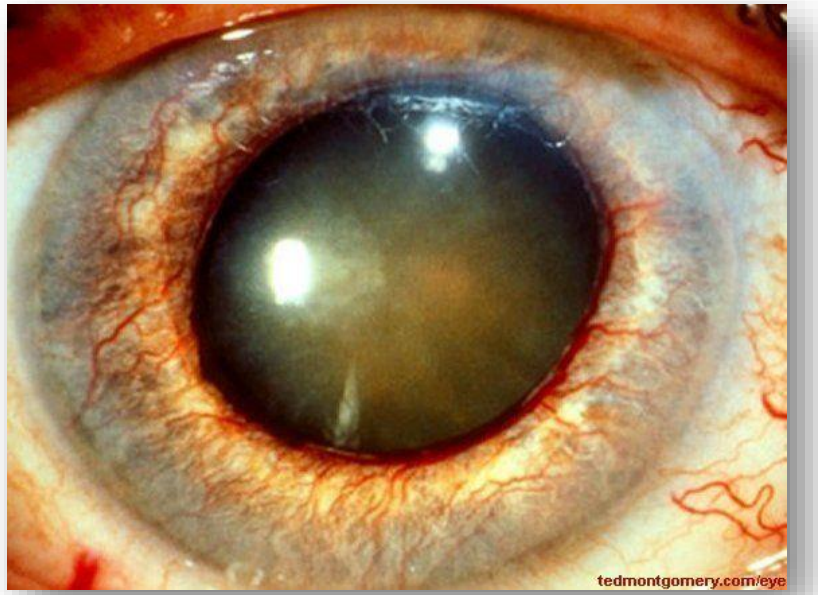
Rubeosis iridis

- Abnormal iris blood vessels may obstruct the angle and cause the iris to adhere to the peripheral cornea, closing the angle (rubeosis iridis).
- This may accompany proliferative diabetic retinopathy or central retinal vein occlusion due to the forward diffusion of vasoproliferative factors such as vascular endothelial growth factor (VEGF), from the ischemic retina



Rubeosis iridis

- **What is this sign ?**
  - Rubeosis iridis
- **DDx**
  1. Chronic retinal detachment
  2. Acute close angle glaucoma
  3. Central retinal vein occlusion
  4. Diabetes mellitus



- **Treatment if IOP 35?**
  - Transscleral freezing of the ciliary body to reduce IOP
- **Type of glaucoma ?**
  - Secondary neovascularization

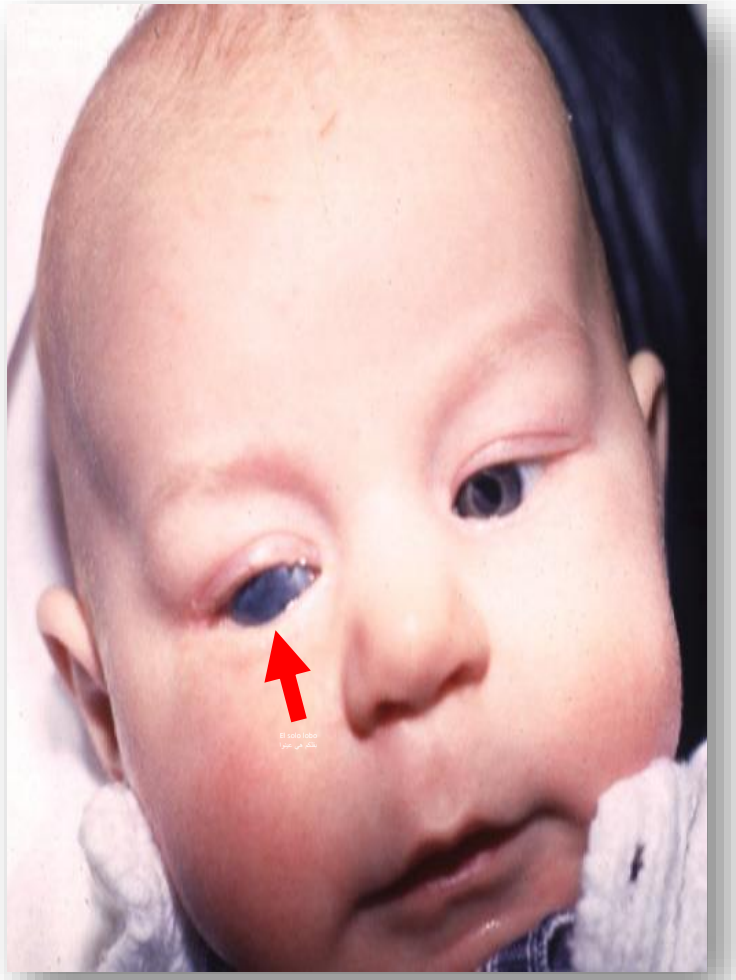
Rubeosis iridis

- 56 years old male with history of diabetes (20ys) ,come to the ER with sudden painful visual loss in right eye
  IOP of right eye 46 mmHg

- **Diagnosis**
  - Rubeosis iridis
- **DDx**
  1. Chronic retinal detachment
  2. Acute close angle glaucoma
  3. Central retinal vein occlusion
  4. Diabetes mellitus
- **Management**
  - Transscleral freezing of the ciliary body to reduce IOP

Congenital glaucoma

- **Presents with**:
  1. Cloudy cornea.
  2. Large cornea (Buphthalmos).
  3. Excessive tearing.
- Family history is important.
- Treatment :
  - Usually surgical: Goniotomy, Trabeculotomy, Trabeculectomy
  - Medical (antiglaucoma drugs) and laser treatment may be needed later.



Congenital glaucoma

- This picture shows a child with right eye corneal clouding

❖What causes you know can be associated with such a condition ?

- Congenital glaucoma
- Bacterial keratitis
- Acute endophthalmitis

❖How do you manage such a case ?

- Surgery (goniotomy)
- Trabeculectomy
- Medical and laser treatment may be needed later

❖What are the important things to follow up in these cases ?

- Assess the other eye
- Cup to disc ratio
- Visual field
- Intraocular pressure

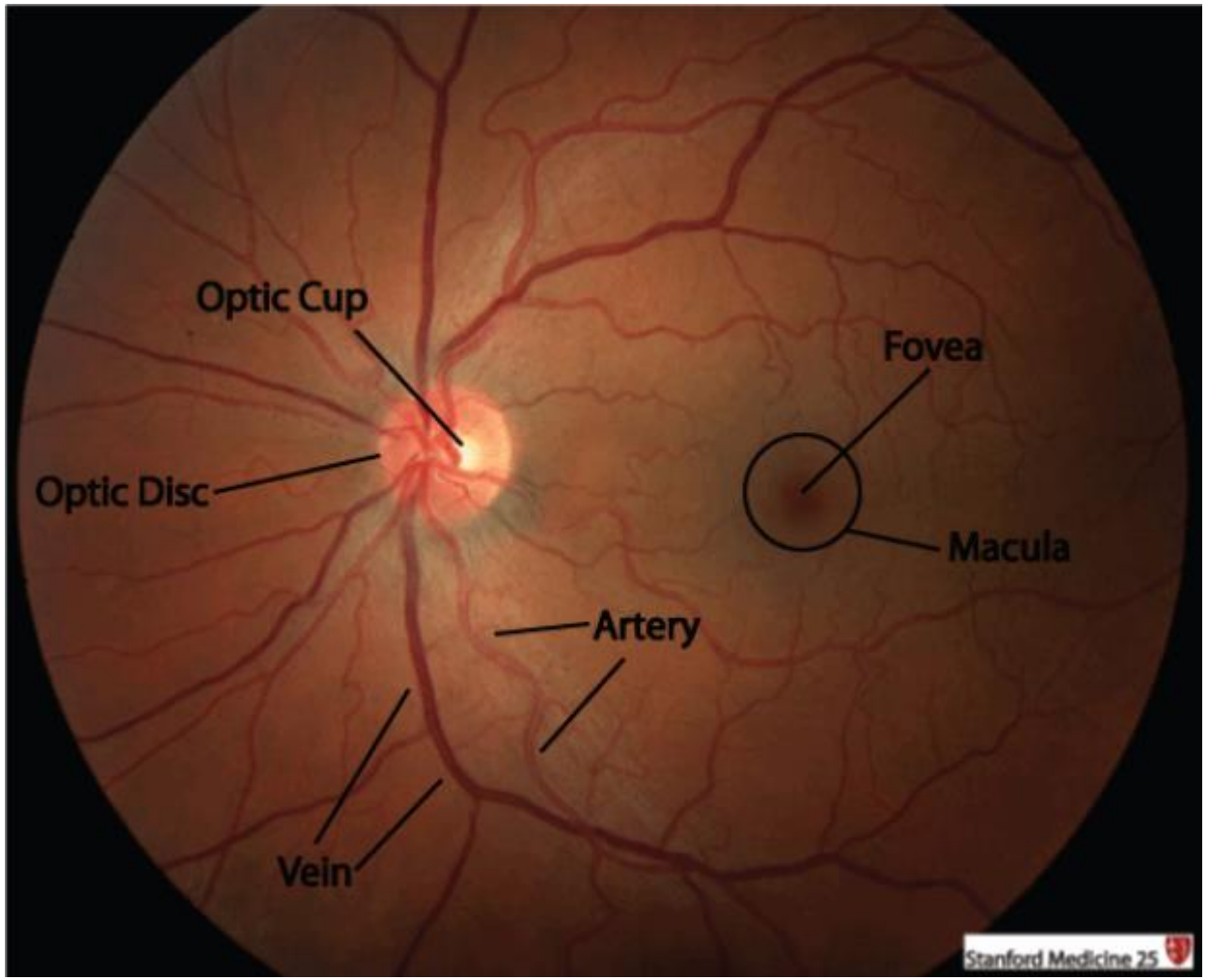
Buphthalmos

- A 2-year-old child brought by his parents with the following picture. The mother is worried because of the constant lacrimation her child has. Provided that is intraocular pressure was **27 mmHg**.

- **Name of this case ?**
  - Buphthalmos
- **Medical treatment ?**
  - Acetazolamide, timolol, pilocarpine
- **Need surgery ?**
  - Yes
- **The most likely diagnosis of this patient ocular problem ?**
  - Congenital glaucoma

Retina & Choroid

Normal fundoscopy



الي بالأحمر فقط عليهم أسئلة

الي بالبنفسجي من ملف صور د. فواز

DDx of retinal disease

❖Acquired retinal diseases

1. Age-related macular degeneration
2. Macular holes & membranes
3. Central serous retinopathy
4. Macular edema
5. Toxic maculopathies
6. Posterior vitreous detachment
7. Retinal detachment

❖Inherited retinal diseases

1. Retinitis pigmentosa
2. Albinism

❖Retinal and choroidal tumors

1. Retinoblastoma
2. Astrocytoma
3. Melanomas
4. Metastatic tumors

Age related macular degeneration

Dry / non exudative

- ✓ Most common type.
- ✓ Mild to moderate gradual loss of vision.
- ✓ Central shadowing.
- ✓ Drusens
- ✓ Atrophy of retinal pigmented epithelium
- ✓ NO treatment

Wet / exudative

- ✓ less common.
- ✓ Rapidly progressive marked loss of vison.
- ✓ Neovascularization.
- ✓ Treatment
  - ➢ Anti-VEGF intravitreal injection,
  - ➢ Argon laser
  - ➢ Surgery.

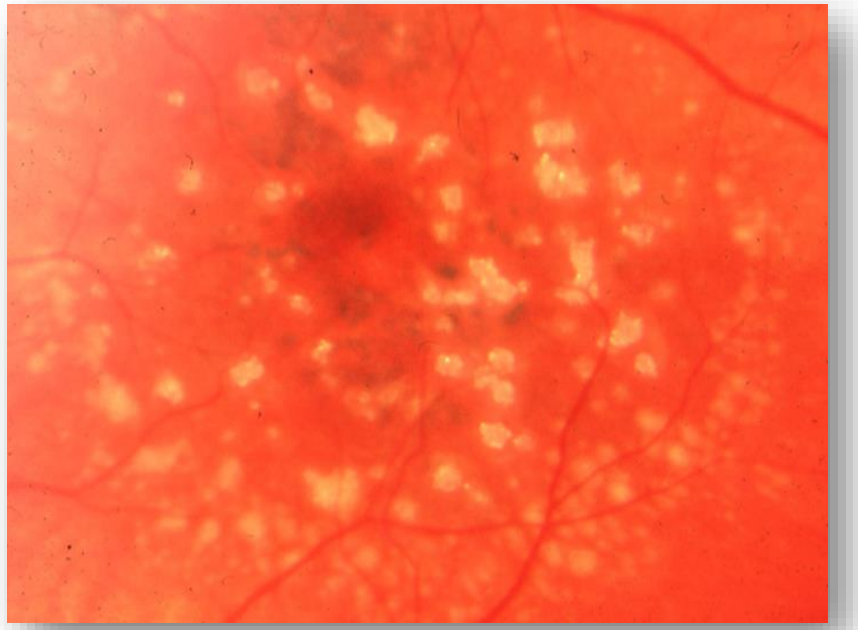
Drusens

❖ **Drusens**:

- Small yellow deposits under retinal pigmented epithelium
- A feature of macular degeneration.

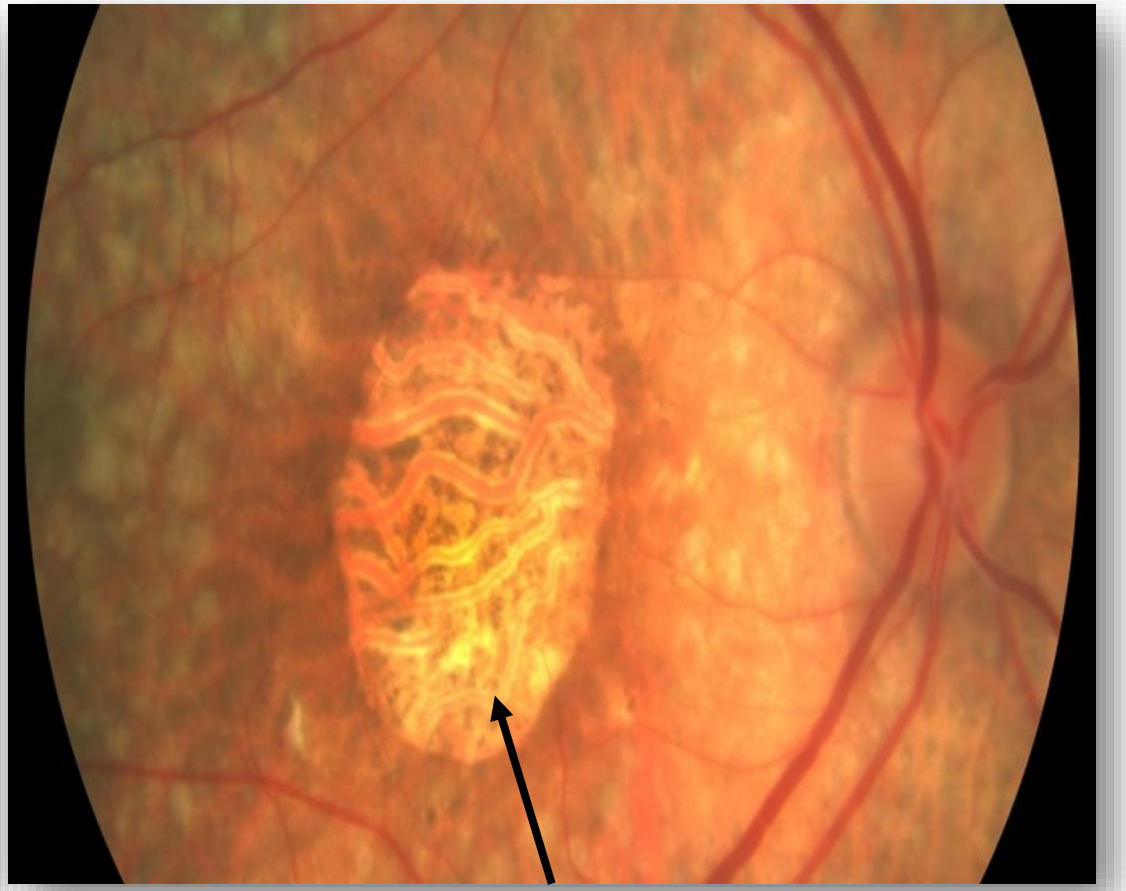
❖ **Symptoms**:

1. Blurred central vision.
2. Metamorphopsia (distorted vision).
3. Central scotoma .
4. Micro-/macropsia.



Dry / Non-exudative macular degeneration Signs

Drusens

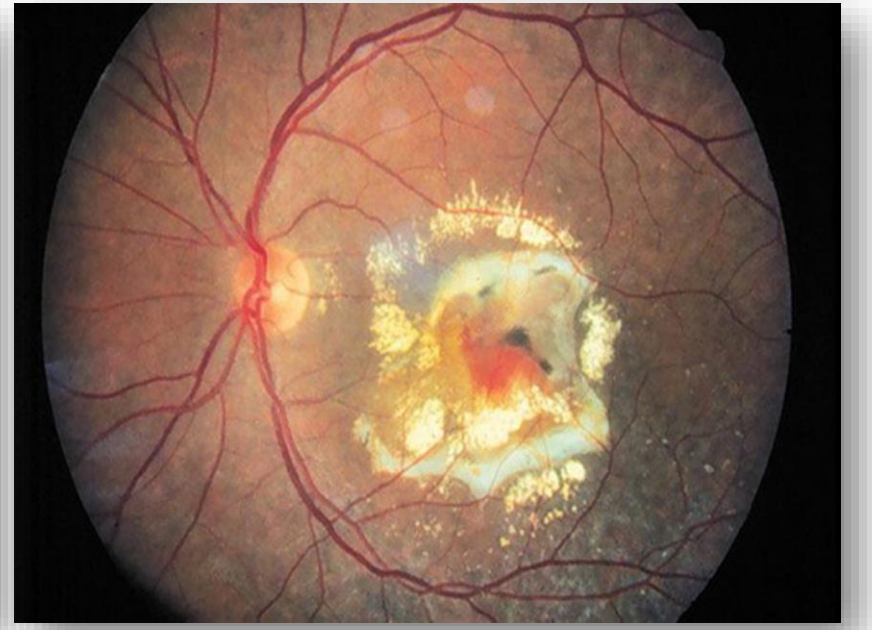


Macular atrophy

Wet / Exudative macular degeneration Signs

- Neovascularization.
- Bleeding.
- Scarring.

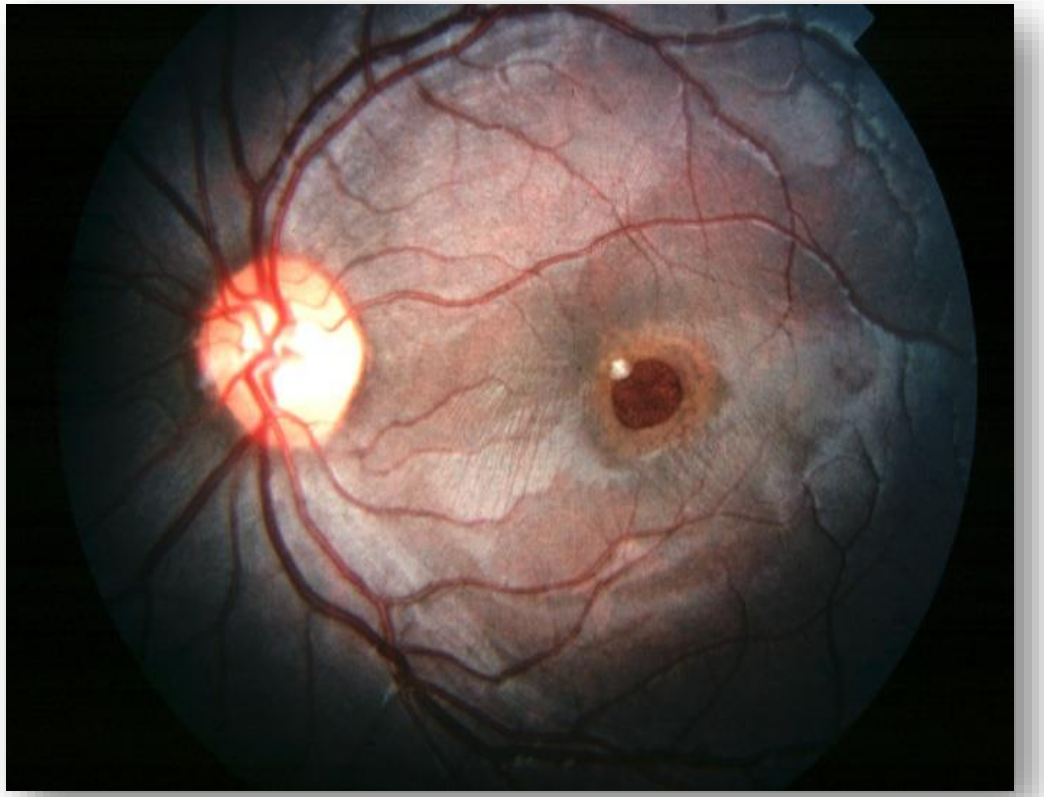
Subretinal hemorrhage



Scarring

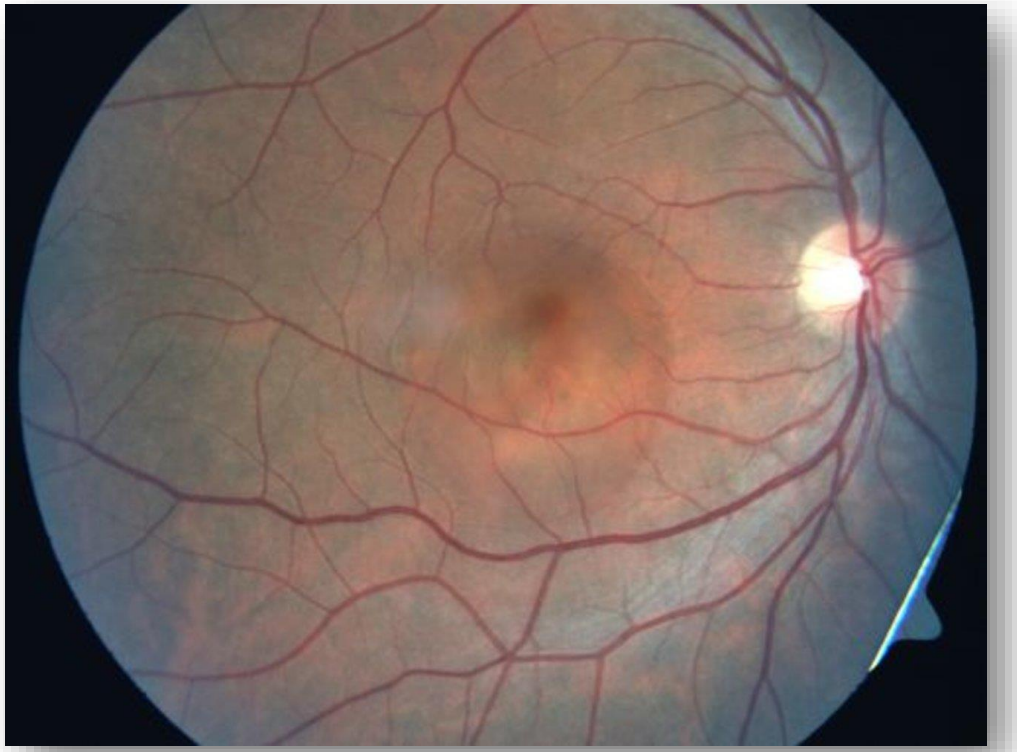
Macular hole

- **Describe what you see**
  - Well circumscribed hole in the macular region
- **What is your diagnosis ?**
  - Macular hole
- **What is the treatment ?**
  - vitrectomy with removal of vitreous traction



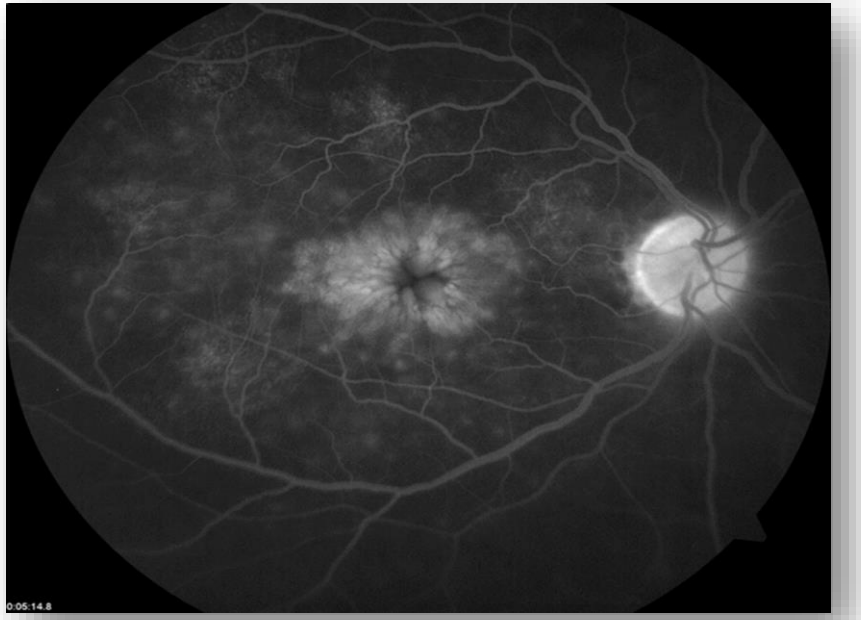
Central serous retinopathy

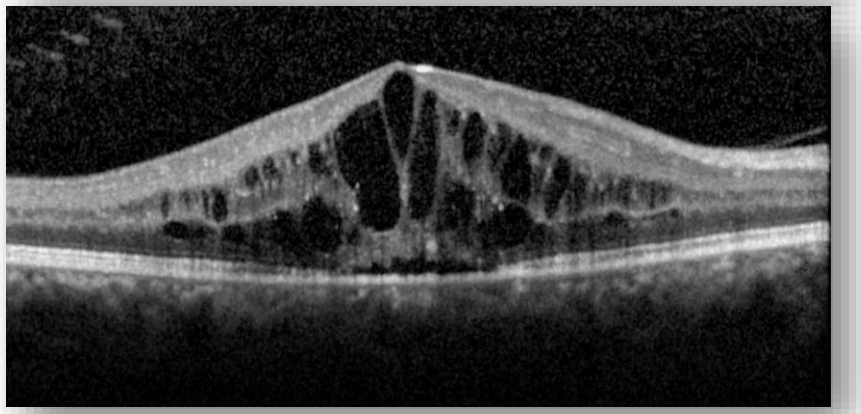
- Build up of fluid **behind the retina**.
- Causes macular dysfunction
- A self-limiting disease.
- No treatment needed.
- In severe cases, the argon laser can be used to seal the point of leakage identified with a fluorescein angiogram



Macular edema

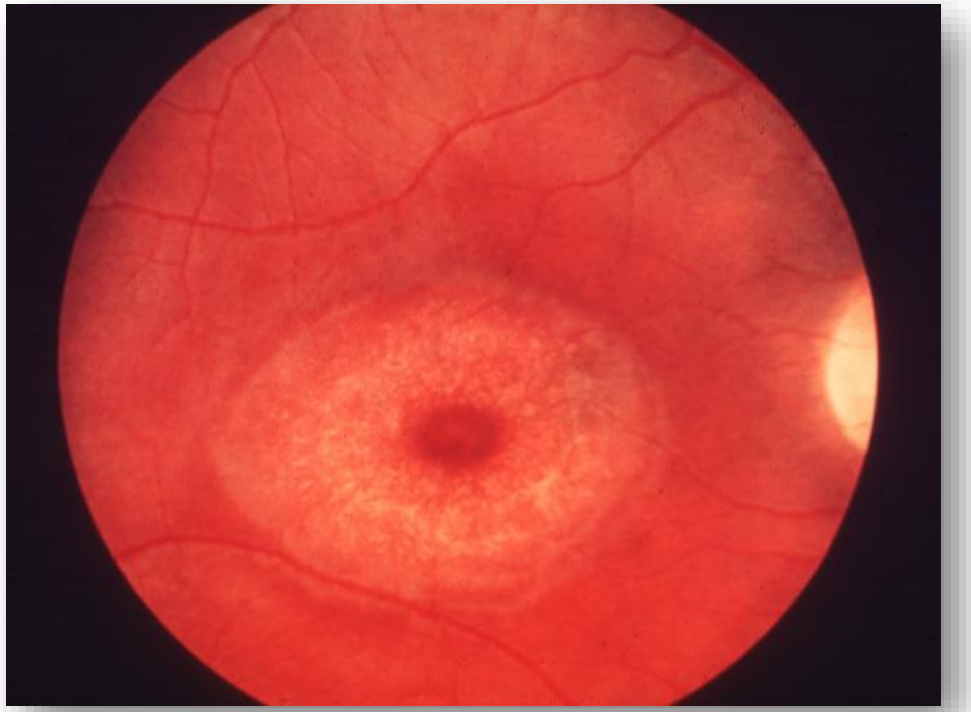
- Build up of fluid **within the retina**.
- Loss of foveal function
- Cystic appearance of the fovea
- Causes:
  - Intraocular surgeries
  - Uveitis, Retinal vascular disease (DM ,HTN)
  - Retinitis pigmentosa, Idiopathic
- Treatment:
  - Treat the underlying cause





Toxic maculopathies

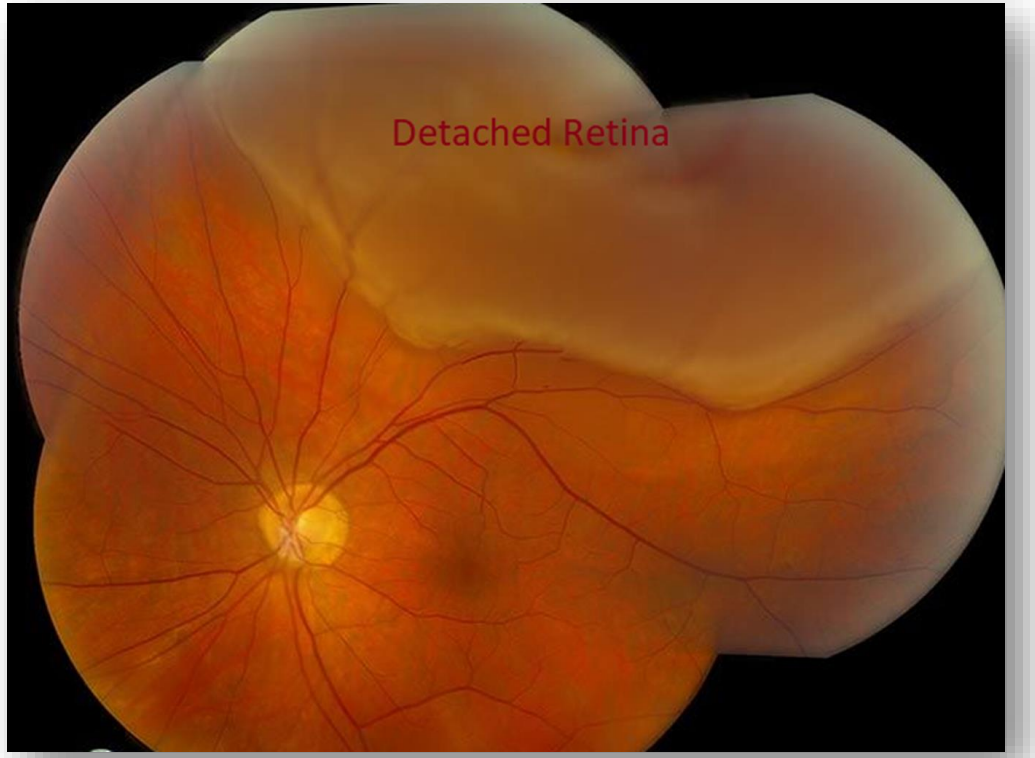
- The accumulation of some drugs in the retinal pigment epithelium can cause macular damage
- These include:
  - Chloroquine
  - hydroxychloroquine
  - Chlorpromazine
  - Etc.



Bull's-eye appearance

Retinal detachment 1

- **Definition**: detachment of the neurosensory retina from the underlying RPE .
- Due to the presence of potential space.
- Types:
  - Rhegmatogenous (Hole)
  - Tractional
  - Exudative: retinal detachment as in preeclampsia & malignancy



Retinal detachment 2

- Rhegmatogenous retinal detachment
  - Tear in the retina
  - **Risk factors**: weak retina, high myopia, trauma
  - **Clinical presentation**:
    - Shower of floater
    - Photopsia "flashes of light in the field of vision"
    - Progressive visual field defect
    - Marked fall in VA if macula involved.
  - **Management**:
    - External (conventional)
    - Internal (Viterectomy surgery)
- Tractional retinal detachment
  - Due to proliferative diabetic retinopathy
  - Management: Laser and viterectomy, Control blood sugar

Essay - Retinal detachment

❖What are the types of retinal detachment ?

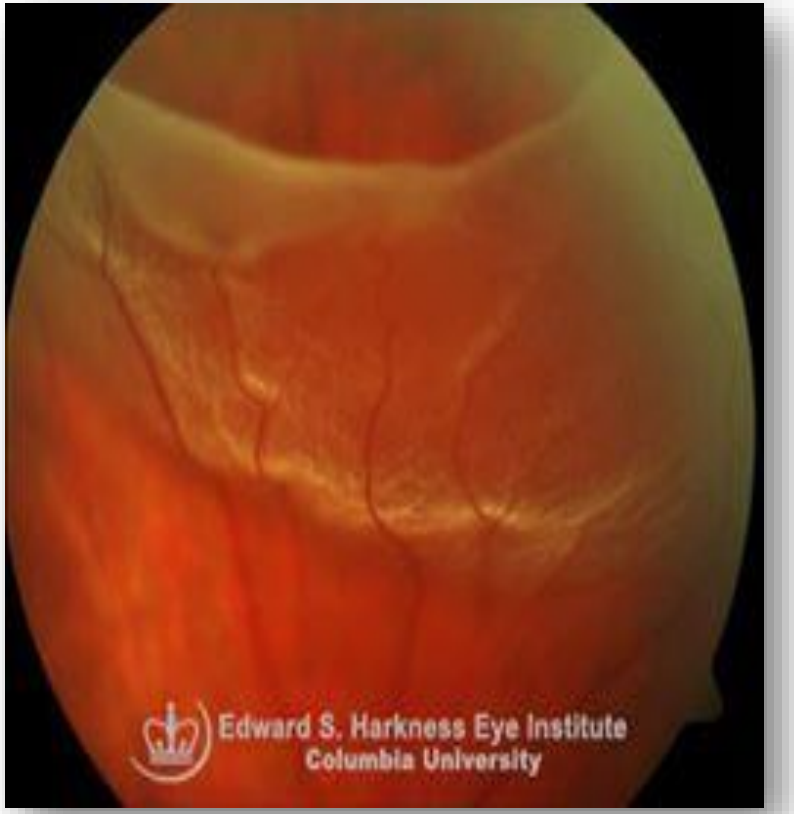
- Rhegmatogenous
- Tractional
- Exudative retinal detachment

❖What is the management ?

- Rhegmatogenous ⟶ External (conventional), Internal (vitreoretinal surgery)
- Tractional ⟶ laser and viterectomy

Retinal detachment

- History of eye trauma in a 15-year-old boy with complain of veil like vison loss in one of his eyes



- **Your Diagnosis**
  - Retinal detachment
- **Treatment**
  - Vitrectomy
- **Emergency or not**
  - Emergency
- **Maximum benefit from surgery is during the period of**
  - 1 week

Retinal detachment

- 70-year-old patient presented with painless loss of vision

❖ **What is your diagnosis ?**

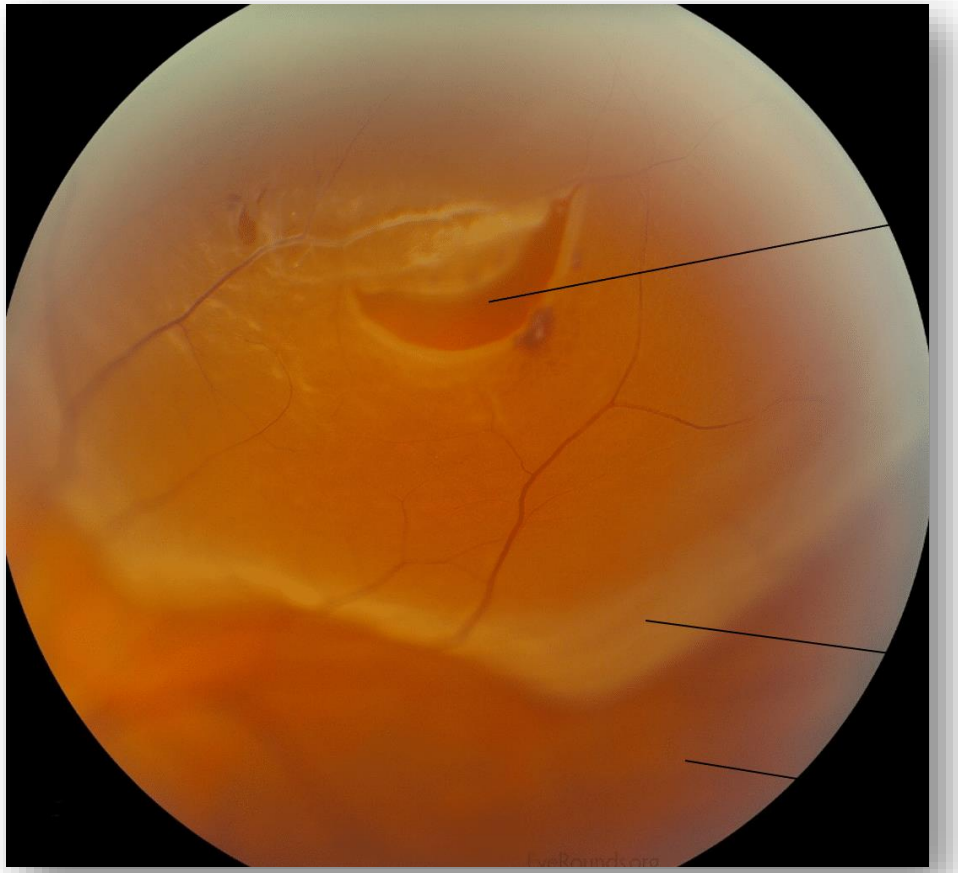
- Retinal detachment

❖ **Types of this condition ?**

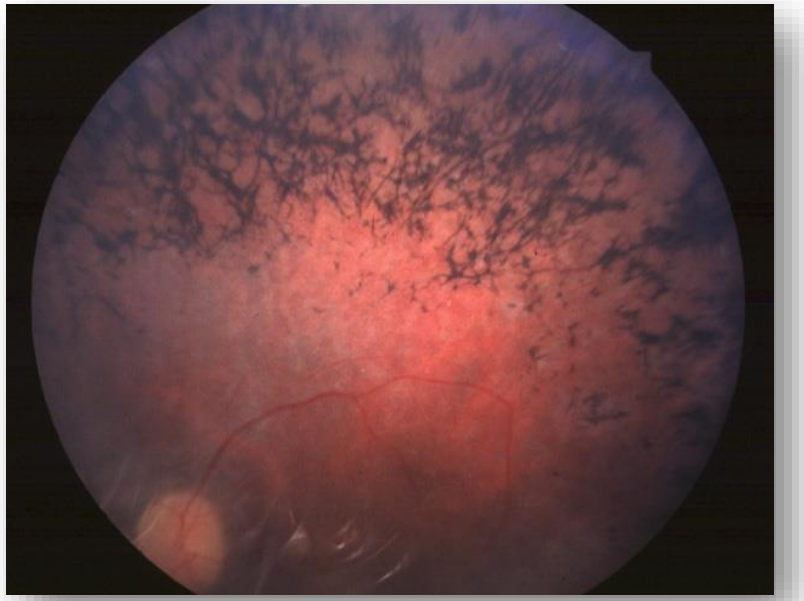
- Tractional
- Exudative
- Rhegmatogenous (Hole)

❖ **What is the treatment ?**

- Pars plana vitrectomy



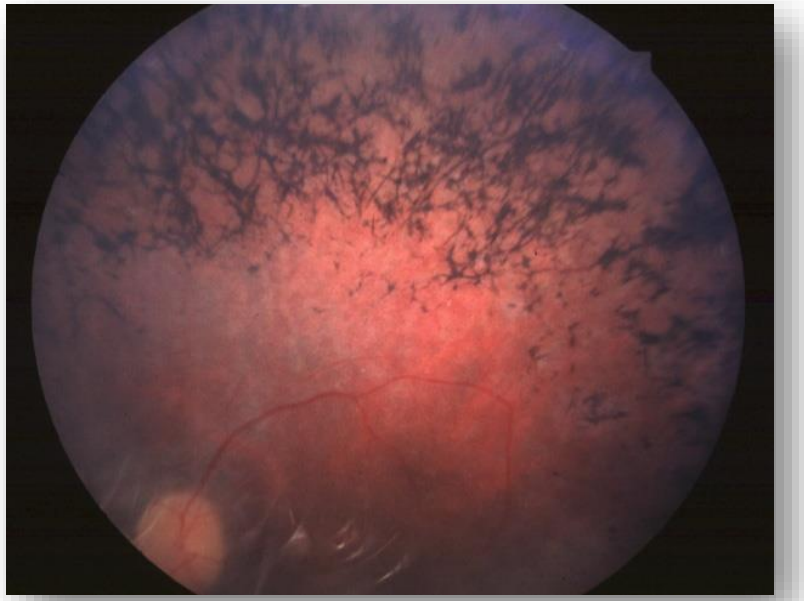
Retinitis pigmentosa



- **Describe what you see (signs) ?**
  - Peripheral clumps of retinal pigmentation
  - Pale optic disc
  - Attenuation of arterioles
- **What is your diagnosis ?**
  - Retinitis pigmentosa
- **What will such a patient complain of ?**
  - Poor night vision
  - Progressive loss of visual field and at the end progressive drop in visual acuity
- **What possible ophthalmic associations and complications you know ?**
  - Macular edema
  - Cataract

Retinitis pigmentosa

- **What is the inheritance of this disease ?**
  - Autosomal recessive
  - Autosomal dominant
  - X - linked recessive
- **Progression and onset depend on inheritance mood**
  - Autosomal dominant → later onset and milder degree
  - X-linked & Autosomal recessive → may present in infancy or childhood
- **Treatment**: No definitive treatment, complications management



Retinoblastoma

❖**What is your diagnosis**
- Retinoblastoma

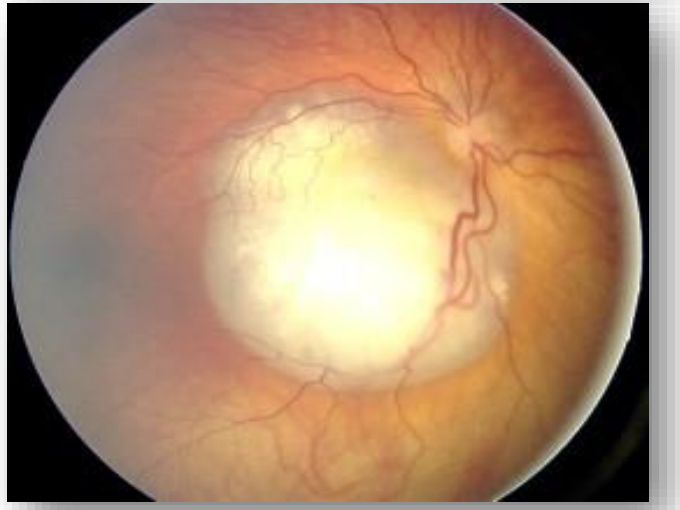
❖**Give differentials**
1. Retinoblastoma
2. Retinopathy of prematurity
3. congenital cataract
4. Toxocariasis (exudative retinal detachment)
5. Coat's disease (exudative retinitis)

❖**Treatment**
- Cryotherapy
- Photocoagulation
- Radiotherapy

❖**Is it inherited ?** Yes

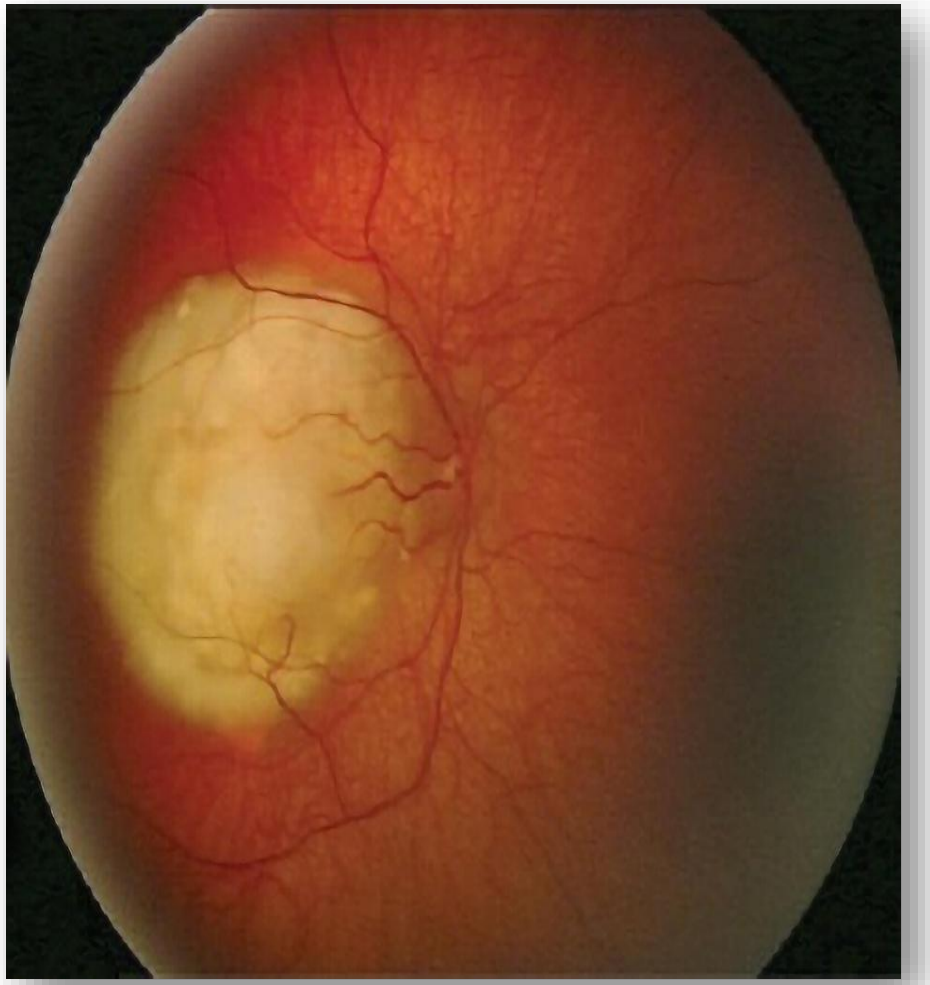
Retinoblastoma

- **Describe what you see ?**
  - White pupillary reflex (leukocoria)
- **Diagnosis**:
  - Retinoblastoma
- **DDx**:
  - Retinal detachment, Cataract, Intraocular tumor
- **What is the name of this sign ?**
  - leukocoria
- **Is it genetically inherited ?**
  - Yes



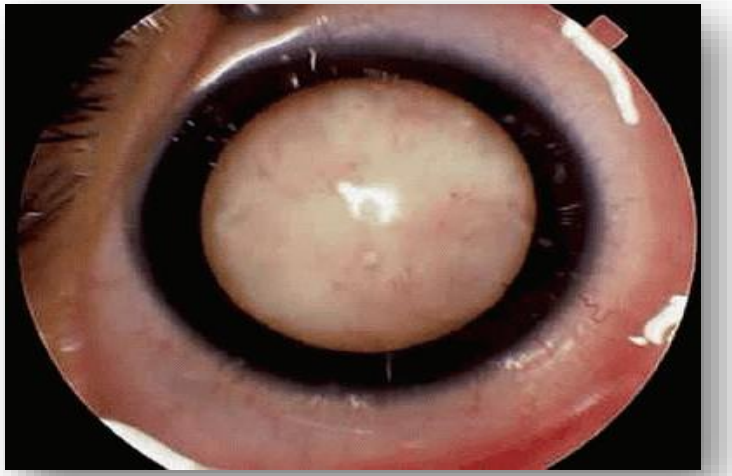
Retinoblastoma

- **One sign ?**
  - Leukocoria , Absence of red reflex
- **Diagnosis ?**
  - Retinoblastoma
- **Is this case inherited or not ?**
  - Yes, it’s inherited



Leukocoria

- **Name of this sign**
  - Leukocoria
- **Mention 3 differential diagnosis ?**
  1. Retinoblastoma
  2. Retinopathy of prematurity
  3. congenital cataract
  4. Toxocariasis (exudative retinal detachment)
  5. Coat's disease (exudative retinitis)
- **Is there any risk of retinal detachment ?**
  - Yes

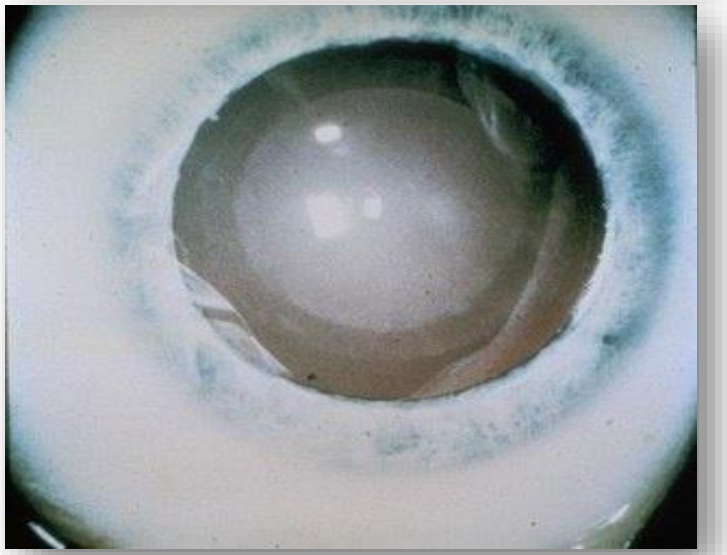


Leukocoria

- **What is the name of this sign ?**
  - Leukocoria
- **Mention 3 differential diagnosis**
  - Retinoblastoma
  - Retinopathy of prematurity
  - Congenital cataract
  - Toxocariasis (exudative retinal detachment)
  - Coat's disease (exudative retinitis)
- **If they discovered that the cause was a tumor what is your diagnosis ?**
  - Retinoblastoma
- **What is the gene responsible for this tumor ?**
  - RB1

Leukocoria

- **Describe**
  - Leukocoria in the left eye
- **Mention 3 differential diagnosis ?**
  1. Retinoblastoma
  2. Retinopathy of prematurity
  3. congenital cataract
  4. Toxocariasis (exudative retinal detachment)
  5. Coat's disease (exudative retinitis)
- **What is your management**
  - treat underlying cause



Leukocoria

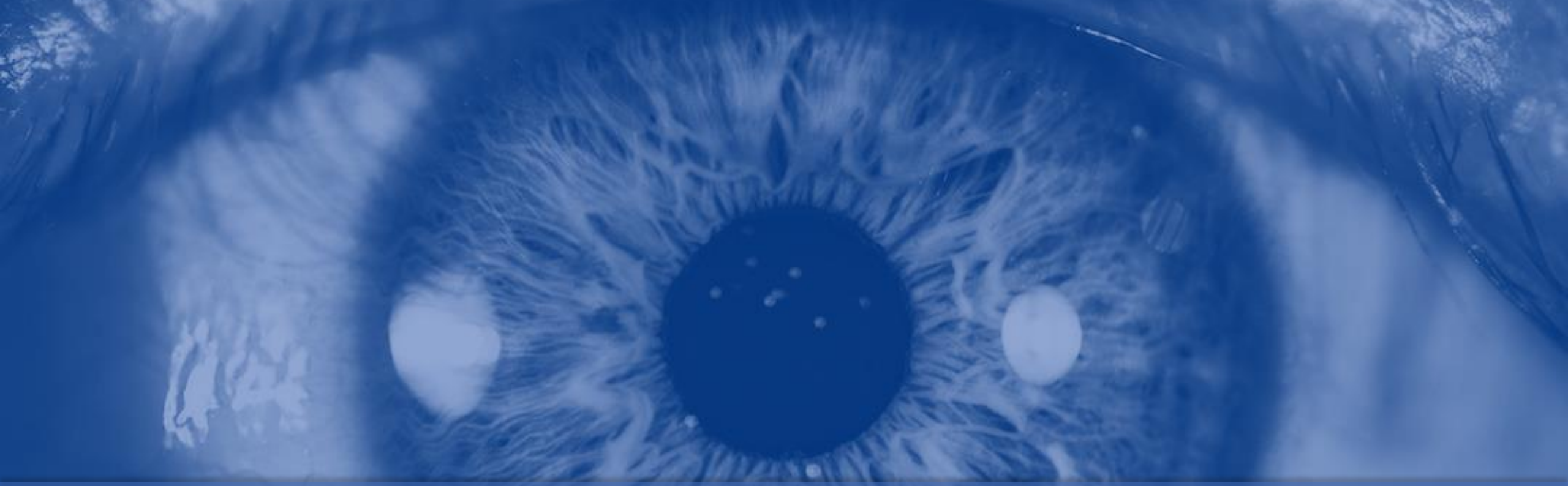
- **Describe what you see**
  - Leukocoria in right eye
- **What are your DDX for this condition**
  - Cataract
  - Retinaoblastoma
  - Retinal detachment
  - Intraocular tumor
- **What is your management**
  - treat underlying cause

Differential diagnosis of a cherry-red spot at the macula

Most common cause: Central retinal artery occlusion

Other DDx

1. Metabolic Storage Diseases: Tay—Sachs disease
2. Farber disease GM1 and GM2 gangliosidoses
3. Metachromatic leukodystrophy
4. Niemann—Pick disease
5. Sandhoff disease
6. Congenital Sialidosis



Retinal vascular disease

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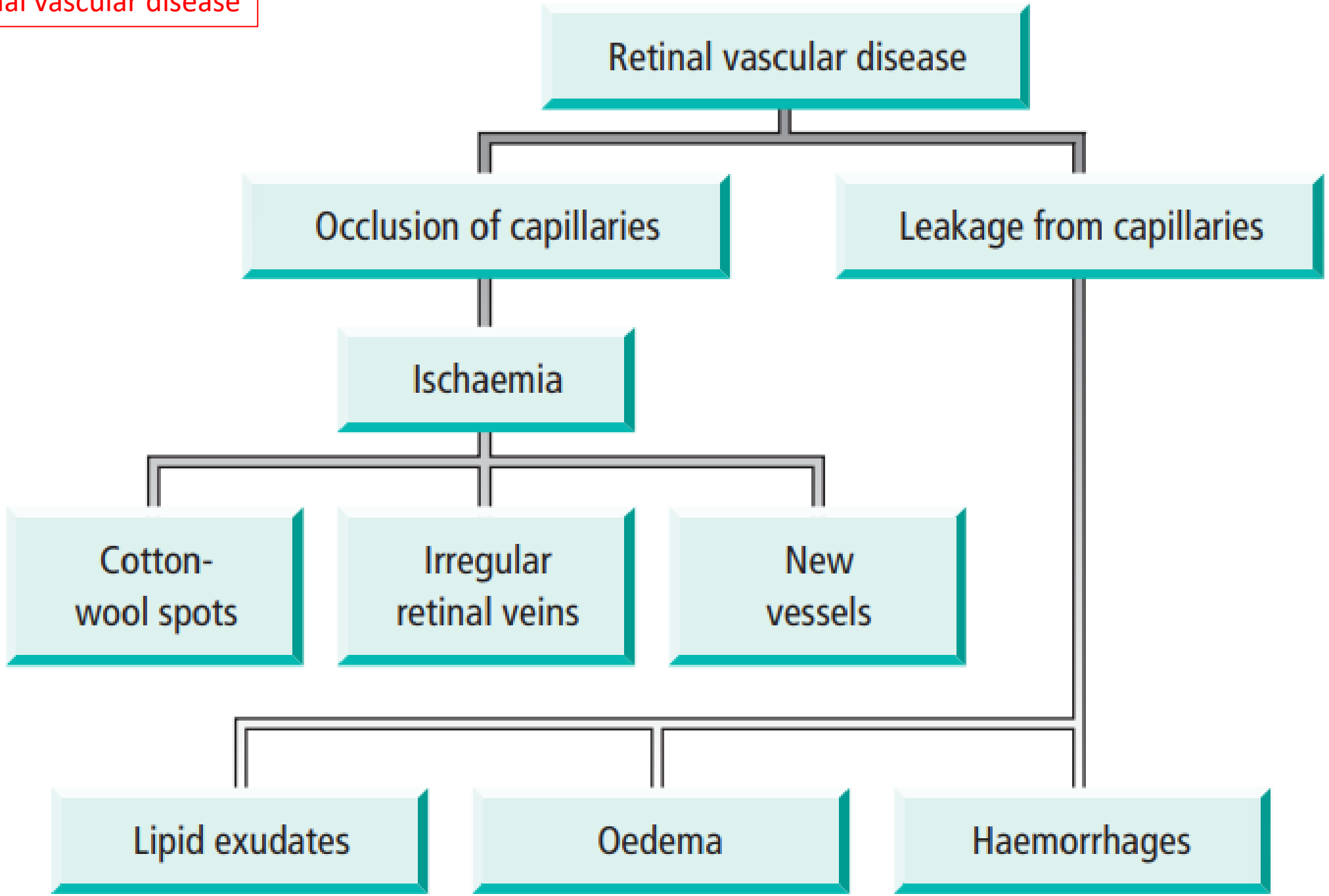
DDx of retinal vascular disease

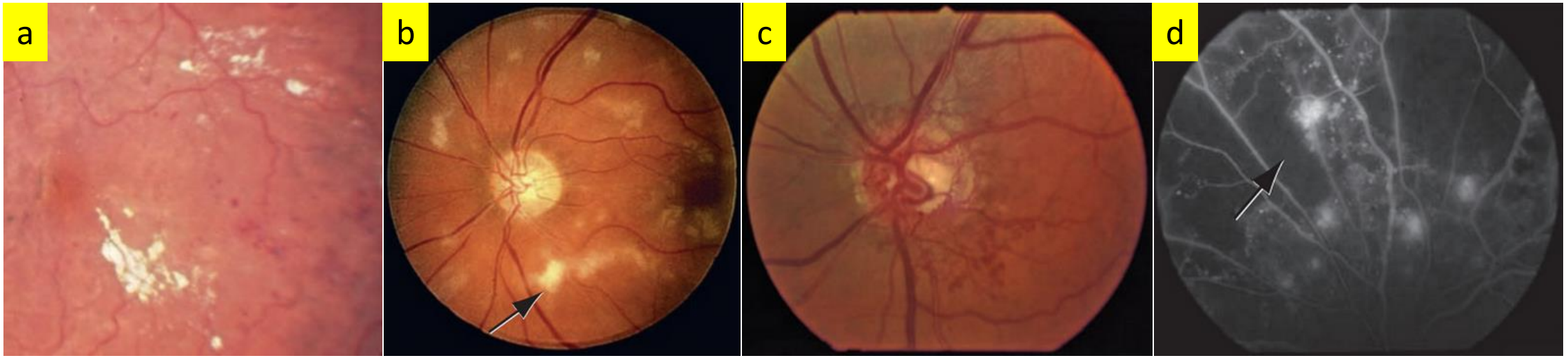
- Diabetic retinopathy
  - Non-Proliferative
  - Proliferative
- Arterial occlusion
  - Central retinal artery occlusion
  - Branch retinal artery occlusion
- Venous occlusion
  - Central retinal vein occlusion
  - Branch retinal vein occlusion
- Arteriosclerosis and hypertension
- Retinopathy of prematurity
- Sickle cell retinopathy
- Abnormal retinal blood vessels
- Abnormalities of the blood

Signs of retinal vascular disease

شرح



The signs of retinal vascular disease:



(a) Haemorrhage and exudate

(b) Cotton-wool spots, note the yellowish nature and distinct margin to the exudates, compared to the less distinct and whiter appearance of the cotton-wool spots

(c) New vessels, here particularly florid and arising at the disc

(d) This fluorescein angiogram demonstrates the occlusion of the retinal capillary circulation (the dark areas (arrow)), the bright areas indicate leakage from new vessels

Diabetic retinopathy

❖**Stages**:

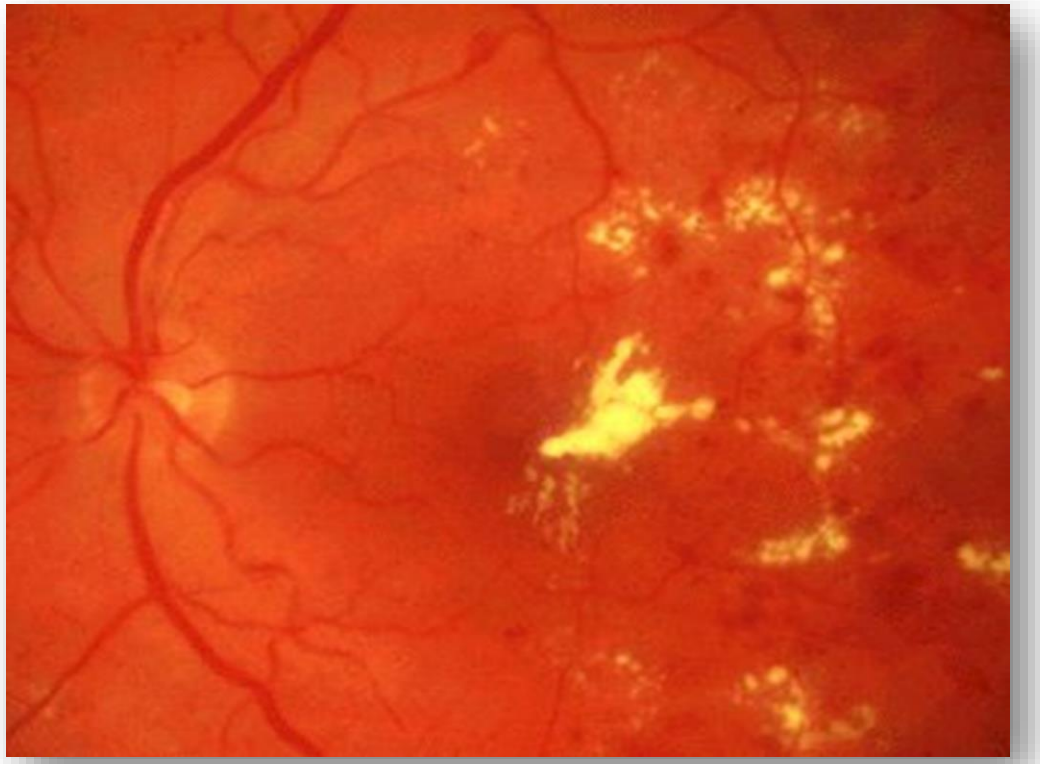
1. non proliferative DR
2. proliferative DR
3. Maculopathy

❖**When do we start screening for diabetic retinopathy ?**

- type 1 DM: 5 years after onset.
- type 2 DM: at onset.

❖**Ocular association with DM?**

- Retinopathy, cataract, glaucoma, Extraocular muscles palsy.



Maculopathy

Presence of hard exudates or edema in the macular region.

It is vision threatening condition.

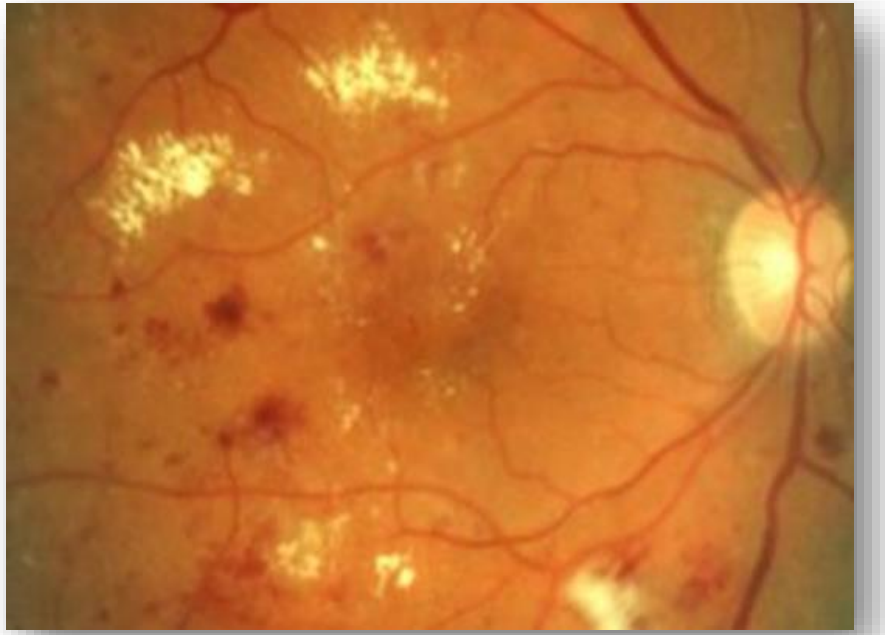
Diabetic retinopathy

- **Identify the structure pointed by the blue arrow**
  - Cotton wool spots (Soft exudate)
- **Most common ocular complication of diabetes?**
  - Diabetic retinopathy (non-proliferative is more common)

Q1: Non proliferative diabetic retinopathy

- 47 YO female patient MF came to the clinic with visual loss in her Rt eye, visual equity test has been done and it was … and fundoscopic examination was

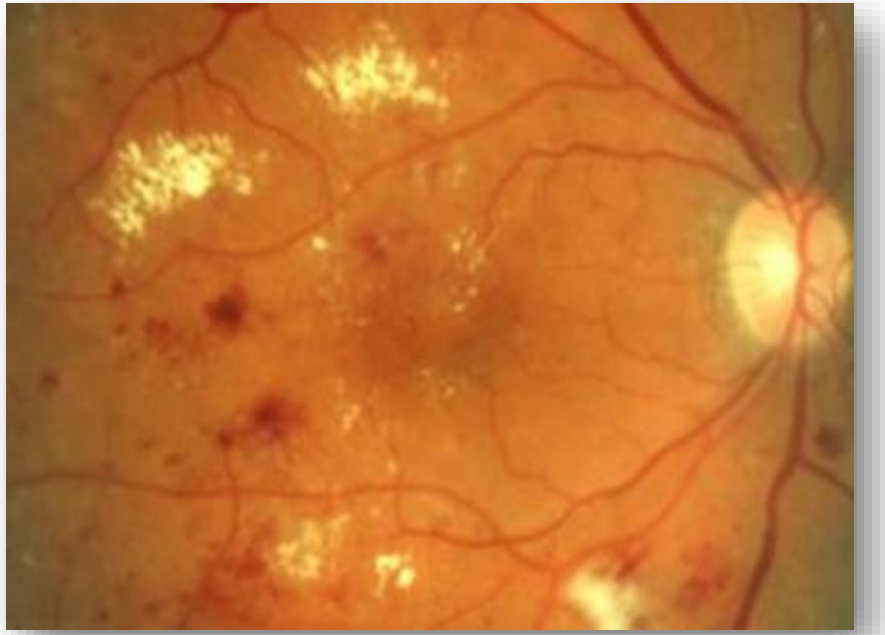
1. **Spot diagnosis**
   - Non proliferative diabetic retinopathy
2. **Mention 2 tests to confirm diagnosis**
   1. HbA1c
   2. Fasting blood sugar
3. **Management**
   1. Control her blood sugar level
   2. Laser



Q2: Non proliferative diabetic retinopathy

- 47 YO female patient MF came to the clinic with visual loss in her Rt eye, visual equity test has been done and it was … and fundoscopic examination was

1. **Signs**
   - Cotton wool spot
   - Hemorrhage
   - Hard exudate
2. **Most likely cause of vision loss**
   - Maculopathy
3. **This picture is seen in**
   - Non-proliferative diabetic retinopathy



Q3: Non proliferative diabetic retinopathy

- **Diagnosis:**
  - Non-proliferative diabetic retinopathy
- **What is the sign you will find ?**
  - Hard yellow exudate
- **Treatment ?**
  - control blood sugar + laser ?
- **What is the impotent investigation you should order?**
  - HbA1C and fasting blood sugar

Q4: Non proliferative diabetic retinopathy

- **Describe what you see ?**
  - Microaneurysms
  - Hard exudates (yellow)
  - Dot & blot hemorrhage
  - Cotton wool spots
  - Venous beading
  - Intraretinal microvascular abnormalities.
- **What is your diagnosis ?**
  - Non-proliferative Diabetic retinopathy (No new blood vessels formation)

Q4: Non proliferative diabetic retinopathy

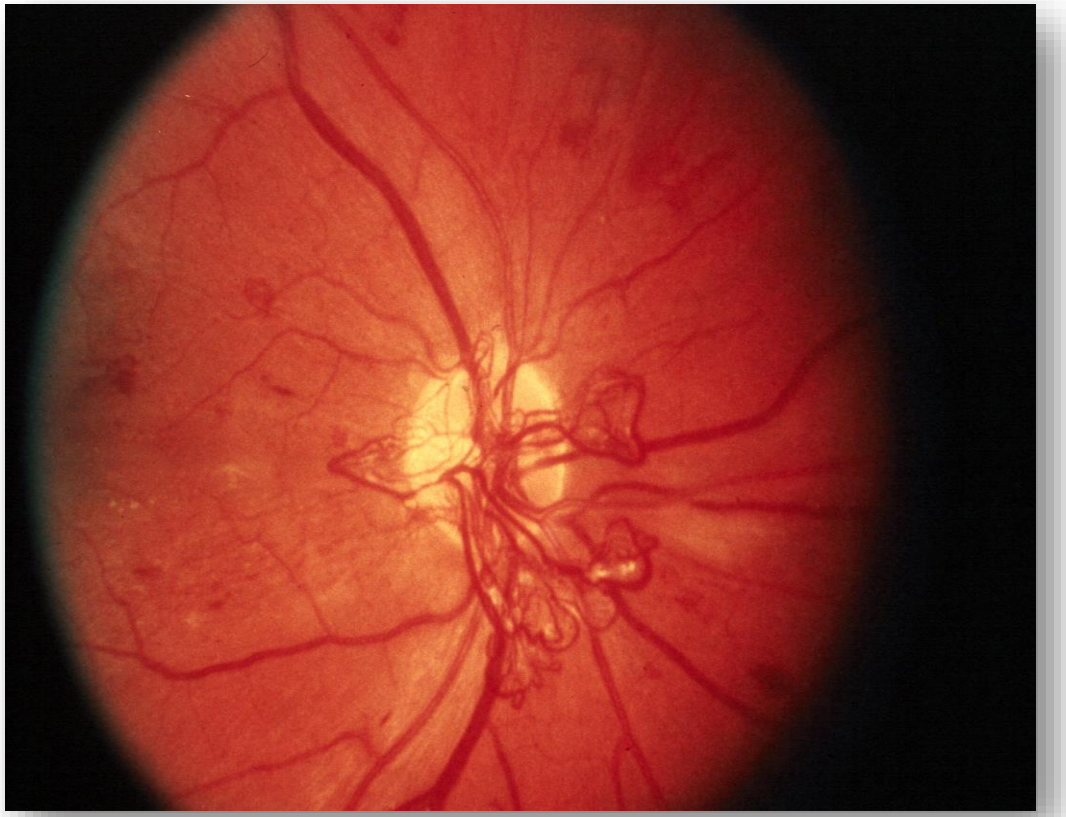
- **What are the risk factors for developing such a case ?**
  - Diabetes mellitus
  - Hypertension
  - Pregnancy
  - smoking
- **How do you manage ?**
  - **Laser** :Focal laser therapy
  - Pan Retinal Photocoagulation
  - **Surgery:** pars plana vitrectomy

Q1: Proliferative diabetic retinopathy

- **Describe what you see**
  - Neovascularization on optic disc and retina, cotton wool spots
- **What are the causes of this condition?**
  - Proliferative diabetic retinopathy
- **What is your management**
  - Laser: Focal laser therapy
  - Pan Retinal Photocoagulation
  - Surgery: pars plana vitrectomy

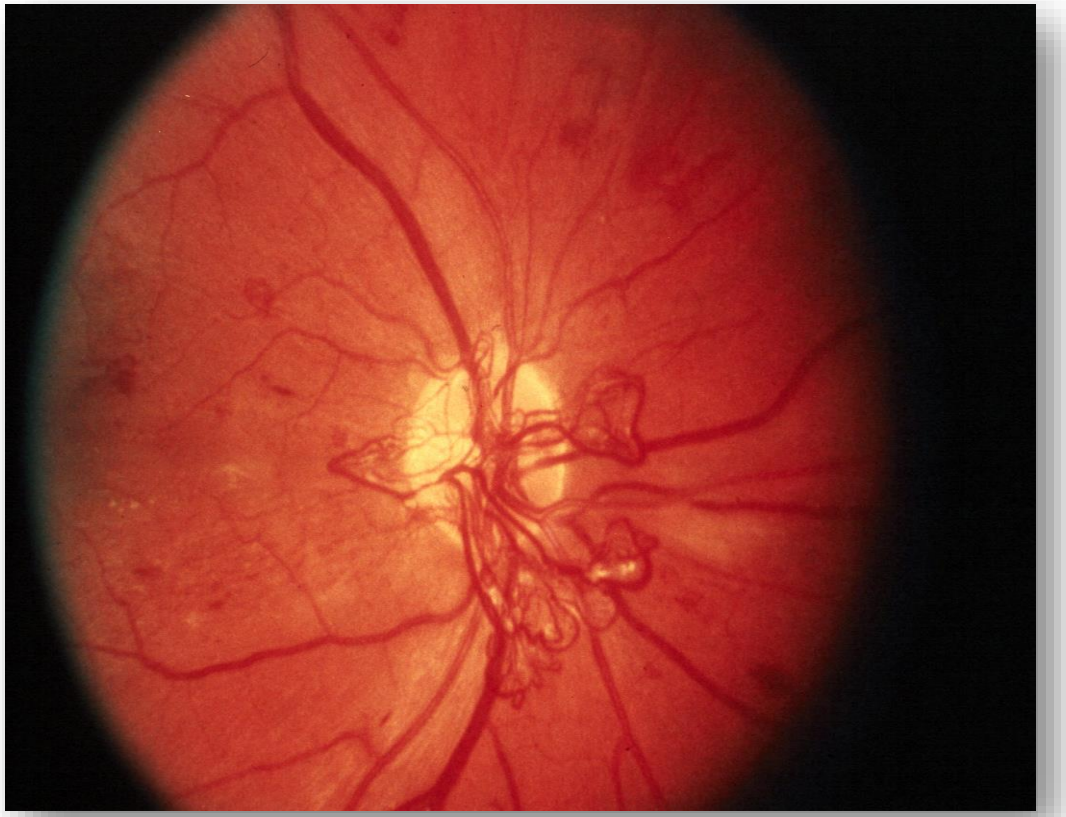
Q2: Proliferative diabetic retinopathy

1. **Describe what you see**
   - Hard exudates
   - Dot & blot hemorrhage,
   - Proliferative diabetic new blood vessels formation of disk and retina
2. **What is the most probable diagnosis?**
   - Proliferative diabetic retinopathy

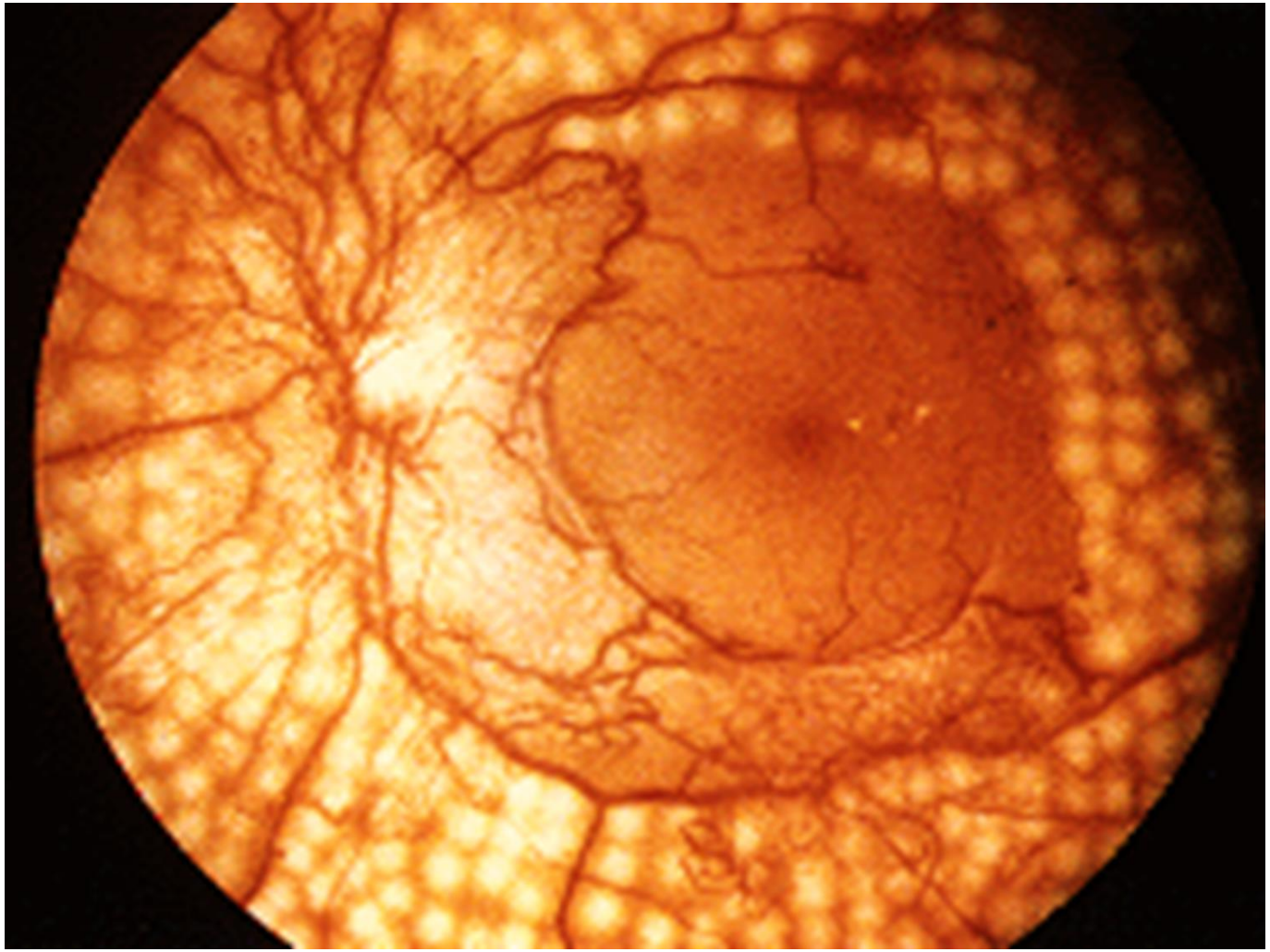


Q2: Proliferative diabetic retinopathy

3. **What are the risk factors for developing such a condition ?**
   - Diabetes mellitus
   - Hypertension
   - Pregnancy
   - smoking
4. **Management**
   - Focal laser therapy
   - Pan Retinal Photocoagulation

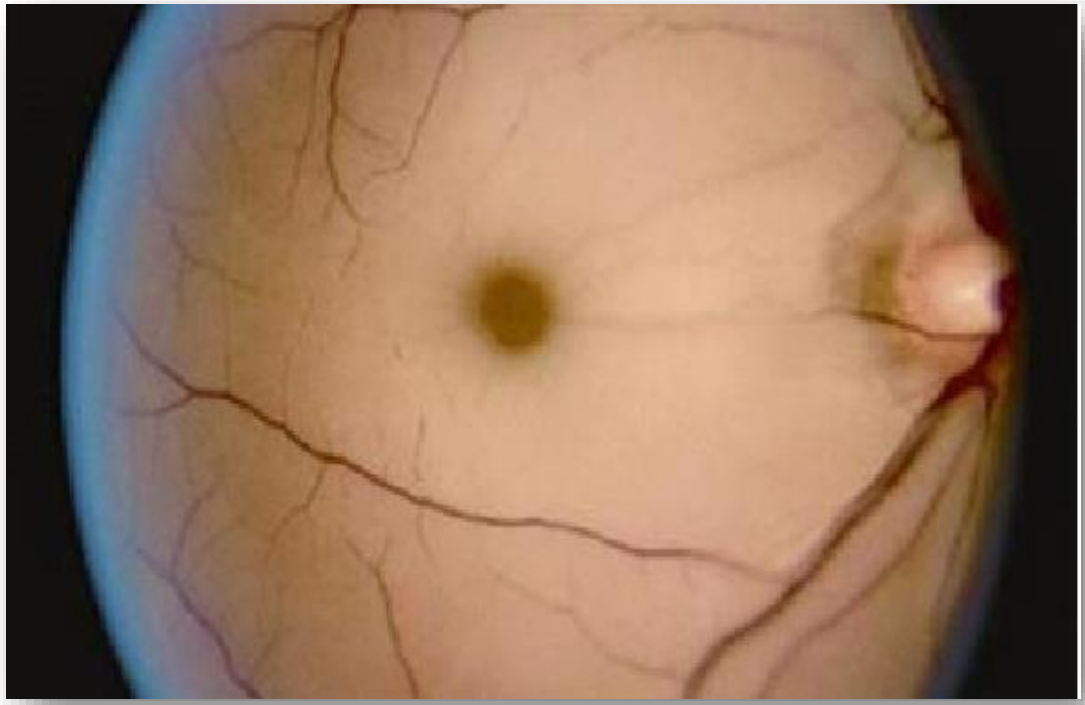


Pan-retinal laser photocoagulation



Q1: Central retinal artery occlusion

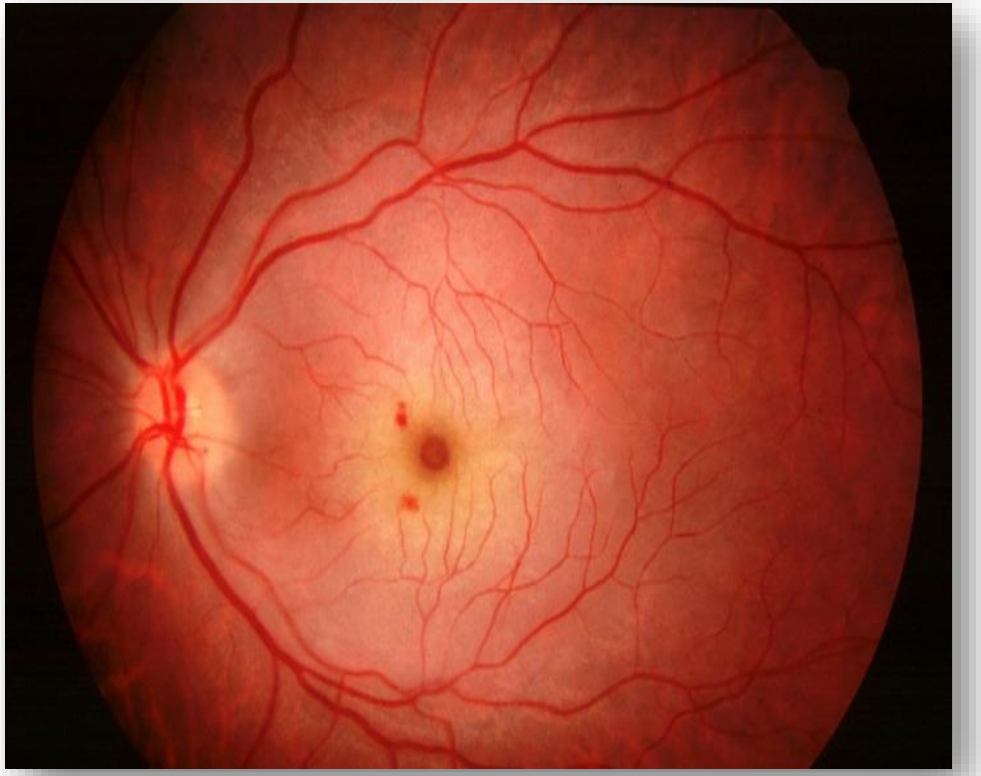
- Sudden loss of vision in right eye



- **Diagnosis**
  - Central retinal artery occlusion
- **Management at emergency department**
  1. Ocular massage
  2. Hyperbaric o2
  3. Decrease IOP
  4. AC aspiration
- **To any department you should refer the patient**
  - Cardiologist

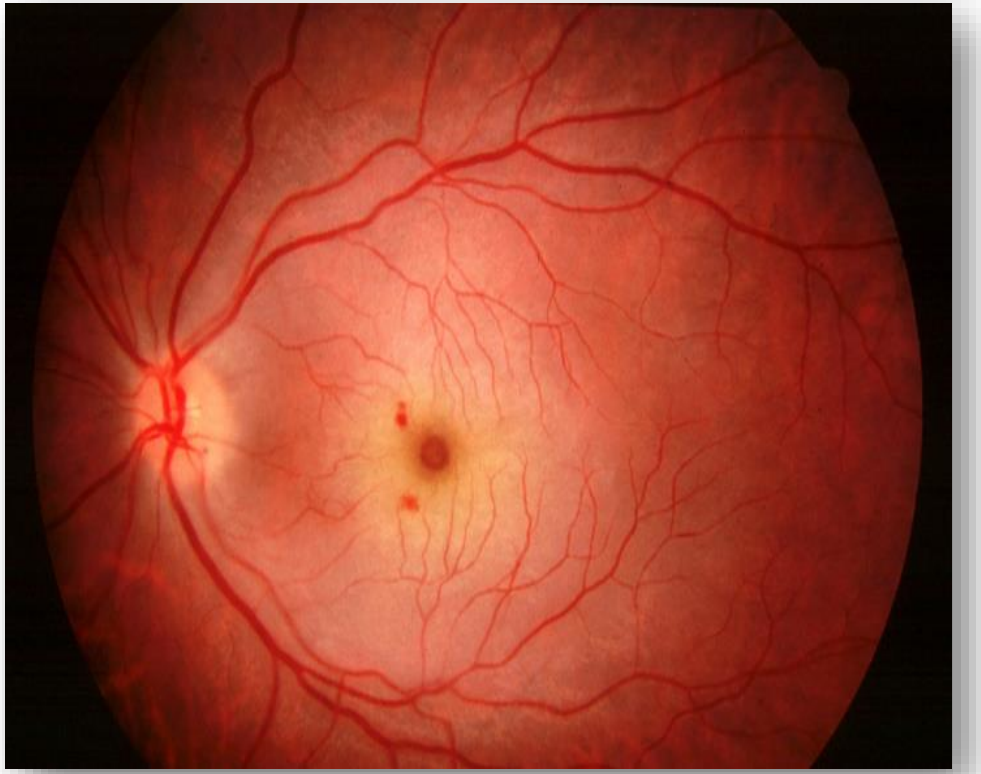
Q2: Central retinal artery occlusion

1. **Describe what you see ?**
   - Retinal edema sparing the foveal region (Cherry red spot)
   - Pale optic disc
   - Attenuation of vessels
2. **What is the possible diagnosis ?**
   - Central retinal artery occlusion
3. **What causes you know can result in such a picture ?**
   - Emboli of Atherosclerotic carotid or heart valve disease



Q2: Central retinal artery occlusion

4. **How do you manage such a case ?**
   - Lower IOP (acetazolamide Intravitreal)
   - Ocular massage
   - Anterior chamber paracentesis
   - Rebreathing in paper bag



Q1: Central retinal vein occlusion

- A 55-year-old male patient with a history of hypertension came to the clinic with a sudden onset of visual loss. His best corrected visual acuity in the right eye 20/200 and in the left eye 20/20. The patient's intraocular pressure in the right eye was 27 mmHg and in the left eye 25 mmHg.

❖ **The most likely diagnosis**

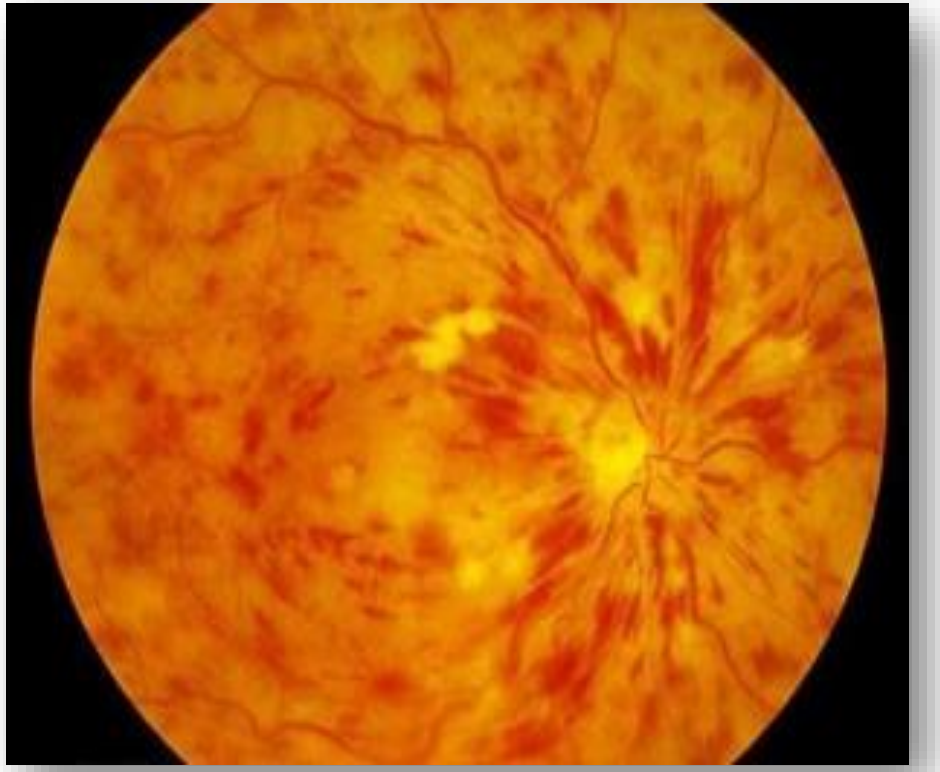
- Central retinal vein occlusion

❖ **First line of management**

- Timolol, pilocarpine

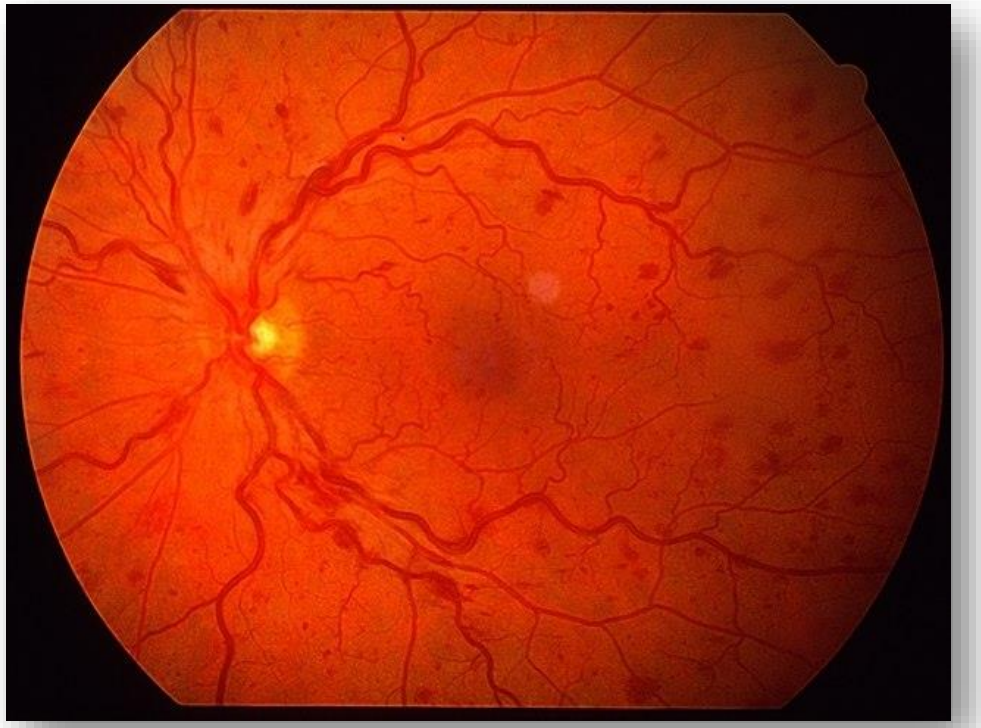
❖ **Findings in the picture**

1. Cotton wool sign
2. flame shaped hemorrhage
3. retinal and macular edema



Q2: Central retinal vein occlusion

- **Describe what you see**
  - Dot & blot hemorrhages
  - Swelling and tortuosity of the veins with microaneurysm
  - Swollen optic disc
- **What is your diagnosis ?**
  - Central retinal vein occlusion
- **What will the patient complain of ?**
  - Its Sudden and painless, acute complete or partial loss of vision



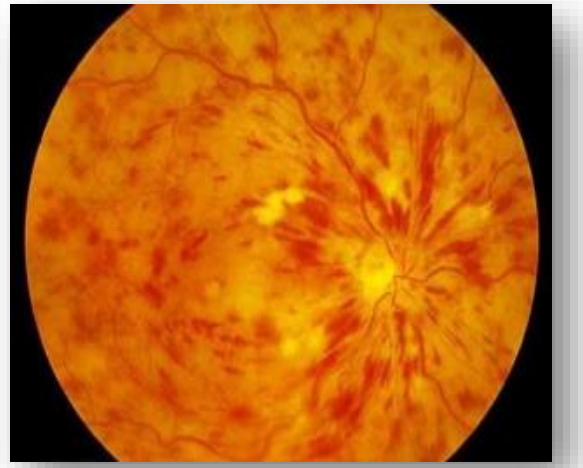
Q3: Central retinal vein occlusion

- **Describe what you see ?**
  - Blood and thunder appearance
  - Diffuse hemorrhages
  - Venous dilatation and tortuosity
  - Cotton wool spots
  - Swollen optic disc
  - Arteriovenous nipping
- **What is the possible diagnosis ?**
  - Central retinal vein occlusion (1st picture)
  - Branch retinal vein occlusion(2nd picture)

Q3: Central retinal vein occlusion cont.

- **What risk factors for developing such a condition ?**
  - Diabetes, hypertension, raised intraocular pressure and increased blood viscosity
- **How to manage a patient with such a case ?**
  - Laser treatment
  - Antithrombotic
- **What is DDx?**
  - Diabetic retinopathy
  - Retinal vein thrombosis

Q4: Central retinal vein occlusion cont.



- **What is the most likely diagnosis ?**
  - Central retinal vein occlusion
- **Mention 2 types**
  - Ischemic
  - Non-ischemic
- **What risk factors for developing such a condition :-**
  - Diabetes, hypertension, raised intraocular pressure and increased blood viscosity
- **To what department should refer this case and why ?**
  - Cardiology
- **How to manage a patient with such a case ?**
  - Laser treatment
  - Antithrombotic

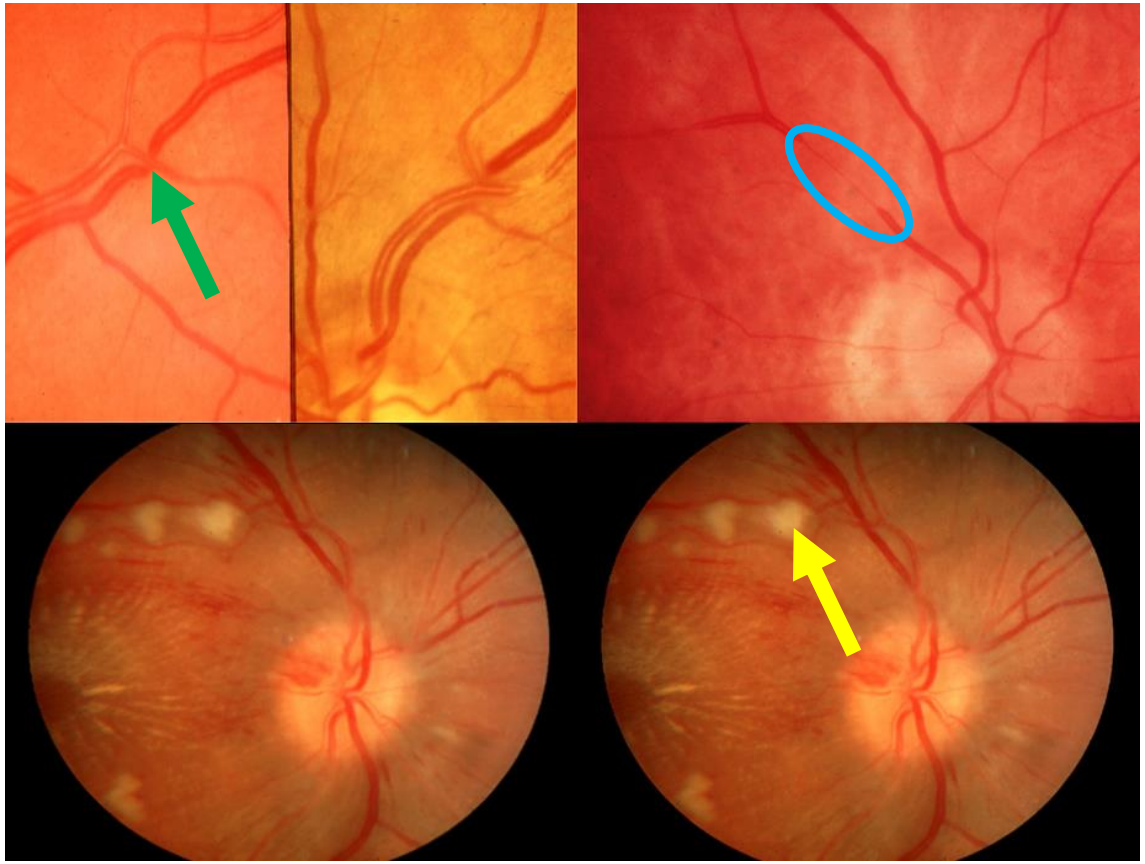
لما تشوف السؤال فيه **why**

hypertensive retinopathy

- **What do you see ?**
  - Attenuation of blood vessels
  - Silver and cupper wiring
  - AV crossing and nipping
  - Blood retinal barrier breakdown
  - Macular edema
  - CWS
  - Swollen OD
- **What is your diagnosis ?**
  - hypertensive retinopathy

Hypertensive retinopathy Signs

- Attenuation of blood vessels
- Silver and cupper wiring (focal narrowing of the retinal arterioles)
- AV crossing and nipping (green arrow)
- Blood retinal barrier breakdown leading to leakage (hemorrhage & exudates)
- Macular edema
- Cotton wool spots (yellow arrow)
- Swollen OD “papilledema”



Retinopathy of prematurity

❖What is ROP (retinopathy of prematurity)?

- A vasoproliferative retinopathy

❖What are the stages ?

1. Failure of normal retinal vascularization
2. Aggressive new vessel formation
3. Retinal detachment

❖What are the risk factors for developing ROP ?

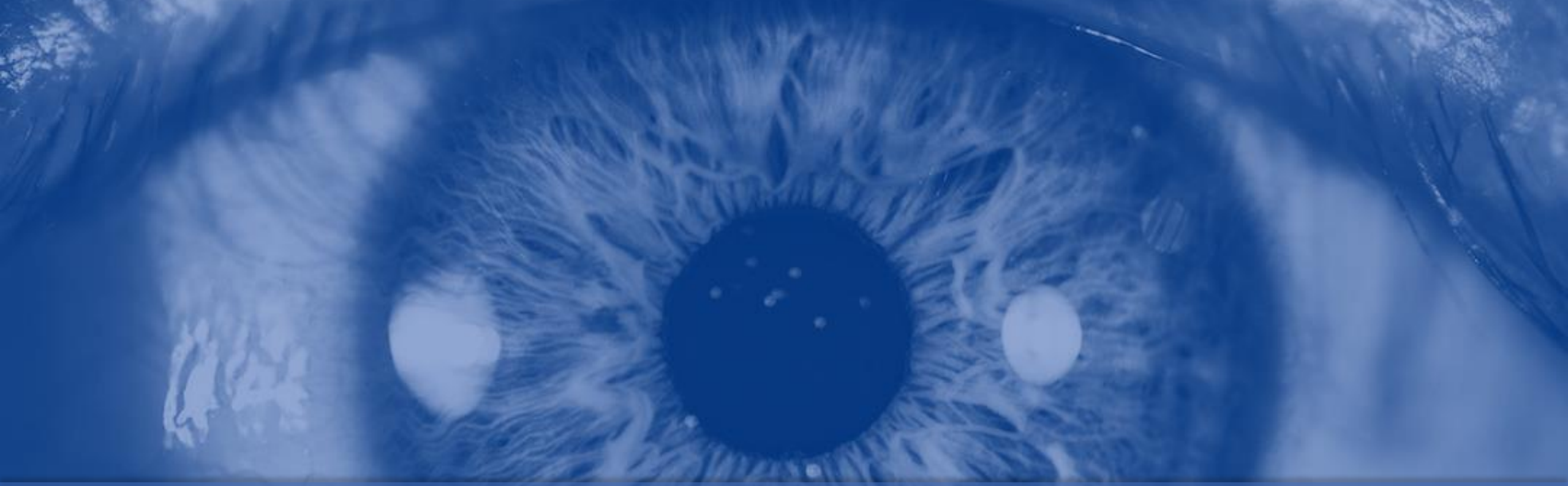
- low gestational age, low birth weight
- high oxygen exposure after birth
- Non-black races

❖How to manage ROP ?

- Cryotherapy or laser therapy

Retinopathy of prematurity

- A vasoproliferative retinopathy.
- **Stages**:
  1. Failure of normal retinal vascularization.
  2. Aggressive new vessel formation.
  3. Retinal detachment.
- **Risk factors**:
  - Low gestation age, low BW, high o2 exposure after birth, apnea, sepsis, nonblack race.
- **Signs**:
  - Small avascular zone, new vessels, retinal hemorrhage, increased tortuosity of BV, vitreous hemorrhage, Retinal detachment.
- **Treatment**: laser or cryotherapy or retinal surgery.



The pupil and its responses

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DDx of pupillary abnormality

- Ocular causes of pupillary abnormality
- Neurological causes of an abnormal pupil
  - Horner's syndrome
  - Relative afferent pupillary defect (RAPD)
- Light-near dissociation
  - Adie's tonic pupil
  - Argyll Robertson pupil
  - Midbrain pupil (Parinaud syndrome)
- Other causes of pupillary abnormality
  - Coma, Drugs, Midbrain lesions, etc.

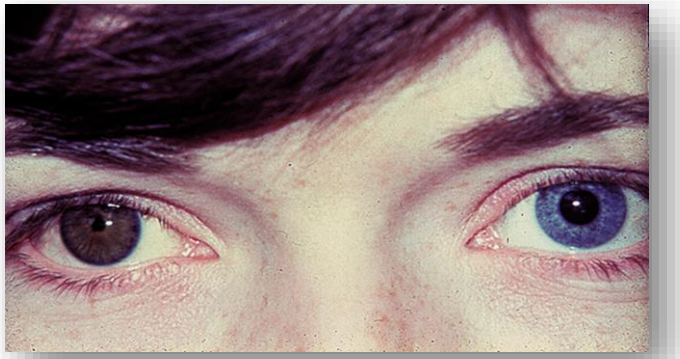
Essay – Horner's syndrome

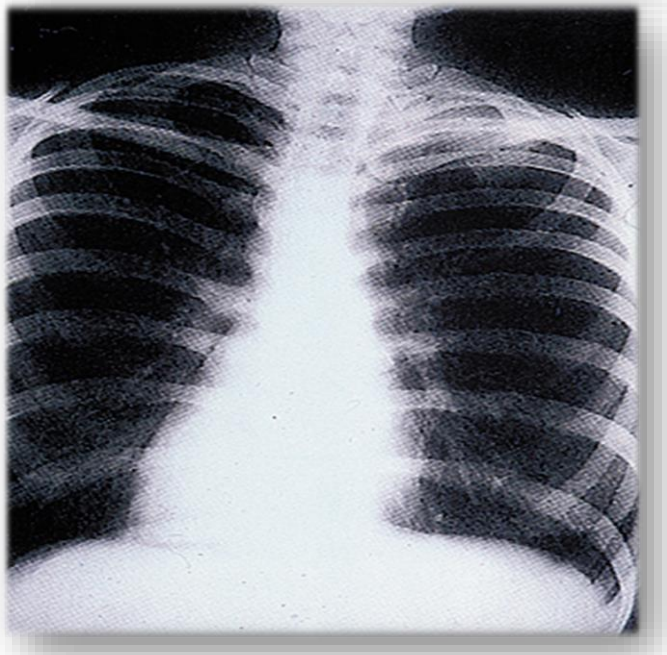
- **Triad of Horner's Syndrome:**
  - Ptosis, miosis, and anhidrosis
- **Partial Horner syndrome:**
  - Ptosis, miosis

- **Afferent and efferent of papillary reflex ?**
  - Afferent : Optic nerve (CNII)
  - Efferent : Oculomotor nerve (CNIII)

Horner's syndrome

- Anisocoria (pupils are differ in size).
- Heterochromia iridis (seen in congenital Horner's)
- Mild ptosis in right eye
- Lung apex lesions (Pancoast tumor)
- **Diagnosis**: Horner syndrome
- **DDx of anisocoria**: Adie's tonic pupil





Essay – Relative Afferent Pupillary Defect (RAPD)

❖**What is RAPD?**

- Decrease in pupil contraction when one eye is stimulated by light compared with when the opposite eye is stimulated by light.

❖**Causes of RAPD?**

1. Optic neuritis
2. Optic vascular disease
3. Severe glaucoma
4. Giant cell arteritis

Q: Cataracts & RAPD

A 60-year-old man presented to your clinic. With visual acuity in his left eye of 20/200.

1. **Your diagnosis**
   - Cataracts
2. **If you know that he has RAPD in his eye name three causes**
   1. Optic neuritis
   2. Optic vascular disease
   3. Severe glaucoma
   4. Giant cell arteritis
3. **Would he benefit from surgery in his right eye if he has RAPD in his right eye (yes or no) ?** No

Essay – Light near dissociation causes

1. Adie's tonic syndrome
2. Argyll Robertson syndrome
3. Parinaud syndrome

Adie’s pupil

- **Describe what you see ?**
  - Right pupil is relatively dilated
  - Left pupil is relatively constricted
  - Left eyelid relatively ptosis
- **What is your differential diagnosis ?**
  - Left side Horner's syndrome
  - Adie’s pupil
- **What possible causes you know ?**
  - 3rd cranial nerve palsy

Optic nerve

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DDx of optic nerve disease

- Swollen optic disc
  - Papilledema is the term given to disc swelling associated with raised intracranial pressure
- Optic neuritis
- Ischaemic optic neuropathy
- Giant cell arteritis
- Optic atrophy

Q1: Papilledema

- 17-year-old female, morning headache, projectile vomiting

❖ **Name of this sign**

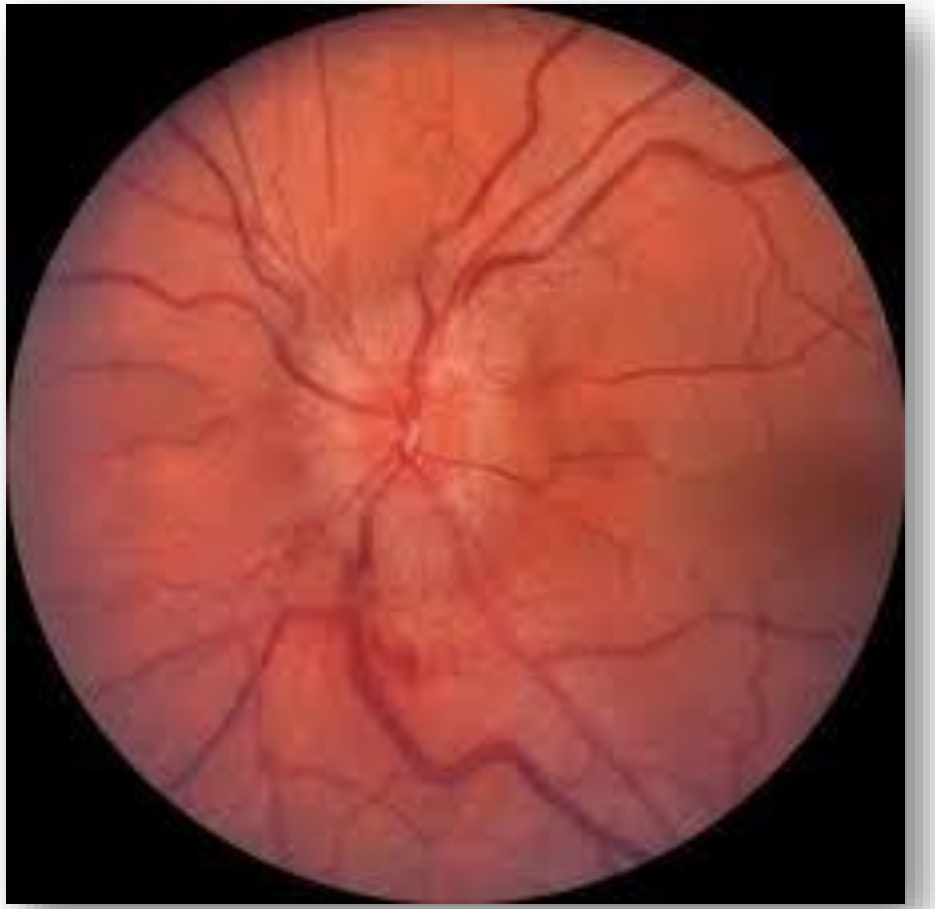
- Papilledema

❖ **Mention 3 disease that can cause this sign**

- Malignant HTN
- Space occupying lesion
- Papillitis

❖ **Investigation**

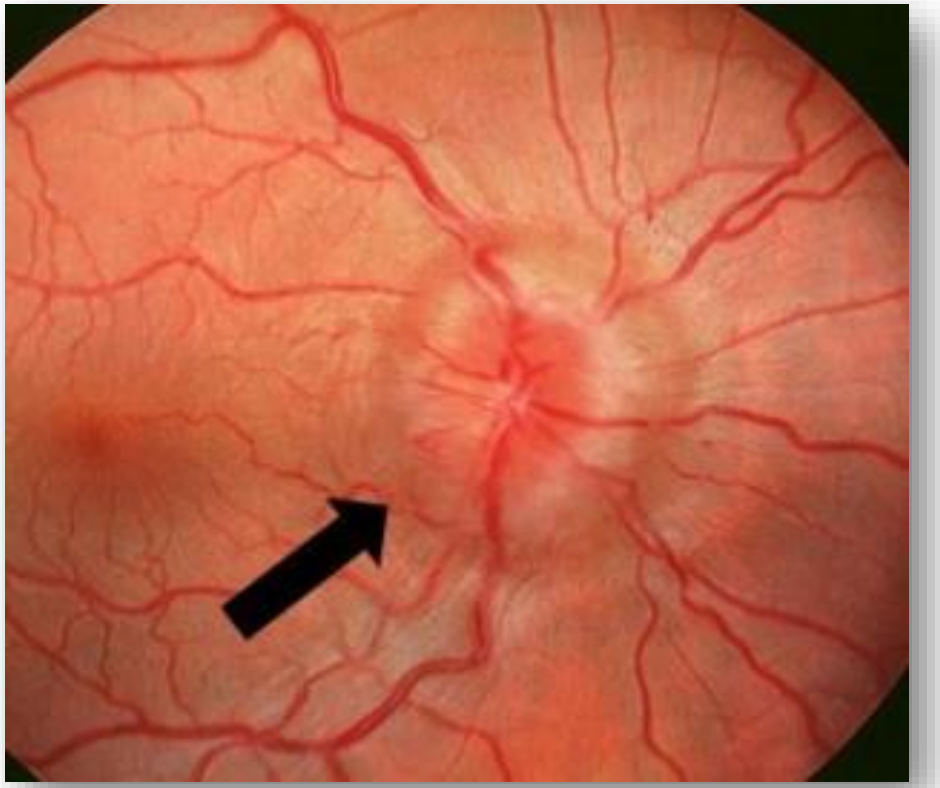
- CT, MRI



Q1: Optic neuritis

- A 22-year-old male patient complaining of sudden onset blurry vision in the right eye, the best corrected visual acuity is 20/200 in the right eye, 20/20 in the left eye. The patient has a positive relative afferent pupillary defect. Fundus examination is shown in the picture. No history of headache, vomiting, or eye redness.

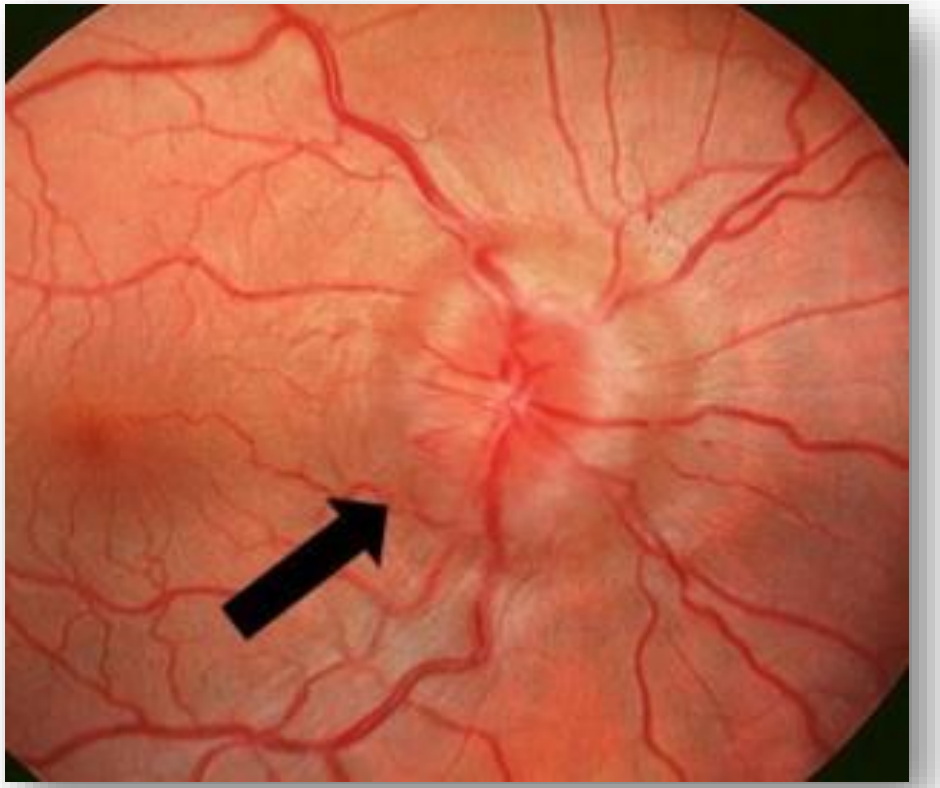
- **Findings**: Swollen optic disc
- **Next investigation**: CT/MRI
- **Complete recovery** ? Yes
- **Complete recovery without steroid** ? Yes



Q2: Optic neuritis

- A 22-year-old female patient complaining of sudden onset blurry vision in the right eye, the best corrected visual acuity is 20/200 in the right eye, 20/20 in the left eye. The patient has a positive relative afferent pupillary defect. Fundus examination is shown in the picture. No history of headache, vomiting, or eye redness.

- **Describe what you see**
  - Swollen optic disc indistinct neuro retinal rim and dilated capillaries over the disc.
- **What is the most likely diagnosis?**
  - Optic neuritis
- **The most commonly used treatment for his ocular condition is**
  - Intravenous and oral steroids
- **If the patient refuses to take steroids does this affect disease outcome?**
  - NO



High ICP

- **Presentation**:
  - Transient visual loss
  - headache worsen on awaking & cough
  - nausea & retching
  - Diplopia
  - focal neuro symptoms
- **Investigations**:
  - CT brain, MRI, MRV, Lumbar puncture to measure ICP.
- **Treatment**:
  - Either decrease production of CSF or increase drainage of CSF.
    - acetazolamide
    - VP shunt
    - ON decompressions
    - Neurosurgery for tumours & space occupying lesions

Giant cell arteritis

❖**Clinically**:
- Sudden loss of vision.
- Scalp tenderness
- Jaw claudication
- Shoulder pain
- Malaise

❖**Signs**:
- Decrease VA
- VF defect in lower half (altitudinal)
- Swollen hemorrhagic disc.
- normal retina and BV.

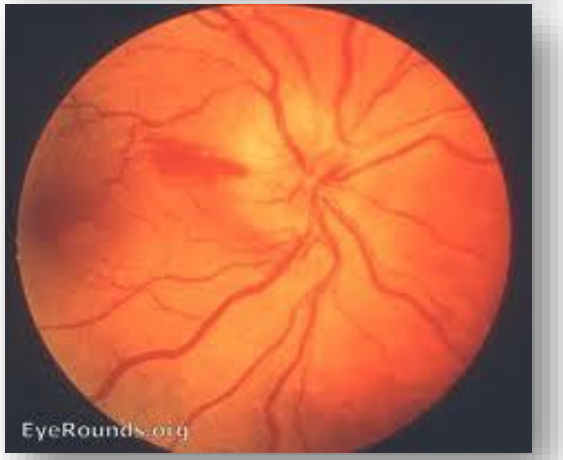
❖**Complications**:
- Ischemic optic neuropathy, optic atrophy , blindness.

❖**Treatment**:
- immediate treatment with steroids.
- Medical consult & follow up
- Long term steroid treatment.

❖**Prognosis**:
- Visual loss is permanent
- Fellow eye may be affected rapidly.

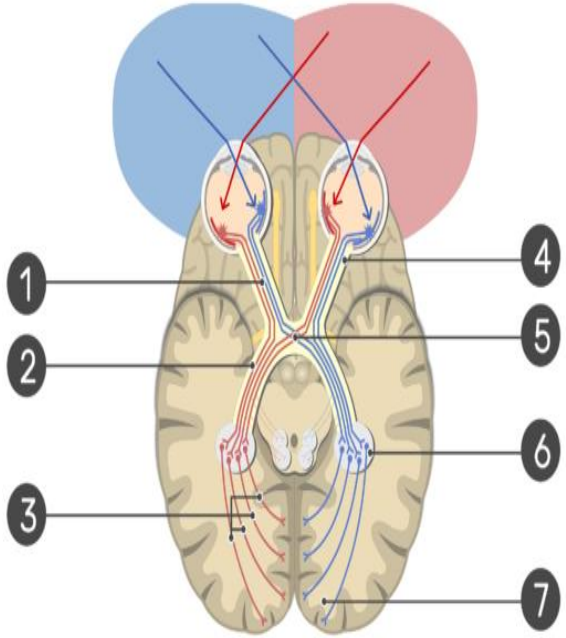
Giant Cell Arteritis

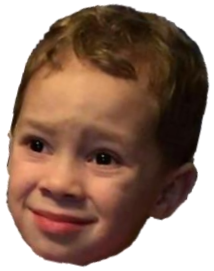
- **Describe what you see**
  - Swollen and hemorrhagic disc , Normal retina and blood vessels
- **What is the diagnosis**
  - Giant Cell Arteritis
- **What is the management?**
  - Immediate treatment with steroid, Medical consult and follow up



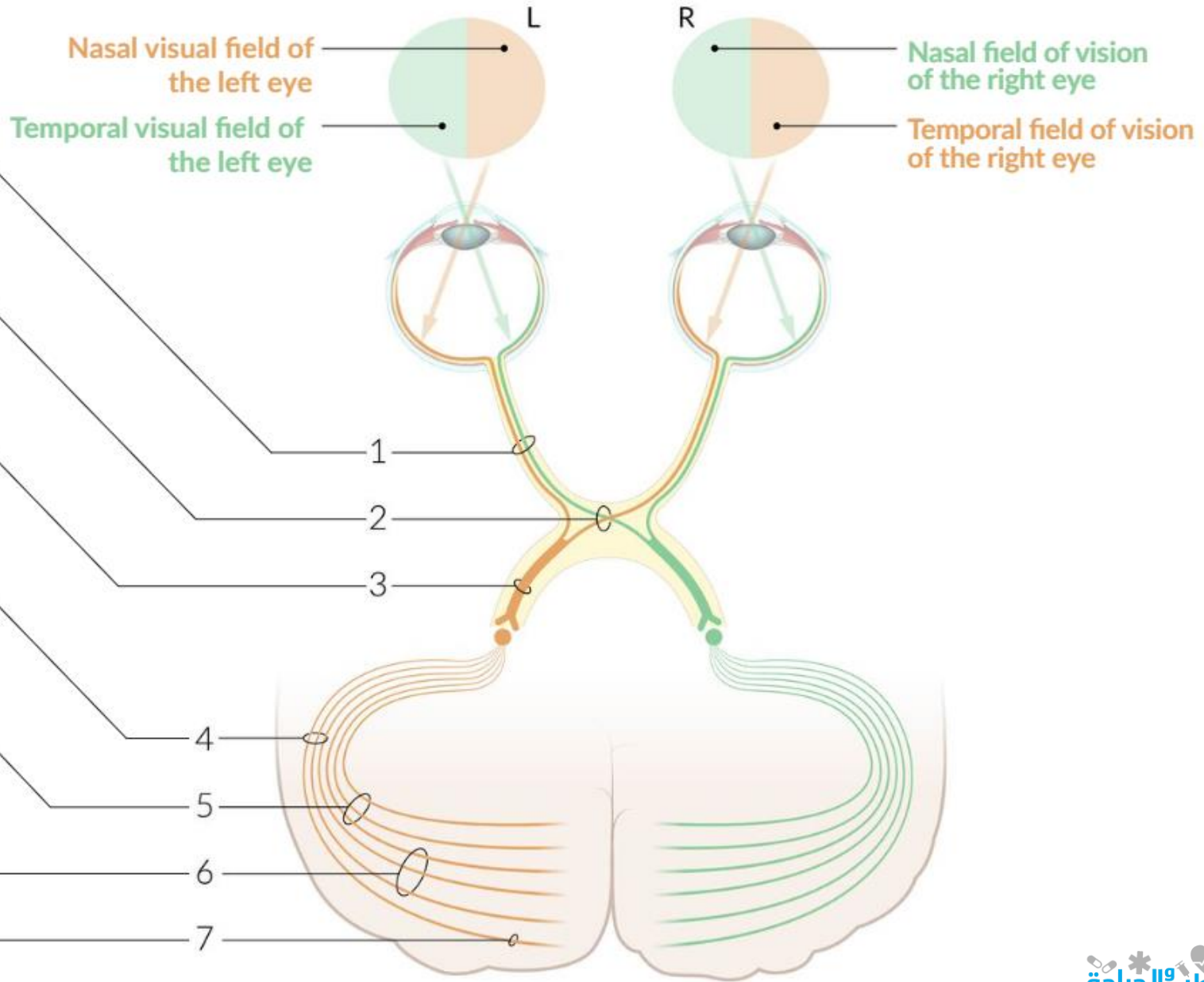
Bitemporal hemianopsia

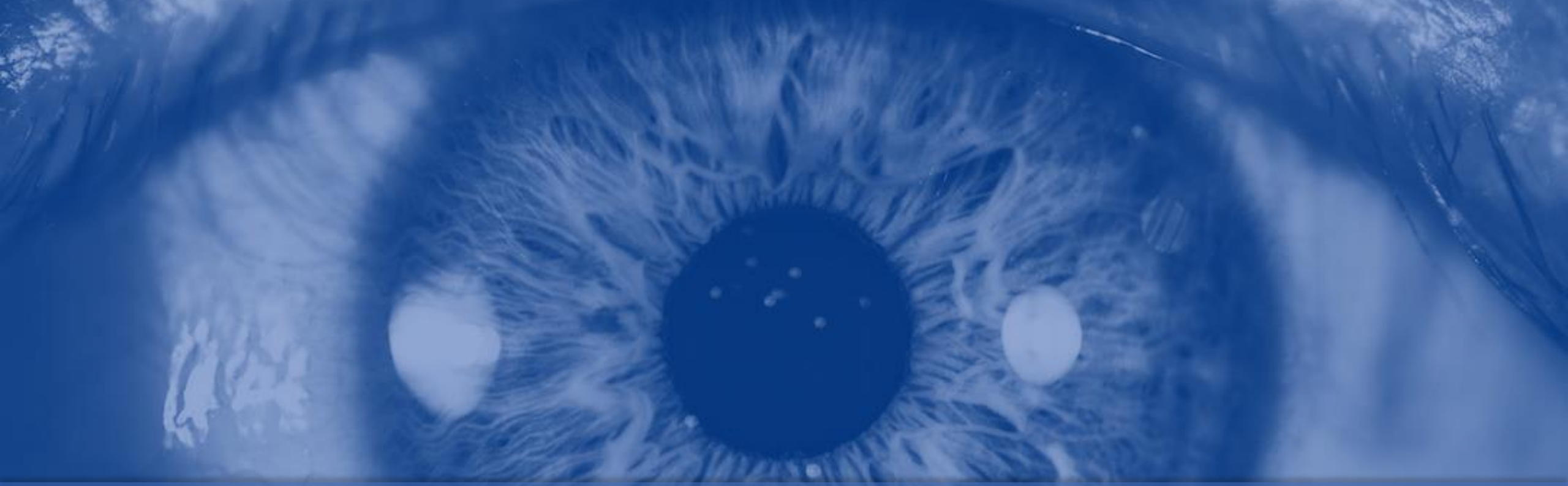
- **What is your diagnosis ?**
  - Prolactinoma
- **What is the vision abnormality ?**
  - Bitemporal hemianopsia
- **What is the name of the surgery used to treat this disease ?**
  - Transsphenoidal hypophysectomy
- **Which region is affected in the picture and what is it called ?**
  - 5, Optic chiasm
- **Explain in your own words why doesn't the lady see the people on the side of the road**





Site of lesion	Visual field defects L	Visual field defects R
1 Left optic nerve		
2 Medial portion of the optic chiasma		
3 Left optic tract		
4 Lower bundle (Meyer's loop) of the left optic radiation		
5 Upper bundle of the left optic radiation		
6 Anterior portion of the calcarine sulcus and adjacent visual cortex		
7 Left occipital pole		





Eye movements and their disorders

الي بالأحمر فقط عليهم أسئلة

الي بالبنفسجي من ملف صور د. فواز

DDx of eye movements disease

- Non-paralytic squint
  - Binocular single vision
- Paralytic squint
  - Isolated nerve palsy
- Disease of the extraocular muscles
  - Dysthyroid eye disease
  - Myasthenia gravis
  - Ocular myositis
  - Ocular myopathy
  - Brown ’s syndrome
  - Duane’s syndrome
- Gaze palsies
  - Lesions of the parapontine reticular formation (PPRF)
  - Internuclear ophthalmoplegia
  - Parinaud’s syndrome (dorsal midbrain syndrome)
- Abnormal oscillations of the eyes
  - Nystagmus
    - Acquired nystagmus
    - Congenital nystagmus

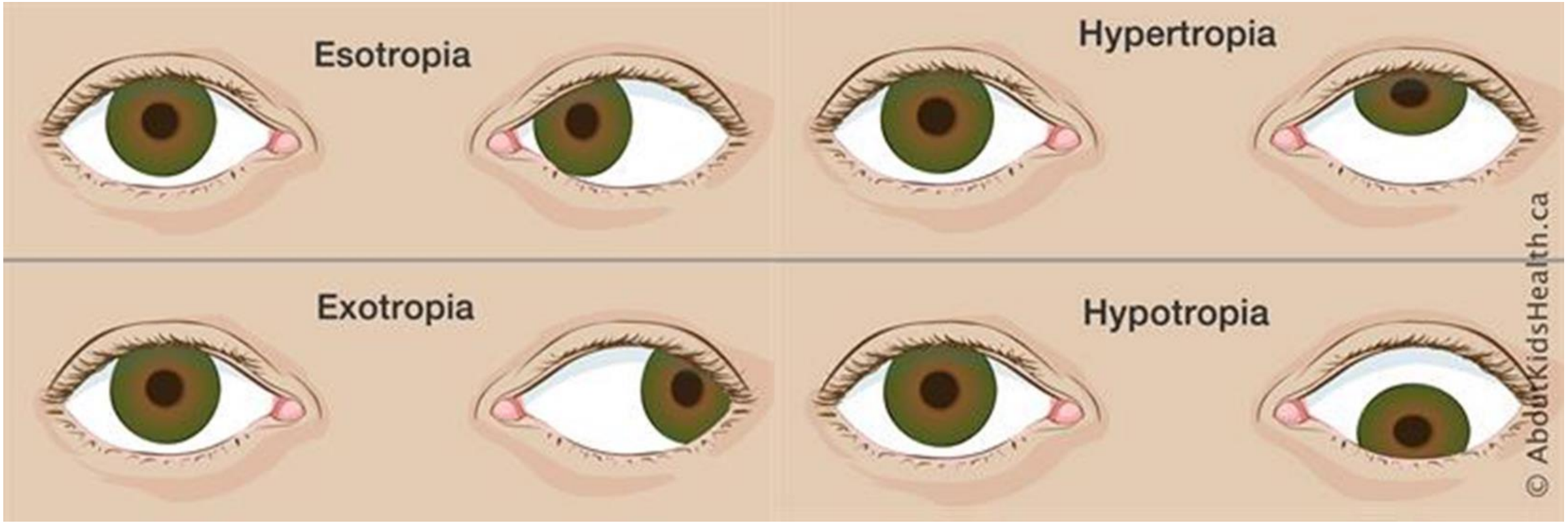
Binocular single vision BSV

- Binocular single vision BSV: the state of simultaneous vision which is achieved by the coordinated use of both eyes
  - Normally both eyes are directed towards the same object
  - Eye movement is coordinated so the retinal image falls always on a corresponding points of each retina
  - These corresponding points are fused centrally as one
  - The eyes views the object from different angles, so they do not fuse precisely
  - The closer the object the greater the disparity between the two retinal images
  - This allow a 3D vision (Stereopsis)
  - Stereopsis development requires that the eyes movement and visual alignment are coordinated in approximately the first five years of life

Binocular single vision BSV

- Advantages of binocular single vision
  1. Increase the field of vision
  2. Eliminate blind spot of each eye.
  3. Provide binocular visual acuity which is better than single eye vision
  4. Stereopsis & depth perception
- If both eyes are not aligned BSV is not possible this will result in:
  - Diplopia: single object is seen in two different places
  - Confusion: two separate and different objects appear to be at the same point

Remember


Esotropia
Hypertropia
Exotropia
Hypotropia
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Amblyopia

❖What is Amblyopia ?

- A permanent cortical blindness, progress during the first 6-7 years of life, a decrease of vision, either unilaterally or bilaterally in physically normal eye

❖What disorders may cause such a condition ?

- congenital cataract (Amblyopia exanopsia) strabismus
- Anisometropia
- Ptosis
- Hemangioma (Occlusion amblyopia)
- Refractive errors

❖Management

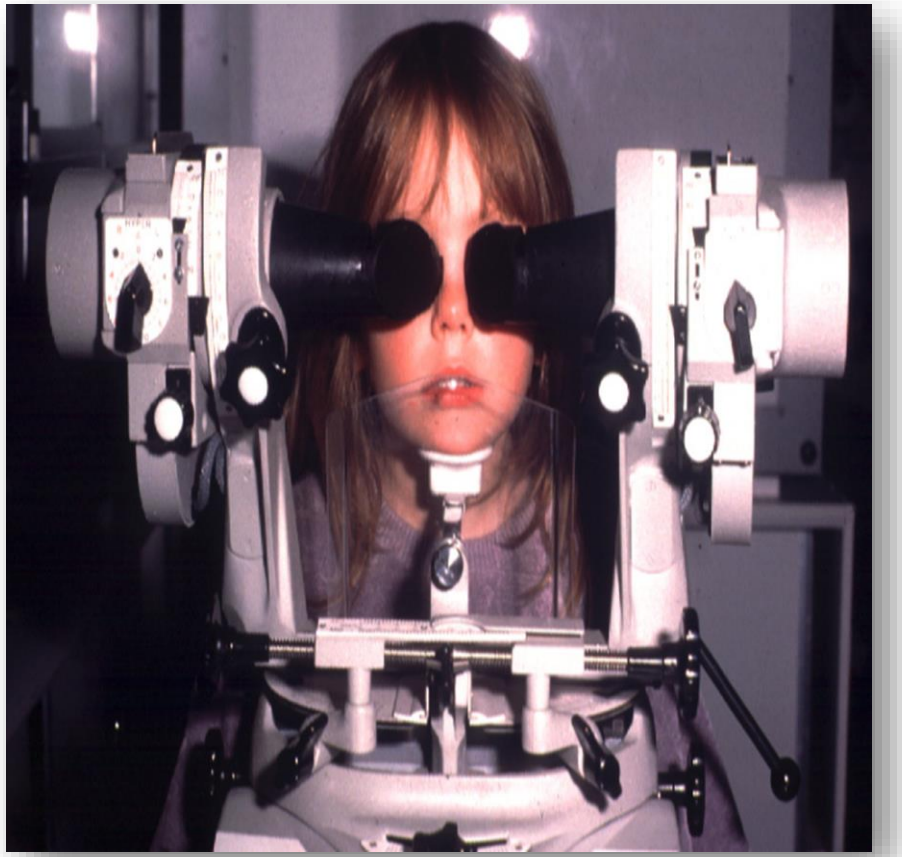
- Treat the cause, correct refractive errors
- Patching the normal eye to force use of the lazy eye.
- Sometimes, atropine drops are used to blur the vision of the normal eye instead of putting a patch on it. (less effective)
- Surgical intervention to restore binocular single vision

Examination steps of strabismus

1. Fundoscopy
2. Alignment (corneal light reflex, cover/uncover test, alternating cover test, prism associated test)
3. Cyclorefraction
4. Synoptophore
5. Stereopsis examination

Synoptophore

- An instrument which is used for diagnosing the imbalance of the eye muscle.
- It is used to investigate the potential for binocular function in the presence of a manifest squint.
- Specifically used in children (from 3 years of age)



Q1: Esotropia

- **If this patient has this condition in one eye, Dx?**
  - Esotropia
- **If the patient complains of severe hypermetropia, Dx?**
  - Accommodative Esotropia
- **What malignant tumor is correlated with this condition?**
  - Retinoblastoma

Q2: Esotropia

- 3 Years old child with normal ocular motility
- **What is the name of this strabismus type ?**
  - Esotropia
- **Mention one differential diagnosis?**
  - Abducent nerve paralysis
- **Is there any need for Surgery ?**
  - No, it can be fixed with glasses, (notice that he has normal ocular motility)
- **Will this child be able to develop 3D vision (stereopsis) ?**
  - Yes, his age is below 4 years

Q3: Esotropia

- **What is the type of strabismus ?**
  - Esotropia
- **What eye should be covered ?**
  - Left eye
- **What condition you are trying to prevent by covering ?**
  - Amblyopia

Q4: Esotropia

- This child has strabismus, +6 hypermetropia

❖ **Direction of strabismus**

- Esotropion toward nasal side

❖ **Type of strabismus**

- Accommodative

❖ **Management of strabismus**

- Glasses or Surgery

Esotropia

- **Mention the types of comitant esotropia**
  - Refractive, non-refractive, and partially accommodative or decompensated

Q1: Exotropia

- **What is your diagnosis ?**
  - Exotropia
- **Preferable Rx: (Surgical / Glasses)**
  - Surgical
- **Why you must examine the fovea ?**
  - To exclude
    1. eccentric fixation
    2. foveal scar
    3. retinoblastoma

Q2: Exotropia

- This patient come to clinic with history of vision problem

- **What is the name of this squint ?**
  - exotropia
- **Corrected by (glass OR surgery)**
  - surgery
- **3-You must examine fovea to exclude?**
  1. eccentric fixation
  2. foveal scar
  3. retinoblastoma

Q3: Exotropia

- **Describe what you see ?**
  - A divergent squint or extrophie (Strabismes)
- **What complication may result in such a condition ?**
  - There is a risk of amblyopia
- **How do you manage ?**
  - Treat underlying cause
  - Covering the better seeing eye
  - Correct refractive errors
  - Surgical intervention to restore binocular single vision

Q3: Exotropia

- **Mention examination steps**
  - Fundoscopy
  - Cyclo-refraction
  - Synoptophore
  - Stereopsis examination
- **what nerve is affected ?**
  - third nerve palsy and superior oblique palsy

Q: Hypertropia

❖ **What's the diagnosis ?**

- Hypertropia (UP)

❖ **Mention three causes ?**

1. Trauma
2. Stroke
3. Nerve palsies
4. Thyroid disease

❖ **Do you think patient has amblyopia?**

- yes

Convergent squint

- **Describe what you see**
  - Esotropia of the both eyes (convergent squint)
- **mention differential diagnosis**
  - Thyroid eye disease
  - Myasthenia gravis
  - Duane's syndrome
- **what is the treatment ?**
  - Eye patching
  - Correction of refractive errors
  - Glasses
- **can it cause amblyopia , how do you treat amblyopia**
  - Treat the cause, Patching the normal eye to force use of the lazy eye.
  - Sometimes, atropine drops are used to blur the vision of the normal eye instead of putting a patch on it.

Oculomotor nerve (CNIII) palsy

- **CNIII palsy may result in**
  - failure of adduction, elevation and depression of the eye
  - Ptosis

Trochlear nerve (CNIV) palsy

- **CNIV palsy may result in**
  - Limitation in depression and adduction

Abducens nerve (CNVI) palsy

❖**CNVI palsy result in** failure of abduction

Oculomotor nerve palsy

- A patient presented to the clinic with diplopia, extropia, ptosis and weak extraocular movement except abduction of the right eye, normal left eye

- **Diagnosis**:
  - Oculomotor nerve palsy
- **What is the pathognomonic sign that help you exclude he need for neurosurgeon consult ?**
  - Preservation of the pupillary light reflex (parasympathetic fibers)
- **Treatment**:
  - Treat the underlying cause
  - Fix refractive error
  - Use eye patching to improve diplopia
  - Strabismus surgery

Q1: Dysthyroid eye disease

- **What is the most common sign in graves?**
  - Exophthalmos
- **Mention other complications**:
  1. Exposure keratopathy
  2. Macular edema
  3. Inferior rectus muscle tethering

Q2: Dysthyroid eye disease

60-year-old man, come to emergency department with sudden blurring of vision

- **What the cause of blurring of vision?**
  - Compression on the optic nerve
- **Management?**
  - Steroid
  - Radiotherapy
  - Orbital decompression
- **Emergency (yes/No)?**
  - yes

Q3: Dysthyroid eye disease

60-year-old man, come to emergency department with sudden blurring of vision

- **Name of this sign?**
  - Kocher's sign
- **What the cause of blurring of vision?**
  - Compression on the optic nerve
- **Management?**
  - Steroid
  - Radiotherapy
  - Orbital decompression
- **Long term sequalae ?**
  - Dryness of eyes and corneal ulcer ophthalmoplegia

Q4: Dysthyroid eye disease

- A 56-year-old man smoker known case of thyroid disease for twenty years ... presented to you with a complaint of sudden vision loss in one of his eyes. Normal fundoscopy findings
- **What the cause of blurring of vision?**
  - Compression on the optic nerve
- **Management?**
  - Steroid
  - Radiotherapy
  - Orbital decompression
- **Emergency (yes/No)?**
  - Yes

Q5: Dysthyroid eye disease

- **Why this patient could loss his vision?**
  - Compression on the Optic nerve Disc
- **Write down 2 complication of this condition?**
  1. Optic nerve compression
  2. Macular edema
  3. Inferior rectus muscle tethering
  4. Exposure keratopathy (Excessive exposure of the conjunctiva and cornea with the formation of chemosis and corneal ulcers)

Q6: Dysthyroid eye disease

- Patient suffer from thyroid disease for several years, correction visual acuity in his left eye is 6/60 and in right eye 6/36

❖ **Why vision cannot be corrected by eye-glasses**

- Because there's compression (damage) to the optic nerve

❖ **Give two complication of this disease**

- Optic nerve compression
- chemosis

❖ **This case is emergency ?** Yes / No

❖ **What is your intervention**

- Steroid
- Radiotherapy
- Orbital decompression

Q7: Dysthyroid eye disease

- **Describe what you see**
  - Protrusion of the globe (Proptosis), exophthalmus
- **What is your diagnosis ?**
  - graves disease (dysthyroidoculopathy)
- **What other signs can be seen?**
  - Upper eyelid retraction
  - Redness
  - Swelling (edema)
  - Conjunctivitis
  - Wide palpebral fissure
- **What possible complications ?**
  - macular edema, inferior rectus tethering, extraocular mobility affected, exposure keratopathy

Q8: Dysthyroid eye disease

- **What are the complications of this case ?**
  - Exposure keratopathy
  - Macular edema
  - Inferior rectus muscle tethering
  - Optic nerve compression
  - Macula compression
  - Excessive exposure of the conjunctiva and cornea with the formation of chemosis and corneal ulcers
- **What is the most affected muscle from the extraocular muscles by this disease?** Inferior rectus muscle
- **Treatment**
  - Steroid
  - Radiotherapy
  - Orbital decompression

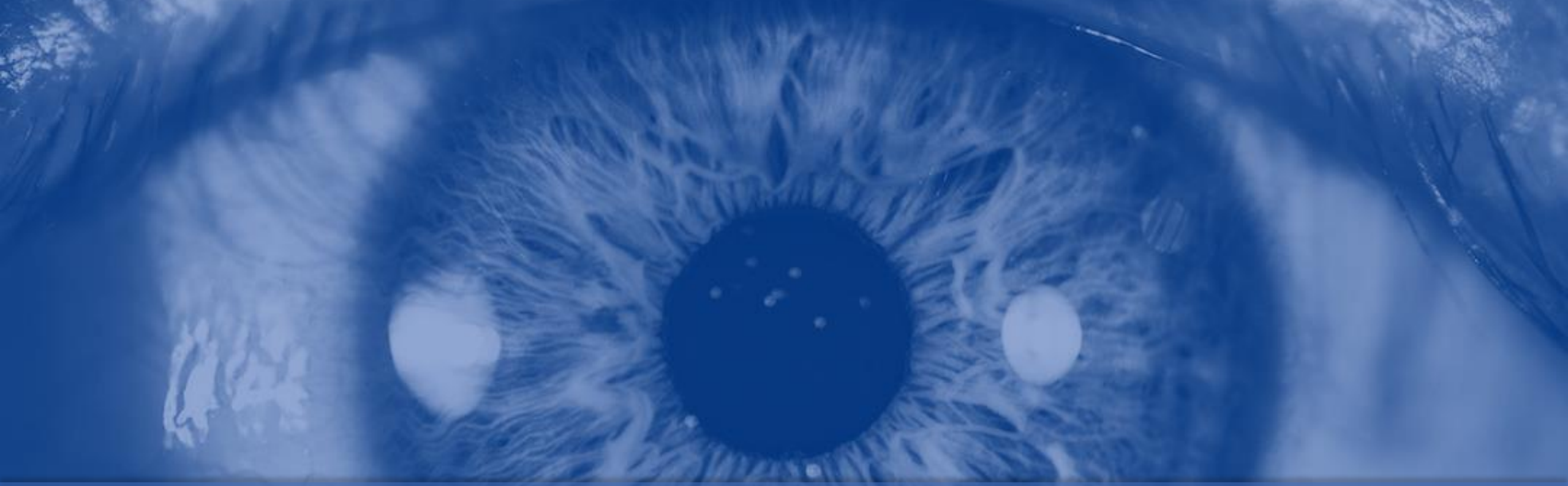
myasthenia gravis

❖Mention 2 tests to diagnose myasthenia gravis at your clinic?

1. In myasthenia, repeated elevation and depression of the eye results in an increased ptosis.
2. Manual retraction of the upper lid causes a ptosis or increased ptosis in the other eye.
3. Ask the patient to look down for 15 seconds and then look up at an elevated target. The lid overshoots and then falls slightly after the period of rest (Cogan's twitch test).

❖How do you manage such a case ?

- Treat myasthenia gravis by AChEI (neostigmene), immunosuppressive agents and steroid

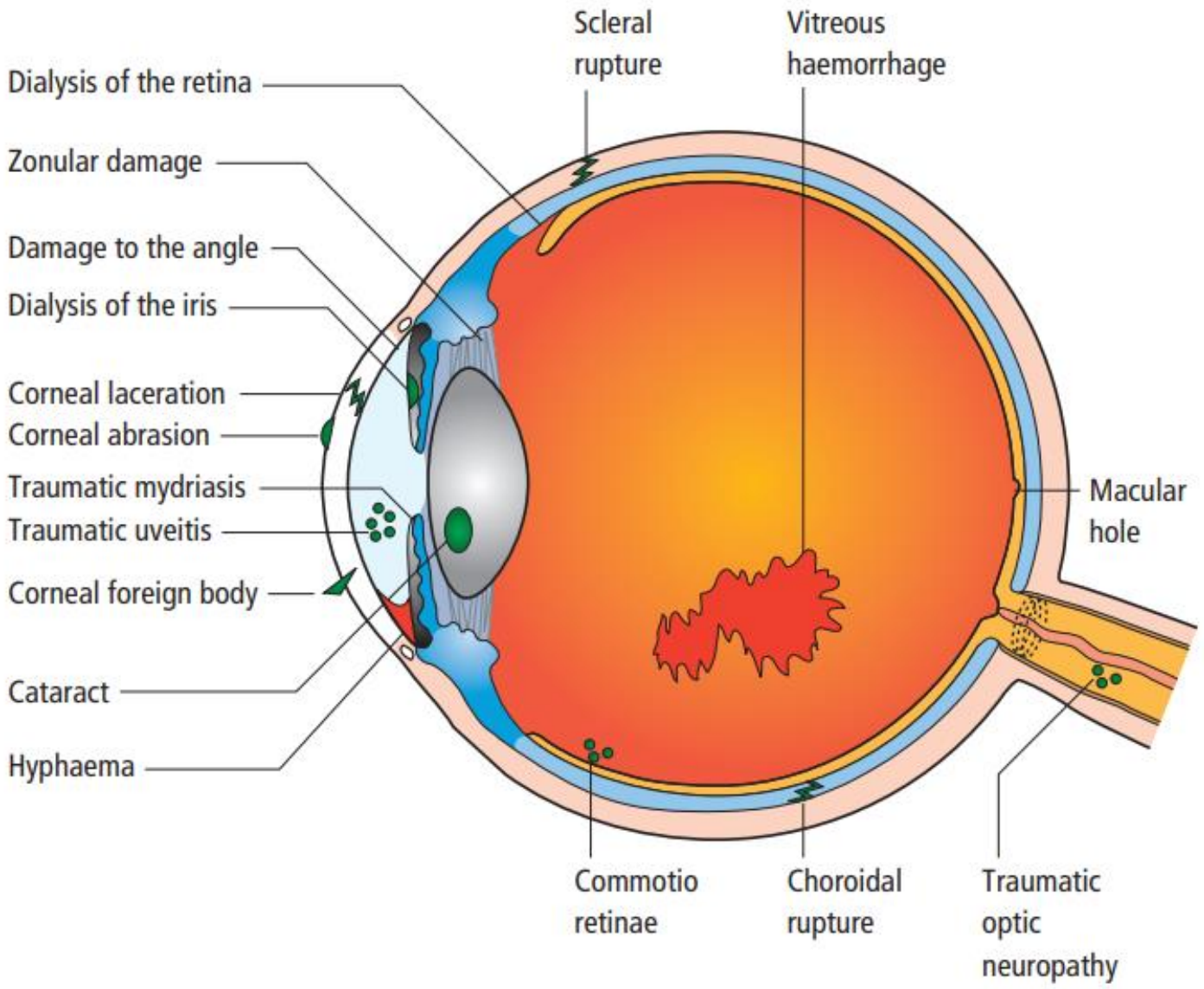


Trauma

DDx of eye trauma

- Orbital injury
- Conjunctiva and sclera
- The cornea
- Anterior chamber
- The lens
- The fundus
- Corneal and scleral penetrating trauma
- Laceration of the skin and lid
- Chemical injury

The extent of possible traumatic damage to the eye



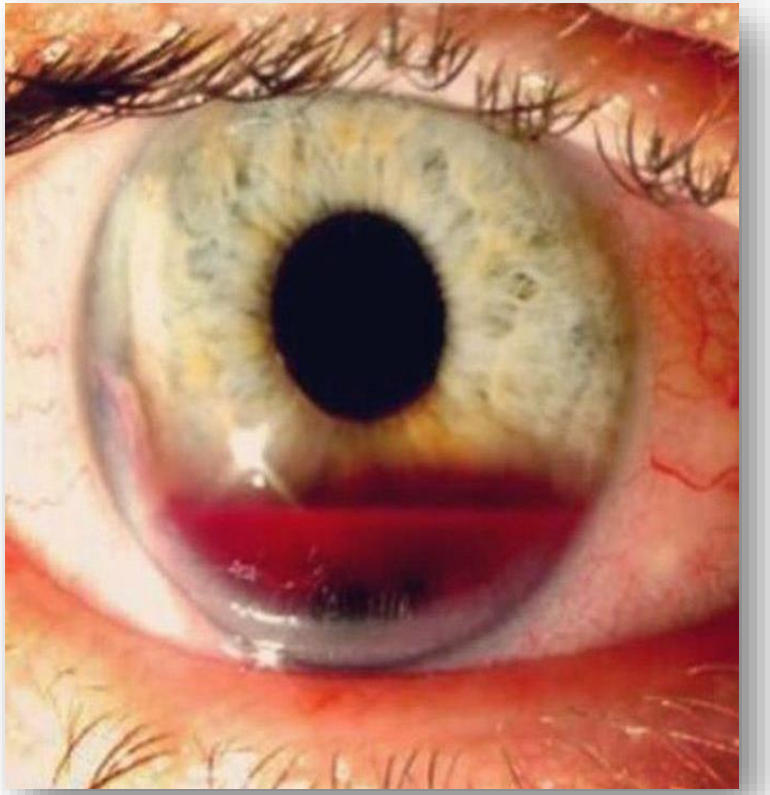
Eyelid injury

- Patient come to ER after he has a trauma to his eye caused by pet in his home

- **What do you see in the picture ?**
  - Upper led cut laceration
- **What vaccines the patient should receive ?**
  - Tetanus toxoid
- **Do you think this patient has poor or good prognosis**? good

Q1: Hyphemia

- **Name of this sign**
  - Hyphemia
- **Management**
  1. Rest
  2. Steroid eye drop
  3. Dilation of the pupil
  4. Treat complication if occur
- **Medical tx if he had an IOP of 32 mmHg**
  1. acetazolamide
  2. timolol
  3. topical prostaglandin
  4. pilocarpine



Q2: Hyphemia

1. **Describe what you see**
   - Hyphemia: Collection of blood in the anterior chamber
2. **What clinical condition this finding can be seen in?**
   1. Intraocular surgery
   2. Trauma to the eye (either blunt or penetrating)
   3. Bleeding disorders
   4. Anticoagulant therapy

Q2: Hyphemia

3. What possible complications you know ?

1. The commonest complication is Secondary open angle glaucoma
2. Bloodstaining cornea
3. Visual defect
4. Iris necrosis
5. Iris detachment (irido dialysis)

4. How do you manage ?

1. Rest
2. Steroid to reduce risk of rebleed
3. May need surgical drainage if hyphemia persists

Traumatic cataracts & irido-dialysis

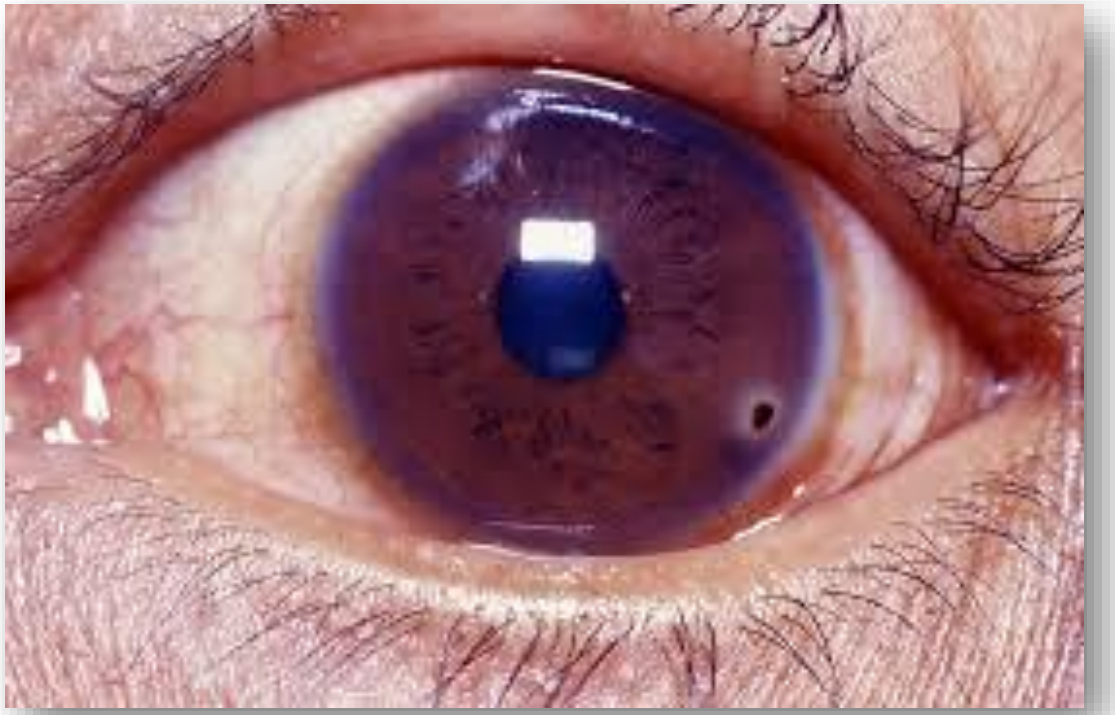
- **Describe what you see**
  - cataract, irido-dialysis
- **mention the cause**
  - blunt trauma to the eye
- **what other associated complains may be seen?**
  - hyphemia
  - traumatic mydriasis
  - iridodonesis

Corneal penetrating trauma

- Pt came to the ER with this presentation, and he had collapsed anterior chamber
- **How do you think his IOP is?**
  - <11mmHg (low)
- **What is the first step in management ?**
  - Removal of the needle
- **What is the prognosis if the needle removed immediately ?**
  - Good prognosis
- **Is there a risk for endophthalmitis ?** Yes

Corneal penetrating trauma

- **What is the diagnosis ?**
  - Corneal foreign body
- **Management?**
  - Analgesia
  - Remove foreign body
  - Antibiotic



Essay – chemical injury

❖ Management of chemical injury ?

1. Irrigation with clean water
2. Removal of contaminants / necrotic tissue
3. Record visual acuity, IOP
4. Analgesics
5. Topical antibiotic drops
6. Steroid eye drops
7. Lubricant eye drops

Symblepharon

- Mention 2 DDx of symblepharon
  - Trauma
  - Acute membranous conjunctivitis
  - Chemical injury
  - Conjunctival burn
  - Atopic conjunctivitis
  - Xeroderma pigmentosum

A case of RTA with eye trauma and hemorrhage

- **What is the first thing that you should do as a GP ?**
  - Secure his airway breathing and circulation
- **If a patient were presented to you with anterior chamber trauma, what's your ddx ?**
  - Anterior uveitis
  - Retinal detachment
  - Lens displacement
  - Elevated IOP ?
  - Post traumatic cataract ?


"That's all Folks!"