

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

فِي الْبَيْتِ الْمَقْدِسِ

صَدَقَ اللَّهُ الْعَظِيمُ

# Ocular Trauma



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# *Protective mechanisms*

- Eye lid and lash
- Tear fluid
- Corneal sensation
- Bony orbit
- Retrobulbar fat
- Bell's phenomenon



# *Types of ocular injury*

1-Blunt

+

2-Perforating

+

3-FB



4-Radiation

+

5-Chemical

+

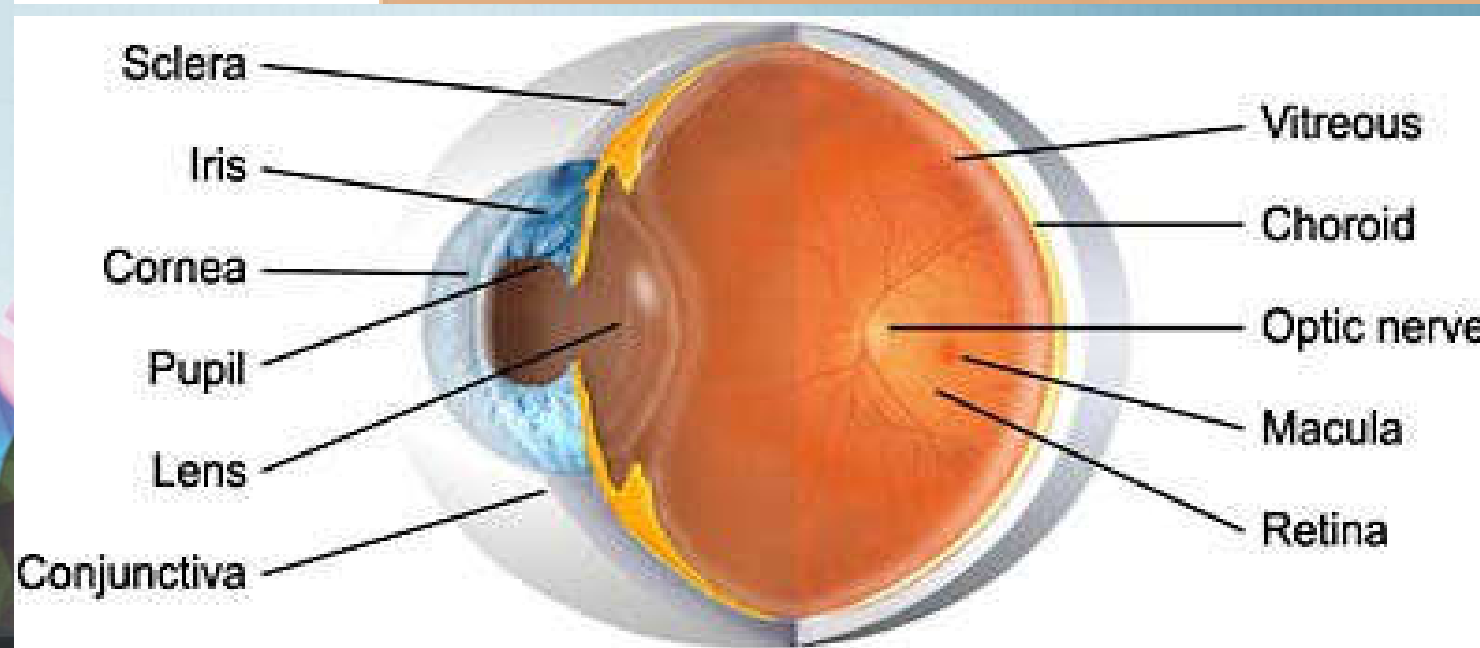
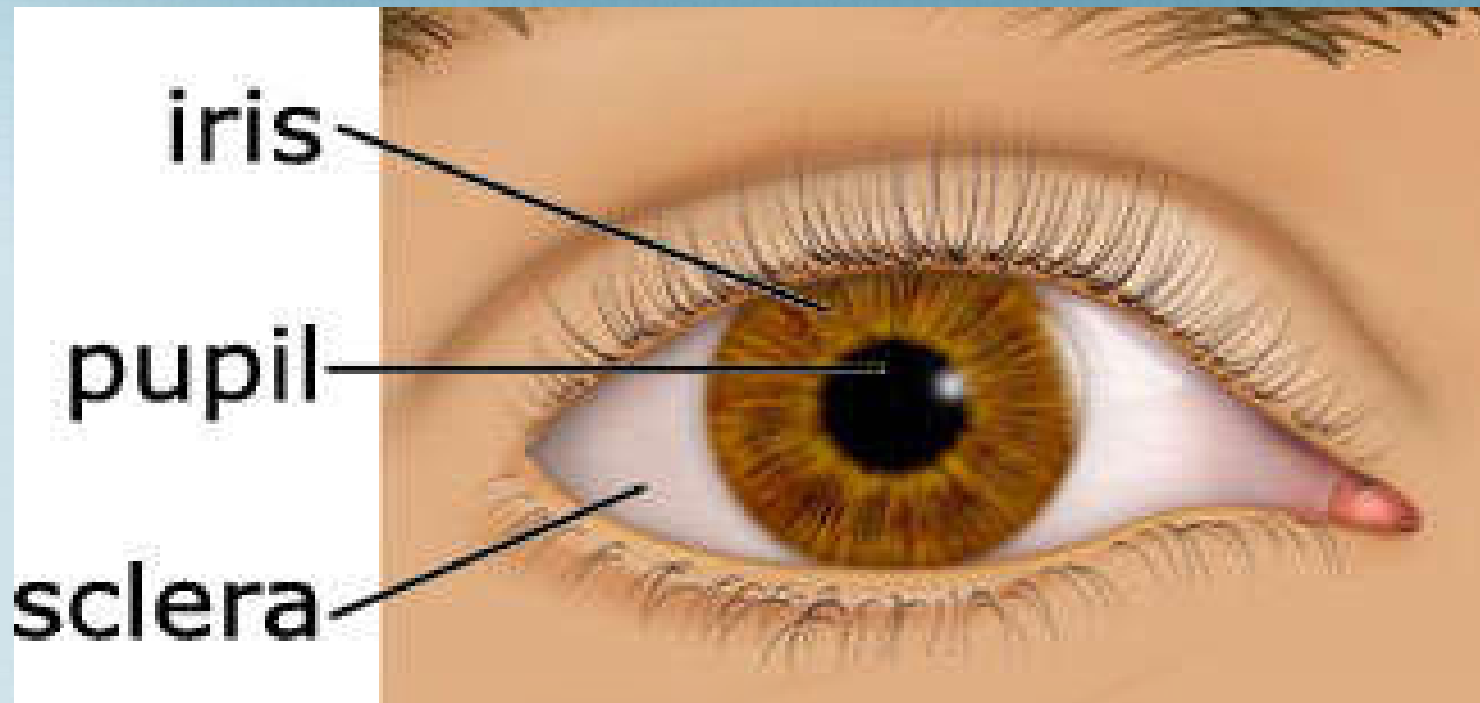
6-Thermal

# *Blunt Trauma*

- **Mechanism of damage:**

1- Coup (**direct** at same site) and Countercoup (**away** by waves)

2- Anteroposterior compression (**RG** and **iridoodiaylisis**)



# *Effect of Blunt Trauma*

- **1- Orbit :**

- Orbital proptosis ??



- Ophthalmoplegia





# - Blowout Fracture

## Etiology + C/P





## 2-Lid

### 1- Ecchymosis



### 2- Emphysema



## 2- Lid

### 3- ptosis :

- Mechanical
- Paralytic



### 4- Wounds



# 3- conjunctiva

1- Sub conjunctival hge

2- Wound

3- Chemosis



SlidePlayer

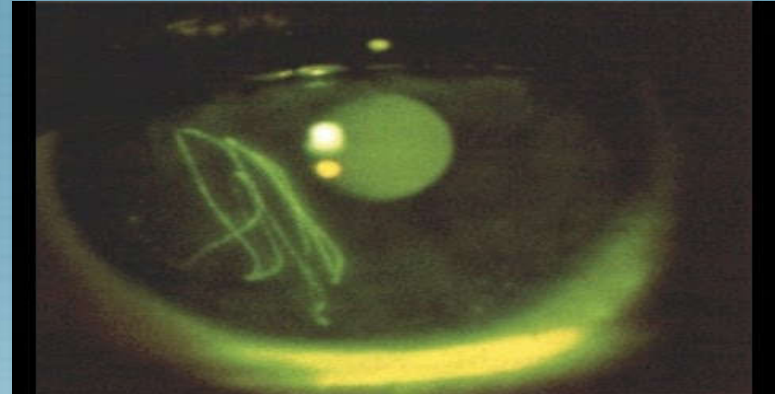
## Differential Diagnosis of subconjunctival hemorrhage

	<i>Local ocular trauma</i>	<i>Fracture base of skull</i>
<b>Onset</b>	Immediate	Delayed
<b>Trauma</b>	To the eye with no proptosis	To the head with proptosis
<b>Consciousness</b>	Normal	Loss of consciousness
<b>Site</b>	Usually on the temporal side	Usually in the fornices
<b>Shape</b>	Triangular, base towards the cornea	Triangular, apex towards the cornea
<b>Color</b>	Bright red	Dark red
<b>Posterior limit</b>	Is seen	Is not seen



# 4- Cornea

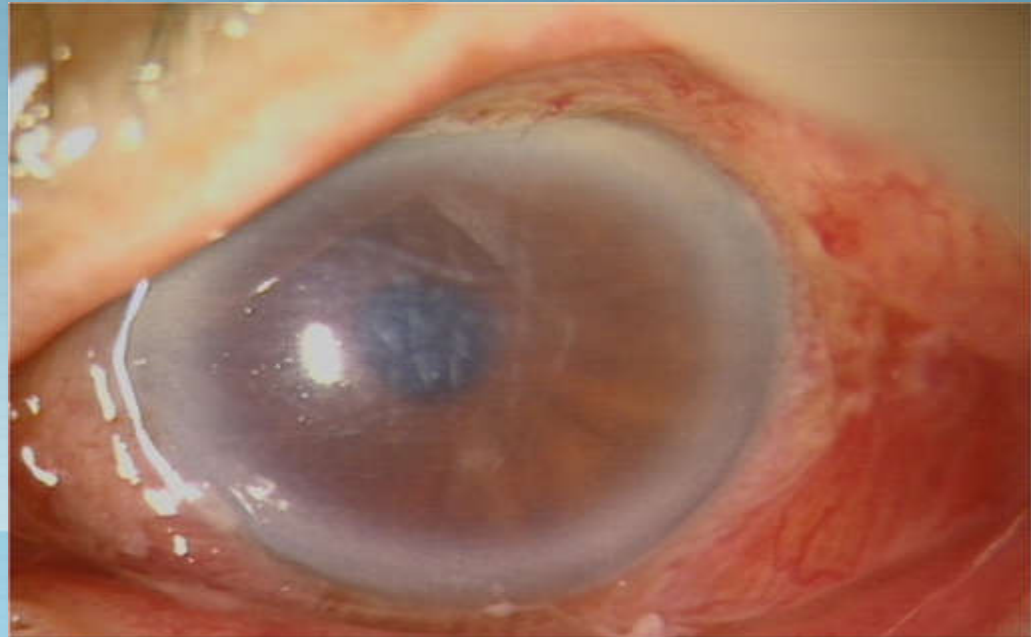
- Abrasion
- Rupture Globe
- Blood staining





# 4- Cornea

- Corneal edema



# 5- sclera (Rupture globe)

- Def:
- Sites:
- C/P:
- Complications:
- Treatment:

## Eyeball wounds



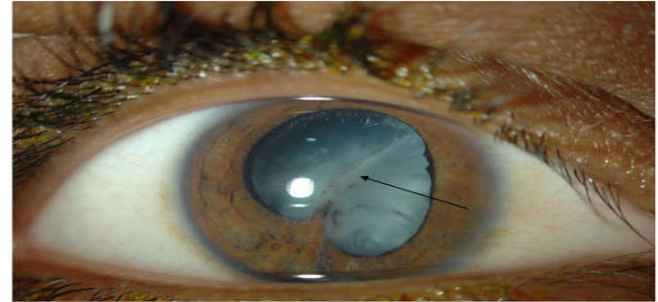
Penetrating wound of sclera  
with exit of iris



Corneoscleral penetrating  
injury with foreign body

# 6- Lens

- Traumatic cataract
- Subluxation
- Dislocation



DJO Digital Journal of Ophthalmology  
www.djo.harvard.edu



RootAtlas.com



# 7-Anterior Chamber

- **Hyphema:**

- Def:

- Etiology:

- Complications:

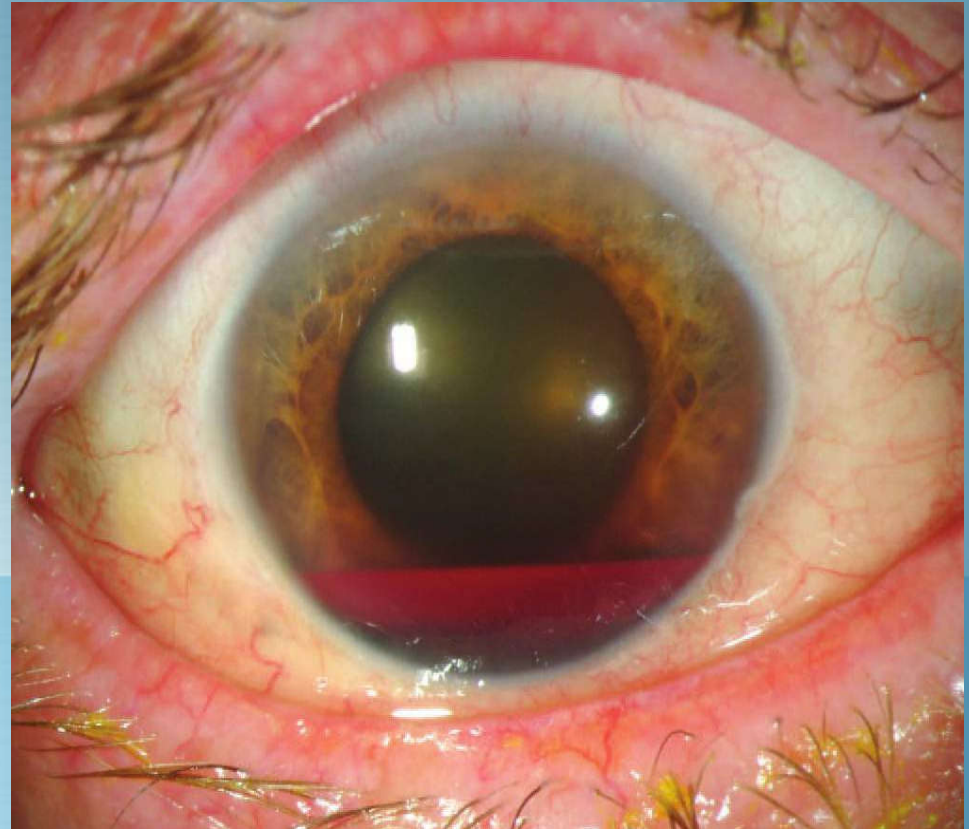
- Other causes :

- Treatment :

- . Complete bed rest

- . Medical : local and General

- . Surgical





# *7-Anterior Chamber*

- **Anterior dislocation of Lens:**



# 8-Pupil

- Traumatic miosis
- Traumatic mydryasis
- Adie Pupil



# 9- Iris

- Iridocyclitis
- Aniridia
- Sphincter Tears
- Iridodonesis
- Iridodialysis

Def:

C/P:

DD:



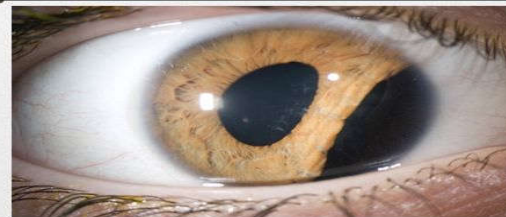
Fig. 1 Aniridia means an absence of the iris or colored part of the eye.

## Iris

**1. Traumatic iritis:** Inflammation of the iris and ciliary body secondary to any type of trauma.

**2. Iris sphincter tears:**

Defects in the constrictor pupillae muscle at the pupillary border. They appear clinically as small V-shaped tears at the pupillary border. Mydriatics should be avoided since they enlarge the tears.



# *10-Ciliary Body*

- *Glaucoma*
- *Bleeding*
- *Hypotony*
- *Spasm of accomodation*
- *Paralysis of accomodation*





# 11- Choroid

- Effusion with RD
- Haemorrhage
- Detachment
- Choroiditis
- Rupture



1

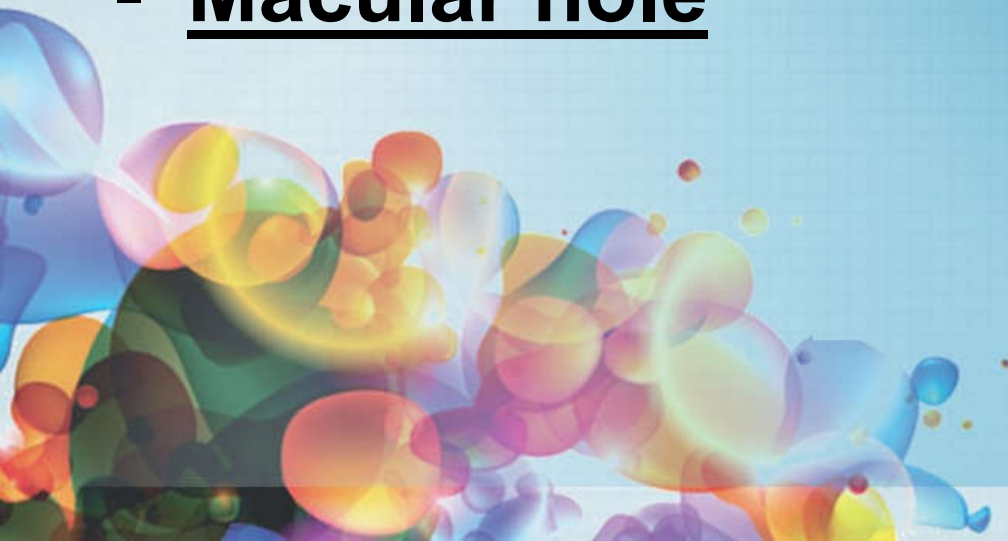
# 12- Vitreous

- Haemorrhage
- Loss with RG
- Opacities



# *13-Retina*

- Haemorrhage
- RD ...all types ?!
- Edema
- Tear leading to RD
- Macular hole



# *Commotio Retinae* *(Berlin's edema)*

- Def :
- Etiology:
- C/P:
- DD:
- Treatment :





# *14-Optic Nerve*

- Avulsion
- Edema
- Hge
- Atrophy



**15- EOM**

**16- Lacrimal**

**17- IOP**

- Glaucoma
- Hypotony

**18- Refraction .. All types?!**

# *Perforating trauma*

*1- Mechanical effect*

*2- Infection*

*3- Sympathetic ophthalmitis*





# *Sympathetic ophthalmitis*

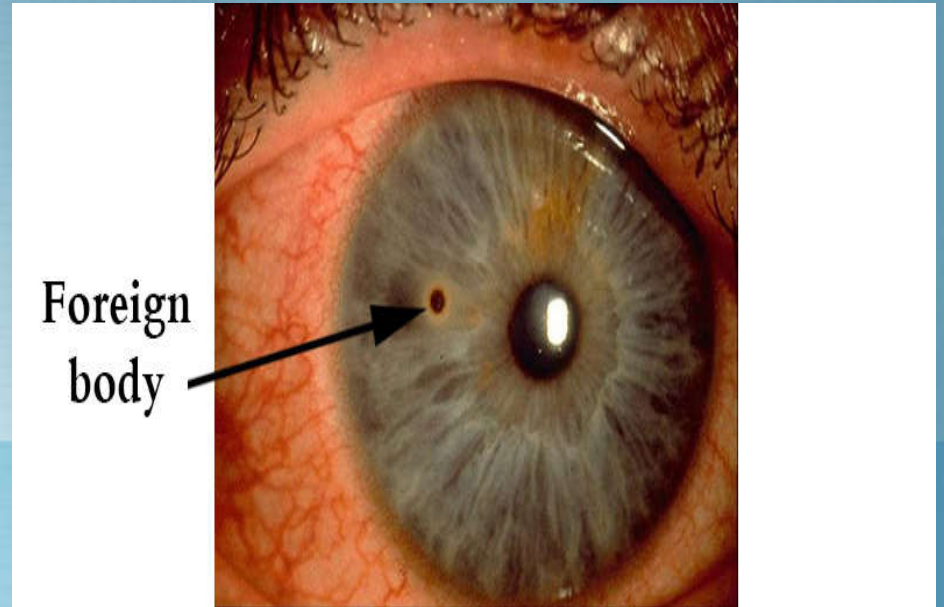
- **Def:** Bil. Inf. Of uveal tract after penetrating injury of **one** eye in which uveal tract is involved {Exciting and Sympathizing}
- **Etiology:**?? Allergic.. IOFB.. CB.. Uvea in wound
- **C/P:** 2-6 weeks post initial trauma.
- **Treatment :**
  - Prophylactic Enucleation ??

# *Foreign Body*

- Either Metallic or Nonmetallic

## 1- Extraocular

- Cornea
- Fornix
- Sulcus subtarsalis
- Punctum



# *Foreign Body*

## 2- Intraocular

- Mechanical
- Infection
- Sympathetic ophthalmitis
- Chemical effect :

delayed and depends on chemical nature  
(**inert** as glass or **active** like Iron or copper)



# *Siderosis Bulbi*

- **Def:** toxic effect of **Iron** on the eye
- **Mechanism:** oxidised Iron dissolves to ferric and ferrous oxide that accumulate into ocular tissues leading to :
  - 1- **Staining** of ocular tissues.
  - 2- **Toxic** effect on cellular proteins.
  - 3- **Inactivate** intracellular enzymes.

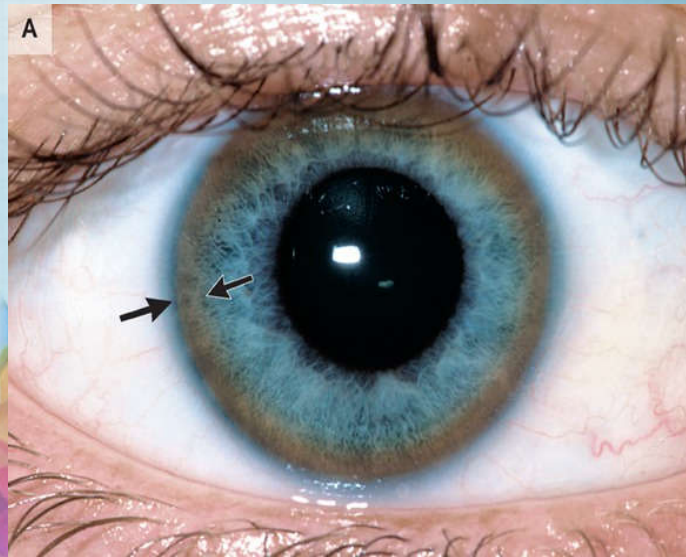
- C/P:
  - Cornea
  - Angle
  - Lens
  - Retina



# *Chalcosis Bulbi* *(Wilson's Disease)*

- Def: Toxic effect of Copper on eye.
- Mechanism: Dissolution of Copper into copper oxide that accumulate into collagen bundles and DM with Staining effect

- C/P:
  - Lens
  - Cornea





# **Diagnosis and Localization**

- **History**
- **Slitlamp**
- **Gonioscopy**
- **Ophthalmoscopy**
- **Investigations :**
  - X-ray
  - B-scan
  - CT no MRI ??

# *Treatment*

- Removal through **nearest** way:
  - *Ac*
  - *Iris*
  - *Lens*
  - *Posterior Segment*



# *Radiation Injury*

## 1- Infrared rays :

- Eclipse Blindness
- Glass blower cataract
- True exfoliation of lens capsule

## 2- X-Ray :

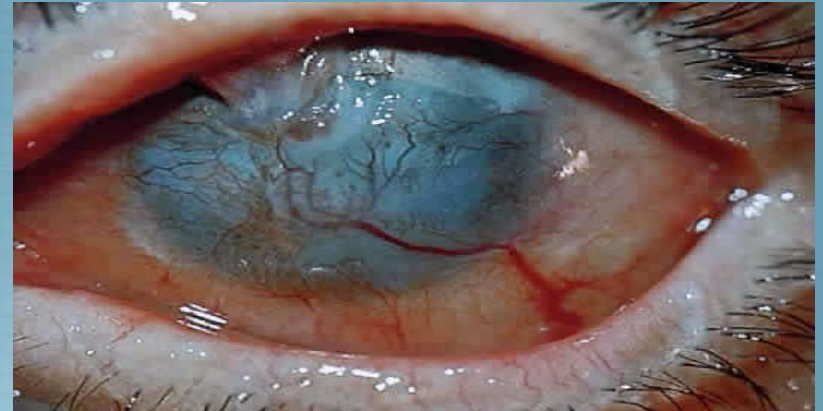
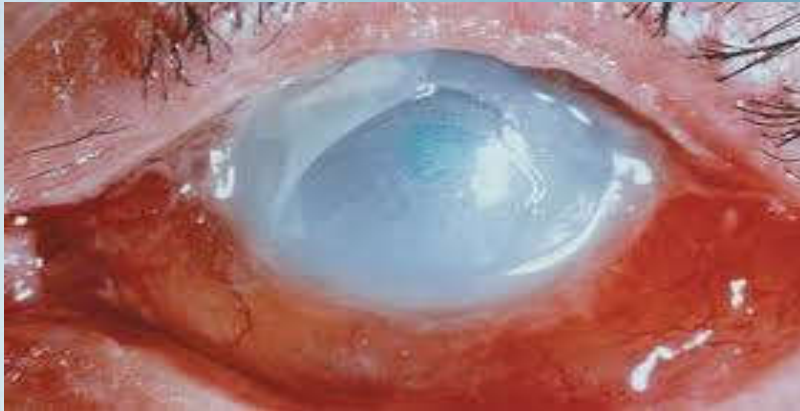
Madarosis, cataract, retinopathy, neuropathy

## 3-UV rays Photophthalmia

## 4- Excessive light as Sun Eclipse

## 5- Electric burn cataract with uveitis

# *Chemical injury*



- **Strong Acids** : Sulphoric acid.
- **Strong Alkalis** : Potash, Na- K hydroxide.
- **Corrosives** : Lime (most dangerous) ??
- **Chemicals**: war gases.



- **Effect** :depends on conc ,duration ,type and penetration.

- **Pathogenesis:**

- 1-**Alkalies** more serious :

- Disrupt cells and Dissolve corneal stroma with rapid penetration

- Necrosis of conj. BVS.

- 2- **Acids** localized damage due to epith.

- Accumulation and barrier effect (coagulative necrosis)

# C/P

- **Symptoms** : as uveitis
- **Signs:**



# *Treatment*

- 1<sup>st</sup> aid measures (if unknown) :

**1- Immediate Copious** irrigation with water or physiological saline.

**2-If Known :**

- **Strong acids with weak alkali (Na Hco<sub>3</sub>)**
- **Strong alkalis with weak acid(Boric acid)**
- **Lime with EDTA 0.1% or saturated sugar solutoin**

- **Local** treatment:

- Antibiotic
- Steroids if epithelium is intact
- Artificial tears
- Cicloplejic if abrasion or ulcer

.Treatment of **complications:**

**(Symplepharon)** ..glass  
rod+Steroids+stemcell+CL



THANK YOU

