Common Pitfalls and Initial Management in Emergency Eye Problems

OCULAR URGENCY : TRAUMA

- Eyelid trauma ; contusion, abrasion, laceration
- Conjunctival foreign bodies / laceration
- Corneal abrasion/ foreign bodies
- Ultraviolet radiation keratitis
- Chemical burn
- Traumatic hyphema

- Open globe injury
- Intraocular foreign bodies
- Commotio retinae
- Acute solar retinopathy
- Traumatic optic neuropathy
- Intraorbital foreign bodies

OCULAR URGENCY : NON-TRAUMA

- Acute gonococcal conjunctivitis
- Corneal ulcer
- Acute (anterior, posterior, pan-) uveitis
- (Early- , late-onset) endophthalmitis
- Acute angle-closure glaucoma
- Retinal vascular occlusion
- Retinal detachment

1. Pain
2. Non-infection
3. Purulent discharge
4. VA drop
5. RAPD + ve

OCULAR EMERGENCY

True eye emergency

1. Chemical burn
2. Central retinal artery occlusion (CRAO)
3. Most ocular trauma
4. ± Orbital compartment syndrome
5. ± Acute angle-closure glaucoma

Ocular trauma

- Anywhere, anytime
- M:F ~ 9:1
- Usually < 40 years
- Initial management is very important
- Don't forget VA measurement

TRAUMATIC OCULAR URGENCY

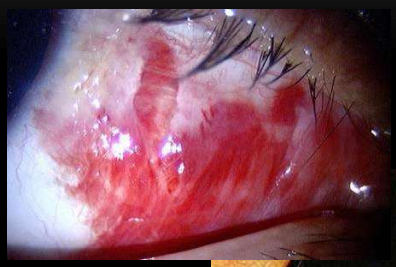
EXTRAOCULAR

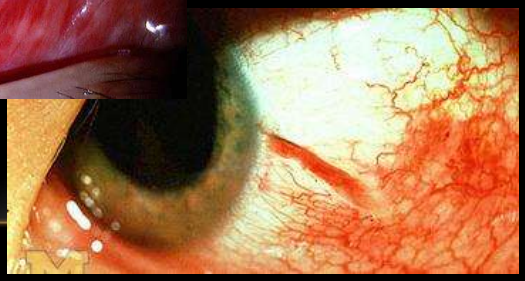
CONJUNCTIVAL FOREIGN BODY

CONJUNCTIVAL FOREIGN BODY

- ± Corneal abrasion
- Lid eversion
- 0.5% Tetracaine
  : irrigation / cotton bud + NSS
  : jeweler forceps*
- Antibiotic
- ± Pressure patch
- Refer

CONJUNCTIVAL LACERATION





CONJUNCTIVAL LACERATION

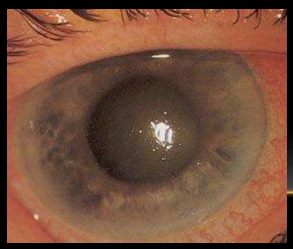
- Sharp / blunt objects
- Often with subconjunctival hemorrhage (SCH)
- ± Foreign body
- R/O open-globe injury *

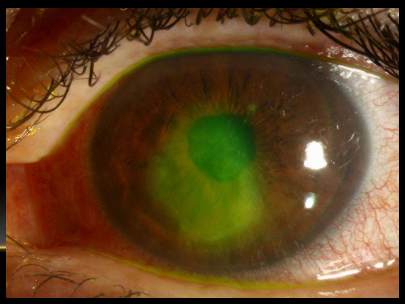
Treatment

- Antibiotic
- Clean wound : pressure patch in the first day
- Suturing if > 1 cm.

CORNEAL ABRASION

Irregular corneal light reflex

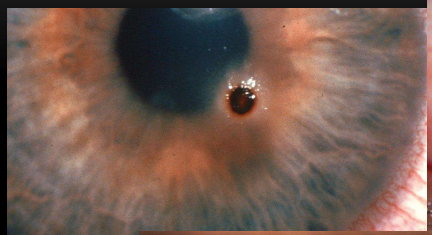


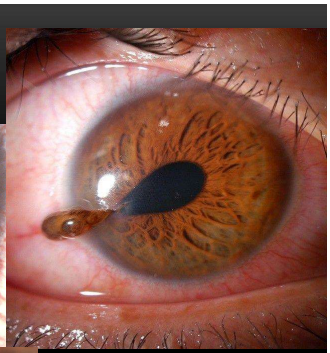


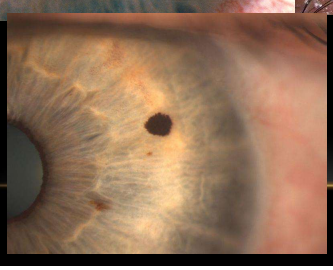
CORNEAL ABRASION

- **Foreign bodies / contact lens**
- **R/O open globe injury**
- **Lid eversion**
- **± 0.5% Tetracaine**
- **Fluorescein staining**

- **Topical antibiotic**
  : CLs user ; Tobramycin
  : General ; Chloramphenical
- **NSAIDs ± cycloplegic drug**
- **Analgesic**
- **Debridement**
- **If > 10 mm^2 or pain : pressure patch or CL bandage**
- **F/U in 24 hrs.**





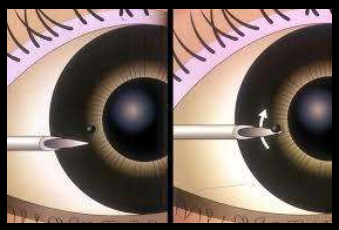


CORNEAL FOREIGN BODY

- Foreign body sensation
- Less decrease vision ; corneal edema, rust ring

- R/O penetration injury*
- 0.5% Tetracaine
- Irrigation / cotton bud + NSS
- Under slit-lamp
  - : Jeweler forceps
  - : At least 25 gauze needle
  - : Foreign body spud
- As corneal abrasion

CORNEAL FOREIGN BODY



Rust Ring

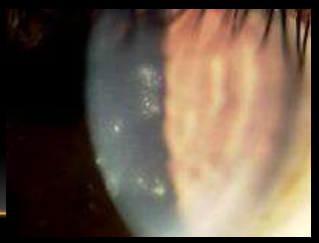
ULTRAVIOLET RADIATION KERATITIS

ULTRAVIOLET RADIATION KERATITIS : SNOW BLINDNESS

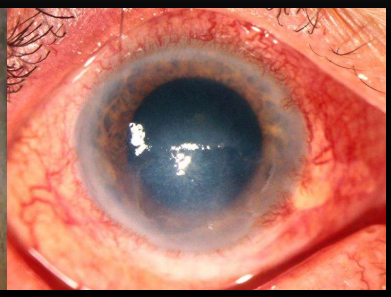
- Photokeratitis
- 6-12 hrs. after work
- Usually bilateral, but asymmetry
- Corneal epithelial lesion
  : superficial punctate keratitis (SPK)

Prevention?

- Treatment as corneal abrasion
- Recovery in 24 hrs.



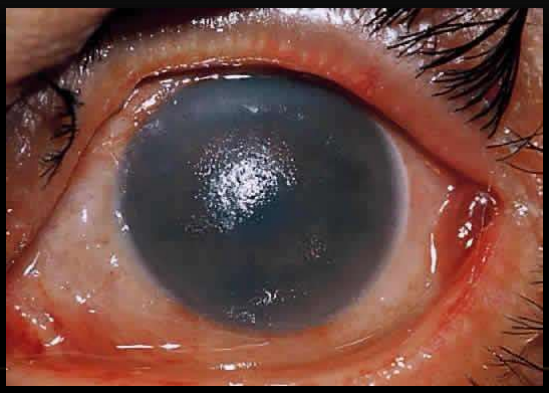
CHEMICAL BURN



CHEMICAL BURN

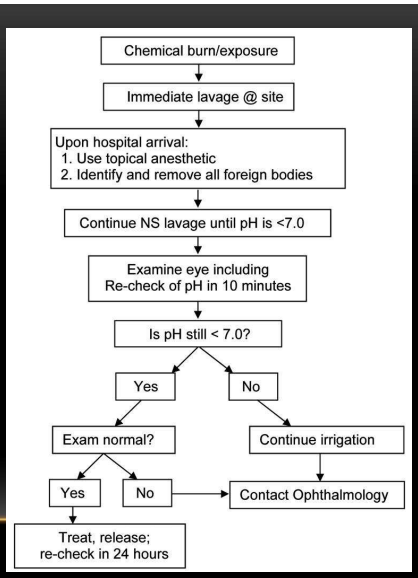
Roper-Hall Classification System			
Grade	**Prognosis**	**Limbal Ischemia**	**Corneal Involvement**
I	Good	None	Epithelial damage
II	Good	<1/3	Haze, but iris details visible
III	Guarded	1/3 to 1/2	Total epithelial loss with haze that obscures iris details
IV	Poor	>1/2	Cornea opaque with iris and pupil obscured

GRADE?



CHEMICAL BURN : INITIAL TREATMENT

VA?



CHEMICAL BURN

- Severity depend on
  - : types
  - : duration
- Common base : NH_3, NaOH, $Ca(OH)_2$, KOH
- Most common acid : H_2SO_4
- Most violent acid : HF
- Emergency treatment
- Severity grading
  - : grade 1 & 2 can be treated by GP
  - : grade 3 & 4 → refer

CHEMICAL BURN : TREATMENT

- Non-preservative tear
- Topical antibiotic
- Cycloplegic drugs
- Analgesic
- Doxycycline (100) 1x2
- 10% acetylcysteine
- Vitamin C 8 gm. / day
- Anti-glaucoma if IOP rising

CHEMICAL BURN : COMPLICATIONS

Lid : MGD, ectropion

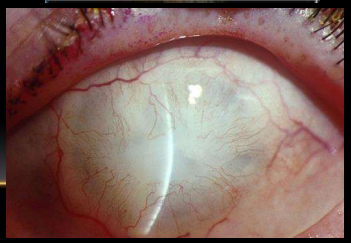
Conjunctiva : symblepharon

Limbus : LSD

Cornea : scar, pannus, thinning

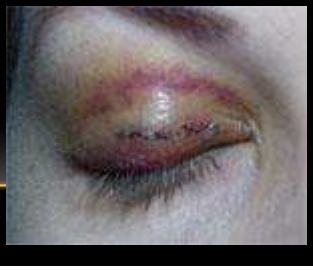
Anterior chamber : PAS, glaucoma

Lens : cataract

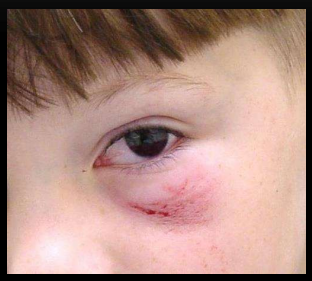


EYELID TRAUMA : CONTUSION

- Cold compression 10-15 mins x 4 times in the first 24-48 hrs.
- Trauma of levator muscle ; recovery within 6 mos.



EYELID TRAUMA : ABRASION



- Chloramphenical ointment until complete recovery

EYELID TRAUMA : LACERATION

EYELID TRAUMA : LACERATION

- Classification

: no lid margin involvement

: lid margin involvement

: canthal angle involvement

- Tetanus toxoid
- ± Rabies
- Remove foreign body
- Suture by 6-0 Nylon
- Antibiotic oral

: Dicloxacillin 7-10 days

EYELID TRAUMA : LACERATION

- Initial management & refer if

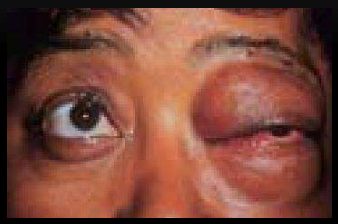
: lid margin involvement

: tear canaliculi

: loss eye lid tissue > 25%

: tear levator muscle

ORBITAL HEMORRHAGE



ORBITAL HEMORRHAGE

- Trauma / Iatrogenic
- Severity depend on amount of bleeding
- Observe CRAO

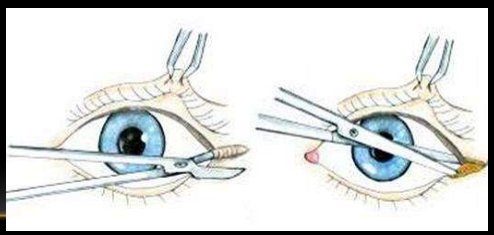
- Treatment

: analgesic

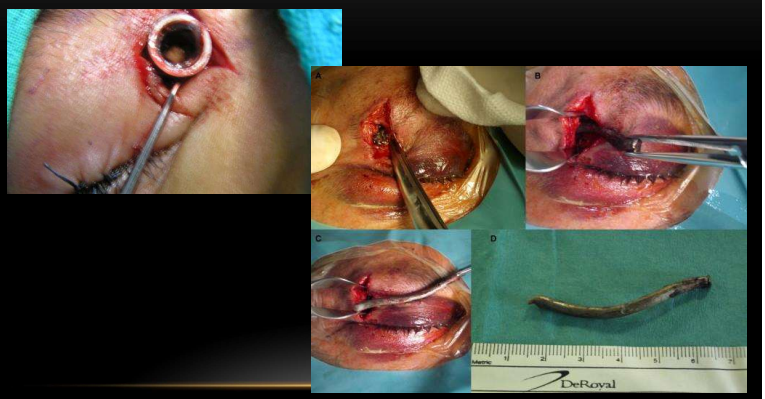
: anti-glaucoma

: lateral canthotomy

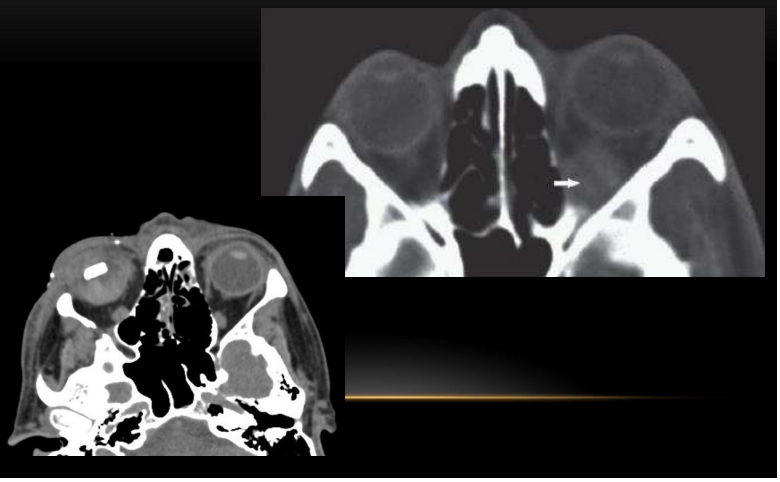
: lateral cantholysis



INTRAORBITAL FOREIGN BODY



INTRAORBITAL FOREIGN BODY



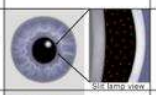
TRAUMATIC OCULAR URGENCY

INTRAOCULAR

TRAUMATIC HYPHEMA

- M:F = 3:1
- Young age
- Common ; major arterial circle of ciliary body & ciliary body vein injury
- Recurrent bleeding in 2-5 days (incidence <5%)

TRAUMATIC HYPHEMA

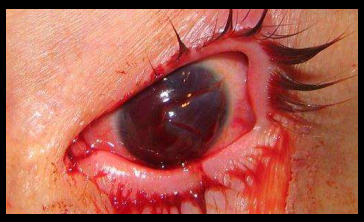
Grade	Anterior chamber filling	Diagram	Best prognosis for 20/50 vision or better
Microhyphema	Circulating red blood cells by slit lamp exam only		90 percent
I	<33 percent		90 percent
II	33-50 percent		70 percent
III	>50 percent		50 percent
IV	100 percent		50 percent

Traumatic hyphema

- Rest
- Head elevation 30 degrees
- Eye shield
- Cycloplegic drugs
- Avoid ASA, NSAIDs
- Analgesic
- Steroid in cases with iritis
- Anti-fibrinolytic agents : tranxenemic acid
- Anti-glaucoma
- Observe IOP, blood-stained cornea

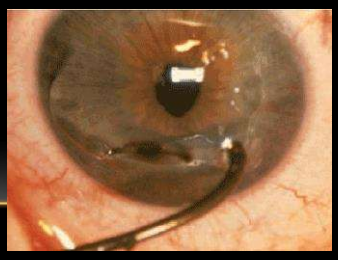
KEEP IN MIND ABOUT POSTERIOR SEGMENT INJURY

OPEN GLOBE INJURY

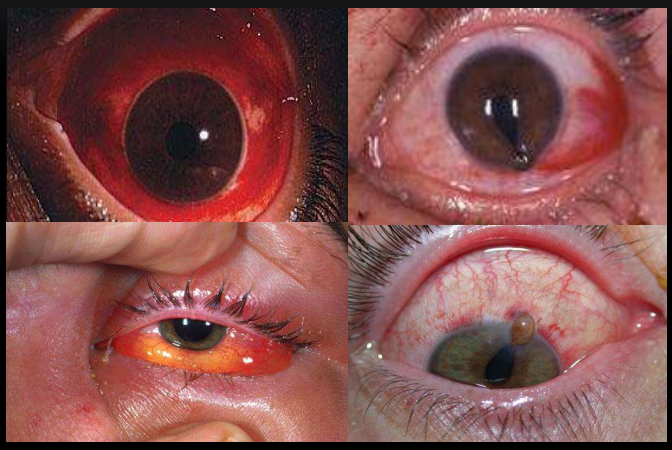


- Rupture : blunt objects
- Penetration : sharp objects
- Perforation : entrance & exit wounds

: Perforating cornea = penetrating globe



OPEN GLOBE INJURY



OPEN GLOBE INJURY

History

- Onset
- Nature of trauma
- Object
- Place
- Eye protection
- Hx. of eye diseases
- Underlying : allergy
- Last meal & drink
- Tetanus immunization

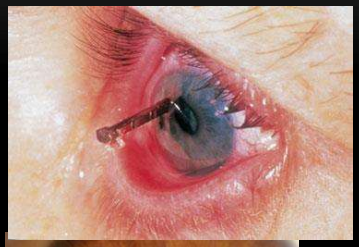
Ophthalmic examination

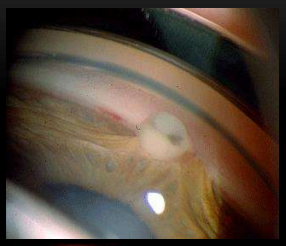
- Careful!, lady hand
- No drops!!
- GA in children
- Eye shield after examination

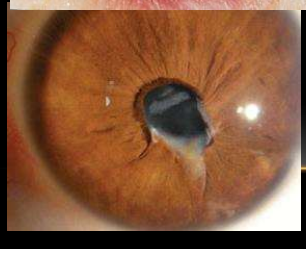
OPEN GLOBE INJURY

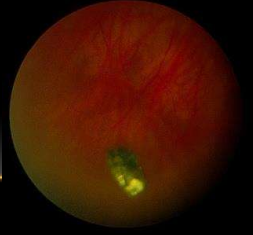
- Eye shield, No pressure patch!!!
- NPO
- Tetanus toxoid
- IV antibiotic cover Gram + ve and – ve bacteria
- IV anti-emetic / analgesic drugs
- Refer as fast as possible (within 24 hrs. after injury)

INTRAOCULAR FOREIGN BODY





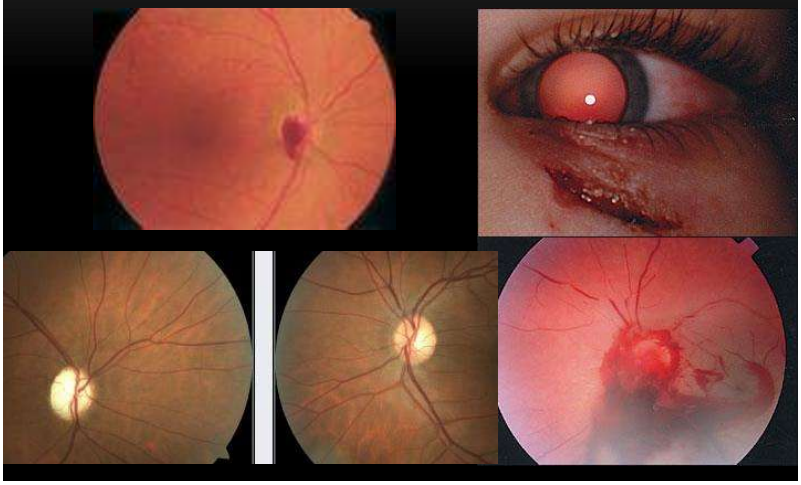




INTRAOCULAR FOREIGN BODY

- Highly inflammatory response objects : copper (chalcosis), iron (siderosis), wood
- Less inflammatory response objects : nickel, aluminium, zinc
- Non-inflammatory response objects : gold, silver, glass, lead, plastic

TRAUMATIC OPTIC NEUROPATHY (TON)



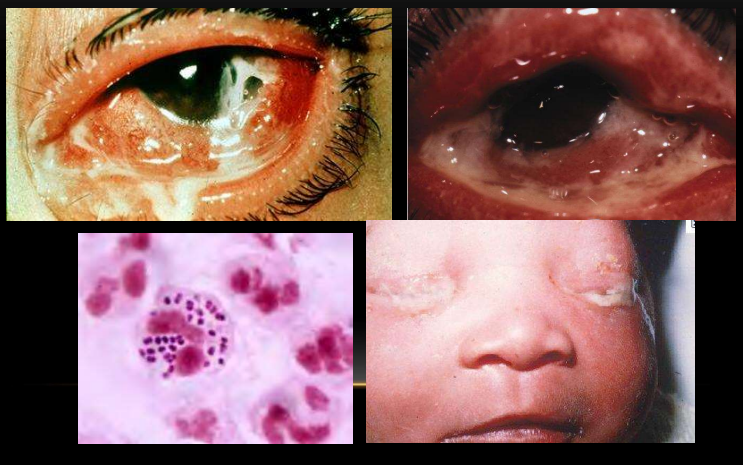
TRAUMATIC OPTIC NEUROPATHY (TON)

- Types
  : Direct injury
  : Indirect injury
- VA → 20/20 to no PL
- Dyschromatopsia
- RAPD + ve
- Abnormal VF
- Pale disc in chronic phase
- Investigations : CT, MRI

NON-TRAUMATIC OCULAR URGENCY

INFECTION & INFLAMMATION

ACUTE GONOCOCCAL CONJUNCTIVITIS



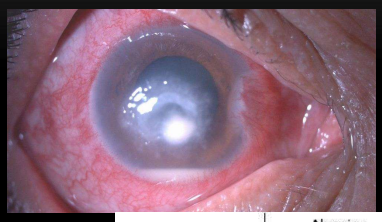
ACUTE GONOCOCCAL CONJUNCTIVITIS

- Neisseria Gonorrhea
- Direct contact
- Hyperacute conjunctivitis
- Pre-auricular LN + ve
- 15-40% develop corneal complications
- High virulence bacteria
  - N. gonorrhea
  - N. meningitidis
  - S. pyogenes

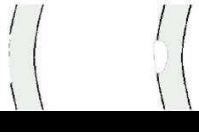
ACUTE GONOCOCCAL CONJUNCTIVITIS

- Antibiotic : combined topical and systemic drugs
  1. ceftriaxone 1 g. IM single dose or 1 g. IV q 12 hrs. x 3 days
  2. topical drugs : fluoroquinolones
- Eye washing with NSS every 30-60 mins.
- 1/3 found Chlamydia infection
- Treat partner

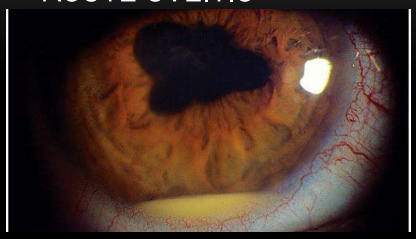
CORNEAL ULCER

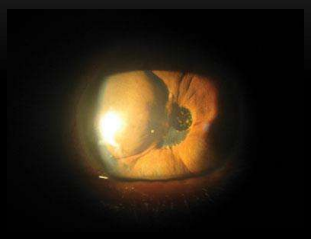


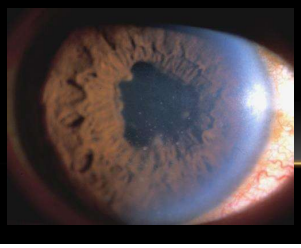
	Abrasion	Ulcer
Fluorescein	Stain	Stain
Transparency	Transparent	Opaque
Corneal contour	Unchanged	Uneven
Level	Epithelial only	Involves stroma

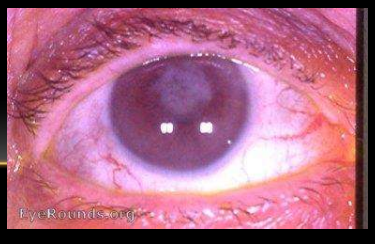


ACUTE UVEITIS

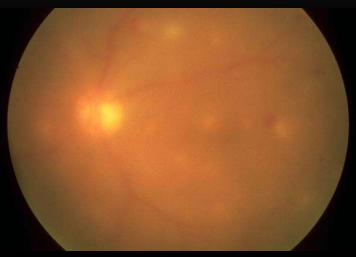


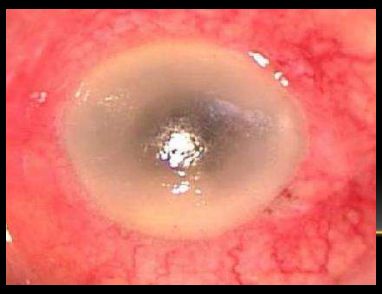






ENDOPHTHALMITIS

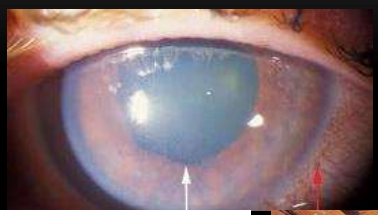


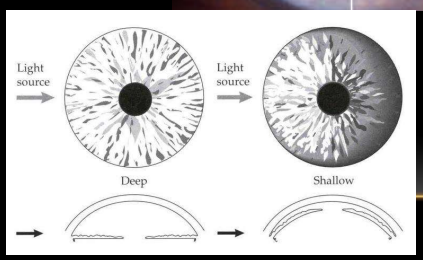


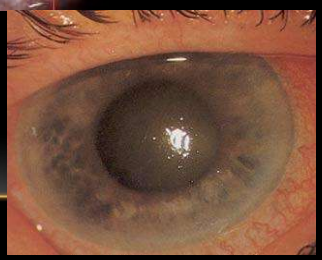
NON-TRAUMATIC OCULAR URGENCY

NON-INFECTION

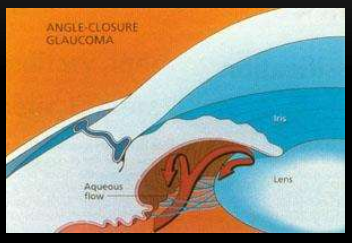
ACUTE ANGLE CLOSURE GLAUCOMA

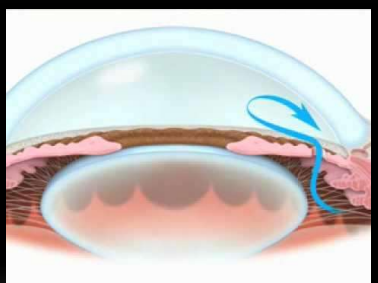


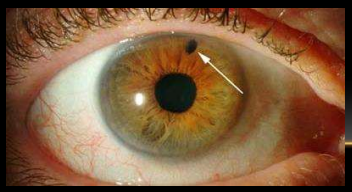




ACUTE ANGLE-CLOSURE GLAUCOMA







ACUTE ANGLE-CLOSURE GLAUCOMA : TREATMENT

- Supportive treatment
  - Control IOP
  - Pain control
  - Anti-emetic
- Definite treatment
  - Laser
  - Surgery

CHECK CONTRA-LATERAL EYE!

THE END