Ocular Emergencies & Red Eye

2017-2018

Objectives:

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Resources: Team 433, Doctors Notes Editing File

433 Team
Important
Doctor's Notes
Explanation

Ocular Emergencies

General Emergencies:	Orbital/Ocular Trauma:
Microbial keratitis->Corneal ulcer	Corneal abrasion
Uveitis	Corneal & conjunctival foreign bodies
Acute angle glaucoma	Hyphema
Orbital cellulitis	Ruptured globe
Endophthalmitis	Orbital wall fracture
Retinal detachment	Lid Laceration
	Chemical injury

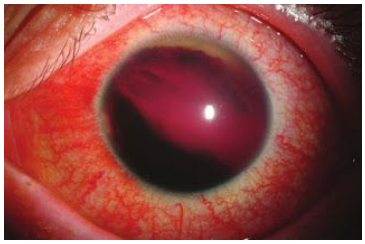
Hyphema:

Hyphema is defined as the presence of blood within the aqueous fluid of the anterior chamber. The most common cause of hyphema is "trauma".

-doctors call it "8 Ball hyphema " when it is filled with blood .

"Eight-Ball" Hyphema. This hyphema completely fills the anterior chamber

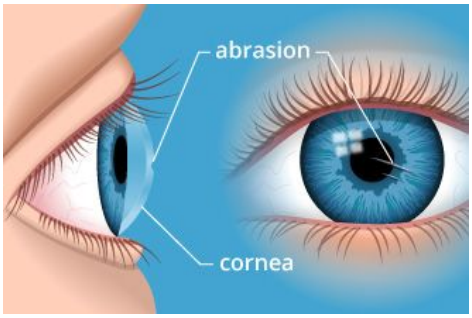
- Can occur with blunt or penetrating injury
- Blood in the "anterior chamber"
- Can lead to high intraocular pressure
- we need Detailed history (Sickle cell) to help in the treatment *Moderate increase of IOP in sickle cell hemoglobinopathy patients may produced rapid deterioration of visual function, because sickling can lead to obstruction of the central retinal artery and profound irreversible visual loss.



Management:

1-Bed rest to prevent re-bleeding. * "nomovement " to prevent the rebleeding
2- Topical steroid to reduce inflammation
3- Topical cycloplegic to cause pupil dilatation then prevent accommodation to prevent dislodging of the clot which cause re-bleeding.
4- Antifibrinolysis agents (Tranexamic acid)
5- Surgical evacuation if increase IOP, stays more than five days and not responding to treatment.
If total wait for 3 days if not responding and pressure more than 30mmHg do Surgical evacuation, Not total wait for 5 days if pressure less than 30 mmHg.
6- Sickle cell anemia patients need immediate intervention.

Corneal Abrasion :



Corneal abrasions result from a disruption or loss of cells in the top layer of the cornea, called the corneal Epithelium. caused by fingernails or lenses .

Symptoms:
-Foreign body sensation
-Pain "severe pain"
-redness
-Tearing
-Photophobia *experience of discomfort or pain to the eyes due to light exposure

"Corneal Abrasion can lead to Corneal Ulcer if untreated "

Treatment:
- Topical antibiotic
- Cycloplegia to dilate pupil to decrease pain
-Pressure patch over the eye
- Refer to ophthalmologist
- Important to treat to avoid infections
- If infection is suspected do scraping biopsy to rule it out.

Chemical injuries:

- A vision-threatening emergency
- The offending chemical may be in the form of a solid, liquid, powder, mist, or vapor.
- Can occur in the home, most commonly from detergents, disinfectants, solvents, cosmetics, drain cleaners.....

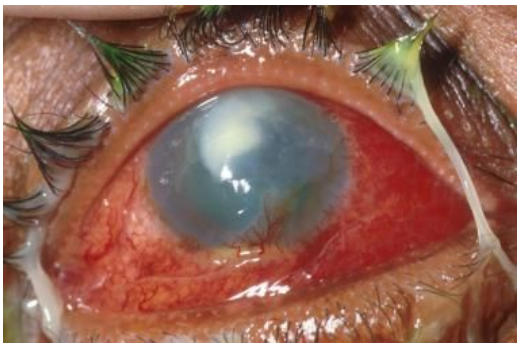
Alkali chemical burn

- Alkaline chemical injury is worse because it will cause penetration.
- Can range in severity from mild irritation to complete destruction of the ocular surface
- It may be aggressive and destroy eye surface "Epithelium" causing stem cell deficiency end up with blindness.
- Destruction of optic nerve common in case of glaucoma resulting from alkaline injury.

Management:

- Irrigate with clean water
- Instill topical anesthetic
- Check for and remove foreign bodies
- Immediate irrigation essential, preferably with saline or Ringer's lactate solution, for at least 30 minutes.*immediately before take history even
- Irrigation should be continued until neutral pH is reached (i.e.,7.0) - Instill topical antibiotic
- Frequent lubrications
- Oral pain medication
- Enhance healing

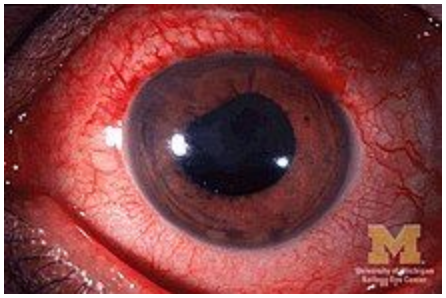

Ocular irrigation



Uveitis

- Inflammation of the uveal tissue (iris, ciliary body, or choroid), retina, blood vessels, optic disc, and vitreous can be involved.
"the patient may has retinitis or hypopyon secondary to uveitis "

It could be:
1- anterior as iridoscleritis.
2- at the back as choroiditis, retinitis.
3- Panuveitis.



Hypopyon

Etiology:
1- Idiopathic 50%
2- Inflammatory diseases:
HLA B27, Ankylosing spondylitis, IBD, Reiter's syndrome, Psoriatic arthritis.
Sarcoidosis, Behcet's, Vogt-Koyanagi-Harada Syndrome.
3- Infectious:

- ➔ Herpes virus.
- ➔ Toxoplasmosis; transmitted through cats.
- ➔ Secondary Tuberculosis; granulomatous uveitis (common in KSA, India) – give anti Tb and steroids.
- ➔ Sarcoidosis; granulomatous uveitis (USA).
- ➔ Syphilis.

Management:

1. Identify possible cause.
2. Topical steroid"first".
3. Topical cycloplegics."paralysis of the ciliary muscle of the eye, resulting in a loss of accommodation."
4. Systemic immunosuppressive medication"according to workup,either shift to systemic or continue topical"

- ➔ Steroid.
- ➔ Cyclosporine.
- ➔ Methotrexate.
- ➔ Azathioprine.
- ➔ Cyclophosphamide.

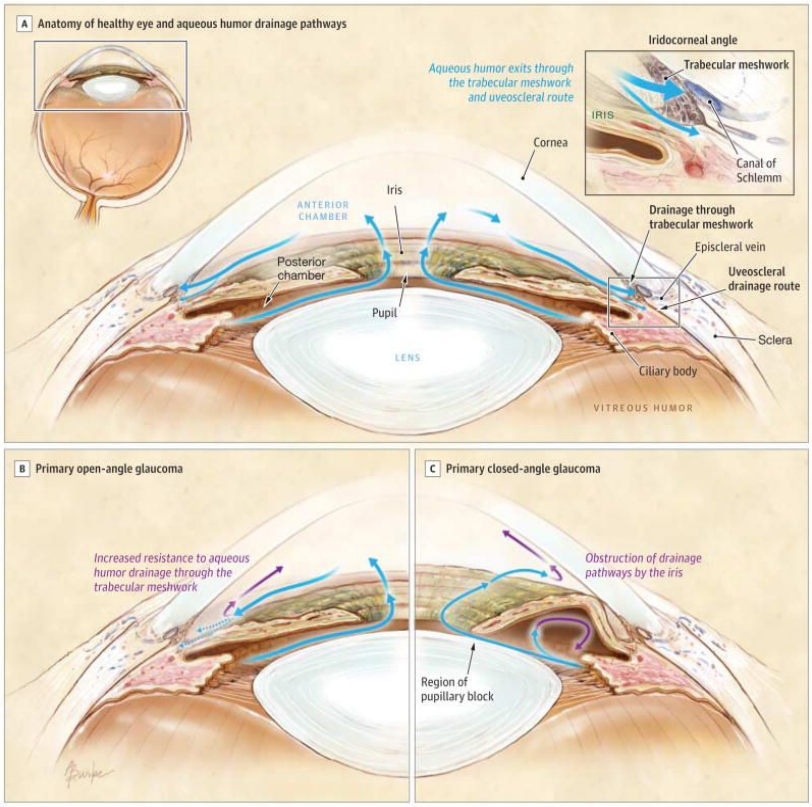
5. Immunomodulating agents.

- ➔ Infliximab (Anti TNF).

Acute Angle Closure Glaucoma:

"is caused by a rapid or sudden increase in intraocular pressure (IOP).High pressure inside the eye is caused by an imbalance in the production and drainage of fluid When the peripheral iris bunched up in the angel .

" Normal IOP 10 to 21 mmHg "



- Result from peripheral iris blocking the outflow of fluid

How the patients will present?*symptoms

- Present with pain, redness, mid-dilated pupil , decreased vision and colored haloes around lights
- Severe headache or nausea and vomiting
- increased Intraocular pressure
- Can cause severe visual loss due to optic nerve damage

Typical history: while dimming the light.
*Glaucoma increases at night more than morning because of pupil dilation at night.
in One of the cases a patient came to the doctor complaining that he had eye pain whenever he watching a film and turn off the lights

Management :

- Medical treatment to reduce the pressure and relieve the pain.
- peripheral laser iridotomy will be curative in most cases.

Preseptal cellulitis:

*also known as Periorbital cellulitis is an inflammation and infection of the eyelid and portions of skin around the eye, anterior to the orbital septum.

- patient presents with Lid swelling and erythema.
- **Visual acuity, motility**, **pupils**, and **globe** should be normal.

To rule out orbital cellulitis .

Etiology:

- Skin wound
- Laceration
- Retained foreign body from trauma
- Vascular extension, or extension from sinuses or another infectious site (e.g.,dacryocystitis, chalazion)
- Organisms:
- Staph aureus – Streptococci- H.influenzae usually if less than five year.

Management :

- Need to be treated properly to avoid extension of the infection to the orbit, which cause orbital cellulitis.
- Warm compresses: vasodilatation to increase WBCs and chemotaxis.
- Systemic oral antibiotics. Without admitting the patient
- If suspicious to have sinusitis do CT.
- CT sinuses and orbit if not better or +ve history of trauma.

Orbital cellulitis:

*Orbital cellulitis is inflammation of eye tissues behind the orbital septum. It most commonly refers to an acute spread of infection into the eye socket from either the adjacent sinuses or through the blood.

- More serious than preseptal cellulitis because it may go to the brain and lead to death.
- May be a consequence of preseptal cellulitis.

Symptoms: 

- Pain, Decreased vision.
- Impaired ocular motility/double vision
- Afferent pupillary defect
- Conjunctival chemosis and injection

PROPTOSIS

*Chemosis of the conjunctiva is a type of eye inflammation.
It occurs when the inner lining of the eyelids swells.

- Proptosis *is a bulging of the eye anteriorly out of the orbit.
- Optic nerve swelling on fundus exam

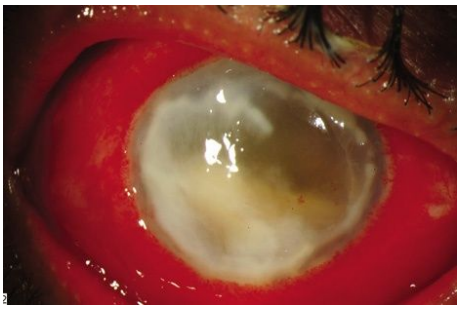
'Motility, pupil reaction, fundal exam, color vision need to be tested to check optic nerve function. "

Management:

1. Admission.
2. Intravenous antibiotics
3. Nasopharynx and blood cultures
4. Surgery may be necessary

as in case of subperiosteal abscess.so, they will drain the puss .

Endophthalmitis: (extreme ophthalmic emergency)



*Endophthalmitis is an inflammation of the interior of the eye

- Potentially devastating complication of any intraocular surgery
- Secondary to trauma or post-surgery (channel from outside to inside which cause bacterial entry and it found good environment to live in as there is no direct blood vessels in the vitreous to provide strong immunity)

- Sometimes the destruction is due to the inflammation not the infection itself

- Any patient in the early postoperative period (within 6 weeks of surgery) should be evaluated for pain or decreased vision immediately.
- patient Present with Severe redness, lid edema and hypopyon , on exam you find vitritis.

Management :

- Vitreous sample for culture.
- Intravitreal antibiotics injection plus topical antibiotics.
- Broad spectrum antibiotics or Ceftazidime and Vancomycin
- In severe infection the vitreous will be like an abscess in this case surgery is needed to drain it (Vitrectomy).
- If visualization of vitreous is not possible in case of severe infection, do B scan
- In decreased visual acuity (hand motion or less) Surgery is needed, if better give Intravitreal antibiotics only.

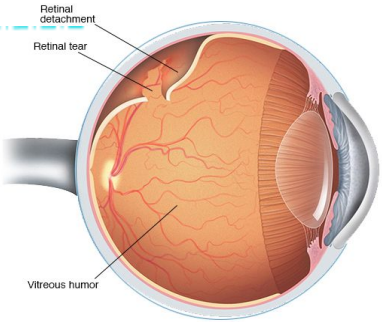
*Visual acuity will decide the treatment if Intravitreal antibiotics or surgery

- do surgery – if no response to antibiotics and Endophthalmitis secondary to **blebitis**.

*blebitis. is a presumed infection in or around a filtering bleb without vitreous involvement.

Blebitis.

Retinal Detachment:



*Retinal detachment is a disorder of the eye in which the retina separates from the layer underneath.

Symptoms:
-Flashes, floaters, a curtain or shadow moving over the field of vision.
-Peripheral and/ or central visual loss. History of scratching the eye
-painless

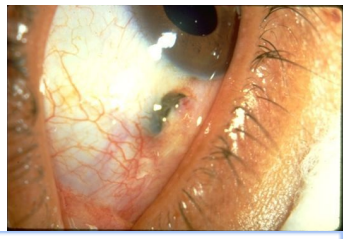
Management: Surgery
the aim of the treatment is to close the causative break in the retina and to increase strength of the attachment between the surrounding retina and the RPE 'Retinal pigment epithelium' by inducing inflammation in that region.

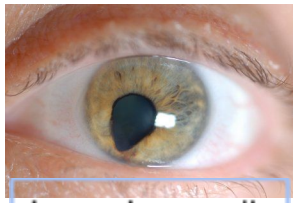
- If involving the macula (Macula off); poor prognosis and surgical intervention needed
- In the periphery (Macula on); better prognosis and quick surgical intervention
- Retinal detachment: Intra-retinal separation between retinal pigment epithelium (RPE) and neurosensory layer.
- Retinoschisis: Separation between retina and choroid, no urgent intervention needed and usually congenital.
- Rhegmatogenous retinal detachment: (emergency and need surgery) common in people with high myopia because they have peripheral breaks, fluid goes inside it and cause detachment.

Ruptured Globe:

Suspect a ruptured globe if:

- Severe blunt trauma: rapture at weak part of the eye which is insertion of the muscles and lamina cribrosa.
- Sharp object.
- Bullous subconjunctival hemorrhage
- Uveal prolapse (Iris or ciliary body)
- Irregular pupil
- Hyphema
- Vitreous hemorrhage
- Lens opacity
- Lowered intraocular pressure

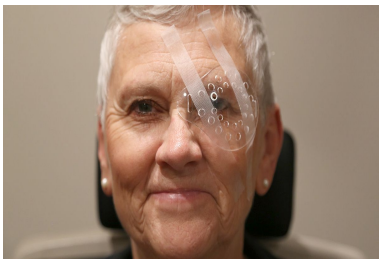

Uveal prolapse (Iris or ciliary body)


Irregular pupil


Bullous sub conjunctival hemorrhage

IF suspect a ruptured globe:

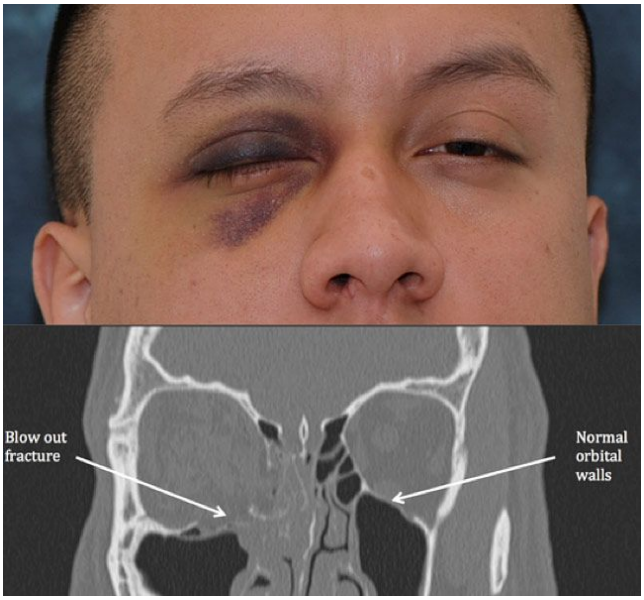
1. Stop examination
2. Shield the eye
3. Give tetanus prophylaxis
4. Refer immediately to ophthalmologist



Orbital fracture:

*An orbital fracture is a traumatic injury to the bone of the eye socket. These injuries are usually the result of blunt force trauma to the eye.

- Assess ocular motility
- Assess sensation over cheek and lip - Palpate for bony abnormality
- Enophthalmos; eye sinking inside



When evaluating orbital fractures, focus on the following exam findings:

1. Vision, color: Make sure the optic nerve isn't involved.
2. Extraocular movements: Usually decreased from swelling or muscle contusion, but make sure there isn't any gross muscle entrapment. If concerned, you can perform forced ductions. This involves pulling on the eye with forceps to see if the eye is mobile.
3. Proptosis: Measure the degree of proptosis or enophthalmos using the Hertel exophthalmometer (a fancy ruler).
4. Palpate: Feel along the orbital rim for step-off fractures and subcutaneous emphysema (air crepitus).
5. Sensation: Check sensation of the V1 and V2 sensation on the forehead and cheek. V2 runs along the orbital floor and can be damaged with floor fractures.

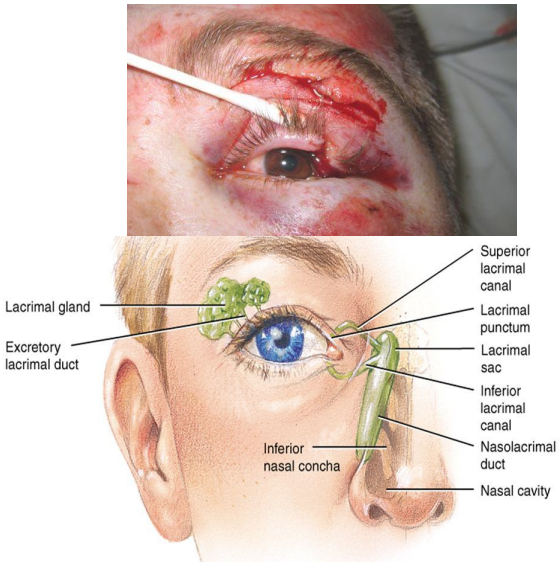
Lid Laceration:

*it is not considered emergency unless it involves the canal

- Can result from sharp or blunt trauma
- Rule out associated ocular injury

Treatment: surgery (approximate the lids and close them following normal anatomy)

If approximation is not following the normal anatomy: patient will have problems (the lids will be deformed, tearing won't be appropriate and the eye will be prone to infections)..



Summary

- **Hyphema** is defined as the presence of blood within the aqueous fluid of the anterior chamber. The most common cause of hyphema is “trauma”. it Can lead to high intraocular pressure and usually treated with-Bed rest , Topical steroid and Topical cycloplegic .

- **Corneal abrasions** result from a disruption or loss of cells in the top layer of the cornea, called the corneal Epithelium. the patient come with Foreign body sensation,Photophobia and severe pain.

- **Alkaline chemical injury** to the eyes is worse because it will cause penetration. Immediate irrigation is very important as management .

- **Inflammation of the uveal tissue** (iris, ciliary body, or choroid), retina, blood vessels, optic disc, and vitreous can be involved. and we treat it first with topical steroids .

- **Orbital cellulitis More serious than preseptal cellulitis because it may go to the brain and lead to death.May be a consequence of preseptal cellulitis.**

- **Endophthalmitis:** (extreme ophthalmic emergency) treated with Intravitreal antibiotics injection plus topical antibiotics.