

OPHTHALMIC EMERGENCIES

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1402



INTRODUCTION

Recognizing traumatic and non-traumatic ocular emergencies

Management of ocular emergencies

- Timely referral to higher center



Figure 1. Irrigation of eye using Morgan lens.

INTRODUCTION

Emergencies in ophthalmology can be of various kinds ranging from trauma cases to acute eye inflammations.

Ocular trauma is an important cause of visual loss and disability.

Early and appropriate management can reduce morbidity and complications.

COMMON OCULAR EMERGENCIES

Chemical burn

- Ocular trauma(lids-orbit-globe)

Penetrating trauma and ruptured globe.

Non-penetrating trauma- abrasions, foreign bodies,
hyphema -blow out fractures

- Others:

acute conjunctivitis.

Glaucoma.

Orbital cellulitis

Suden visual loss

CHEMICAL BURN

- Chemical exposures and burns are usually caused by a splash of liquid but can also be caused by transferring a chemical from your hands
eyes by rubbing or by being sprayed by aerosols.
- Treatment should be instituted IMMEDIATELY, even before testing vision, unless an
- open globe is suspected

Chemical Eye Burn Causes

Chemical burns to the eye can be divided into three categories:

- A. alkali burns
- B. acid burns
- C. irritants

Chemical Eye Burn Causes

Common alkali substances contain the hydroxides of ammonia, lye, [potassium](#) hydroxide, [magnesium](#), and lime

substances you may have at home that contain these chemicals include fertilizers, cleaning products (ammonia), drain cleaners (lye), oven cleaners, and plaster or cement (lime)

Chemical Eye Burn Causes

Common acids causing eye burns include sulfuric acid, sulfurous acid, hydrochloric acid, nitric acid, [acetic acid](#), chromic acid, and hydrofluoric acid

substances that may contain these chemicals include glass polish (hydrofluoric acid), vinegar, or nail polish remover (acetic acid). An automobile battery can explode and cause a sulfuric acid burn. This is one of the most common acidic burns of the eye.

Chemical Eye Burn Causes

Irritants

- are substances that have a neutral pH and tend to cause more discomfort to the eye than actual damage.
- Most household detergents fall into this category.
- Pepper spray is also an irritant. It can cause significant pain but usually does not affect vision and rarely causes any damage to the eye.

Chemical Eye Burn Symptoms

Early signs and symptoms of a chemical eye burn are:

- ***Pain***
- ***Redness***
- ***Irritation***
- ***Tearing***
- ***Inability to keep the eye open***
- ***Sensation of FB***
- ***Swelling of the eyelids***
- ***Blurred vision***

CHEMICAL BURN



Emergency Treatment:

Copious irrigation using saline or Ringer lactate solution for at least 30 minutes.

tap water can be used in the absence of these solutions.

An eyelid speculum and topical anesthesia can be placed prior to irrigation.

Upper and lower fornices must be everted and irrigated.

Manual use of intravenous tubing connected to an irrigation solution facilitates the irrigation process.

- Conjunctival fornices should be swept with a moistened cotton-tipped applicator or glass rod to remove any sequestered particles of caustic material and necrotic conjunctiva

Topical steroid for the first 7-10 days – to reduce inflammation.

- Topical and systemic tetracycline to inhibit collagenase and neutrophil activity

Emergency Treatment

Grading of severity of chemical injuries

Grade I (excellent prognosis)

- Clear cornea
- Limbal ischaemia - nil

Grade II (good prognosis)

- Cornea hazy but visible iris details
- Limbal ischaemia $<1/3$

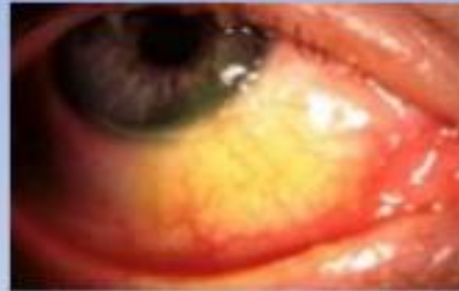
Grade III (guarded prognosis)

- Hazy cornea with no iris details
- Limbal ischaemia $1/3$ to $1/2$

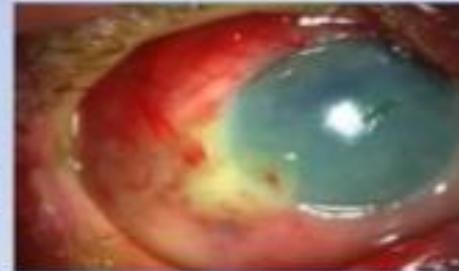
Grade IV (very poor prognosis)

- Opaque cornea
- Limbal ischaemia $>1/2$

• G - II



• G - III



• G - IV



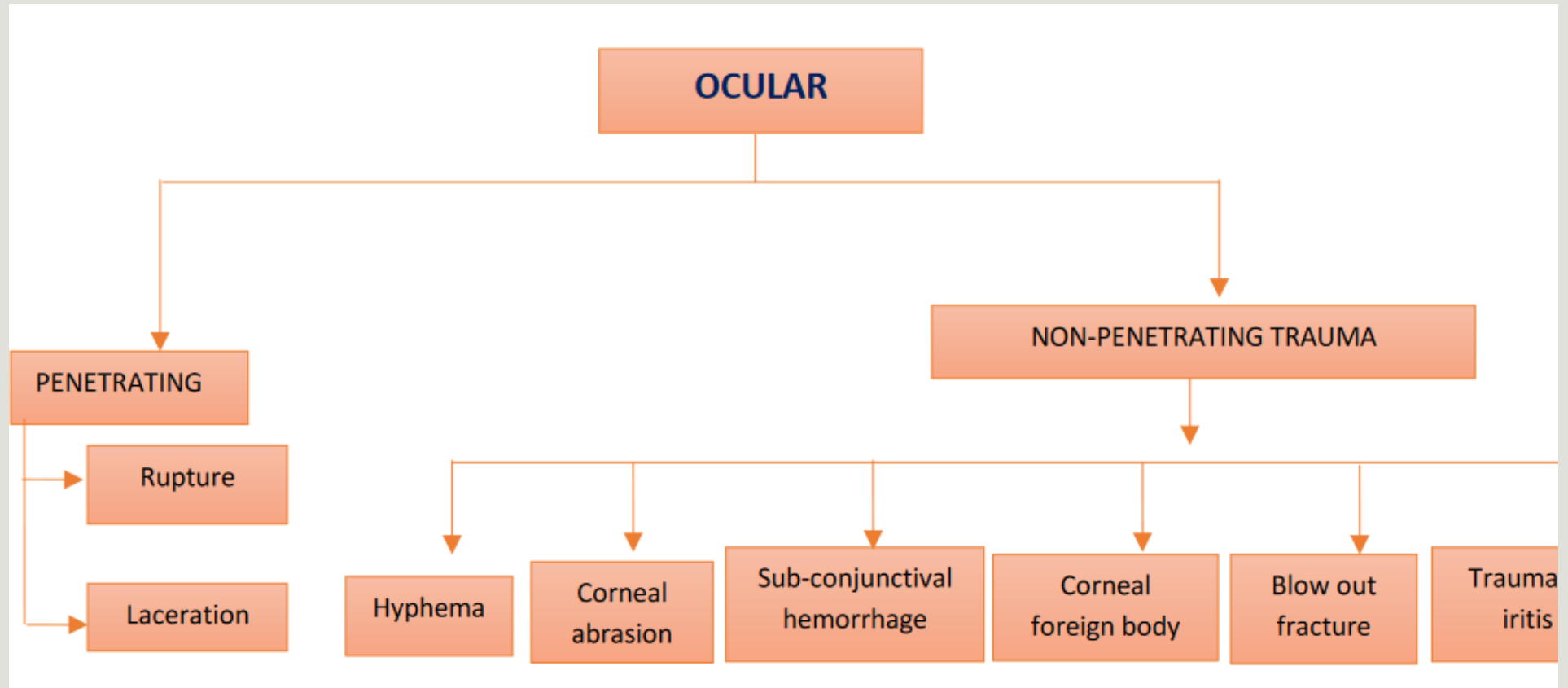
Follow up

Grade 1

follow up daily till patient is better.

Refer all other cases to the nearest
Ophthalmologist

ocular trauma



ocular trauma

CORNEAL LACERATION

Partial-Thickness Laceration

Signs: The anterior chamber is not entered and, therefore, the cornea is not perforated.

Work-up: Careful examination should be performed to exclude ocular penetration. Carefully evaluate the conjunctiva and sclera, checking for extension beyond the limbus in cases involving the corneal periphery

Treatment

- An antibiotic (e.g., chloramphenicol or ciprofloxacin) drops for a week, antibiotic ointment and eye pad on the 1st day

Partial-Thickness Laceration



Follow up

When a moderate to deep corneal laceration is accompanied by wound gape, it may need repair.

- Tetanus toxoid for dirty wounds.
- Refer to the nearest eye center.

Follow-up:

Reevaluate daily until the epithelium heals

RUPTURED GLOBE AND PENETRATING OCULAR INJURY

Symptoms:

History of trauma, fall, or sharp object entering globe. Pain, decreased vision, loss of fluid from the eye.

Signs:

Critical- Full-thickness sclera or corneal laceration, severe subconjunctival hemorrhage (especially involving 360 degrees of bulbar conjunctiva, often bullous), a deep or shallow AC compared to the fellow eye, peaked or irregular pupil, iris defects, lens material in the AC, foreign body tract in the lens, or limitation of extraocular motility (greatest in direction of rupture). Intraocular contents may be outside of the globe

Full-thickness sclera or corneal laceration

Corneal laceration



Work-up and treatment

Once the diagnosis of a ruptured globe is made, further examination should be deferred until the time of surgical repair in the operating room

This is to avoid placing any pressure on the globe and risking extrusion of intraocular contents

Diagnosis should be made by penlight, or if possible, by slit-lamp examination

(with very gentle manipulation)

Work-up and treatment

Protect the eye with a shield at all times.

Obtain x-ray of the orbits.(no MRI)

Place patient on bed rest with bathroom privileges. Avoid bending over and Valsalva maneuvers

- Systemic antibiotics should be administered within 6 hours of injury. For adults give cefazolin 1 g IV. Q8h or Ciprofloxacin 500mg PO, 200mg IV. b.i.d. For children <12 years, give cefazolin 25 to 50 mg/kg/day IV t.i.d. and gentamycin 2 mg/kg IV q.i.d

Work-up and treatment

Administer tetanus toxoid.

Administer antiemetic (e.g., prochlorperazine 10 mg IM q.i.d. as needed for nausea and vomiting to prevent Valsalva.

Consider pain medicine.

Determine the time of the patient's most recent meal.

Arrange for surgical repair, refer as soon as possible to the nearest ophthalmologist.

CORNEAL ABRASION

It is defined as a defect in the epithelial layer of the cornea. It is superficial and *can be caused* by minor trauma, foreign bodies, welding light, snow blindness.

Symptoms—

foreign body sensation, tearing

Signs

- redness, epithelial defect with fluorescein staining.

Treatment-

pad with antibiotic eye ointment and a drop of cycloplegic for 24 hours. Systemic analgesics as needed.

Follow up-

next day and see if the defect has healed. Larger defects may take longer and should be followed up daily

CORNEAL ABRASION

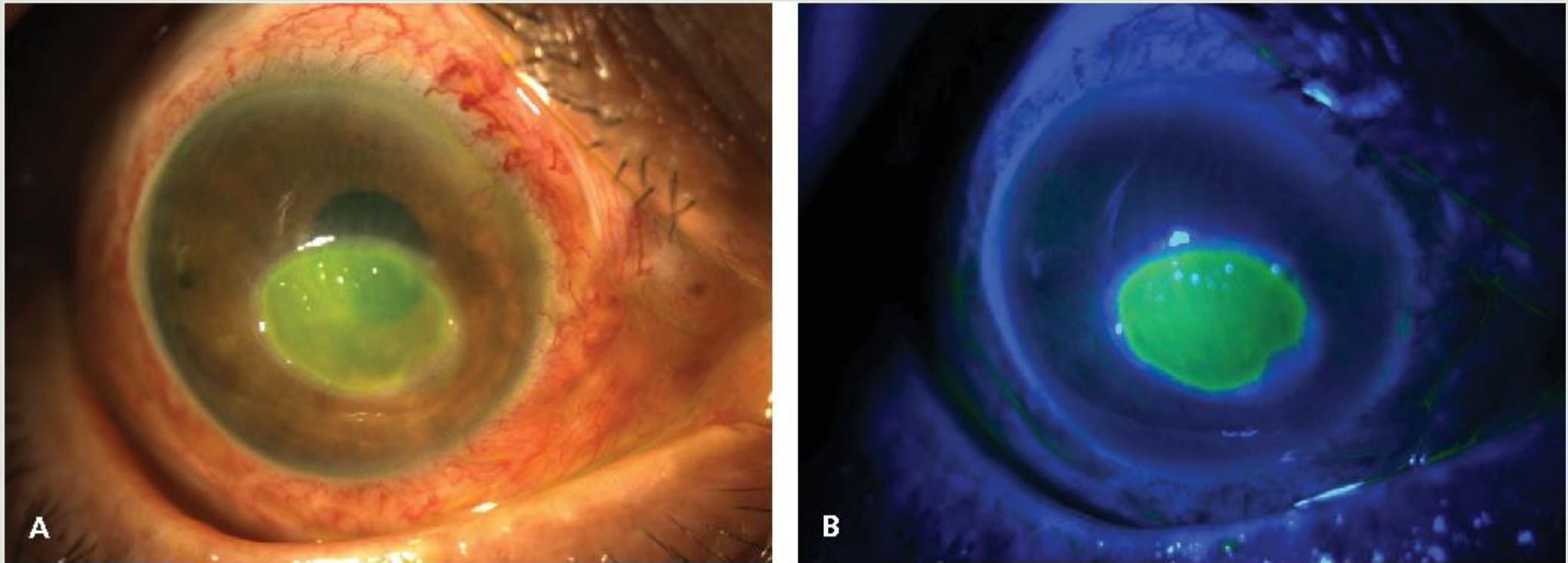


Figure 4. Corneal abrasion (A) viewed with normal light and (B) viewed with cobalt blue light

FOREIGN BODIES

CORNEAL

CONJUNCTIVAL

INTRAOCULAR

INTRAORBITAL

CORNEAL AND CONJUNCTIVAL FOREIGN BODIES

Symptoms:

Foreign body sensation, tearing, history of trauma.

Signs:

Critical- Conjunctival or corneal foreign body with or without rust ring.

Others- Conjunctival congestion, eyelid edema, mild AC reaction, and superficial corneal

defect. A small infiltrate may surround a corneal foreign body; it is usually sterile. *Vertically*

oriented linear corneal abrasion may indicate a foreign body under eyelid.

Work-up-

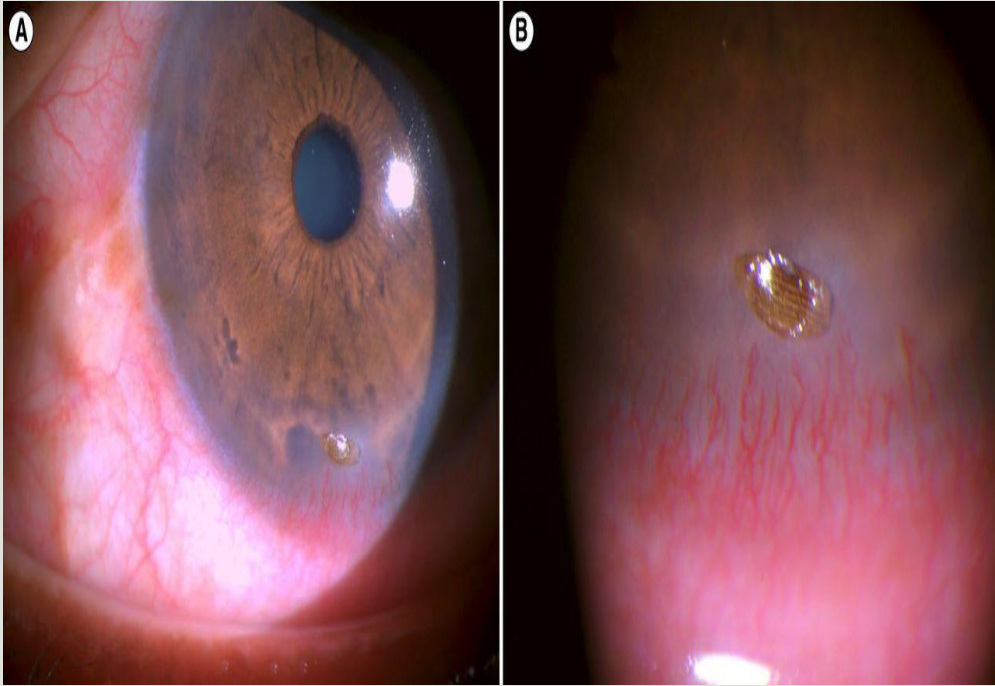
- *History*: Determine the mechanism of injury [e.g., metal striking metal, may suggest an intraocular foreign body (IOFB). Attempt to determine the size, weight, and shape of the object.

- *Document visual acuity* before any procedure is performed.

One or two drops of topical anesthesia may be necessary to control blepharospasm and pain

- Dilate the eye and examine the posterior segment for a possible IOFB (where possible).

CORNEAL AND CONJUNCTIVAL FOREIGN BODIES



CORNEAL AND CONJUNCTIVAL FB

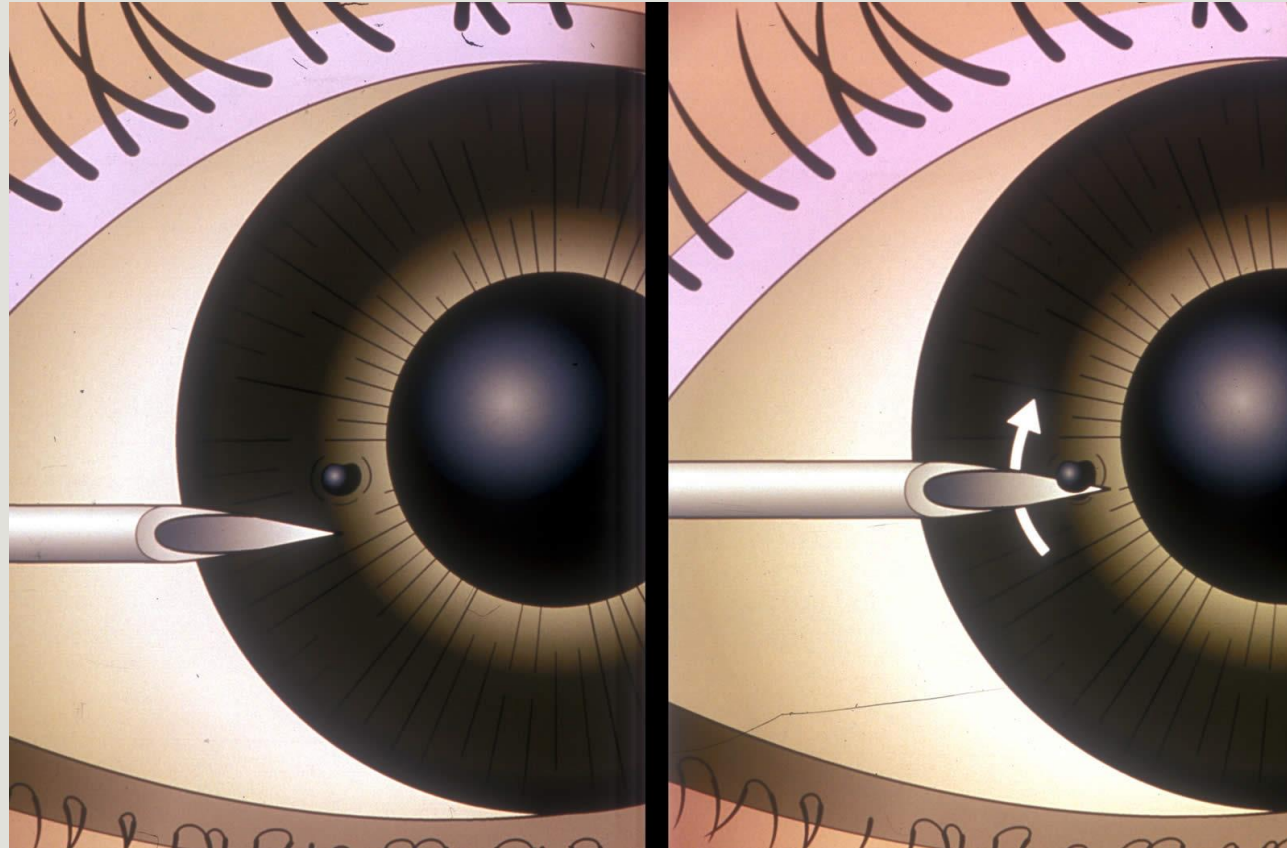
Note:

An infiltrate accompanied by a significant AC reaction, purulent discharge, or extreme conjunctival injection and pain should be cultured to rule out an infection, treated aggressively with antibiotics, and followed intensively

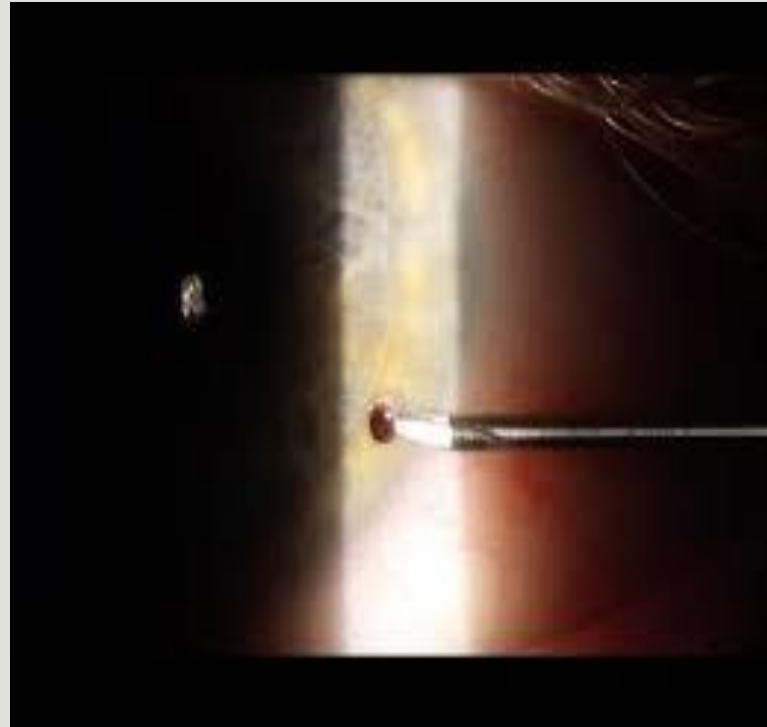
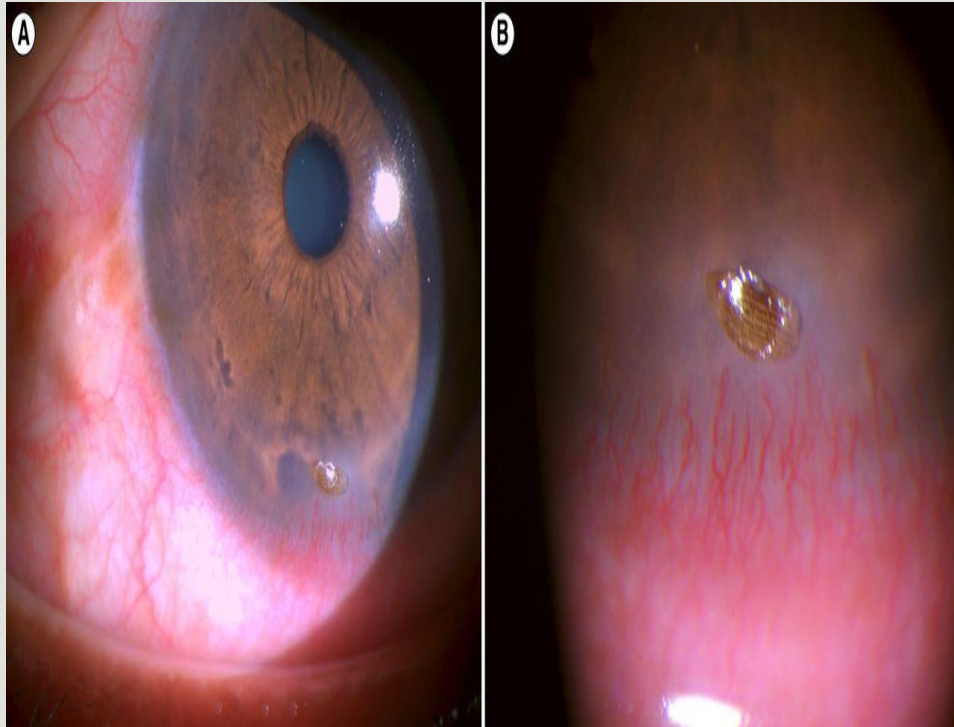
treatment of Corneal foreign body

1. Apply topical anesthesia
2. Multiple superficial foreign bodies may be more easily removed by irrigation.
3. Remove the rust ring as completely as possible on the first attempt.(It is sometimes safer to leave a deep, central rust ring to allow time for the rust to migrate to corneal surface)
4. Treat as for the corneal abrasion.

treatment of Corneal foreign body



treatment of Corneal foreign body



Treatment of Conjunctival foreign body

- A. A foreign body can be removed with a cotton-tipped applicator soaked in topical
- B. anesthetic or with fine forceps.
- C. Small, relatively inaccessible, buried subconjunctival foreign bodies may sometimes be left in the eye without harm unless they are infectious or pro inflammatory
- D. Occasionally, they will surface with time, at which point they may be removed more easily.
- E. Sweep the conjunctival fornices with a glass rod or cotton-tipped applicator soaked with a topical anesthetic to catch any remaining pieces.
- F. Conjunctival Lacerations exceeding 1 cm need surgical repair.

Follow-up

- *Corneal foreign body:*

Follow up as with corneal abrasion.

If residual rust ring remains, reevaluate in 24 hours.

- *Conjunctival foreign body:*

Follow up as needed, or in one week for residual foreign bodies

TRAUMATIC HYPHEMA

Symptoms:

Pain, blurred vision, history of blunt trauma.

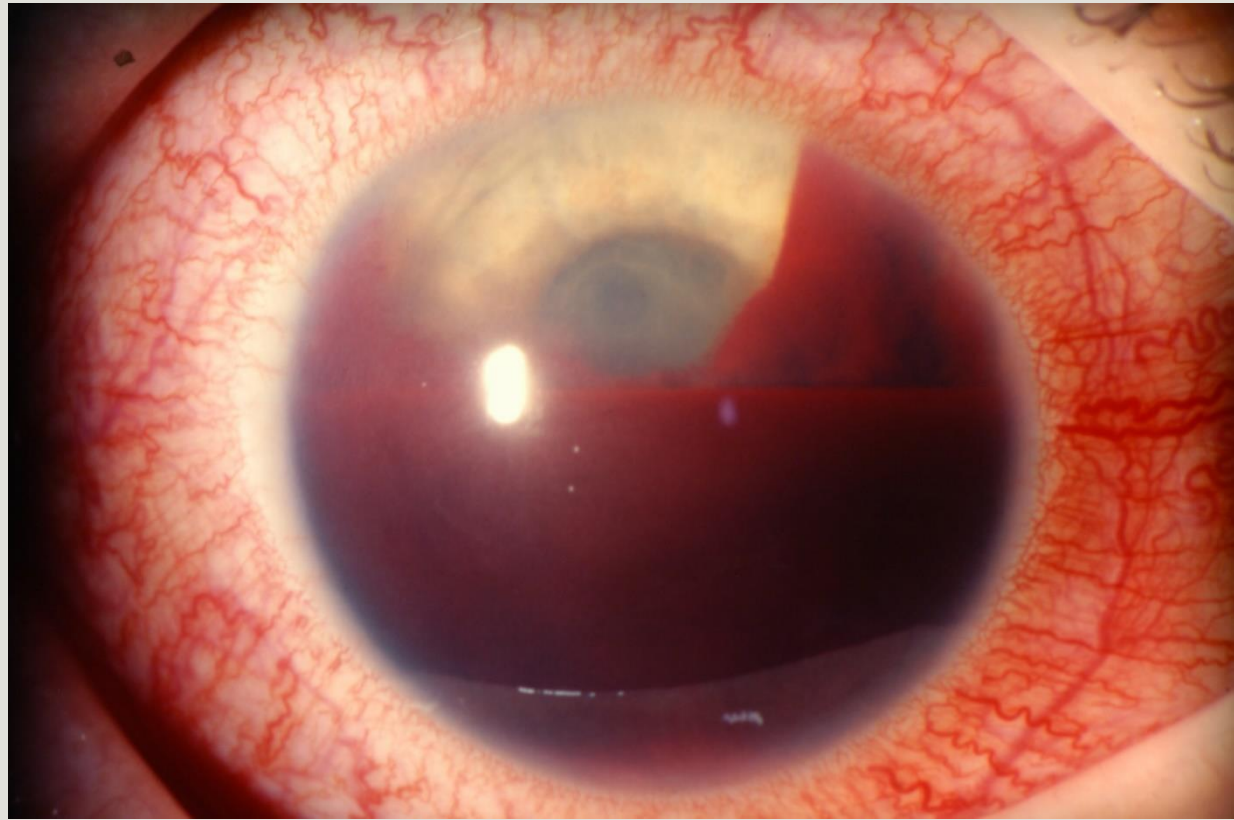
Signs:

Blood or clot or both in the AC, usually visible without a slit-lamp. A total

Hyphema may be black or red. When black, it is called an “8-ball” or “black eye” hyphema;

when red, the circulating blood cells may settle with time to become less than a 100% hyphema.

TRAUMATIC HYPHEMA



TRAUMATIC HYPHEMA



TRAUMATIC HYPHEMA(Work-up)

- *History:*

Mechanism type (blunt vs penetrating) Protective eyewear? Time of injury? Time of visual loss? Usually, a visual compromise occurs at the time of injury; decreasing vision over time suggests a rebleed or continued bleed. Use of medications with anticoagulant properties (aspirin, NASIDs, warfarin,). Symptoms of coagulopathy (e.g., blood nose blowing, bleeding gums with tooth brushing, easy bruising)?

- *Ocular examination,*

first ruling out a ruptured globe. Evaluate for other traumatic injuries. Document the extent (e.g., measure the hyphema height) and location of any clot and blood. Measure the IOP. Perform a dilated retinal evaluation where possible).

TRAUMATIC HYPHEMA (Treatment)

- Confine either to bed rest with bathroom privilege or to limited activity. Elevate head to allow blood to settle.
- Place a shield (metal or clear plastic) over the involved eye at all times. Do not patch because this prevents recognition of sudden loss in the event of rebleed.
- Cycloplegics e.g., Atropine 1% ointment b.i.d. to t.i.d. or homatropine b.i.d. to t.i.d.
- No aspirin-containing products or NASIDs
- Mild analgesics only (e.g., acetaminophen). Avoid sedatives.
- Use topical steroids (e.g., prednisolone acetate 1% four to eight times per day) if any suggestion of iritis (e.g., photophobia, deep ache, ciliary flush), evidence of lens capsule rupture, any protein (e.g., fibrin), or definitive white blood cells in anterior chamber. Reduce the frequency of steroids as soon as signs and symptoms resolve to reduce the likelihood of steroid-induced glaucoma.

Follow up

EVERY day visit to evaluate:

IOP

Rebleeding

Visual recovery

Fundus exam

Until hyphema clear

ORBITAL BLOW-OUT FRACTURE

Symptoms:

- Pain on attempted eye movement (orbital fracture: pain on vertical eye movement, medial wall fracture: pain on ab-/adduction),
- local tenderness,
- eyelid edema,
- binocular diplopia
- crepitus after nose blowing,
- recent history of trauma.
- Acute tearing is

usually due to ocular surface irritations (e.g., conjunctival chemosis, corneal abrasion, iritis)



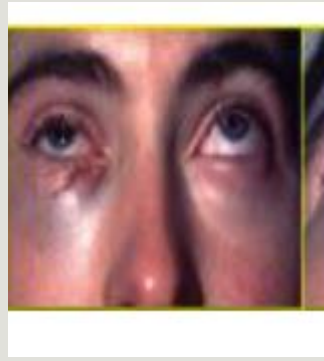
ORBITAL BLOW-OUT FRACTURE

Signs:

1. Critical- Restricted eye movements
(especially in upward or lateral gaze or both),
2. subcutaneous or conjunctival emphysema,
3. hypesthesia in the distribution of the infraorbital nerve (i.e., ipsilateral cheek and upper lip)
4. point tenderness,
5. enophthalmos (may initially be masked by orbital edema)



ORBITAL BLOW-OUT FRACTURE



Work-up

Complete ophthalmologic examination, including

- ❖ measurement of extra ocular movements and globe displacement.
- ❖ Compare the sensation of the affected cheek with that on the contralateral side.
- ❖ palpate the eyelids for crepitus (subcutaneous emphysema)

Work-up

- ❖ palpate the orbital rim for step-offs
- ❖ evaluate the globe carefully for a rupture, hyphema or microhyphaema, traumatic iritis, and retinal or choroidal damage.
- ❖ Measure IOP.
- ❖ Check pupils and color vision to rule out a traumatic neuropathy. If eye and periocular edema limit the view, special techniques may be necessary.
- ❖ Forced-duction testing is performed if restriction of eye movement persists beyond oneweek.
- ❖ X-ray of the orbits.
- ❖ CT orbit scans are to be obtained in all cases of suspected orbital fractures

Treatment

Broad spectrum oral antibiotics [e.g., cephalexin (250 to 500 mg PO, q.i.d.; or ciprofloxacin

500 mg PO, q.i.d) for 7 days. Antibiotics are recommended if the patient has a history of

sinusitis, diabetes, or is otherwise immunocompromised.

- **Instruct patient not to blow** his/her nose.

- **Nasal decongestants** [i.e., pseudoephedrine (Afrin) nasal spray b.i.d.] for 3 days. Use is

limited to 3 days to minimize the chance of rebound nasal congestion.

- **Apply ice packs** to the orbit for the first 24 to 48 hours.

- **Consider oral steroids** if extensive swelling limits examination of ocular motility and globe

position. If corticosteroids are used, systemic antibiotics should also be considered.

- **Neurosurgical consultation** is recommended for all fractures involving the orbital roof,

frontal sinus, or cribriform plate and for all fractures associated with intra cranial

hemorrhage.

ENT consultation is recommended

for frontal sinus, midfacial, and mandibular fractures.

- **Surgical repair may be needed depending on severity. Refer**

eyelid laceration and suturing

Eyelid lacerations are managed differently depending on the depth,
width,
and location of the injury.

Surgical management will be broken down into these categories:

- laceration without eyelid margin involvement
- laceration with eyelid margin involvement
- and laceration with nasolacrimal system involvement.

Lid laceration



Indications

Any injury that disrupts the structure and/or function of the eyelids can cause the condition. Generally, an eyelid skin laceration greater or equal to 2 linear millimeters requires repair

Contraindications

There are no absolute contraindications to eyelid laceration repair; however, in patients with concurrent globe rupture, the globe should be evaluated and repaired before any lid procedure.

Lacerations secondary to heavy contamination or human/animal bites may need minimal necrotic tissue debridement, but a primary repair is often still performed. Nonetheless, contaminated wounds may be left open for delayed repair.

Technique or Treatment

Simple, Superficial Eyelid Laceration Repair

Reapproximate skin edges with simple interrupted sutures using 6-0 silk or 6-0 plain gut suture. Be sure to evert the skin edges.

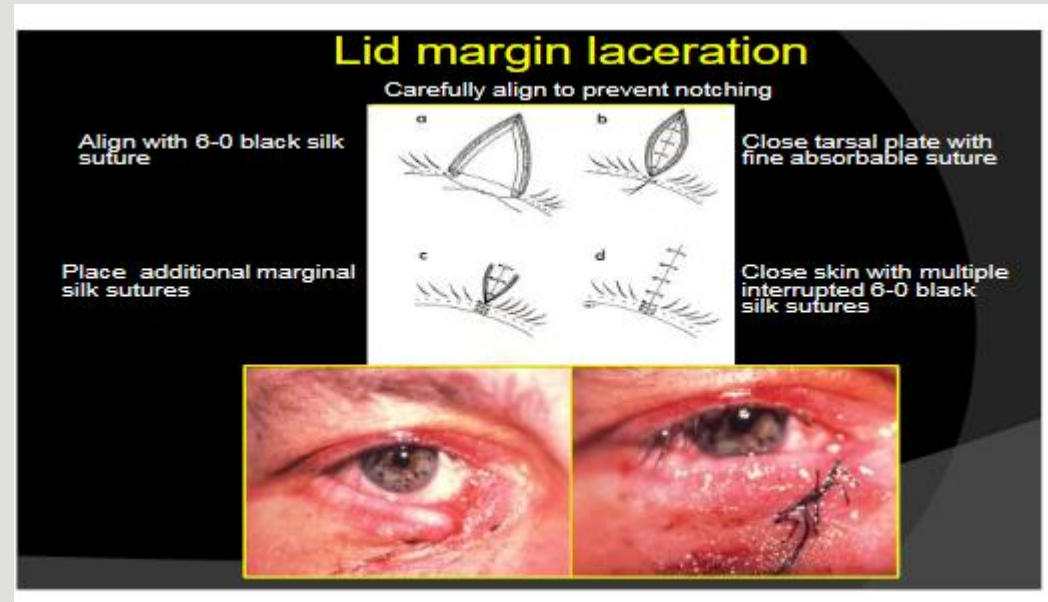
Take small bites (approximately 1 mm from the skin edge) and space sutures 2 mm to 3 mm apart.

Avoid tightly tying sutures to the skin. Tight sutures can strangulate delicate tissue.

The silk suture will need to be removed.

The plain gut suture is absorbable and is preferred if the patient is not reliable to follow-up for suture removal.

eyelid laceration and suturing



Lid laceration

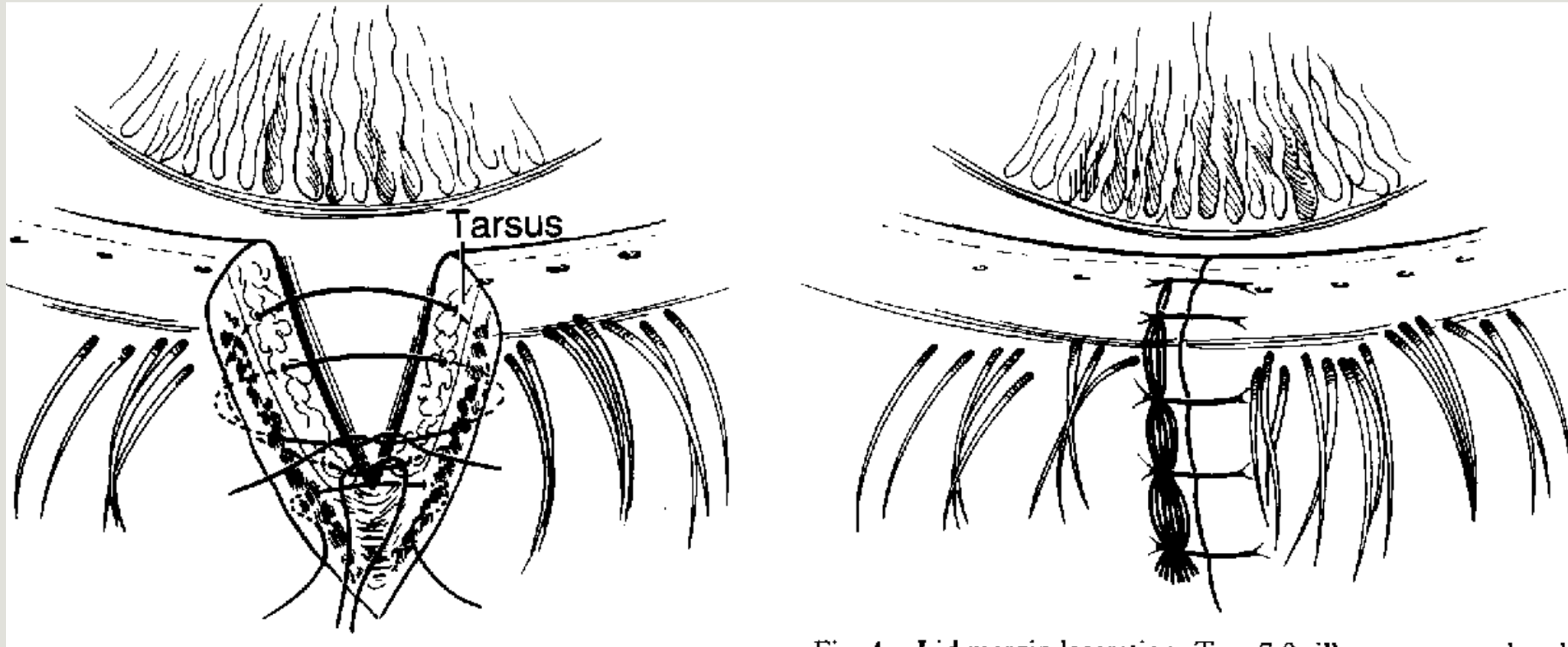


Fig. 4. Lid margin laceration. Type 2. A. Lid margin laceration.

Eyelid Margin Involving Laceration

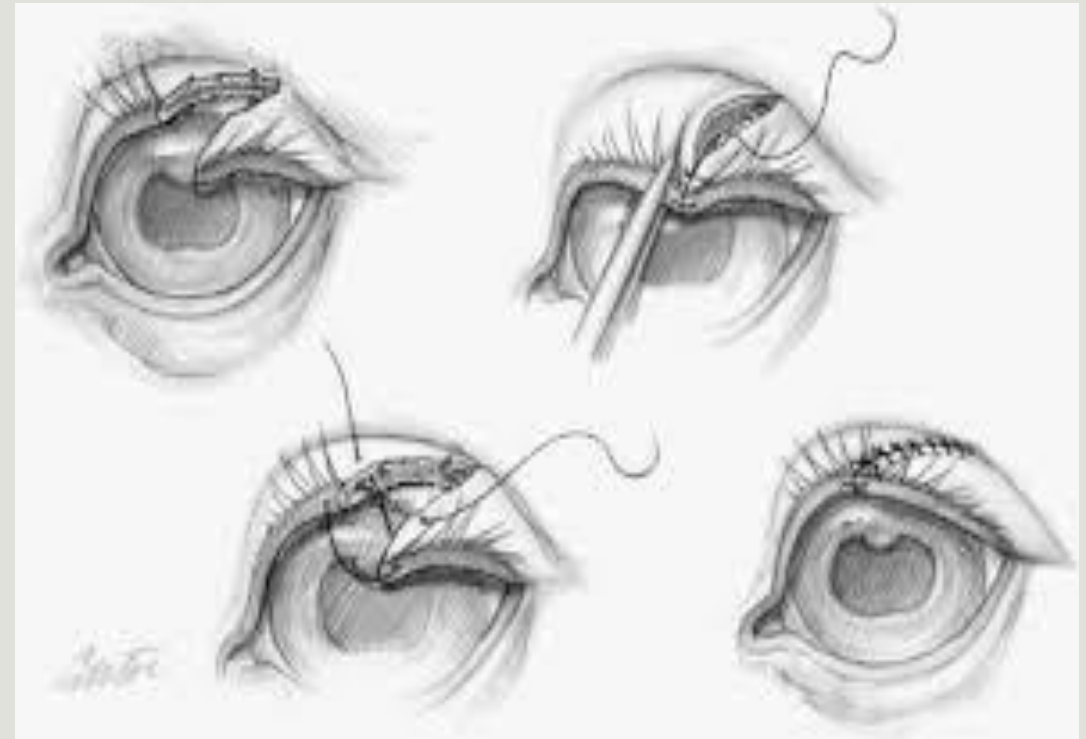
Many techniques are commonly employed to approximate the edges of an eyelid margin laceration.

Using 6-0 Silk suture, re-approximate the edges of the eyelid margin by placing one simple interrupted suture from gray line to gray line. Do not tie the suture. See Image 2a.

Then, place partial-thickness simple interrupted sutures using 6-0 Vicryl to approximate the edges of the tarsal plate. Tie these sutures and cut the ends short. This is important for the structural integrity of the eyelid.

Place an additional marginal 6-0 silk suture parallel to the first but closer to the lash line.

Suture skin as described above.



DACRYOCYSTITIS/INFLAMMATION OF THE LACRIMAL SAC

Symptoms:

Pain, redness, and swelling over the lacrimal sac in the innermost aspect of the lower eyelid. Also tearing, discharge, or fever .Symptoms may be recurrent.

Signs:

Critical. Erythematous, tender, tense swelling over the nasal aspect of the lower eyelid and extending around the periorbital area nasally. A mucoid or purulent discharge can be expressed from the punctum when pressure is applied over the lacrimal sac.

Other. Fistula formation from the skin beneath the medial canthal tendon. A lacrimal sac cyst or mucocele can occur in chronic cases. Can progress to lacrimal sac abscess, and rarely, orbital or facial cellulitis may develop.

May have a chronic mucopurulent conjunctivitis

DACRYOCYSTITIS/INFLAMMATION OF THE LACRIMAL SAC

Etiology

Almost always related to nasolacrimal duct obstruction.

- Less commonly due to diverticula of the lacrimal sac, dacryoliths, nasal or sinus surgery, trauma, or rarely, a lacrimal sac tumor

Most common organism: staphylococci, streptococci, and diphtheroid



Work-up

History. Previous episodes? Concomitant ear, nose, or throat infection?

- **External examination**: Apply gentle pressure to the lacrimal sac in the nasal corner of the lower eyelid with a cotton-tipped swab

in an attempt to express discharge from the punctum.

• **Ocular examination**: Assess extraocular motility and for proptosis for evidence of orbital cellulitis.

- **Obtain a Gram stain and blood agar culture** (and chocolate agar culture in children) of any discharge expressed from the punctum.

Treatment

Children:

- *Afebrile*, systemically well, mild case and reliable parent. Amoxicillin/clavulanate (e.g., Augmentin)

20 to 40 mg/kg/day PO in three divided doses.

Febrile, acutely ill, moderate to severe cases, or unreliable parent: Hospitalize and treat with cefuroxime, 50 to 100 mg/kg/day intravenously (IV) in three divided doses.

Treatment

Adults:

Afebrile, systemically well, mild cases, and reliable patients, Cephalexin (e.g., Keflex) 500mg PO, q6h.

Alternative treatment: Amoxicillin/clavulanate (e.g., Augmentin) 500 mgPO, q8h

Febrile, acutely ill,

Hospitalize and treat with cefazolin 1 g IV q8h

- Topical antibiotic drops may be used in addition to systemic therapy. Topical therapy alone is not adequate

Treatment

- *Apply warm compresses and gentle massage to the inner canthal region q.i.d.*
- *Administer pain medication (e.g., acetaminophen with or without codeine) as needed.*
- *Consider incision and drainage of a pointing abscess.*
- *Surgical correction (e.g., dacryocystorhinostomy with or without silicone intubation) is usually needed once the acute episode has resolved, particularly with chronic dacryocystitis.*

Follow-up: Daily until improvement confirmed. If the condition of an outpatient worsens, hospitalization and IV antibiotics are recommended.

Orbital cellulitis



Orbital cellulitis

Orbital cellulitis is **an infection of the fat and muscles around the eye**. It affects the eyelids, eyebrows, and cheeks. It may begin suddenly or be a result of an infection that gradually becomes worse.

Orbital cellulitis is a bacterial infection that can cause serious complications in eye, including blindness

Orbital cellulitis is defined as a serious infection that involves the muscle and fat located within the orbit. It is also sometimes referred to as postseptal cellulitis. Orbital cellulitis does not involve the globe itself. Although orbital cellulitis can occur at any age, it is more common in the pediatric population

Etiology



The most common cause of orbital cellulitis is

- bacterial rhinosinusitis. Other potential causes include
- Infection of the teeth, middle ear, or face
- Dacryocystitis
- Orbital trauma with fracture or foreign body
- Ophthalmic surgery such as strabismus surgery, blepharoplasty, radial keratotomy and retinal surgery
- Peribulbar anesthesia
- An infected mucocoele that erodes into the orbit
- Immunodeficiency

Signs:

Proptosis

Limitation of eye movements

Pain with eye movements

Double vision

Vision loss

Edema extending beyond the eyelid margin

Orbital cellulitis

Findings on Imaging

Common CT findings in orbital cellulitis are inflammation of extraocular muscles, fat stranding, and anterior displacement of the globe, although this may be subtle. Evidence of rhinosinusitis, with the most intense, is commonly seen in ethmoid sinuses

Imaging Studies

Two main imaging tools are available such as a CT and MRI to aid in the diagnosis of orbital cellulitis.

Treatment / Management

Uncomplicated orbital cellulitis can be treated with antibiotics alone. Treatment regimens are usually empiric and designed to address the most common pathogens as described above because reliable culture results are difficult to obtain in the absence of surgical intervention. For patients with uncomplicated orbital cellulitis, it is suggested that antibiotics be continued until all signs of orbital cellulitis have resolved. The duration of antibiotic therapy ranges from a total of at least 2 to 3 weeks. For patients with severe ethmoid sinusitis and bony destruction of the sinus, a longer period, at least 4 weeks is recommended

Treatment / Management

Intravenous (IV) Therapy

Vancomycin

Ceftriaxone

Cefotaxime

Ciprofloxacin

Levofloxacin

MANAGEMENT OF SUDDEN VISUAL LOSS

Sudden vision loss usually requires urgent ophthalmic assessment.

Diagnosis and management requires the judicious use of a wide range of serological and imaging investigations to guide appropriate treatment and referral.

Introduction

Acute vision loss can present on a spectrum from decreased visual acuity (blurred vision) to complete loss of light detection.

Anything disrupting the light pathway in the eye, or the neural transmission of this light, can lead to reduced vision.

Disease processes that affect visual acuity are grouped based on whether they are associated with pain, affect one or both eyes, or whether they are persistent or transient.

Introduction

Ophthalmologic

Neurologic

Toxic/Metabolic

Psychiatric

Ophthalmologic

Painful

Trauma — globe rupture, corneal injury, hyphema

Acute angle closure glaucoma

Infectious keratitis — bacterial, HSV, VZV

Uveitis

Optic neuritis

Painless

Giant cell arteritis

Vitreous hemorrhage

Retinal detachment

Central or branch retinal artery occlusion

Central or branch retinal vein occlusion

Ischemic optic neuropathy

Neurologic

- Ocular migraine
- Cerebrovascular accident (CVA) or transient ischemic attack
- Cortical blindness — CVA, posterior cerebral artery aneurysm, congenital/acquired occipital lobe pathology, posterior reversible encephalopathy syndrome (PRES)
- Papilledema — intracranial mass, pseudotumor cerebri, cerebral edema

Toxic/Metabolic

Hyperglycemia

Methanol poisoning

Psychiatric

Conversion disorder

Factitious disorder

Malingering

Evaluation of Patients with Sudden Vision Loss

History. The history of present illness should differentiate vision loss from other ocular symptoms, including pain, changes in appearance, or diplopia

Evaluation

History taking part



- How long he has had the visual blurring.
- Does it occur only at certain times?
- Ask about associated signs and symptoms, such as pain or discharge.
- If visual blurring followed injury, obtain details of the accident
- Ask if vision was impaired immediately after the injury.
- Obtain a medical and drug history.

Ophthalmologic Exam

Inspection.

The head and eyes should be inspected for any gross abnormalities. Ptosis, exophthalmos, enophthalmos, conjunctival injection, and chemosis should be noted, if present.

Pupils

The pupils first should be examined in a dimly lit room to look for size and shape. Anisocoria, or unequal size of pupils, should be noted, if present. However, the most common cause of anisocoria is idiopathic, and the difference in size is usually less than 1 mm. The normal pupil response to light requires the normal function of the retina, optic nerve, and oculomotor nerve. Shining a penlight into each of the patient's eyes tests direct and consensual pupillary constriction. In the normal person, both pupils should constrict when light is shined into either eye. In an afferent pupillary defect, the pupil of the involved eye constricts when light is shone into the opposite eye, but then dilates, sometimes only slightly, when the penlight is moved to the involved eye. In an efferent pupillary defect, the pupil of the involved eye does not constrict when the penlight is shone into either eye. Afferent or efferent pupillary defects, if present, typically indicate a lesion in the optic nerve or oculomotor nerve, respectively.⁴

Evaluation

Extraocular Movements (EOM).

Assess for dysconjugate gaze prior to the formal EOM exam. The ability to move one's eyes in the six cardinal directions of gaze is dependent on the normal structure/function of cranial nerves III, IV, and VI, as well as the six extraocular muscles.

EOM are tested by instructing the patient to focus his or her eyes on a target (typically the physician's index finger)

Evaluation

Fluorescein Exam

OCT

Slit Lamp Exam.

Intraocular Pressure (IOP)

Fundoscopy.

THE END

