Trauma of Periocular Structures: Eyelid Laceration, Orbital Fracture & Retrobulbar Hematoma

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Objectives

• Present common manifestations of eyelid lacerations, orbital fractures & retrobulbar hematoma

• Discuss initial management of each

• Discuss timeline / urgency of referral to Ophthalmology
Eyelid Lacerations –
Common Manifestations

• Usually history of trauma, either blunt or lacerating

• May have associated pain, tearing or bleeding

• May be associated with other eye injuries
  – Hyphema, orbital fracture, open-globe
Eyelid Lacerations – Initial Management

• CT scan of orbits & brain (contrast not necessary) if penetrating injury (especially if orbital fat appreciated) or severe blunt trauma
  – Evaluate for concurrent fracture, retained foreign body or intracranial injury
  – Obtain before laceration repair
• Tetanus prophylaxis when indicated
• Oral broad-spectrum if contaminated or foreign body
  – Especially lacerations from human or animal bites
Eyelid Lacerations – Initial Management

• Never remove tissue, no matter how necrotic or damaged it appears

• Keep lacerated skin moist
  – Copiously cover with erythromycin ointment
Eyelid Lacerations – Referral Timeline

- Immediate referral to oculoplastics specialist (ophthalmologist specially trained in eyelid repair) if
  - Involvement of eyelid margin or full-thickness
  - Obvious involvement of canalicular system
    - Or if medial 1/3 of upper or lower eyelid involved (higher probability of canalicular involvement)
  - Fat prolapse
  - Significant loss of tissue
Orbital Fractures – Common Manifestations

• Usually history of blunt trauma
  – Sports injury with ball to face
  – Punch / fist to face
  – Fall
  – Airbag deployment
Orbital Fractures –
Common Manifestations

• Blurry, decreased or double vision
  – Difficulty moving eye or pain with movement
• Bruising/swelling of eyelid skin
• Numbness of cheek, upper lip, or teeth on involved side
• Bulging or sunken eye
• Air underneath skin on affected side (orbital crepitus / subcutaneous emphysema)
Orbital Fractures – Common Manifestations

• Can involve any wall(s) of the orbit
  – Floor, medial wall, lateral wall or roof
  • Floor & medial wall more common

• Commonly associated with other eye injuries
  – Hyphema, lid lacerations
Orbital Fractures – Initial Management

• Pay special attention to:
  – Limitation of eye movement
  – Diminished sensation of cheek on injured side
  – Bubble-wrap quality to eyelid skin
  – Step-off deformity of orbital rim

• CT scan of orbit & brain (contrast not necessary) for all suspected fractures
Orbital Fractures – Initial Management

• Once orbit fracture(s) confirmed:
  – If involving floor or medial wall
    • Sinus precautions (nasal decongestant, broad-spectrum oral antibiotics, no nose blowing/sneezing)
  – If involving roof, cribiform plate, frontal sinus or associated with intracranial hemorrhage →neurosurgical consultation
  – If associated with other facial fractures, consider oral-maxillofacial or ENT consultation
Orbital Fractures – Referral Timeline

• Emergent referral to oculoplastics specialist (ophthalmologist specially trained in orbital fracture repair) if
  – Adult patient with clinical evidence of muscle entrapment
  – Pediatric patient with White-Eyed Blow-Out Fracture (WEBOF)
    • Bradycardia, heart block, nausea, vomiting, or syncope
  – May require repair within 24-48 hours
Retrobulbar Hematoma – Common Manifestations

• Usually history of recent trauma (including) surgery to the eye/orbit

• This is an ophthalmic emergency that can lead to permanent vision loss from orbital compartment syndrome!
Retrobulbar Hematoma –
Common Manifestations

- Patient may present with
  - Pain
  - Decreased vision
  - Inability to open eyelids (may have severe swelling)
  - Bulging, tense eye
  - Diffuse subconjunctival hemorrhage or congested vessels
Retrobulbar Hematoma – Initial Management

• Check intraocular pressure (IOP), if instrumentation available
  – If no IOP-measuring device available, palpate eye for resistance to retropulsion
Retrobulbar Hematoma – Initial Management

- Perform canthotorny/cantholysis immediately if clinical suspicion high for retrobulbar hematoma
  - Do not delay this definitive treatment for imaging results!
Retrobulbar Hematoma – Initial Management

• If canthotomy / cantholysis cannot be performed, lower intraocular pressure with
  – Drops
  – Intravenous acetazolamide or mannitol
Retrobulbar Hematoma – Referral Timeline

• Refer to Ophthalmology immediately after canthotomy / cantholysis performed
  – Patient may require additional maneuvers if intraocular pressure does not respond or if active hemorrhaging and recurrence of orbital compartment syndrome
  – Patient will need to be closely monitored by Ophthalmology until IOP and vision is stabilized
Thank you!