Vision Emergencies for Primary Care Providers

Garrick Chak, MD
Ophthalmology - Glaucoma
Kaiser Permanente West Los Angeles

Primary Care Symposium
March 14, 2017

Disclosures

- No relevant financial disclosures

Award acknowledgement: Heed Fellow

Learning Objectives

- Use at least one new approach for the evaluation and differential diagnosis of high acuity eye conditions
- Manage treatment of ocular emergencies using best current evidence
ARS Question #1

- Name the diagnosis
  - a. Subconjunctival hemorrhage
  - b. Acute glaucoma
  - c. Endophthalmitis
  - d. Ruptured globe

* Correct Answer (d)

ARS Question #2

- Name the diagnosis
  - a. Hyphema
  - b. Endophthalmitis
  - c. Acute glaucoma
  - d. Corneal ulcer

* Correct Answer (b)

ARS Question #3

- Name the diagnosis
  - a. Corneal melt
  - b. Endophthalmitis
  - c. Acute glaucoma
  - d. Corneal ulcer

* Correct Answer (a)
ARS Question #4

Name the diagnosis
a. Endophthalmitis
b. Ruptured Globe
c. Acute glaucoma
d. Retrobulbar hemorrhage

* Correct Answer (d)

ARS Question #5

Name the diagnosis
a. Bacterial keratitis
b. Foreign body corneal abrasion
c. Herpes keratitis
d. Acute glaucoma

* Correct Answer (b)

What do you mean by “acuity”?

- Need immediate intervention
- High severity
- Clarity of central vision (visual acuity)
Outline

1) Traumatic Emergencies

2) Non-Traumatic Emergencies
   1) Neuro-ophthalmic
   2) Ocular

Ruptured Globe

- Blunt vs penetrating
- “360 rule”

What you should think about for Ruptured Globe

- Rule out intraocular foreign body (IOFB)
- Evaluate for orbital fracture
  - CT orbit 1mm sections with coronal reconstruction
- Pain control
- Nausea control
- Tetanus status
- Intravenous antibiotic (moxifloxacin is best)
- Protective shield over the eye (do not patch)
- Do not ultrasound the eye
Orbital Fracture

- Ethmoid bone is thinnest, but a floor fracture is most common
- Rule out EOM entrapment
- Be careful that a white eye in kids does not exclude entrapment!

Orbital Compartment Syndrome (from orbital fracture)

Causes of acute high intraorbital pressure
- Retrobulbar hematoma
- Orbital emphysema

Clinical Diagnosis
- Reduced EOM
- Tight orbit (not soft lid edema)
- Relative Afferent Pupillary Defect (RAPD)

How do you look for a Relative Afferent Pupillary Defect?

- RAPD = Sensory defect (Ex: optic neuropathy)
- Blown pupil = Motor defect (Ex: CN III palsy)
Acute management of orbital compartment syndrome

- Canthotomy + Cantholysis
  - (not intraocular pressure lowering eyedrops)

Eyelid laceration

- Involving canaliculus?
- Involving septum?

Canalicular repair

Image Acknowledgement: Oculist
Not for distribution. For educational purposes only.
Chemical Burn

- Check the pH – is it alkali?
- Morgan Lens Saline Irrigation – until pH is 7
- A "white eye" is actually worse!

Hyphema

Careful if history of Sickle Cell!
(may need to order Sickledex)

Corneal Foreign Body

- Not just a simple abrasion
- Ensure no corneal laceration (seidel positive)
Patching may help an uninfected cornea heal faster.

Patching an infected cornea makes it worse!

Questions about traumatic emergencies?
- Ruptured Globe, Intraocular Foreign Body
  - Orbital Fracture, Entrapment
  - Acute Orbital Compartment Syndrome
  - Eyelid, Canalicular Laceration
  - Chemical Burn, pH
  - Hyphema
  - Corneal Foreign Body, Laceration

Duke Basketball
Nontraumatic Emergencies

- Neuro-ophthalmic
- Ocular

---

Neuro-Ophthalmic

- Carotid-Cavernous Fistula
- Cavernous Sinus Thrombosis

---

Neuro-Ophthalmic

- Pupil-involving CN III Palsy (PCOM Aneurysm)
- Horner’s (Carotid Dissection)
Compressive Optic Neuropathy
- +RAPD
- Thyroid Associated Orbitopathy
- Orbital Mass
- Subperiosteal abscess from orbital cellulitis
- Mucormycosis

Giant Cell Arteritis
- > 50–60 yo
- Symptoms (Jaw claudication)
- Elevated ESR, CRP, Platelets

Ocular Emergencies
- Endophthalmitis
- Infectious Keratitis
- Corneoscleral Melt
- Severe Dry Eye
- Gonococcal Conjunctivitis
- Retinal Detachment
- Retinovascular Disease (CRAO, CRVO, OIS)
- Necrotizing Ocular Infections
- Acute Glaucoma
Endophthalmitis
- Exogenous > endogenous

Infectious Keratitis
- Contact lens
- Trauma
- Immunosuppression

Corneoscleral Melt
- Underlying medical history
- 3-year mortality rate for scleritis associated with RA is 36-45% if not aggressively treated with immunosuppressive tx
- Rule out syphilis, TB
Severe Dry Eye
- Stevens-Johnson
- Chemical Burn
- Sjogren’s
- Pemphigoid
- Trachoma
- Graft vs Host

Gonococcal Conjunctivitis

Retinal Detachment
- Rhegmatogenous vs Serous
- Location
- Scarring
- Prior eye surgery
Central Retinal Artery Occlusion
- Thromboembolic workup

Central Retinal Vein Occlusion
- Thrombus, HTN, hypercoagulable

Ocular Ischemic Syndrome
- Carotid US (stenosis or occlusion)

Acute Retinal Necrosis

Progressive Outer Retinal Necrosis

Toxoplasmosis Retinitis

CMV Retinitis

Acute Glaucoma
- Open vs Closed are categories, but there are > 40 different types!
Questions?

Neuro–Ophthalmic Emergencies
- Carotid–Cavernous Fistula
- Cavernous Sinus Thrombosis
- Pupil–Involving CN III Palsy (r/o PCOM Aneurysm)
- Horner’s syndrome with headache (carotid dissection)
- Compressive Optic Neuropathy
- Giant Cell Arteritis

Ocular Emergencies
- Endophthalmitis
- Infectious Keratitis
- Corneoscleral Melt
- Severe Dry Eye
- Gonococcal Conjunctivitis
- Retinal Detachment
- Retinovascular Disease (CRAO, CRVO, OIS)
- Necrotizing Ocular Infections
- Acute Glaucoma

Summary: Key Clinical Recommendations

- Approach an eye patient by classifying the patient as traumatic vs non–traumatic
- For chemical burn patients, care is guided by the pH
- Relative afferent pupillary defect is a clue for vision loss from optic neuropathy (helpful for trauma and for neuro-ophthalmic emergencies); RAPD is different from "reactive pupils"
- Think GCA for anyone over 60 years old with vision problem

References

- American Academy of Ophthalmology, Basic and Clinical Science Course
- The Wills Eye Manual: Office and Emergency Room Diagnosis and Treatment of Eye Disease
- Eye Rounds, University of Iowa
Thank You!

Garrick Chak, MD
Ophthalmology
KP West Los Angeles