High risk Ophthalmology

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conflicts of interest

• no personal financial relationships for products or services in this talk

objectives

• Pointers and pitfalls in:
  • Eye trauma
  • The red eye
  • Visual loss

Diagnosis

CORNEAL FOREIGN BODY
Pearls for Rust Rings

- Rust Rings do not have to be removed immediately
- Removal is often easier 1-2 days after the injury and with a corneal drill
- Homatropine can help with ciliary spasm
- Arrange follow-up in 1-2 days after removal

Can J Rural Med 2013
corneal Foreign Body pitfalls

• Not everting the lid
• Not considering an intraocular FB
• Not considering corneal laceration

subtarsal foreign body

high risk lacerations? ALL OF THEM

anatomy
canalicular laceration

eyelid laceration pitfalls

- Not assuming there are other ocular injuries
- Not obtaining visual acuity

EM Clin NA. 2008

globe rupture

- decreased Va
- RAPD
- eccentric pupil
- bullous subconjunctival hemorrhage
- extrusion of vitreous
- hyphema
- Seidel test

Globe rupture
key actions
globe rupture

- Consult ophthalmology and order CT
- Protect the eye (eye shield, avoid eye manipulation)
- Avoid ocular extrusion (antiemetics, pain meds, sedation)
- Antibiotic prophylaxis
- Tetanus prophylaxis

seidel test

Diagnosis

HYPHEMA

HYPHEMA TREATMENT

- microhyphema

-33% (Grade 1)
- good prognosis
- eye shield
- HOB >30 deg
- cycloplegia
- ophtho referral
- no NSAIDS

-33-50% (Grade 2)

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-33-50% (Grade 2)
HYPHEMA TREATMENT

- 50% (Grade 3 & 4)
- ↑ IOP (>24)
- sickle cell
- ophtho consult
- eye shield
- HOB >30 deg
- no NSAIDS
- topical B-blocker if increased IOP.
- c/s may also recommend steroid drops

HYPHEMA PITFALLS

- Not obtaining an IOP or asking about sickle cell disease or trait
- Discharging with NSAIDs
- Neglecting close ophthalmology follow-up
- Not considering globe rupture or IOFB

The Red Eye

52-yo F with 1 day of severe right eye pain, and decreased vision. On exam, you see corneal cloudiness and diffuse conjunctival injection with ciliary flush.
medical treatment of acute angle glaucoma

- How do you use the drops?
- How many times can you repeat the drops?
- What about acetazolamide and mannitol?

- Give separate eye drops 1 minute apart (timolol, apraclonidine, prednisolone, pilocarpine are acceptable)
- Give acetazolamide PO early
- Repeat drops once in 15 minutes

- Goal IOP is 35 mmHg or >25% presenting IOP
- Consider mannitol IV if IOP is still high
- Call ophthalmology again

Choong et al. Eye. 1999
vision loss

floaters

Hollands et al.  JAMA 2009

approach to floaters and flashes

- Bottom line is to determine when to refer a vision threatening condition to prevent further vision loss or restore vision
JAMA meta-analysis

- floaters vs flashes vs both is not diagnostically helpful for retinal tear
- older age (>60) is not associated with increased risk of retinal tear; younger age is not less likely to have retinal tear

subjective visual acuity

- worse vision 45% probability of retinal tear
- no change 9% probability of retinal tear

Hollands et al. JAMA 2009

vitreous hemorrhage or pigment

- vitreous hemorrhage LR = 10
- baseline 14% prevalence of retinal tear in those with PVD

- vitreous pigment LR = 44
- 88% probability of retinal tear

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Key actions

- Assess subjective visual acuity
- Assess visual acuity and peripheral vision
- Fundiscopic exam +/- slit lamp
pitfalls in the case of floaters and flashes

- Not referring to ophthalmology with only subjective visual acuity loss
- Not giving return precautions with a PVD diagnosis (more floaters or vision reduction)

Case of vision loss

- 72-yo F with sudden painless, decreased left eye vision 2 hours. Va OS = cannot read the eye chart or count fingers, but can see hand motion.

key actions

CRAO

- Rule-out temporal arteritis (including ESR & CRP)
- Consider ocular massage (within 24 hrs)
- Ophtho consult (to consider AC paracentesis or thrombolytics)

Diagnosis

CENTRAL RETINAL ARTERY OCCLUSION

Fraser et al. Cochrane review. 2009
pitfalls
CRAO

• Failing to consider embolic source of CRAO
  • ECG for AFib
  • carotid imaging
  • cardiac evaluation

Case of vision loss

• 38-yo F with decreased left eye vision for 2d with mild eye pain. She has decreased Va, a + RAPD on the left, and swollen optic disc. nl slit lamp exam.

Key actions
optic neuritis

• Neurology consult for MS and NMO work-up
• Consider MRI with gadolinium
• Consider IV steroids

Beck et al. NEJM 1993
Cochrane. 2012
summary

- Key Actions and Pitfalls in:
  - Eye trauma
  - The red eye
  - Vision loss

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particular thanks to those who gave consent to be photographed for educational purposes

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thank you for your attention
pediatrics

- CORNEAL ABRASIONS
  - antibiotic ointments lubricate
  - consider 1 drop of cycloplegia
  - consider codeine elixir

CORNEAL ABRASION PITFALL

- Return precautions
  - RED FLAG: persistent pain or unwillingness or open the eye after 1 day of treatment

pediatric Eye trauma PITFALL

- Consider sedation to fully evaluate the eye
- Ketamine: total dose <3mg/kg does not raise IOP

pediatric vision testing

- Pediatric Eye Chart
- Fix and Follow (F/F)
- Blink to Light (BTL)
Fix and follow

Fixation target

References

5. Hollands et al.
7. Fraser et al. Cochrane Database of systematic reviews. 2009.