Eye problems on expeditions: a brief summary

In general the article provides a practical guide for managing simple eye problems and warning signs for sight threatening problems in an austere environment.

Expedition prep

The only reason to avoid high altitude ascent is during the post-operative period following retinal surgery that employed the use of intraocular gas. Otherwise, bring your glaucoma meds, control your sugar, etc. If you have one eye, consider going that extra mile to protect it – wear safety glasses.

The article lists a rather cumbersome “ocular first aid kit” – perhaps it may inspire you to add a few things to a standard first aid kit that already contains gauze (to make an eye shield), surgical tape, analgesia, light source – such as tetracaine (to help facilitate an exam), ofloxacin solution (or Abx drops of your choosing), and artificial tears. A pocket ophthalmoscope is probably overkill.

Pathology

Two sections worth reading are on snow blindness and high altitude retinopathy.

Snow blindness (UV keratitis) – sunburn of the cornea, conjunctiva. Pt’s have red, painful, gritty eyes with photophobia. Can have punctate staining with fluorescein. Treat with cool compress, artificial tears, Abx drops (oflox), rest, light avoidance. Worry about infection. Avoid prolonged use of local anesthetics – they slow corneal re-epithelialization. Prevent with good sunglasses with side pieces.

High altitude retinopathy – pathological response by the retina to hypoxia of altitude. Usually asymptomatic unless a hemorrhage appears over the macula. Common manifestations are flame hemorrhages and vascular tortuosity, can also have cotton wool spots, dot and blot, pre-retinal and vitreous hemorrhages. Much of the discussion is about how little is known about it – incidence, pathophysiology etc. Some anectodal evidence and discussion that it could be related to the vascular dysregulation that plays a role in AMS, HACE, HAPE. Interesting problem, plenty of unanswered questions. Treatment? Vision loss means immediate descent. No evidence for benefit of Acetazolamide.

Contact lens use and dry eyes

Try limit use to 8h/day. Treat potential infections aggressively (oflox hourly), avoid contact use. For dry eyes, use ocular lubricants. Always consider risk for infection with dry eyes.

Refractive surgery – consider potential for altitude to cause a shift toward short sightedness. Slightly increased risk of infection up to 3 months after surgery. Vision loss or infection – descend immediately.

Trauma

Corneal abrasion – avoid prolonged use of topical anesthetic. Treat with Abx drops. Fluorescein is confirmatory.

Corneal Foreign body – fluorescein and magnification may be helpful. Treat with Abx. Don’t forget to flip the lid. Consider packing a 25g needle to extract a foreign body.

Chemical injury – irrigate profusely, ideally with sterile saline (not milk – interesting point and the article doesn’t offer further explanation). Abx ointment, lubrication, analgesia, evacuation.

Eyelid laceration – clean wound, Abx ointment, eye patch, evacuate

Penetrating eye injury – any suspicion – broad spectrum Abx, eye patch, evacuation

Blunt trauma and orbital compartment syndrome – the article went there. The wilderness lateral canthotomy. If you ever do one, beers are on me.

Conclusion

Visual acuity is the most important sign in an exam

Proper eye protection is vital

Always consider systemic analgesia

Err on the side of caution with eye problems and consider evacuation for sight-threatening conditions