

Disclaimer

Ultraviolet Keratopathy (Photokeratitis, Welder's flash, Arc eye, Thermal keratopathy)

DESCRIPTION – Acute exposure to ultraviolet (UV) B and C radiation causing a painful punctate keratopathy.

HOW TO ASSESS:

Red Flags:

- Ensure no corneal or subtarsal foreign body

On History:

- Exposure to ultraviolet radiation (wavelengths 295-400 nm) without eye protection
 - Artificial sources – welding, halogen lamps, sun tanning booths
 - Sunlight, especially at high altitude/highly reflective surfaces e.g. snow
- Symptoms
 - Severe, bilateral eye pain, foreign body sensation, watery eye, redness, photophobia, blurred vision
 - Delayed onset, 6-12 hours post exposure

On Examination:

- Diffuse, punctate epithelial erosions typically in interpalpebral distribution
- May also have:
 - Conjunctival injection
 - Mild corneal oedema and anterior chamber reaction
 - Eyelid oedema
- Check for other causes of epithelial keratopathy – evert lid for foreign body, check pH if history suggestive of chemical injury, check for lagophthalmos and floppy eyelids

Acute Management:

- Supportive treatment – epithelium heals within 72 hours of injury
 - Ice pack – covered with cloth
 - Ocular lubricants
 - Chloramphenical drops or ointment– consider qid for 4 days
- Oral analgesia
- No clear evidence for cycloplegic drops or eye pressure patching
- Patient education regarding eye protection

Follow up:

- Not necessary in most cases
- Review if symptoms not improving in 72 hours or aetiology unclear

AUTHORS:

Dr Helen Chan and CPG Working Party

REVIEW DATE:

12/12/2021

Evidence Table

Author/s	Title	Source	Level of Evidence (I – VII)	Comments
	Wills Eye Manual			
Cullen A.	Photokeratitis and other phototoxic effects on the cornea and conjunctiva	Int J Toxicol. 2002;21(6):455-64	V	
Daxecker F, Blumthaler M, Ambach	W. Ultraviolet exposure of cornea from sunbeds	Lancet. Sep 24 1994; 344 (8926) : 886	VI	
Oliva M and Taylor H.	Ultraviolet radiation and the eye	International Ophthalmology Clinics 2005; 45(1):1-17.	V	
Spector J and Fernandez W.	Chemical, thermal and biological ocular exposures	Emerg Med Clin N Am. 2008;26:125-136.	V	
Yen YL, Lin HL, Lin HJ, et al.	Photokeratoconjunctivitis caused by different light sources	Am J Emerg Med. Nov 2004;22(7):511-5	IV	

The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynck and Fineout-Overholt (2011).

- I** Evidence obtained from a systematic review of all relevant randomised control trials.
- II** Evidence obtained from at least one well designed randomised control trial.
- III** Evidence obtained from well-designed controlled trials without randomisation.
- IV** Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case series.
- V** Evidence obtained from systematic reviews of descriptive and qualitative studies.
- VI** Evidence obtained from single descriptive and qualitative studies.
- VII** Expert opinion from clinician, authorities and/or reports of expert committees or based on physiology.

CPG Suite General Disclaimer

These CPGs were written for use in the RVEEH speciality Emergency Department. They should be used under the guidance of an ENT or Ophthalmology registrar, and certain medications / procedures should only be undertaken by speciality registrars.

If you require clinical advice, please contact our admitting officer for assistance:

EYE: 03 9929 8033 ENT: 03 9929 8032