CLINICAL PRACTICE GUIDELINE: Emergency Department

Marginal Keratitis

Disclaimer: This Clinical Practice Guideline ('CPG') was written for use in The Royal Victorian Eye and Ear Hospital Emergency Department. It should be used under the guidance of an Ophthalmology or ENT registrar. If clinical advice is required, please contact the Eye and Ear Admitting Officer for assistance: EYE: +61 3 9929 8033; ENT: +61 3 9929 8032. Links to internal Eye and Ear documents cannot be accessed from the website CPG.

See also: microbial keratitis, herpetic corneal infections, blepharitis

Description:

A non-infectious, inflammatory infiltration of the peripheral cornea due to a staphylococcal hypersensitivity reaction.

Red Flags:

- Suspect alternative diagnosis (bacterial, viral, fungal, autoimmune disease) if:
  - Large epithelial defect (>1mm)
  - Dense corneal infiltrate
  - Dendritic or geographic lesions
  - Peripheral corneal thinning
  - Decreased corneal sensation
  - Presence of anterior chamber cells
  - History of
    - contact lens wear
    - cold sores
    - autoimmune disease present

How to Assess:

History:

- Red eye, pain, foreign body sensation, photosensitivity
- Identify risk factors:
  - Blepharitis, recurrent chalazia
  - Rosacea, seborrheic dermatitis

Examination:

- Face: examine for features of rosacea
- Slit lamp examination:
  - Lids/lashes: examine for staphylococcal blepharitis (collarettes, madarosis, trichiasis); meibomian gland dysfunction.
  - Conjunctiva: focal injection.
  - Cornea: Single or multiple sub-epithelial infiltrates in peripheral cornea, most commonly at positions where the lid crosses the limbus (at 2, 4, 8 and 10 o'clock). Hallmark clear zone ~ 1 mm between infiltrate and limbus. Infiltrate may have intact overlying epithelium, but prolonged inflammation may lead to ulceration. Document size, depth and location/s of infiltrates and any epithelial defect/s.
  - Anterior chamber: no cells present.

Investigations:

- Marginal keratitis is a clinical diagnosis; therefore no investigations are recommended.
- If microbial keratitis suspected, investigation and treatment should be carried out per The Royal Victorian Eye and Ear Hospital ('Eye and Ear') Microbial Keratitis Clinical Practice Guidelines (CPG).
- If HSV keratitis suspected, investigation and treatment should be carried out per Eye and Ear Herpetic Corneal Infection CPG.

Acute Management:

- Acute treatment:
    - Topical corticosteroids (e.g. fluorometholone 0.1% one drop QID) to suppress the acute immune response.
    - Topical chloramphenicol 0.5% eye drops one drop QID, to limit bacterial colonisation.
    - If suspect microbial keratitis, scrape, withhold topical steroids and follow Microbial Keratitis CPG.
    - Lubricating eye drops for symptomatic relief as required.
- Preventing recurrence:
    - Manage underlying cause: reduce bacterial antigen load from staphylococcal lid margin colonisation. Advise patient on routine lid hygiene practice - daily lid margin cleansing, warm compresses, lid massage
    - Consider oral antibiotic treatment for recurrent episodes associated with significant blepharitis:
        - Doxycycline 50-100 mg (child 8 years or older: 1 mg/kg up to 50 mg) orally daily for a minimum of 8 weeks. If improvement after two to six weeks the dose of 100mg can be tapered from 100mg to 50mg. If no improvement in symptoms after 6 weeks, increase doxycycline to 100mg 12 hourly (child 8 years or older 2mg/kg up to 100mg). Consider referral to a dermatologist if required.
        - For children younger than 8 years, and in pregnant or breastfeeding women consider:
        - Erythromycin ethyl succinate (salt form of erythromycin) 400 mg (child 1 month or older: 10 mg/kg up to 400 mg) orally, daily for a minimum of 8 weeks

Follow up:

- All patients on topical corticosteroids should be followed up by an ophthalmologist/optometrist.
- Provide patient with Blepharitis Factsheet
- AOS in 1-2 weeks, sooner if diagnosis uncertain.
- Advise patient to return to ED immediately if symptoms worsen on treatment

Additional notes:

- Documentation: avoid using the abbreviation 'MK" as this leads to ambiguity when considering the differential diagnosis of microbial keratitis.

Evidence Table

Author(s)	Title	Source	Level of Evidence (I – VII)
Krachmer J, Mannis M, Holland E.	Cornea: Fundamentals, Diagnosis and Management.	Mosby Elsevier, St Louis	VII

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 Melynk 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.

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