



Clinical Guideline for the treatment of

MICROBIAL KERATITIS

DESCRIPTION

A corneal infection caused by bacteria, fungi or acanthamoeba. The aim of treatment is to minimise visual loss, reduce pain, eliminate the infectious agent and minimise structural damage to the cornea. Early diagnosis and treatment are necessary to reduce long-term visual loss.

RED FLAGS

- Large ulcer
- Central ulcer
- Poor lid closure/blink or an anaesthetic cornea
- Corneal thinning with impending or overt perforation
- Risk of fungal infection with organic injury
- Risk of acanthamoeba with contact lens wearers

HOW TO ASSESS

HISTORY

- Ocular symptoms: pain, redness, discharge, decreased vision, photophobia
- Identify risk factors:
 - Contact lens wear
 - Ocular trauma
 - Ocular surface disease: e.g., dry eyes, neurotrophic keratopathy, HSV/HZV, abnormalities of eyelid anatomy and function.
- Concurrent use of other ocular medications: topical corticosteroids, anaesthetics

EXAMINATION

- Visual acuity
- Corneal sensation
- Slit-lamp biomicroscopy, should include evaluation for the following:
- Eyelid/adnexae: ectropion/entropion (lid margin malposition), trichiasis (lashes), lagophthalmos (exposure), blocked nasolacrimal duct
- Conjunctiva: injection, discharge
- Cornea: infiltrate (white opacity); document the size, depth, and location of the infiltrate and size of overlying epithelial defect (using fluorescein for latter). Assess for stromal thinning and/or perforation
- Intraocular pressure
- Anterior chamber: presence of cells and size of hypopyon if present
- Posterior segment: red reflex/ retina

INVESTIGATIONS

Corneal scraping

- Indications: corneal scraping is indicated whenever a significant microbial keratitis presents to the ED.
 - Gram stain
 - Culture and sensitivity: blood agar, chocolate agar, Sabouraud dextrose agar
- In contact lens wearers the contact lenses and cases should be cultured. Send lens and case in pathology bag, or put contact lens in saline

PCR

- Swabs for acanthamoeba and viral PCR should be performed where indicated. Have a low threshold for performing PCR in contact lens wearers. It is useful to confirm suspected HSK using PCR.

TREATMENT

Setting

- Admission to hospital should be considered if a large area is involved with significant thinning or any concern regarding compliance with intensive eye drop regime

Treatment

- If the patient is being treated as an outpatient, commence intensive broad-spectrum antibiotics with a fluoroquinolone (Ofloxacin 3g/mL) eye drops hourly day and night until review (usually after 48 hours). Not all patients require overnight out patient treatment.
- If the ulcer is large and central and the patient is being admitted, fortified ceftazidime and vancomycin can be used.
- Topical cycloplegia for comfort and to prevent synechiae formation in the presence of significant inflammation (Cyclopentolate 1% TDS).

- Topical ocular hypotensives if raised intraocular pressure
- Cease topical corticosteroids
- Oral pain medication as needed
- No contact lens wear in affected eye
- Clear shield (without pad) if risk of corneal perforation
- Manage underlying cause, e.g. trichiasis

FOLLOW-UP

Initial review

- Re-assess in 48 hours to assess initial culture results and response to treatment
- Discuss with corneal reg/fellow if severe microbial keratitis, corneal graft patient, significant corneal thinning, cases of fungal or acanthamoeba keratitis, or other concerns.

Subsequent review

- Review depending on severity to confirm continued clinical improvement and culture results
- Taper topical antibiotics. A suggested regimen is:
 - q 1 hourly by day and night for 48 hours
 - q 1 hourly by day and q 2 hourly by night for a further 48 hours
 - q 2 hourly by day for 48 hours
 - then 4 to 6 times a day until epithelial healing
- Consider topical steroids (e.g. fluorometholone/predminims eye drops QID after at least 48 hours but only, if culture positive with a sensitive organism and evidence of /or if significant clinical improvement.

DISCHARGE INSTRUCTIONS

- Patients and care providers should be educated about the need for compliance with treatment.
- Patients who wear contact lenses should be educated about the increased risk of infection with contact lens wear, overnight wear, and the importance of contact lens hygiene.