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INFLAMMATORY AND INFECTIOUS EVENT

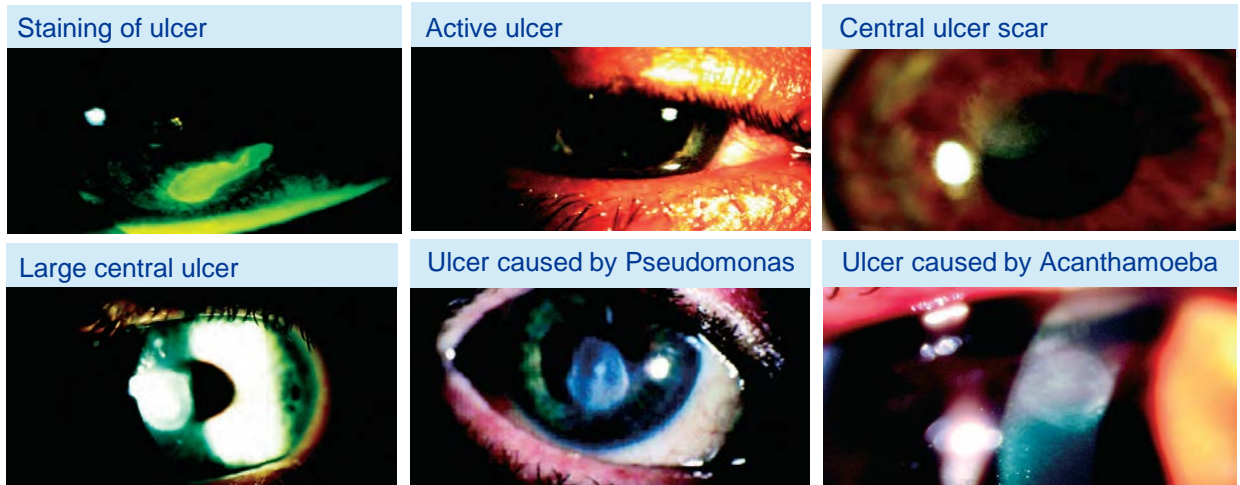
How to manage patients with MK (Microbial Keratitis)

WHAT YOU NEED TO KNOW

Slit Lamp Viewing:

1. With fluorescein, cobalt filter and yellow barrier filter. Optical section to assess depth
2. Medium/high magnification (16 - 25x)
3. Direct illumination

Grading:



Area of corneal staining overlaying stromal opacity 0: No 1: Yes. Record location (S/I/N/T), size and shape

Incidence:

- RGP DW 0.03%, hydrogel DW 0.05%, hydrogel EW 0.96%, SiH EW 0.2% (Morgan et al, 2005)
- RGP DW 0.01%, hydrogel DW 0.02%, SiH DW 0.12%, hydrogel EW 0.20%, SiH EW 0.25% (Stapleton et al, 2008)

Aetiology:

Infection of compromised cornea (epithelial break, hypoxia) from invasion of bacteria (especially pseudomonas spp. - principally aeruginosa), virus, fungus or amoebae with excavation of corneal epithelium, Bowman's layer and stroma with infiltration and necrosis of tissue

Risk factors:

EW, hypoxia, poor compliance and hygiene, swimming/showing in lenses, tap water, not storing case dry, male, smoking, trauma, poor general and ocular health (diabetes, respiratory disease), warm climates, socio-economic class, longer wearing periods, delay seeking treatment, high ametropia (>5D), younger age (15-25 years), lens case contamination, environmental influences

Symptoms:

- Severe pain with rapid onset, photophobia, epiphora, severe redness, reduced vision (depends on location), discharge, lid puffiness
- No improvement after lens removal, pain usually increases

Signs:

- Full thickness epithelial defect with underlying infiltrate, Bowman's layer and stroma affected
- Generally central, large (>1mm), unilateral, irregular appearance
- Severe hyperaemia
- Anterior chamber activity (flare, hypopyon)
- Discharge and lid oedema

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WHAT YOU NEED TO RECOMMEND TO YOUR PATIENTS

Recommendations:

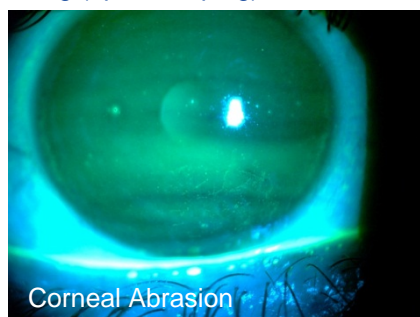
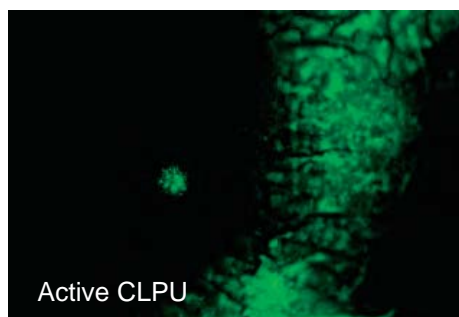
- Immediate discontinuation of lens wear — lenses and case not to be reused
- Ocular emergency — urgent referral for ophthalmological investigation; corneal scrape, close monitoring and medical treatment
- Intensive round the clock treatment , with possible hospital admission (antimicrobial, cycloplegic, analgesic, topical steroids only when infection under control)
- No patching
- Advise about risk factors — improve hygiene, care regimen and avoid tap water
- Case replacement and hygiene (including rubbing & tissue wiping)
- Refit with DD, advise against overnight wear

Prognosis:

- Variable — often resolves with scar and vascularisation; depends on causative organism
- Improved with rapid intervention
- 14% lose 2 lines or more best corrected VA; depends on scar location and severity of infection
- Vision loss is less likely to occur in DD than in reusable soft CL users

Differential Diagnosis:

Contact Lens Peripheral Ulcer (CLPU), dense corneal staining (epithelial plug), corneal abrasion



NOTE: Microbial keratitis is also known as infected corneal ulcer, corneal abscess, suppurative keratitis, infectious keratitis, ulcerative keratitis

HOW TO FIND OUT MORE

- ❖ Click [here](#) for a general refresher on slit lamp techniques
- ❖ Click [here](#) to watch our educational video on slit lamp examination using optical section

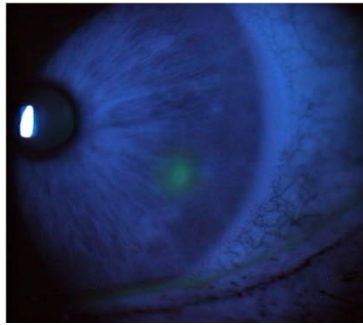
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PATIENT CASE STUDY



Patient JC is a 20-year-old male student who has worn monthly replacement hydrogel lenses for the past three years.

He attends for an emergency appointment late afternoon wearing his lenses and complaining of a very painful, watery red eye since this morning. He is suffering from intense photophobia making examination difficult.

JC reports he has been wearing his lenses regularly overnight.

Quiz:

1. What slit-lamp techniques might you use to examine this patient's cornea?

- A. Fluorescein and cobalt blue filter
- B. Direct illumination and medium/high magnification
- C. Optical section
- D. All of these

2. Which of the following features of suspected microbial keratitis would you record?

- A. Shape and size of ulcer
- B. Location
- C. Underlying stromal opacity
- D. All of these

3. What is the most likely risk factor associated with MK in this patient?

- A. Poor lens fit
- B. Overnight wear
- C. Delay seeking treatment
- D. Trauma

4. Which of the following management options would you be most likely to choose?

- A. Advise to leave lenses out for a week then resume
- B. Refit with silicone hydrogel lens and continue wear
- C. Refer urgently for ophthalmological investigation
- D. Patch the eye and see again in two days' time

Correct answers:

- 1: D. All of these techniques have a role in assessing microbial keratitis and in differential diagnosis.
- 2: D. All of these features, ideally supported by ocular photography, should be recorded.
- 3: B. Overnight wear is the most obvious risk factor involved although the aetiology may be multi-factorial.
- 4: C. Refer urgently as an ocular emergency for corneal scrape, close monitoring and medical treatment.

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FURTHER READING/REFERENCES

Bacterial keratitis

Clinical Management Guidelines. Microbial Keratitis. College of Optometrists.

Bacterial/Fungal: [CLICK HERE TO ACCESS](#)

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FURTHER READING/REFERENCES

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Acanthamoeba keratitis

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