

Differentiating Contact Lens Peripheral Ulcer from Microbial Keratitis: Clinical Criteria and Management in Three Cases

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BACKGROUND & OBJECTIVE

CLPU is a sterile inflammatory condition that can mimic infectious keratitis, potentially leading to unnecessary intensive antimicrobial therapy. Establishing reliable clinical differentiation criteria is essential to avoid overtreatment and unnecessary lens cessation.

CASE 1 — 22-year-old male

Monthly silicone hydrogel | Occasional overnight use

- Peripheral infiltrate 1.0 mm, intact epithelium
- No anterior chamber reaction, no discharge
- Corneal sensation: intact | Culture: negative
- Symptom onset within hours of lens wear

Management:

Lens cessation, prophylactic fluoroquinolone, preservative-free tears. Resolution in 10 days.

Return: Daily disposable lenses at 4 weeks — No recurrence at 6 months

CASE 2 — 27-year-old female

Monthly silicone hydrogel | Occasional overnight use

- Peripheral infiltrate 1.2 mm, epithelial defect <2 mm
- Minimal AC reaction, no mucopurulent discharge
- Corneal sensation: intact | Culture: negative
- Acute onset within hours, central vision unaffected

Management:

Lens cessation, prophylactic fluoroquinolone, preservative-free tears. Resolution in 7 days.

Return: Daily disposable lenses at 5 weeks — No recurrence at 6 months

CASE 3 — 34-year-old male

Monthly silicone hydrogel | Occasional overnight use

- Peripheral infiltrate 1.5 mm, epithelial defect <2 mm
- No AC reaction, no discharge, symptom onset <4 hours
- Corneal sensation: intact | Culture: negative
- Residual scarring <0.5 mm at resolution

Management:

Lens cessation, prophylactic fluoroquinolone, preservative-free tears. Resolution in 14 days.

Return: Daily disposable lenses at 6 weeks — No recurrence at 6 months

PROPOSED CLINICAL ALGORITHM — CORNEAL INFILTRATE IN CL WEARER

CLPU (Sterile)

Peripheral (<2mm) | Intact epithelium or defect <2mm
No AC reaction | No discharge | Intact sensation
Culture negative | Onset within hours

Microbial Keratitis

Central or large (>2mm) | Epithelial defect
Anterior chamber reaction | Mucopurulent discharge
Reduced sensation | Slower onset

KEY FINDINGS

3 Cases

All CLPU confirmed

Resolution

7-14 days all cases

Return

4-6 weeks daily disp.

Recurrence

Zero at 6 months

All 3 cases: cultures negative, resolution without intensive antibiotics

CLPU vs MICROBIAL KERATITIS — DIFFERENTIAL FEATURES

Feature	CLPU (Sterile)	Microbial Keratitis
Location	Peripheral	Central / any
Size	<2 mm	Often >2 mm
Epithelium	Intact or defect <2mm	Defect usually present
AC reaction	Absent/minimal	Moderate to severe
Discharge	Watery/none	Mucopurulent
Corneal sensation	Intact	Often reduced
Onset	Hours	Hours to days
Culture	Negative	May be positive
Treatment	Prophylactic AB	Intensive AB

CONCLUSIONS

- CLPU can be reliably differentiated from microbial keratitis using clinical criteria: peripheral location, small size (<2 mm), intact/minimal epithelial defect, absent AC reaction, and negative cultures.
- Prophylactic-dose fluoroquinolone without intensive treatment is sufficient, avoiding unnecessary antimicrobial overuse.
- Complete resolution was achieved in 7-14 days across all three cases with minimal residual scarring (<0.5 mm).
- Transition to daily disposable lenses with strict daily-wear-only compliance is effective in preventing CLPU recurrence.
- We propose a practical clinical algorithm for corneal infiltrative events in contact lens wearers to guide management decisions.

CLINICAL IMPLICATIONS

- Use clinical criteria to avoid unnecessary intensive AB therapy
- Daily disposables eliminate overnight wear risk
- 4-6 weeks sufficient before safe lens resumption
- Clinical algorithm improves management consistency

KEYWORDS

Contact lens peripheral ulcer
Microbial keratitis
CLPU
Corneal infiltrate
Daily disposable
Overnight wear