

Deborah F. Sweeney,<sup>1</sup> Padmaja R. Sankaridurg,<sup>1</sup> Brien A. Holden,<sup>1</sup> Murali K. Aasuri,<sup>2</sup> Gullapalli N. Rao<sup>2</sup>  
<sup>1</sup>CCLRU, School of Optometry and CRCERT, University of New South Wales, Sydney, Australia; <sup>2</sup>L.V. Prasad Eye Institute, Hyderabad, India

## Introduction

Contact lens induced peripheral ulcer (CLPU), an inflammatory reaction of the cornea, is characterised in its active stage by focal excavation of the epithelium and infiltration and necrosis of the anterior stroma.<sup>1,2</sup> The condition has been observed more frequently during extended wear (EW) of soft contact lenses than during daily wear.<sup>3,4</sup>

CLPU typically presents as a single, circumscribed, circular, dense, focal infiltrate with overlying epithelial loss. Here we report the incidence and clinical features of CLPUs where more than one focal infiltrate was seen during the event.

## Methods

- Prospective EW clinical trials at L.V. Prasad Eye Institute, Hyderabad, India from March 1992 to August 2000.
- 789 subjects  
 Male : Female: 505 : 284  
 Age (years): 22 ± 4 (16 to 36)
- Average months of wear: 9 ± 7 (1 night to 43)
- Lens Types:
  - Low Dk disposable hydrogels (FDA Groups I, II and IV) on a 6 night EW and replacement schedule
  - High Dk silicone hydrogels on a 30 night EW and replacement schedule.

## Results

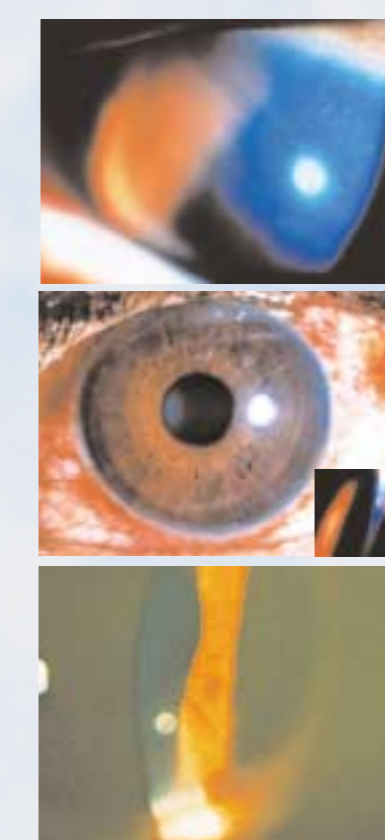
125 events of CLPU (includes first and recurrent) were observed in 93 subjects, of which 18 subjects had a total of 24 recurrent episodes.

### Sub-Classification

**Definite:** Circular, circumscribed focal anterior stromal infiltrate in corneal periphery with overlying full thickness epithelial loss. Resolves to an opacity which persists six months or greater.

**Probable:** Resolving focal infiltrative lesion or a positive history suggestive of a corneal event and a new circumscribed, circular, anterior stromal opacity.

**Possible:** New anterior stromal opacity characteristic of resolved CLPU with no positive history.



| No. of Events | Multiple Infiltrates | Single Infiltrate |
|---------------|----------------------|-------------------|
| ⇒ 41          | ⇒ 3 (7%)             | ⇒ 38 (93%)        |
| ⇒ 38          | ⇒ 0 (0%)             | ⇒ 38 (100%)       |
| ⇒ 46          | ⇒ 1 (2%)             | ⇒ 45 (98%)        |
| <b>125</b>    | <b>4 (3%)</b>        | <b>121 (97%)</b>  |

### Clinical features of events with multiple focal corneal infiltrates vs single infiltrates

| Sub-Classification        | MULTIPLE INFILTRATES (n=4)                          |  |   |                    | SINGLE INFILTRATE (n=18) <sup>*</sup>                             |
|---------------------------|---|--|---|--------------------|---|
|                           | Definite  | Definite                                   | Definite                                  | Possible           | Definite  |
| <b>Symptoms</b>           | Redness<br>Irritation<br>FB sensation<br>White spot | Redness<br>Watering<br>Pain<br>Photophobia | Redness<br>Irritation<br>Pain<br>Watering | None               | Redness (89%)<br>Pain (56%)<br>Watering (56%)<br>Irritation (28%) |
| <b>Signs</b>              |   |  |   |                    |   |
| Bulbar redness *          | Sig. ↑  | Sig. ↑                                     | Sig. ↑                                    | None               | Sig. ↑  |
| Limbal redness *          | Sig. ↑  | Sig. ↑                                     | Sig. ↑                                    | None               | Sig. ↑  |
| No. of Focal infiltrates  | 2   | 2  | 3   | 3 (opacities)      | 1   |
| <b>Location</b>           |   |  |   |                    |   |
| Size (mm)                 | 0.4 / 0.4   | 0.4 / 0.3                                  | 0.5 / 0.3 / 0.4                           | 0.9 / 1.0 / 1.2    | 0.6 ± 0.3   |
| Depth                     | Ant. stroma   | Ant. stroma                                | Ant. stroma                               | Ant. stroma        | Ant. stroma   |
| Overlying epithelial loss | Full thickness (2)                                  | Full thickness (2)                         | Full thickness (2)                        | Nil                | Full thickness (2)<br>Punctate (11%)                              |
| Intervention              | Temp. discontin.                                    | Temp. discontin.<br>Corneal biopsy **      | Temp. discontin.                          | Continue lens wear | Temp. discontin. (100%)<br>Prophylaxis (14%)                      |
| Time to resolution        | 12 days<br>Opacity                                  | Not known<br>(biopsy)                      | 9 days<br>Opacity                         | Not applicable     | Day 10: 42%<br>Day 15: 83%<br>Day 26: 100%                        |

\* Compared to prior visits in study.

\*\* Histopathology of the biopsy revealed focal epithelial loss, intact Bowman's layer, dense infiltration of the anterior stroma with PMNs and no micro-organisms.



## Discussion

- 3% of CLPU events presented with multiple (two or three), circumscribed, focal corneal infiltrate. As with CLPUs with a single infiltrate, the infiltrates were always anterior stromal in depth, did not involve deeper layers and had overlying epithelial loss. There was associated bulbar and limbal redness and the infiltrates resolved to opacities on discontinuation of lens wear.
- The clinical course suggests that the event is non-infectious, self-limiting and benign. The histopathologic findings from one of the events with no micro-organisms supports this theory.
- The aetiology and the pathogenesis of the condition remains unclear. However, the histopathologic features, combined with the peripheral corneal localisation of the events, led us to consider the probability of an antigen antibody reaction in the peripheral cornea to as yet unknown antigen.

## Conclusion

While CLPUs typically present with a single focal infiltrate in the corneal periphery, a small percentage can present with multiple focal infiltrates. Except for this feature, the other clinical features and course were similar to events with a single CLPU.

## References

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