# Fitting a Scleral Lens After Two Corneal Perforations in a Patient with Pellucid Marginal Degeneration

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## Abstract

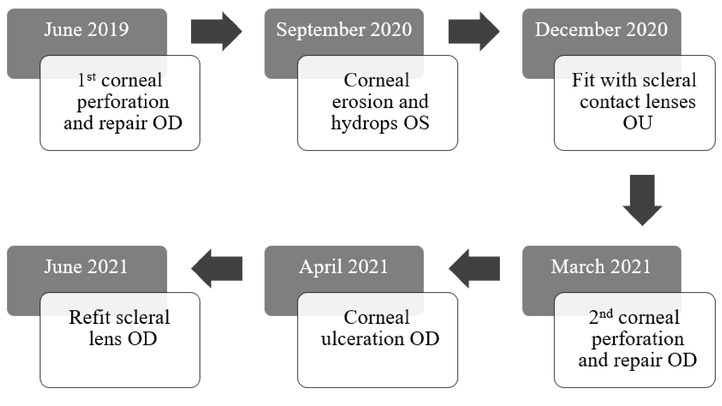
This case report highlights scleral lens adjustments that were required following two highly unusual corneal perforations in the setting of pellucid marginal corneal degeneration.

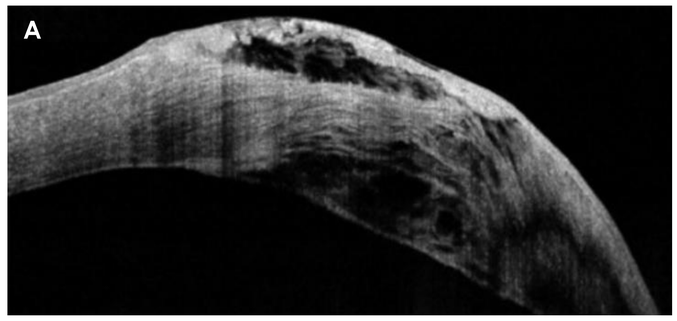
## Introduction

- Keratoconus and Pellucid Marginal Corneal Degeneration (PMCD or PMD) are both progressive, non-inflammatory corneal thinning disorders[1].
- PMD is significantly less common and is characterized by crescent shaped, peripheral, inferior corneal thinning with an area of ectasia superior to the thinnest corneal point[1].
- Due to the extreme inferior location of the ectasia in PMD, many patients fail with corneal gas permeable lenses and must use scleral lenses.
- Clinical findings associated with PMD include large amounts of irregular, against-the-rule astigmatism and a "crab-claw" or "kissing doves" configuration seen on corneal topography[2].
- Very rare, yet serious complications of PMD include acute corneal hydrops and spontaneous corneal perforation[1], both of which were experienced by the patient in this case.
- Hydrops infrequently occur in PMD, and perforation is even more uncommon. There are only a handful of case reports of perforation associated with PMD and the first was in 1997[3].

## Case History

- A 65-year-old Caucasian female with PMD OU presents for a contact lens refitting OD.
- Events leading up to this visit:

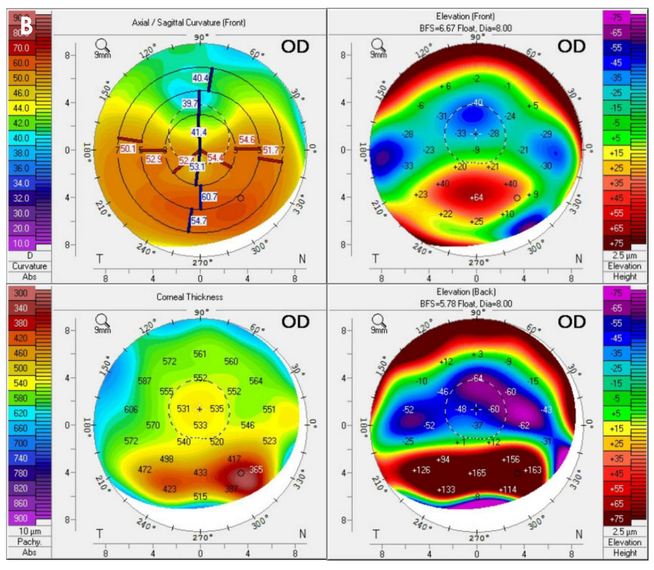


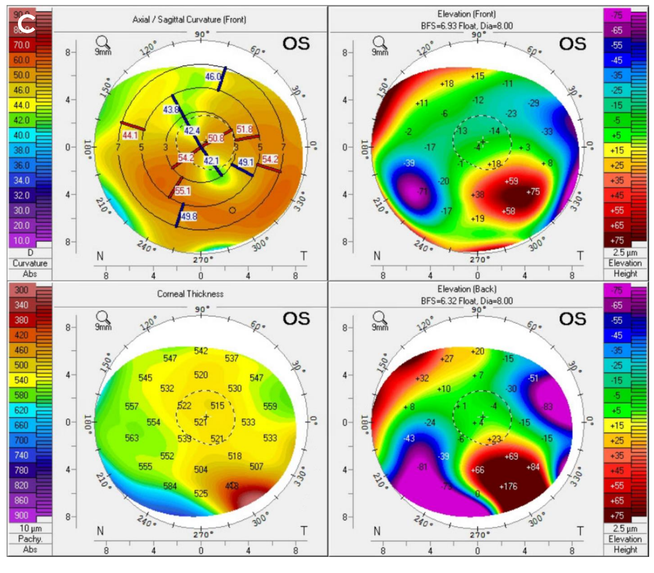




**(A)** Episode of acute corneal hydrops OS.

## Clinical Findings

- BCVA with manifest refraction: 20/80 OD and 20/100 OS.
- Pinhole VA: 20/40 OD and 20/20 OS.
- Corneal topography shows significant inferior corneal thinning and ectasia OD>OS.
- Slit lamp examination: inferior curved corneal scarring and thinning OU with neovascularization near the corneal scarring, OD only.




**(B)** Corneal topography OD showing irregular astigmatism and Kmax of 62.5D.
**(C)** Corneal topography OS showing irregular astigmatism and Kmax of 57.7D.

## Contact Lens Fitting

### Previous Lenses

| | Contact Lens Parameters | VA |
|---|---|---|
| OD | Onefit MED / Std Prolate / Sag 5200 / M +100 / L +50 / E (-1.00/-2.00) / dia 17.0 / power -0.62 / CT 300 | 20/20 |
| OS | Onefit MED / Std Prolate / Sag 5250 / M std / L std / E (Std/-2.00) / dia 17.0 / power -0.50 / CT 300 | 20/20-2 |

- OD modifications required post-perforation: increased vault which caused increased movement necessitating a tighter haptic.

### Trial 1

| | Contact Lens Parameters | VA |
|---|---|---|
| OD | Onefit MED / Std Prolate / Sag 5400 / M std / L std / E (-2.00/-3.00) / dia 17.0 / power -2.37 / CT 250 | 20/15-3 |

- Adequate fit, comfort, and vision.

### Final Rx

| | Contact Lens Parameters | VA |
|---|---|---|
| OD | Onefit MED / Std Prolate / Sag 5400 / M std / L std / E (-2.00/-3.00) / dia 17.0 / power -2.37 / CT 250 | 20/15-3 |
| OS | Onefit MED / Std Prolate / Sag 5250 / M std / L std / E (Std/-2.00) / dia 17.0 / power -0.50 / CT 300 | 20/20-2 |

## Conclusions

- Although rare, patients with PMD are at risk for corneal perforation.
- It is important to educate patients that even post corneal perforation repair they can still be candidates for scleral lens wear.
- Modifications to scleral lens design may be necessary to maintain corneal integrity after corneal perforation repair, as seen in this case.
- A properly fit scleral lens can maximize a patient's visual acuity as compared to spectacles or other contact lens modalities in these patients[4], allowing for improved quality of life.

## References

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