

Double Devastation: A clinical case of Long-lasting Bilateral Corneal Hydrops

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BACKGROUND

Acute Corneal Hydrops is a complication that can occur in patients with advanced corneal ectasia, resulting from a break in Descemet's membrane causing corneal edema and haze.¹⁻³ Acute Corneal Hydrops is self-limiting, with typical resolution of edema within six to 14 weeks after onset.¹ In advanced cases, corneal edema can last much longer and have resulting corneal neovascularization or corneal perforation.¹⁻³ Resolution of acute hydrops is dependent on the re-attachment of Descemet's membrane to the posterior stroma followed by the migration of endothelial cells to fill the gap.⁴ The time required for resolution is dependent on the size and depth of the initial detachment of Descemet's.⁴ Corneal Transplantation maybe be warranted if a visually impairing scar results from the prolonged corneal edema.^{1,3}

CASE DESCRIPTION

A 31 year old black male with a known diagnosis of bilateral Keratoconus, presented to the University Eye Center on January 26, 2022 with complaints of extreme light sensitivity and decreased vision in the right eye for five days. The patient was diagnosed with Acute Corneal Hydrops, which was confirmed with anterior segment OCT imaging, showing the posterior corneal break. On June 9, 2022, while still showing mild signs of edema in the right eye, the patient reported to the clinic with the same complaints of extreme light sensitivity and decrease vision in the left eye. He was diagnosed with acute corneal hydrops in the left eye.

On July 19, 2022 the right eye was evaluated to be resolved, with a large central scar and best corrected visual acuity with previous scleral lens of 20/50. The corneal edema was present for six months with corneal thickness measurements greater than 900 microns for four months. The cornea also developed significant neovascularization approximately one month after initial diagnosis. The patient continues to have complaints of significant glare and poor vision due to the size, location, and density of the corneal scar. The patient will undergo corneal transplantation surgery in 2023.

On November 02, 2022, an evaluation of the left eye continues to show corneal edema and corneal neovascularization with BCVA 20/60+ while wearing his habitual scleral lens. Management is ongoing at five months after initial diagnosis.

PATIENT MANAGEMENT

Hyperosmotic ointment (BID to QID)

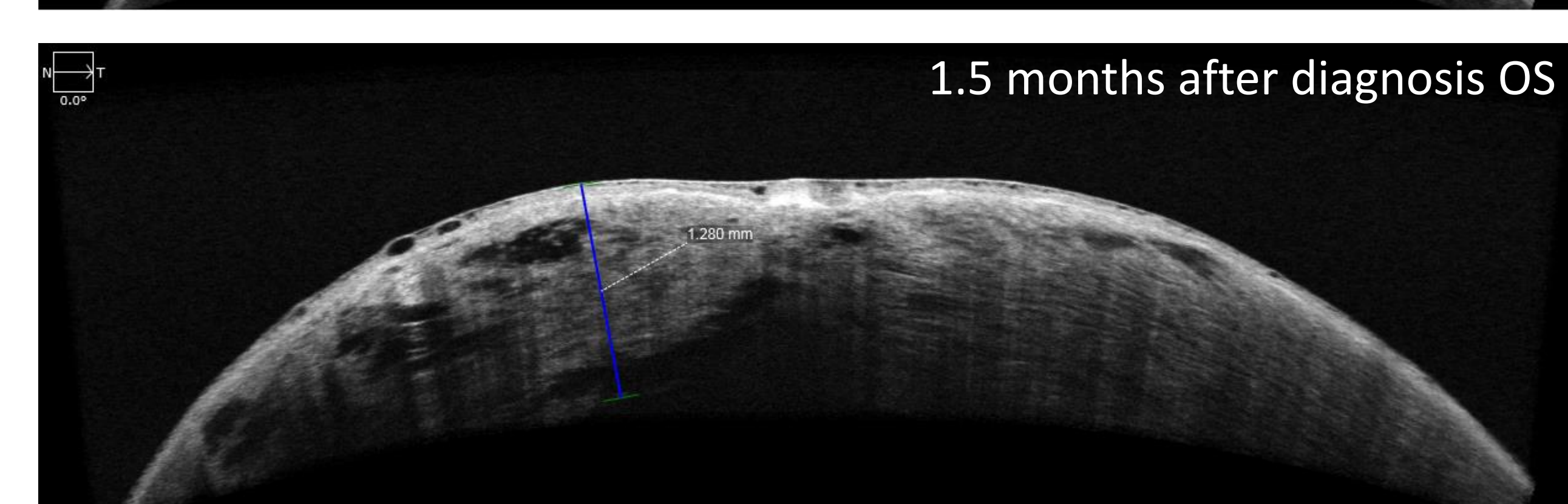
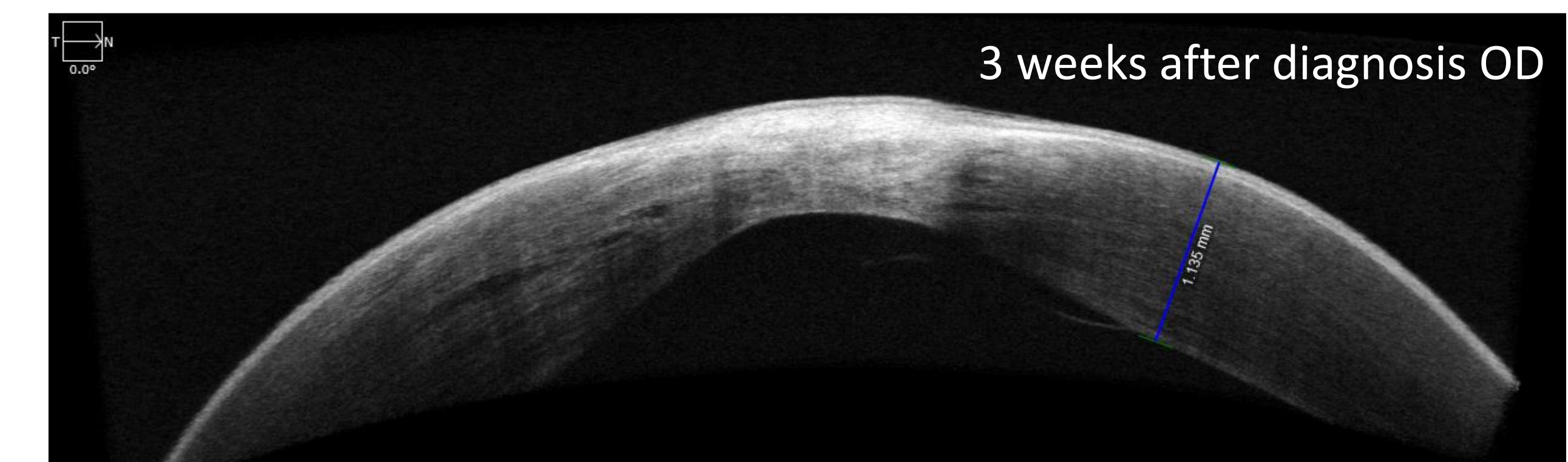
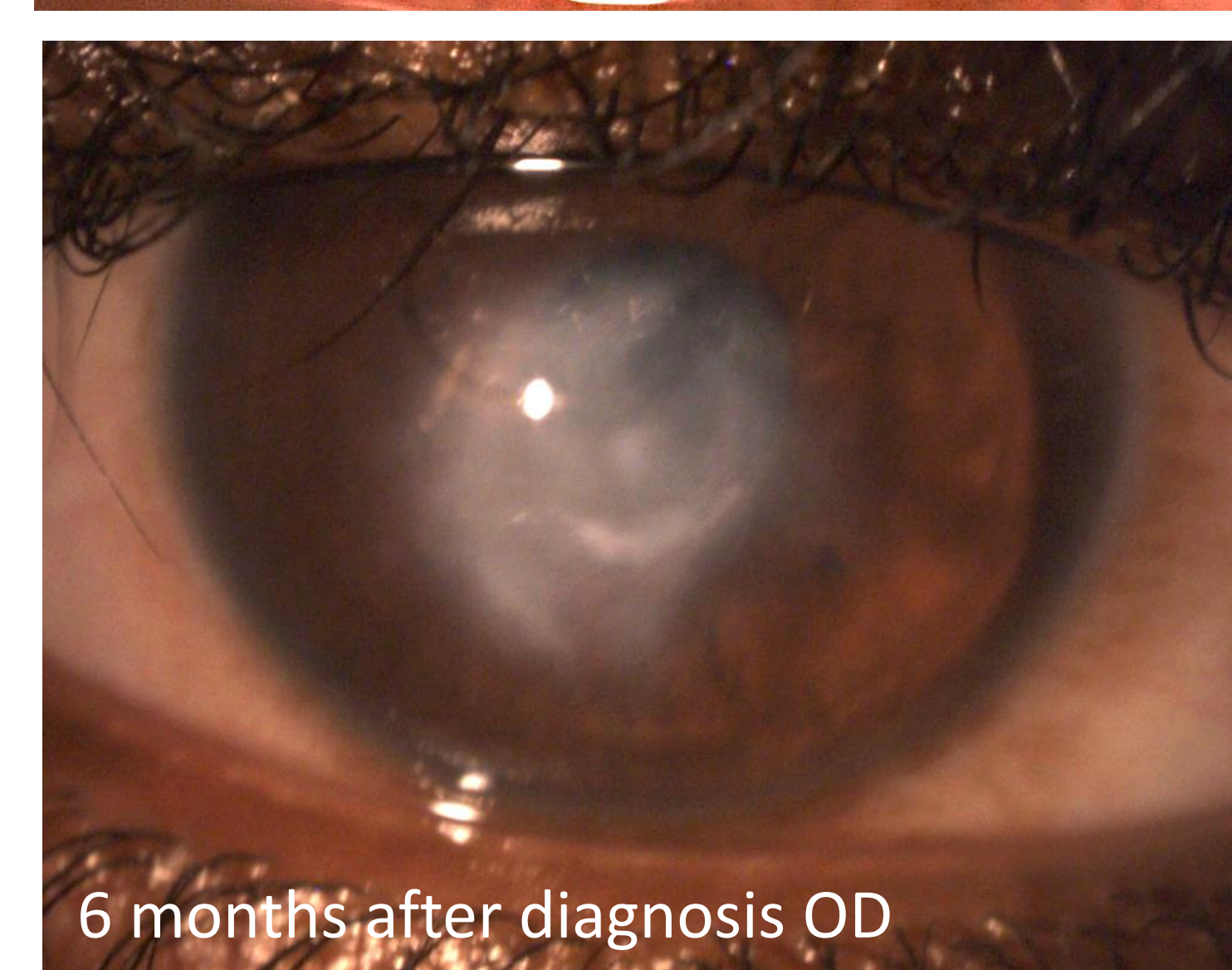
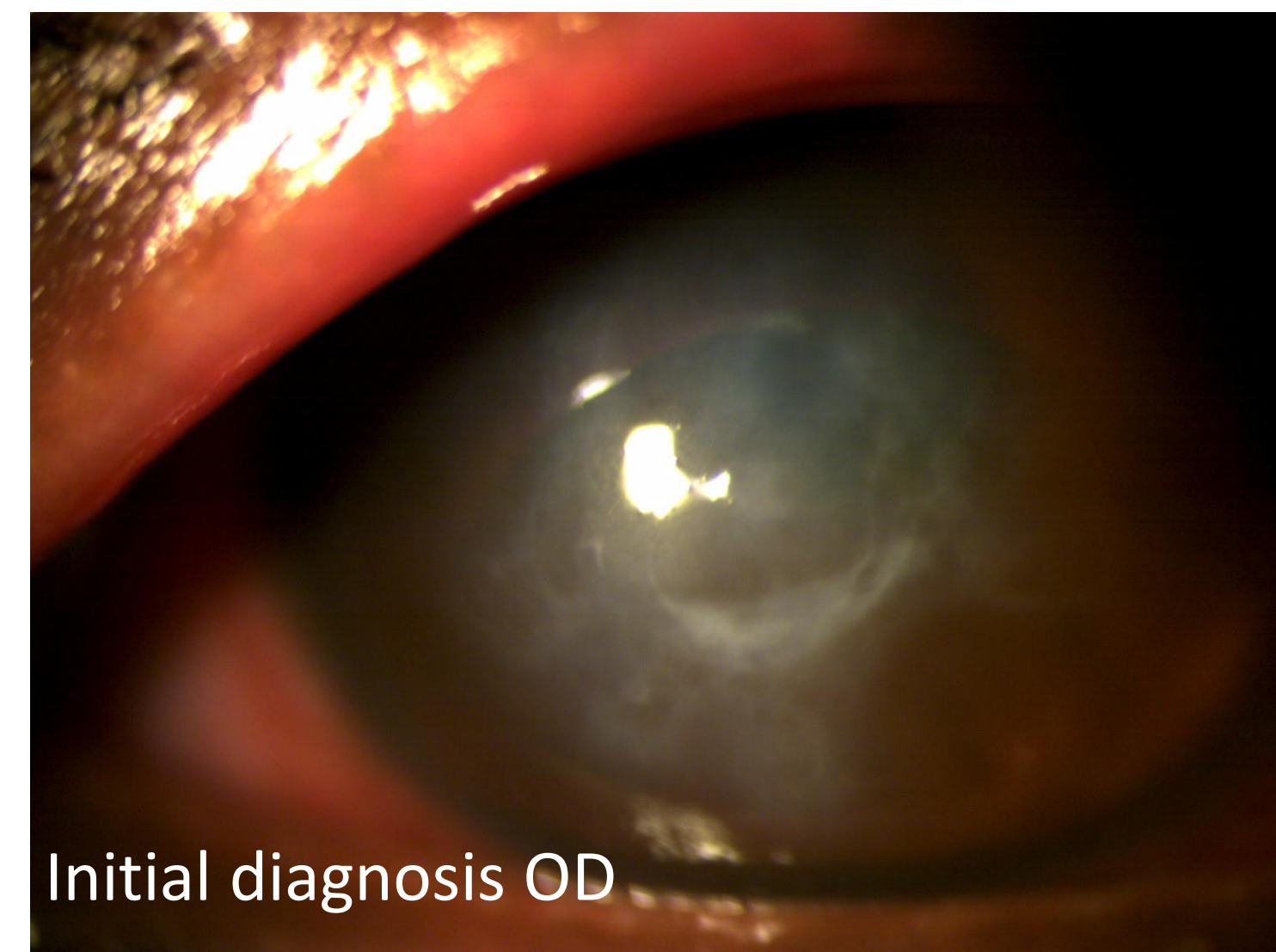
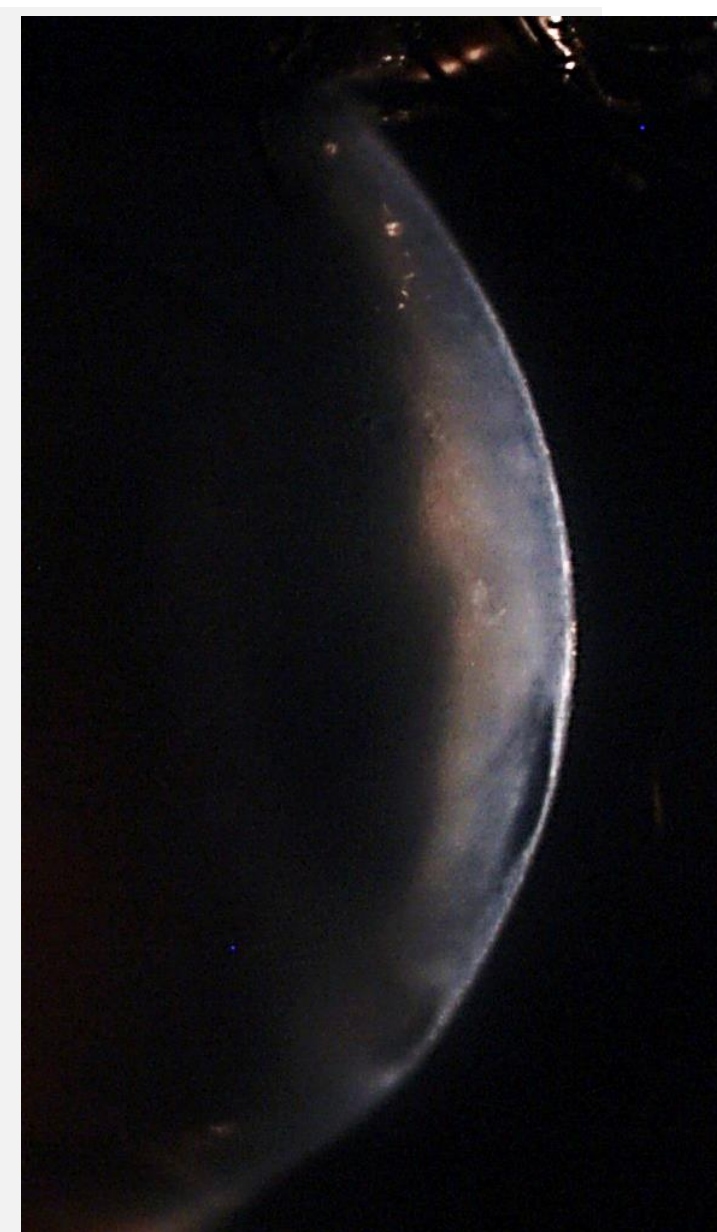
- prescribed to decrease corneal edema

Topical Steroid (BID to QID)

- prescribed when patient developed corneal neovascularization in the right eye
- Prescribed with initial diagnosis in the left eye.

Topical Cycloplegic

- prescribed for pain management, not prescribed in this case



REFERENCES

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3. Gokul A, et al. Persisting extreme acute corneal hydrops with a giant intrastromal cleft secondary to keratoconus. *Clin Exp Optom*. 2015;98(5):483-6.
4. Basu S, et al. Anterior segment optical coherence tomography features of acute corneal hydrops. *Cornea* 2012; 31:479-485.