

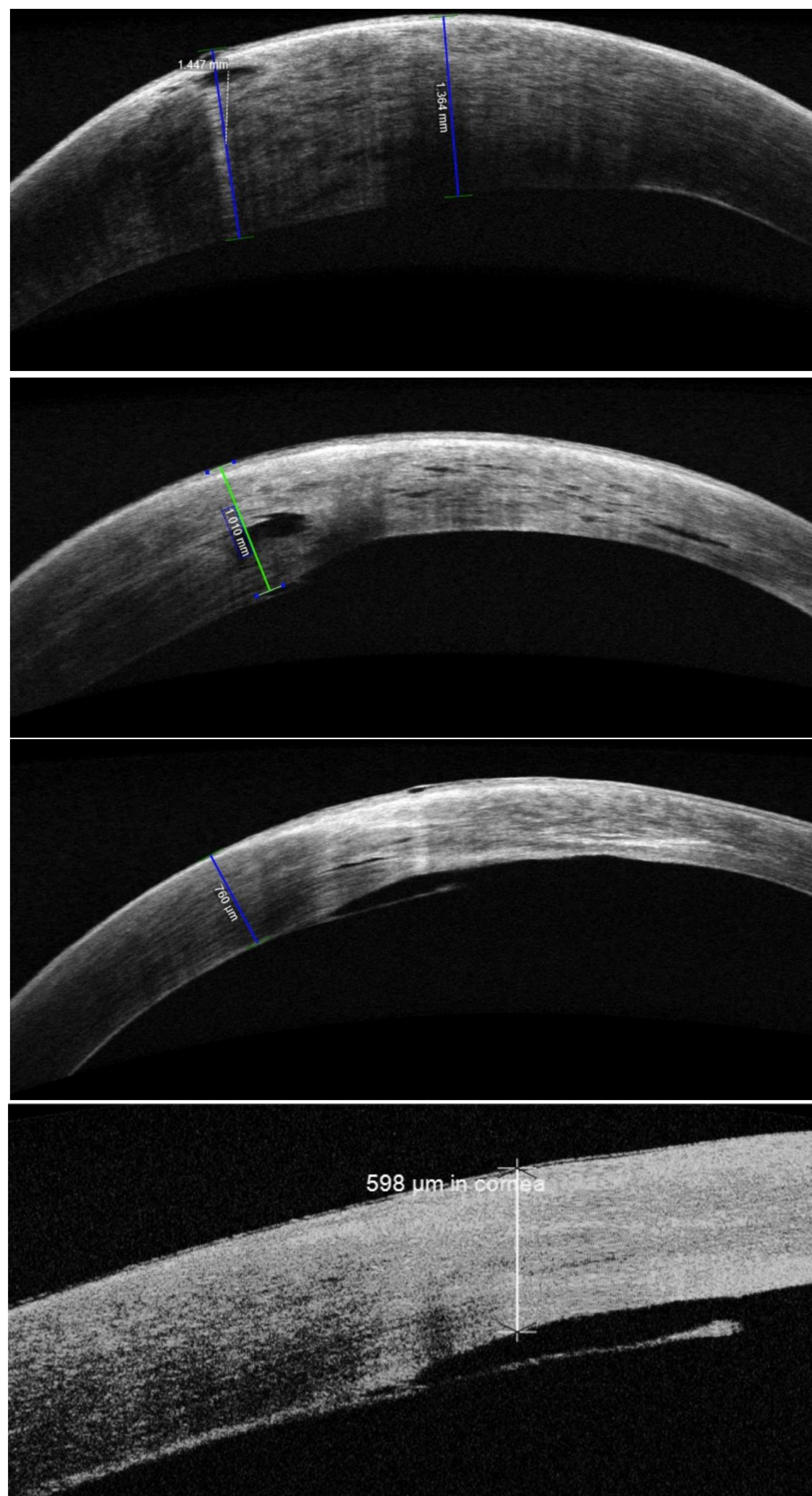
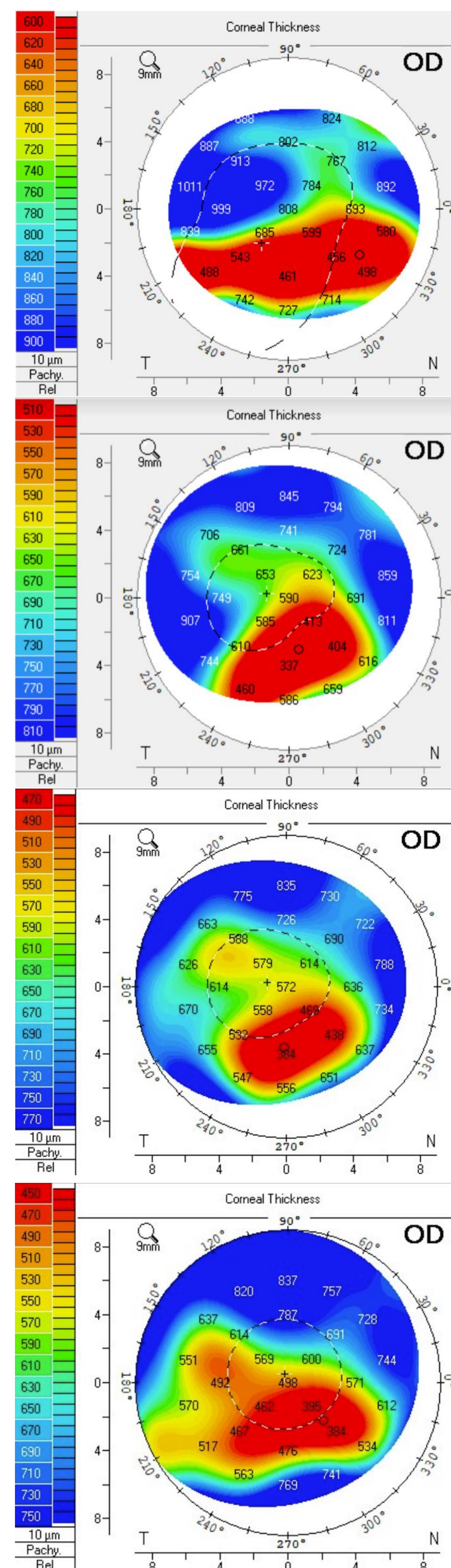
BACKGROUND

Acute corneal hydrops is a complication of corneal ectasia conditions such as keratoconus in which Descemet's membrane ruptures and the cornea becomes edematous from an influx of aqueous into the stroma. It is a spontaneous painful event which leads to a significant sudden decline of vision. While there is essentially no way of preventing the occurrence of the condition, this can be a very painful event and slow to resolve, during which the patient will need to be treated and followed to minimize the loss of vision from scarring. After resolution, the patient will likely need to be fitted or re-fit in a scleral lens to maximize vision.

CASE DESCRIPTION

A 27-year-old Hispanic female with known keratoconus presented to clinic after experiencing an episode of acute corneal hydrops five days prior. Vision at the time was CF at 6 inches and she was experiencing high amounts of pain. The patient had already been initiated on Brimonidine 0.2% TID, Cyclopentolate 1% QD, and Muro 128 ointment BID. Baseline OCTs and tomography scans with Pentacam were taken to monitor the corneal thickness, and at each biweekly follow-up through resolution. These scans and information gathered gave insight as to how the condition was progressing and allowed for a guided treatment plan.

IMAGING



The patient was monitored every 2-3 weeks for three and a half months until resolution of symptoms and stability of cornea. With each visit Pentacam scans were taken to obtain corneal thickness maps, as well as Cirrus OCT scans using Corneal HD scan and 5-line raster were taken to monitor corneal thickness at the area with Hydrops. Through these series of images, we can see as the transition from corneal thickness around 1.4mm thick to near resolution at 598 microns thick.

DISCUSSION

When the patient presented to the service, she had already been prescribed Brimonidine 0.2% TID to decrease aqueous humor production and increase uveoscleral outflow to reduce strain being exerted on the cornea and slow down the influx of fluid into it. Cyclopentolate 1% QD was being administered to help with pain. Muro 128 ointment BID was being used to reduce corneal edema caused by the break in Descemet's membrane. Due to mild bullous keratopathy noted at the subsequent 2 follow ups, the patient was started on Tobradex QID to provide antibiotic coverage in the possible presence of epithelial rupture. The patient continued to be monitored on a biweekly basis with repeated imaging. Tobradex, Cyclopentolate, and Brimonidine were discontinued once corneal edema was stabilizing and her pain resolving. She was started on Loteprednol BID along with Muro 128 drops QID and Muro 128 Ung QHS in attempts to continue to aid in reduction of inflammation of the cornea with the goal of avoiding scarring if possible. Three and a half months later, there was nearly complete resolution with mild corneal scarring remaining right off the visual axis, only reducing her vision to 20/40 with the aid of scleral lenses. At this time the patient was refit for a scleral lens which attained an ideal fit over the newly shaped cornea.

CONCLUSION

When evaluating the cornea after this incident, it is important to conduct a thorough slit lamp examination to determine the magnitude of corneal edema, assess for epithelial defects, or corneal rupture with a positive Seidel test. OCT imaging can facilitate visualization of the rupture in Descemet's membrane and extent of detachment from the cornea as well as provide a tool of measuring corneal thickness in a particular location of the cornea. Tomographers can additionally be used to generate a corneal thickness map of the entire cornea.