



Three Cases of *Acanthamoeba* Representing Various Stages of Disease: Onset - Eradication - Raging/Recurrence



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BACKGROUND *Acanthamoeba* keratitis (AK) can result from the improper use of contact lenses including swimming, sleeping and showering in lenses. *In vivo* confocal microscopy (IVCM) has tremendous value at not only making an initial diagnosis, but also for monitoring cyst proliferation and evaluating for recurrence of *Acanthamoeba*.

Patient #1 - Initial Onset

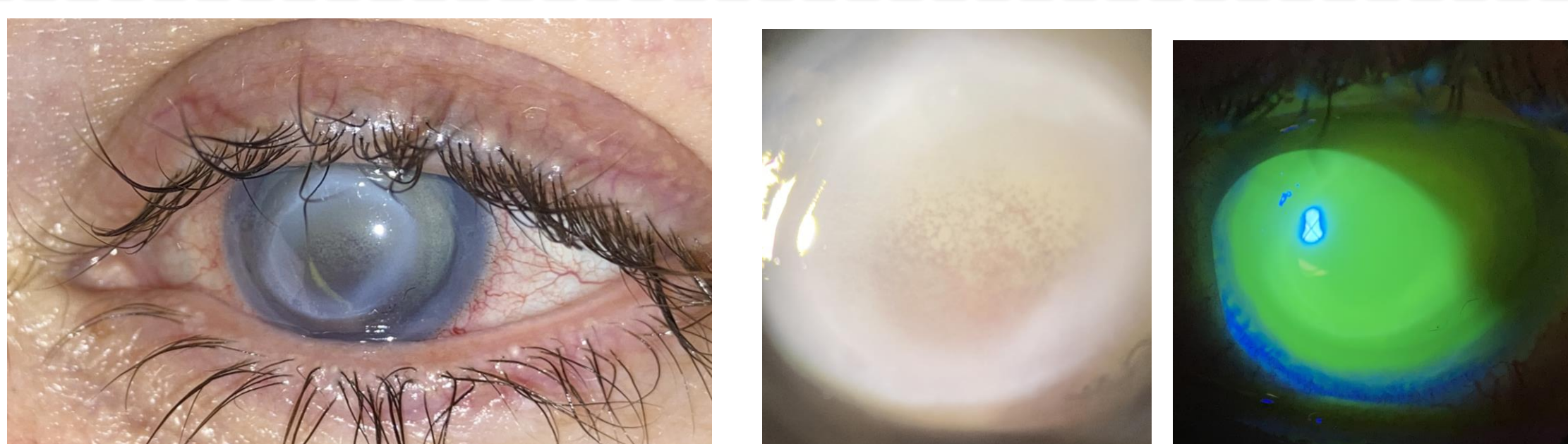
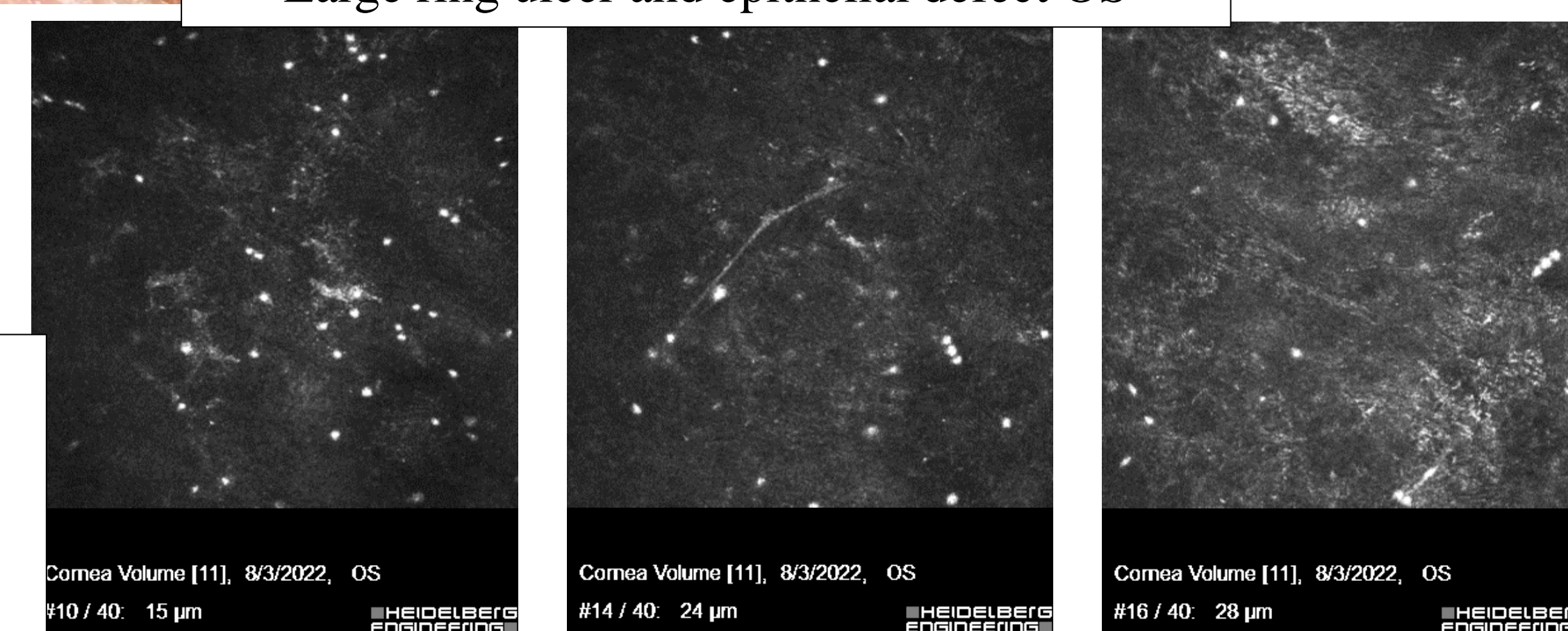
42 yo female was referred by a corneal specialist for IVC. Redness and irritation started 3 weeks ago in her left eye after swimming in her contact lenses (CL). She was initially diagnosed with a corneal abrasion at urgent care and prescribed an unknown antibiotic drop. After symptoms worsened, she saw an optometrist who prescribed ofloxacin drops for suspected bacterial keratitis. She was referred to a corneal specialist who switched her to topical steroids, and she experienced a severe worsening of symptoms. She was then referred for IVC, at which point a large 7mm ring ulcer had formed. AK was confirmed by IVC and the patient was started on an aggressive treatment regimen.



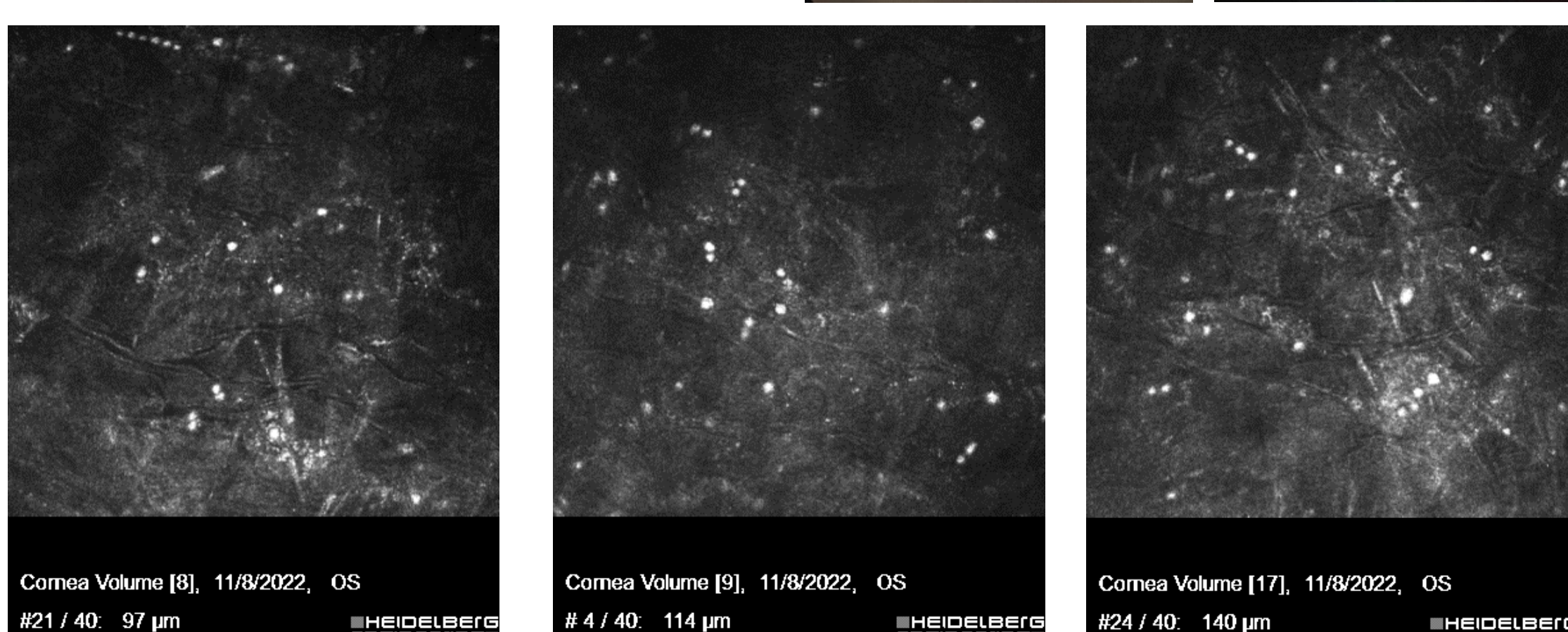
Large ring ulcer and epithelial defect OS

1 month

IVCM at time of *Acanthamoeba* diagnosis

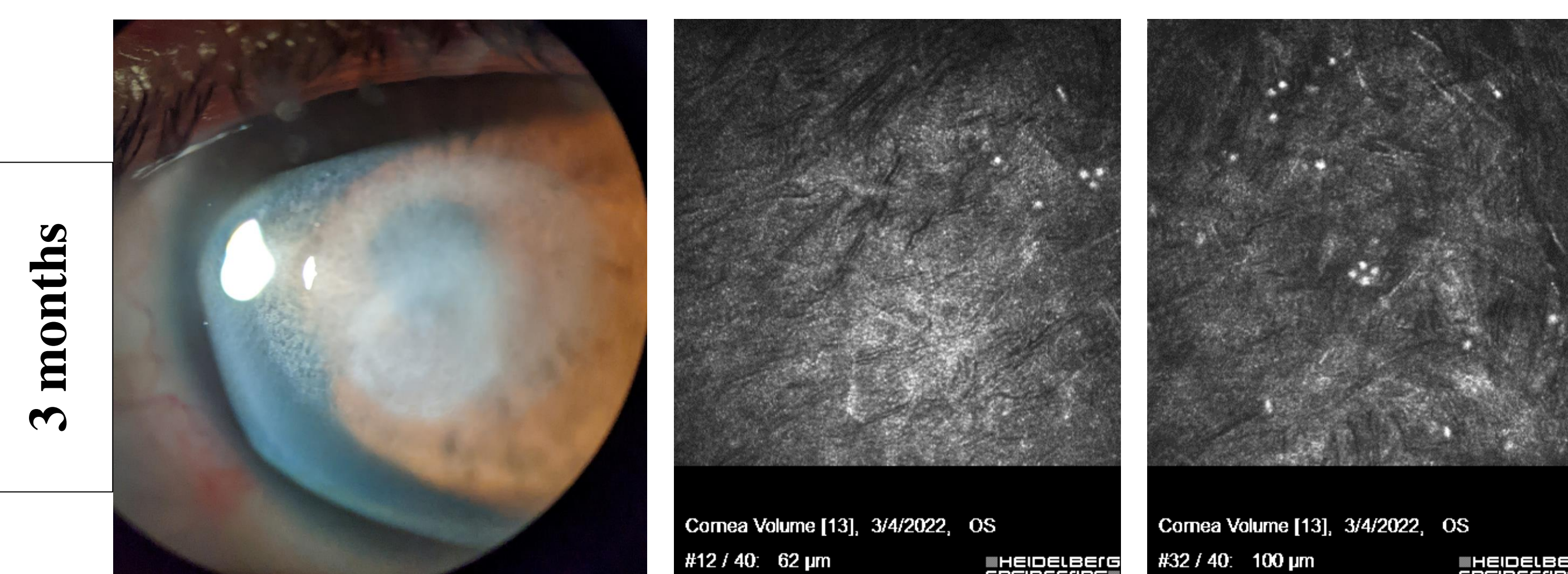


3 months

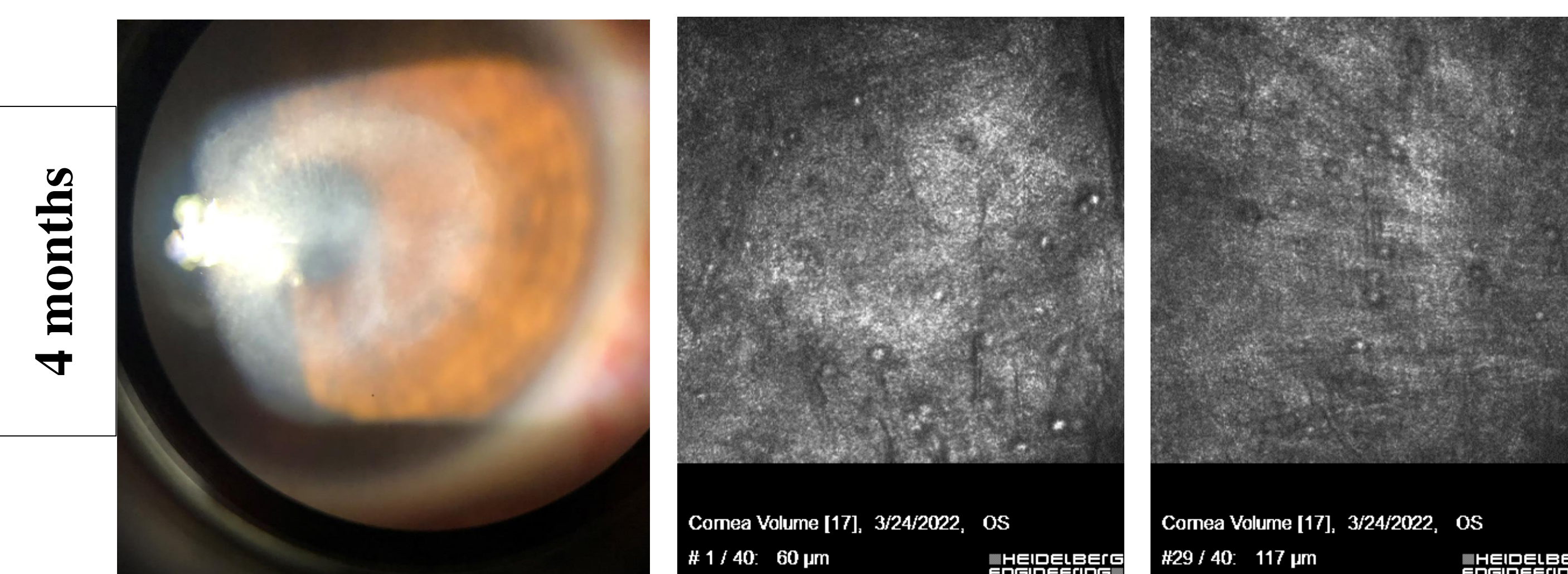


Patient #2 - Eradication

28 yo male CL wearer was diagnosed with AK in his left eye. After three months of treatment with chlorhexidine, some improvement was noted, and the epithelial defect was closed. He was referred for IVC to identify if cysts were still present as preparations for a corneal graft were being made. The initial confocal revealed cysts, and this was followed by regular confocal scans. At the 5th confocal scan (9 months since onset of disease), the cysts were no longer observed. The patient is now planning to have a penetrating keratoplasty to improve vision.



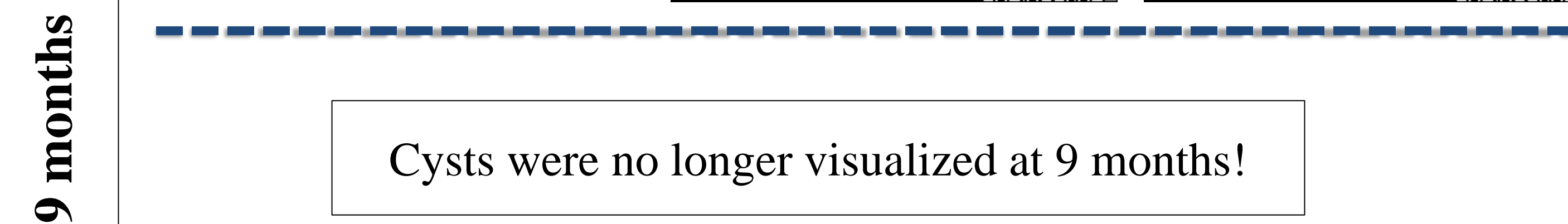
3 months



4 months



6 months

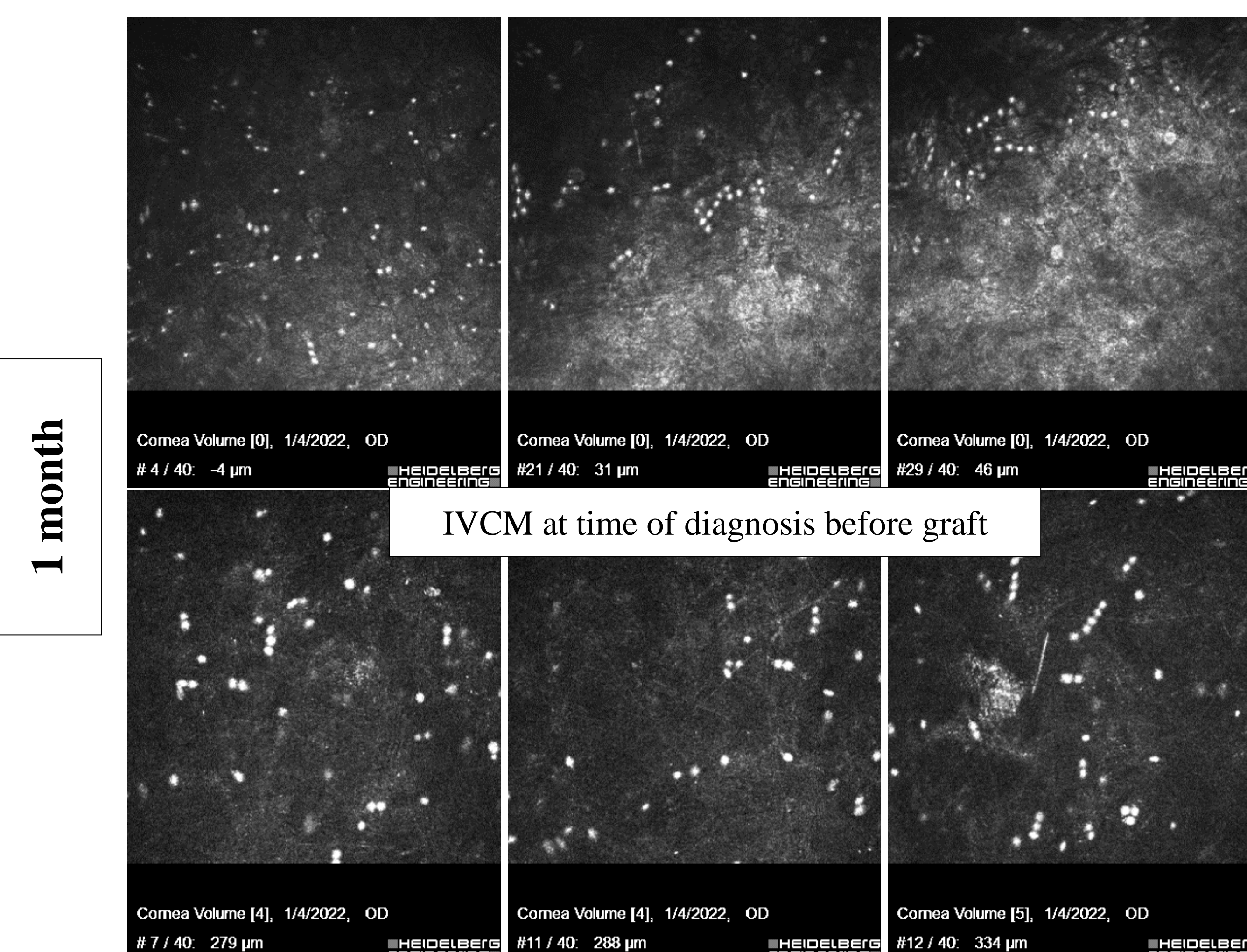


9 months

Cysts were no longer visualized at 9 months!

Patient #3 – Raging/Recurrence

45 yo male soft CL wearer who sometimes takes naps and showers in his CLs developed FBS, irritation and pain in his right eye. He was prescribed numerous medications including vancomycin, tobramycin, moxifloxacin, atropine, timolol, and acyclovir. The appearance of a large, ring-shaped ulcer created strong suspicion for *Acanthamoeba*, which was confirmed by IVC. The condition worsened rapidly, and the patient underwent a therapeutic corneal transplant 2 months later. This graft began to fail from an *Acanthamoeba* recurrence.



1 month

IVCM at time of diagnosis before graft



3 months

Acanthamoeba recurrence after therapeutic graft



11 months

No cysts visualized on IVC. Appearance of eye at 11 months since onset

CONCLUSIONS *Acanthamoeba* is an uncommon cause of microbial keratitis, but when it occurs it can have devastating consequences on a patient's vision. Early diagnosis and aggressive treatment are keys to successful management of this condition. IVC is very helpful at making an early diagnosis and guiding doctors through the treatment process, which can help produce the best outcomes for patients. Clinicians should be aware of the stages of AK progression including onset, eradication and possible recurring/raging infection even after therapeutic intervention.