What is this?

Test your knowledge with a real-life case. Should this cornea be transplanted?

This cornea is from a 49-year-old Caucasian male donor who expired from complications related to intestinal polyposis syndrome. The donor's next of kin reported eye trauma history related to a logging accident 15 years before the patient's death, resulting in untreated traumatic cataracts. The recovery technician noted unremarkable penlight findings at the time of recovery. Slit lamp examination, performed in the laboratory by eye bank technicians, found numerous pericentral mid-stromal opacities (Fig. 1 and Fig. 2).

*Fig. 1.* 10x diffuse illumination of pericentral stromal phenomenon revealing location and extent of opacification

*Fig. 2.* 16x direct illumination of stromal phenomenon revealing depth and intermittent appearance of opacification

**Photos and Video:**
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Opacity extent and depth confirmed with optical coherence tomography (OCT) (Fig. 3 and Fig. 4). Specular microscopy was performed per routine protocol with an endothelial cell density of 2309/mm² (Fig. 5).

Two fellowship-trained cornea specialists evaluated the tissue and determined opacification likely from remote history of herpetic disciform keratitis. One specialist specifically noted presence of peripheral stromal ghost vessels (Fig. 6) as key to determination of likely etiology.

**Fig. 3.** OCT image demonstrating transverse orientation of stromal opacities

**Fig. 4.** OCT image demonstrating extent and placement of stromal opacities

**Fig. 5.** Specular microscopy image reveals a normal cell bed.

**Video 1.** Two OCT scans (inferior to superior and temporal to nasal) demonstrating the shape and orientation of a section of the stromal opacities

Answer:
The tissue was deemed not suitable for transplant due to concern for latent viral presence. Specular microscopy did not contribute to the confirmation of the pathological findings.

Discussion:
Stromal opacities are commonly found in recovered corneal tissue, and utilization of grafts with opacities is acceptable by Eye Bank Association of America (EBAA) standards if the optical zone is not impeded. However, when the etiology of observed opacities is suspected due to herpetic lesions, our eye bank elects to not utilize the tissue for transplant because of the remote possibility of herpes transmission – a documented cause of graft failure. In this case, OCT imaging (Video 1) served as a valuable adjunct to slit lamp observations. While nonessential to tissue suitability determination, clear OCT imaging of opacities elucidates pathology more clearly than slit lamp examination alone. The use of OCT technology in eye banking will likely yield additional circumstances under which our understanding of corneal pathology may be enhanced. The authors encourage the sharing of these images with the eye banking community as a whole through this forum.

**Fig. 6.** Slit lamp image of a ghost vessel. Indirect illumination is used to identify the vessel that is visualized at the end of the arrow. Peripheral stromal ghost vessels can be seen (arrow) and likely arose from earlier herpetic disciform keratitis.

**KEYWORDS:** corneal opacity, eye bank, herpetic lesion, interstitial keratitis, optical coherence tomography, slit lamp exam

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