Epithelial Downgrowth: An Atypical Clinicopathological Case Report

Epithelial downgrowth is a rare but grave complication of intraocular surgery that typically manifests as epithelial sheets, cysts, or pearls. Prognosis is poor as incursion of epithelial cells onto anterior chamber structures can result in corneal decompensation, refractory glaucoma, and visual deficits. Treatment options include enucleation, surgical excision, irradiation, cryotherapy, cautery, laser coagulation, vitrectomy, and injections of antimetabolites. Herein, we describe a case in which epithelial downgrowth appeared as an amorphous anterior chamber cellular aggregate, was diagnosed by anterior chamber tap and specular microscopy, and was treated successfully with fluorouracil.

Report of a Case. A 66-year-old woman who had been receiving subconjunctival steroid injections for presumed graft rejection visited in December 2009 with decreased vision in her right eye. Her ocular history included Fuchs endothelial dystrophy and narrow-angle glaucoma. Her right eye had undergone penetrating keratoplasty, cataract extraction, and anterior chamber intraocular lens implantation in November 2006 and pars plana vitrectomy and pars plana Ahmed tube shunt in October 2008.

Examination of the right eye revealed best-corrected visual acuity of 20/150. Intraocular pressure measured less than 5 mm Hg. Slitlamp examination revealed a red, white debris accumulated in the anterior chamber (Figure 1A). The vitreous and retina appeared as an amorphous anterior chamber cellular aggregate, was diagnosed by anterior chamber tap and specular microscopy, and was treated successfully with fluorouracil.

Findings on review of systems and a systemic workup for anterior uveitis were negative. Anterior chamber taps were performed for stains, cultures, polymerase chain reaction, and pathological analysis. Gram stains showed 10 to 25 mononuclear cells per low-power field but no organisms. Fungal stains and bacterial and fungal cultures were negative. Results of polymerase chain reaction were positive for herpes simplex virus, herpes zoster virus, and cytomegalovirus. Cytological analysis showed no morphologic evidence of lymphoid neoplasia. However, degenerating neutrophils and macrophages along with epi-
theliod nonhematopoietic cells consistent with epithelial downgrowth were identified (Figure 2A). An amorphous pattern of larger cells with hyperreflective nuclei suggestive of epithelial cells was seen on specular microscopy6 (Figure 1C).

The anterior chamber debris was removed with aspiration and the patient was treated twice with intracameral injections of fluorouracil, 1000 μg/0.1 mL, in a dispersive viscoelastic4 with complete resolution of the anterior chamber findings. The patient required a repeated penetrating keratoplasty for graft failure that transpired during the course of her treatment. Three months postoperatively, uncorrected visual acuity was 20/40. No recurrence of epithelial or inflammatory anterior chamber debris has occurred (Figure 1D).

The Descemet membrane separated from the overlying stroma intraoperatively. Histopathological analysis did not reveal a migratory path of epithelial cells, although the specimen lacked the complete graft-host junction. A fibrous retrocorneal membrane (Figure 2B) was identified and subsequently classified to be of metaplastic endothelial origin based on Jakobiec and Bhat’s established classification of retrocorneal membranes7 (Figure 2C and D).

Comment. This case illustrates an unusual manifestation of epithelial downgrowth as an amorphous cellular aggregate within the aqueous as opposed to more typical manifestations of epithelial sheets, cysts, or pearls. Our diagnosis was based on the histopathological results of the aqueous tap and specular microscopy. The mechanism of entry of the ectopic epithelial cells remains unclear, but possibilities include entry through the corneal wound during the triple procedure or retrograde flow through the tube. Importantly, epithelial downgrowth should be considered in the differential diagnosis of chronic anterior chamber inflammation and cellular aggregates that are unresponsive to therapy.

In our case, fluorouracil treatment achieved excellent anatomical and visual results. Two cases in 2002 documented the complete resolution of epithelial downgrowth in patients treated with fluorouracil4,5; however, neither case showed post–fluorouracil treatment histopathological correlates. Our patient’s eye remains devoid of any ectopic epithelial cells, but her initial graft failed after a retrocorneal membrane had developed. The retrocorneal membrane may have resulted from metaplastic endothelial cell growth due to deposition of hematopoietic or epithelial cells in the anterior chamber, metaplasia of existing endothelial cells, or a reaction between the fluorouracil and epithelial cells.7

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Chromoblastomycosis is a chronic subcutaneous mycosis that typically involves the lower extremities. The vast majority of causative microorganisms have melanized cell walls (i.e., are dematiaceous fungi) and belong to 4 genera of saprophytic fungi: Phialophora, Fonsecaea, Rhinocladiella, and Cladophialophora. Most human infections can be traced to traumatic implantation. We describe a unique case of conjunctival chromoblastomycosis that mimicked a uveal melanoma with scleral invasion.

Report of a Case. A 75-year-old white woman was referred for evaluation of a pigmented lesion of her right na-