conjunctival inflammation and a dominant corneal lesion was usually present. It usually appears as a prominent infiltrate and the inflammation improves dramatically after the first week, with new satellite lesions appearing. After the first week, the inflammation is reduced and the infiltrate coalesces, with new satellite lesions appearing. The microbiological study revealed multiple acid-fast bacilli; therefore, treatment was initiated with amikacin, 0.1%, clarithromycin, 1%, vancomycin hydrochloride, 1%, moxifloxacin, 0.3% (Vigamox), and oral clarithromycin. The intensive treatment failed to control the infection and the infiltrate coalesced, with new satellite lesions appearing. The final result of the culture showed Mycobacterium chelonae resistant to amikacin and clarithromycin; thus, topical linezolid (2 mg/mL) was initiated (6 times daily). Both the infiltrate and the inflammation improved dramatically after the first week of treatment. Control of the infection was achieved after 2 months. The final examination revealed a subtle leukoma, larger in the left eye.

Report of a Case. A 33-year-old man had mild photophobia and redness in his right eye with blurred vision 1 month after an uneventful bilateral LASIK procedure using the same blade for both eyes. Slitlamp examination revealed mild ciliary injection and a white corneal infiltrate in the interface 1.5 mm from the flap edge, with no overlying epithelial defect. With suspicion of bacterial keratitis, topical treatment with ciprofloxacin hydrochloride (Oftacilox) and tobramycin (Tobrex) was initiated. After the first week, the inflammation was reduced but the infiltrate increased in size; thus, lifting and scraping were performed and samples were obtained from the stromal bed of the ulcer. The microbiological study revealed multiple acid-fast bacilli; therefore, treatment was initiated with amikacin, 0.1%, clarithromycin, 1%, vancomycin hydrochloride, 1%, moxifloxacin, 0.3% (Vigamox), and oral clarithromycin. The intensive treatment failed to control the infection and the infiltrate coalesced, with new satellite lesions appearing. The final result of the culture showed Mycobacterium chelonae resistant to amikacin and clarithromycin; thus, topical linezolid (2 mg/mL) was initiated (6 times daily). Both the infiltrate and the inflammation improved dramatically after the first week of treatment. Control of the infection was achieved after 2 months. The final examination revealed a subtle leukoma, the final visual acuity was 20/30 OD and 20/40 OS.

Comment. Infection following LASIK procedures is uncommon, with a reported incidence of 1 in 5000 to 10,000 surgical procedures. It usually appears as a prominent conjunctival inflammation and a dominant corneal lesion involving the flap limits. In contrast, infection with atypical Mycobacterium species may be indolent with mild inflammation, therefore delaying the diagnosis. Several cases of mycobacterial keratitis following LASIK have been reported in the literature. The most frequently involved pathogen is M. chelonae (66%). To our knowledge, only 3 cases of bilateral keratitis due to M. chelonae have been published, and all cases responded to classic treatment with fourth-generation fluoroquinolones amikacin and vancomycin.5

To our knowledge, this is the first case of multidrug-resistant bilateral M. chelonae keratitis after LASIK that was successfully treated with topical linezolid. This drug may be an effective alternative in treating post-LASIK keratitis, which is a dreaded complication with difficult diagnosis and management.

Rosa Dolz-Marco, MD
Patricia Udaondo, MD
Roberto Gallego-Pinazo, PhD, DISSO
J. Maria Millàn, PhD
Manuel Díaz-Llopis, PhD

Author Affiliations: Departments of Ophthalmology (Drs Dolz-Marco, Udaondo, Gallego-Pinazo, and Díaz-Llopis) and Genetics (Dr Millán), University and Polytechnic Hospital La Fe, Centro de Investigación en Red de Enfermedades Raras (Dr Millán), and Faculty of Medicine, University of Valencia (Dr Díaz-Llopis), Valencia, Spain.

Correspondence: Dr Dolz-Marco, Department of Ophthalmology, University and Polytechnic Hospital La Fe, Bulevar Sur s/n, Valencia 46026, Spain (rosadolzmarco@gmail.com).

Conflict of Interest Disclosures: None reported.

Cystic Epithelial Ingrowth in a Case of Deep Anterior Lamellar Keratoplasty

In deep anterior lamellar keratoplasty (DALK), complications related to baring of the Descemet membrane such as incomplete exposure or perforations are well known.1 Epithelial ingrowth, on the other hand, is rare following anterior lamellar keratoplasty and usually occurs as a sheet of cells across the interface.2 Herein, we report the first case, to our knowledge, of a cystic pattern of epithelial downgrowth in a case of DALK and its subsequent management.

Videos available online at www.archophthalmol.com

Report of a Case. A 29-year-old man had a translucent, cystic growth in the anterior chamber (approximately 6 × 8 mm) of the right eye extending from the
best-corrected visual acuity improved to 20/20 and the fied squamous epithelium (Figure 1D). Postoperatively, amination of the excised tissue showed multilayered strati-
ification was done with 10-0 Prolene sutures. The area of cyst attached to the graft-host junction was additionally cauterized (video 2). Histopathological examination of the excised tissue showed multilayered strati-fied squamous epithelium (Figure 1D). Postoperatively, best-corrected visual acuity improved to 20/20 and the graft remained clear with no evidence of recurrence at the 1-year follow-up (Figure 2).

Comment. Epithelial ingrowth following lamellar corneal procedures occurs in a diffuse pattern across the ocular structures and through the potential space of the lamellar interface as observed in laser-assisted in situ keratomileusis, Descemet-stripping endothelial keratoplasty, or anterior lamellar keratoplasty. A cystic pattern, on the other hand, commonly complicates penetrating trauma or intraocular surgery.

We hypothesize that surface cells migrated across the graft-host junction or through the needle tract to form a nest of cells at the microperforation site that subsequently progressed to a cystic proliferation into the anterior chamber along the path of least resistance. This is evident by the attachment of the cyst to the perforation site at the graft-host junction away from the scleral tunnel and the nature of cells in histopathological sections. Together, fluid turbulence in the anterior chamber precludes a possibility of cell implantation during phacoemulsification. Thus, intraoperative Descemet membrane perforation during DALK can predispose to subsequent epithelial downgrowth, apart from the known consequences of double anterior chamber and enhanced endothelial cell loss.

Epithelial cysts have been treated with a variety of techniques. However, no particular procedure has established its superiority. The primary challenges in this case were to preserve the function of the graft as well as provide the advantages of a lamellar keratoplasty. A traditional aggressive approach to epithelial ingrowth may not be practical for a cystic form, where delineation of the cyst margin allows for a more complete excision. Early conservative surgery can preserve the greater integrity of ocular structures as shown in this case and prevent complications associated with progressive ingrowth. A similar observation was obtained by Haller et al6 in a different subset of patients. Our approach seems to have successfully prevented recurrence of downgrowth without jeopardizing the graft until the last follow-up at 12 months.

To conclude, cystic epithelial downgrowth is a rare complication of intraoperative Descemet membrane perforation in DALK, which is amenable to conservative surgical treatment.

Jayangshu Sengupta, MS
Archana Khetan, MS

Author Affiliations: Cornea and Refractive Services, Priyamvada Birla Aravind Eye Hospital, Kolkata, India.

Correspondence: Dr Sengupta, Cornea and Refractive Services, Priyamvada Birla Aravind Eye Hospital, 10 Loudon St, Kolkata 700017, West Bengal, India (jayansu@hotmail.com).

Conflict of Interest Disclosures: None reported.


1. Reinhart WJ, Musch DC, Jacobs DS, Lee WB, Kaufman SC, Shtein RM. Deep anterior lamellar keratoplasty as an alternative to penetrating keratoplasty: a

Figure 1. Characteristics of epithelial ingrowth following deep anterior lamellar keratoplasty. A, Diffuse illumination view in slitlamp biomicroscopy demonstrating a cystic structure in the anterior chamber. B, Slitlamp section view demonstrating translucence of the cyst and clear graft interface. C, Ultrasound biomicroscopy demonstrating the thin cyst wall with attachment to the graft-host junction. D, Histopathological section showing the squamous lining of the cyst wall (hematoxylin-eosin, original magnification ×10).

Figure 2. Postoperative clinical picture. A, Diffuse illumination. B, Slitlamp section view showing the clear graft and interface.

6- to 9-o’clock positions with encroachment of the pupillary margin 2 years after DALK for corneal scar after fungal keratitis, followed 6 months later by phacoemulsification and toric intraocular lens implantation through a superior scleral tunnel (Figure 1 A and B). Records of this case demonstrated a needle entry through the Descemet membrane while passing the inferior secondary sutures (video 1, http://www.archophthalmol.com). At the initial visit, best-corrected visual acuity was 20/30. The graft was clear with an unaltered interface.

Ultrasound biomicroscopic examination revealed an echolucent, thin-walled cystic structure attached to the graft-host junction while pressing on the underlying iris tissue with resultant iris atrophy. The cyst was free from the angle, ciliary body, and intraocular lens–capsular bag complex (Figure 1C).

Surgery consisted of decompression of the cyst followed by 23-gauge endocautery of the adjacent iris tissue and en bloc excision with the help of 23-gauge vitrectomy scissors. Subsequently, pupillary reconstruction was done with 10-0 Prolene sutures. The area of cyst attached to the graft-host junction was additionally cauterized (video 2). Histopathological examination of the excised tissue showed multilayered strati-fied squamous epithelium (Figure 1D). Postoperatively, best-corrected visual acuity improved to 20/20 and the
Conjunctival Pigmented Epithelioid Melanocytoma: A Clinicopathological Case Report

Pigmented epithelioid melanocytoma (PEM) is a rare, melanocytic skin and mucosal tumor with low-grade malignancy. It is a recently defined histopathological entity. It encompasses epithelioid blue nevus of the Carney complex, a familial lentiginosis and multiorgan neoplasia syndrome, and most tumors previously described as animal-type melanoma (ATM).1,2 Dick3 first described ATM in gray horses in 1832. The similarity between the equine and human skin variant was noticed later by Darier.4 In 2004, Zembowicz et al6 observed the same features in 41 ATM and 11 epithelioid blue nevus specimens and proposed the term of PEM. Because of its unique demographic characteristics, clinical presentation, histological features, and intermediate malignant potential between a benign blue nevus and common melanoma, PEM was allocated into a separate nosological category of borderline melanocytic tumors.3 We present, to our knowledge, the first clinicopathological case report of conjunctival PEM, initially diagnosed as ATM.

Report of a Case. A 47-year-old white man had a 38-year history of a slowly enlarging, darkly pigmented nodule on the superior palpebral conjunctiva of his right eye. Five smaller, pigmented spots adjacent to the lesion had recently appeared (Figure 1). Presuming a diagnosis of conjunctival melanoma with local satellite metastasis but without excluding a benign lesion, we performed an excisional biopsy. Histopathological analysis showed a proliferation of heavily pigmented fusiform and epithelioid melanocytes arranged in solid, confluent sheets and infiltrating the tarsal plate and orbicularis muscle but not the epithelium. Large epithelioid cells with prominent eosinophilic nuclei were also found. Nuclear pleomorphism was mild to moderate. Mitoses were rare (1/40 high-power fields) and no atypical mitoses were seen. There was no necrosis (Figure 2). The tumor cells expressed S-100 and Melan-A proteins and reacted with HMB-45 antibody. Results on GNAQ and GNA11 genetic analysis of exon 5, searching for mutations identified in 83% of blue nevi,4 were negative. At that time, a diagnosis of ATM was made.

A general checkup showed unremarkable findings without regional lymphadenopathy. To increase safety margins, we performed an uneventful re-excision using an Abbé-Mustardé lower eyelid flap to reconstruct the upper eyelid. Seven years later, the patient displayed no metastasis or local recurrence.

Comment. We describe a patient with conjunctival PEM. Pigmented epithelioid melanocytoma is a distinct, low-grade variant of skin and mucosal melanoma. It involves all age groups, with a preponderance in young adults. There is no predilection for sex or body localization, suggesting that sun exposure is unlikely to be a major factor in its pathogenesis.1

Clinically, PEM appears as a thick, darkly pigmented nodule or plaque. Histopathological features consist of a proliferation of spindle, epithelioid, and large epithelioid melanocytes—abundant with melanin—arranged in sheets and/or nests localized in the dermis, from where they may infiltrate the subcutaneous fat or, rarely, the epidermis. Cells show occasional atypia. Positivity for immunohistochemical markers is the same as in melanoma.

Pigmented epithelioid melanocytoma behaves less aggressively than conventional melanoma. Although sentinel lymph node metastases as high as 46% have been documented, liver metastasis occurred in only 1 case, with the patient being well 2 years after resection. One lethal case has been reported.1,2,5 It is not clear whether, after excisional biopsy, re-excision with margins as wide as those for classic melanoma is indicated.2

In our case, diagnosis of conjunctival PEM was primarily based on its histopathological features, evoking those of skin PEM. The patient’s age and clinical tumor characteristics also matched. In conclusion, we describe the first patient, to our knowledge, with conjunctival PEM. It is important to differentiate PEM from both a benign blue nevus and classic conjunctival melanoma, as PEM, usually

Figure 1. Reversed upper eyelid of the right eye, revealing the initial, intensely pigmented lesion on the tarsal conjunctiva with one of the new adjacent spots on the eyelid margin.