

Figure 2 Pseudoendophthalmitis on top of sterile hypopyon. On postoperative day 6, a bright white crystallin material was found just above the original cream-colored hypopyon. This was felt to represent triamcinolone crystals that moved anteriorly. Pseudoendophthalmitis above the original sterile endophthalmitis in diffuse illumination (a) and with slit-beam illumination (b).

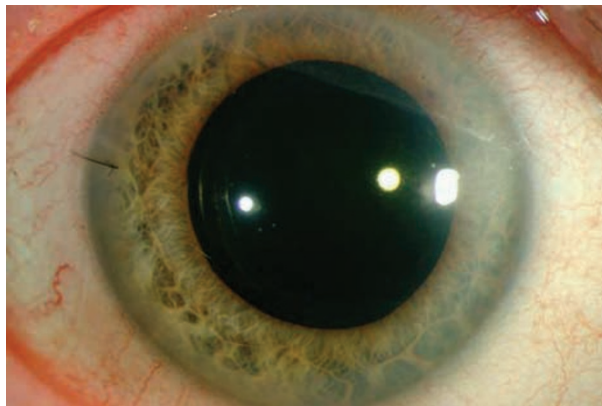


Figure 3 Clinical resolution. By postoperative day 16, the hypopyon and triamcinolone crystals in the inferior angle cleared.

Comment

This case illustrates two non-infectious forms of endophthalmitis associated with IVTA in the same eye.

First, a rapid sterile endophthalmitis resulted from an acute reaction to either triamcinolone or its vehicle components.² This inflammatory reaction may be similar to that of toxic anterior shock syndrome (TASS). Our patient with chronic uveitis developed this when the IVTA was combined with a cataract surgery. Previous intraocular surgery and uveitis have been reported to be risk factors for sterile endophthalmitis.^{2,3} Subsequently, he developed pseudoendophthalmitis, which results from the anterior migration of triamcinolone crystals.^{4,5} In our patient, loose zonules may have contributed to the anterior migration. The patient's findings were not typical of infectious endophthalmitis, given the rapidity of the hypopyon and lack of pain. However, the dramatic rise in IOP is uncommon in non-infectious endophthalmitis. Given the atypical presentation, aspirates were taken for culture. To the best of our knowledge, this is the first report of sterile endophthalmitis and pseudoendophthalmitis in the same eye.

References

- 1 Jonas JB. Intravitreal triamcinolone acetonide: a change in a paradigm. *Ophthalmic Res* 2006; **38**: 218–245.
- 2 Roth DB, Chieh J, Spirn MJ, Green SN, Yarian DL, Chaudhry NA. Noninfectious endophthalmitis associated with intravitreal triamcinolone injection. *Arch Ophthalmol* 2003; **121**: 1279–1282.
- 3 Taban M, Singh RP, Chung JY, Lowder CY, Perez VL, Kaiser PK. Sterile endophthalmitis after intravitreal triamcinolone: a possible association with uveitis. *Am J Ophthalmol* 2007; **144**: 50–54.
- 4 Nelson ML, Tennant MT, Sivalingam A, Regillo CD, Belmont JB, Martidis A. Infectious and presumed noninfectious endophthalmitis after intravitreal triamcinolone acetonide injection. *Retina* 2003; **23**: 686–691.
- 5 Sutter FK, Gillies MC. Pseudo-endophthalmitis after intravitreal injection of triamcinolone. *Br J Ophthalmol* 2003; **87**: 972–974.

M Rauen, TA Oetting, HC Boldt and YH Kwon

Department of Ophthalmology and Visual Sciences, University of Iowa, Iowa City, IA, USA
E-mail: young-kwon@uiowa.edu

No author has a financial or proprietary interest in any material or method mentioned.

Eye (2009) **23**, 1611–1612; doi:10.1038/eye.2008.268; published online 22 August 2008

Sir,
Lymphoepithelial carcinoma of the lacrimal sac

Lymphoepithelial carcinoma (LEC), which often occurs in nasopharynx, is a rare entity in ocular adnexa. Only two cases involving lacrimal gland and one case involving nasolacrimal duct have been reported.^{1–3} We

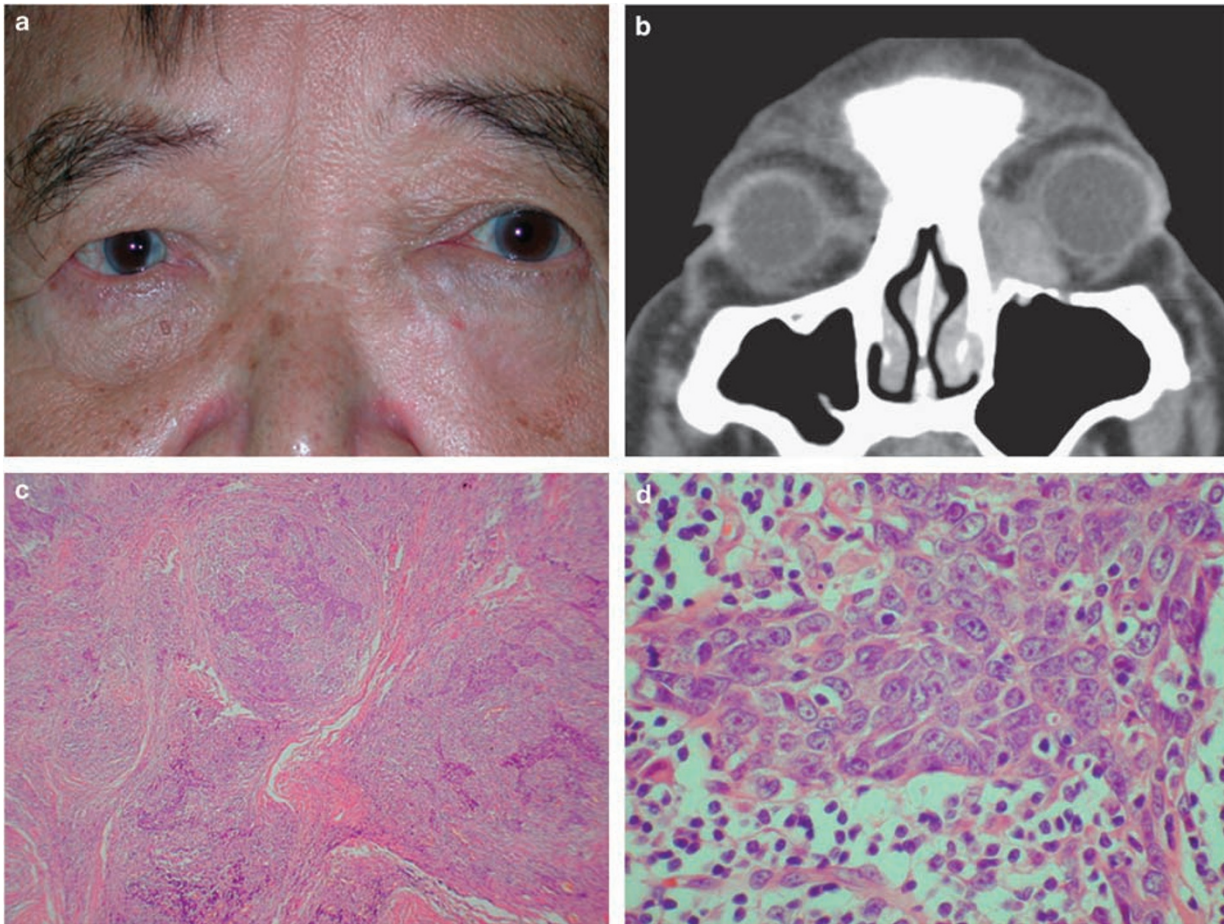


Figure 1 (a) A firm mass is noted in medial canthal region of the left eye. (b) CT shows a soft tissue mass in the left lacrimal sac and extending above the medial canthal tendon. (c and d) The tumour shows fibrous septa, with aggregates of malignant epithelial cells surrounded by lymphoid cells (haematoxylin–eosin, $\times 100$ and $\times 400$).

present the first case of LEC initially presenting in the lacrimal sac.

Case report

An 82-year-old Taiwanese man presented with a slowly enlarging lump in the left medial canthus with epiphora for 18 months. Ocular examination findings showed a non-tender mass with a 3 mm left proptosis and exotropia (Figure 1). Lower punctal irrigation produced a clear reflux through the upper punctum. CT revealed a soft tissue mass involving the left lacrimal sac (Figure 1). Otolaryngological evaluation excluded nasopharyngeal involvement. The patient underwent dacryocystectomy and the histological examination showed an LEC (Figure 1). Immunohistochemical stain was positive for cytokeratin 5, cytokeratin 6 in tumour cells and positive for CD3, CD20 in the stromal lymphoid cells (Figure 2). Marked reactivity for Epstein–Barr virus (EBV) early RNA was detected in tumour cells using *in situ* hybridization (Figure 2). The patient subsequently

received 56 Gy of radiotherapy to the left orbit. However a 3 \times 3 cm left submandibular mass was noted 6 months later. Fine needle aspiration of the left neck mass revealed an undifferentiated carcinoma. The patient underwent further modified neck dissection and the immunohistochemical staining of the lesion showed strong positive for cytokeratins in the tumour cells and positive for CD3, CD20 in the stromal lymphoid cells, consistent with LEC. As the patient rejected further chemotherapy, he was transferred for adjunct radiotherapy. He currently has no evidence of ocular and neck recurrence (12 months after initial diagnosis).

Comment

LECs are neoplasms composed of undifferentiated malignant epithelial cells with dense lymphoid stroma. LECs in nasopharynx and salivary glands are often associated with EBV, particularly in the endemic areas where nasopharyngeal carcinoma is common.^{4,5} However, in other sites, such association is still

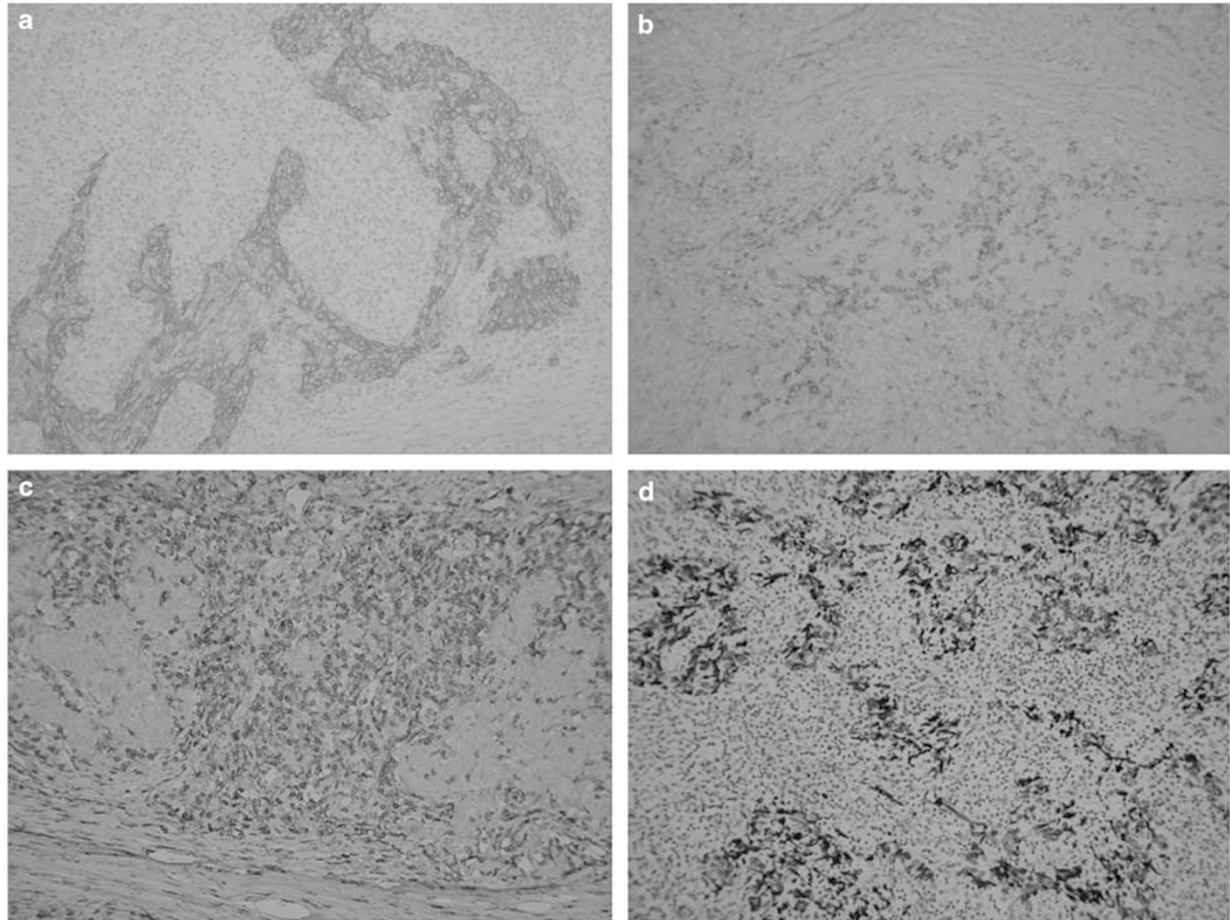


Figure 2 Immunohistochemical staining shows positivity for cytokeratin 5 in the tumour cells (a, immunoperoxidase, $\times 200$), and positivity for CD3, CD20 in the lymphoid cells (b and c immunoperoxidase, $\times 200$). *In situ* hybridization tests for EBV early RNA were positive in the epithelial cells (d, EBV-encoded RNA *in situ* hybridization, $\times 200$).

controversial. None of reported ocular adnexal LEC except the present case was noted to be associated with EBV.

From the published study, optimal treatment is based on surgery and radiotherapy. LEC seems to have a better prognosis than other types of malignancies of the same origin, perhaps because the lymphoid stroma could limit the aggressiveness of this carcinoma.^{5,6} However, long-term follow-up is mandatory because of its tendency to metastasize.

Our case suggests that lacrimal sac LEC may be associated with EBV in the endemic area. Although rare, LEC must be considered in the differential diagnosis of the lacrimal sac tumour.

References

- 1 Bloching M, Hinze R, Berghaus A. Lymphoepithelioma-like carcinoma of the lacrimal gland. *Eur Arch Otorhinolaryngol* 2000; **257**: 399–401.
- 2 Rao NA, Kaiser E, Quiros PA, Sadun AA, See RF. Lymphoepithelial carcinoma of the lacrimal gland. *Arch Ophthalmol* 2002; **120**: 1745–1748.
- 3 Thalacker U, Takacsi-Nagy L, Gödeny M, Varga S, Horvai G, Kulka J. Lymphoepithelial carcinoma of the nasolacrimal duct—a case report. *Laryngorhinootologie* 1995; **74**: 765–767.
- 4 Kuo T, Hsueh C. Lymphoepithelioma-like salivary gland carcinoma in Taiwan: a clinicopathological study of nine cases demonstrating a strong association with Epstein-Barr virus. *Histopathology* 1997; **31**: 75–82.
- 5 Wang CP, Chang YL, Ko JY, Lou PJ, Yeh CF, Sheen TS. Lymphoepithelial carcinoma versus large cell undifferentiated carcinoma of the major salivary glands. *Cancer* 2004; **101**: 2020–2027.
- 6 Schneider M, Rizzardi C. Lymphoepithelial carcinoma of the parotid glands and its relationship with benign lymphoepithelial lesions. *Arch Pathol Lab Med* 2008; **132**: 278–282.

Y-T Liu¹, C-I Lin², S-C Kao¹, H-C Kau^{1,3}, C-C Tsai^{1,4} and W-M Hsu⁵

¹Department of Ophthalmology, Taipei Veterans General Hospital and National Yang-Ming University, Taiwan

²Department of Pathology, Taipei Veterans General Hospital and National Yang-Ming University, Taiwan

³Department of Ophthalmology, Koo Foundation Sun Yat-Sen Cancer Center, Taiwan

⁴Institute of Clinical Medicine, National Yang-Ming University, Taiwan

⁵School of Medicine, Taipei Medical University, Taiwan

E-mail: cctsai1234@yahoo.com

No public and private support.

None of the authors have any commercial interest in the material mentioned herein.

Eye (2009) **23**, 1612–1615; doi:10.1038/eye.2008.269; published online 29 August 2008

Sir,
Non-contact *in vivo* scanning laser microscopy of blebitis

Trabeculectomy with adjunctive antifibrotic agents produces thin, avascular blebs and a greater risk of bleb leakage and infection.^{1,2} These blebs usually demonstrate epithelial breakdown with goblet cell depletion.¹ Decreased inflammatory response and abnormal blood flow are risk factors for blebitis and of recurrent infection.^{2,3} The Rostock Cornea Module (RCM) has been successfully used to image microstructural changes in filtering blebs.^{4,5} We report the RCM findings of blebitis before and 3 months after treatment.

Case report

Three years following successful trabeculectomy with mitomycin C (0.4 mg/ml for 3 min), a 78-year-old man presented with complaints of tearing, pain, and redness of 2 days duration. The bleb was avascular, thin, and partially loculated with surrounding hyperaemia. No bleb leakage was noted, but cells were present in the anterior chamber. Intraocular pressure was 12 mm Hg. Before initiating treatment, multiple transverse images of the bleb were taken using a new non-contact prototype objective lens for the RCM ($\times 50$ Nikon lens, 1–2 μm transverse resolution, field of view: $500 \times 500 \mu\text{m}$). Unlike quiet thick-walled blebs (Figure 1), the images of the thin inflamed bleb (Figure 2a) revealed markedly reduced epithelial and goblet cells, scattered presumed inflammatory cells, and increased stromal hyperreflectivity (Figure 2b and c). A few stromal cystic spaces were seen (Figure 2d). He was treated with fortified antibiotics and prednisolone drops, which were tapered over 3 months, after which the intraocular pressure was unchanged. No signs of bleb inflammation or leak were present (Figure 2e). Repeat confocal microscopy of the bleb just few days before discontinuing the steroids revealed increased number/size of stromal cystic spaces and the absence of the presumed inflammatory cells (Figure 2f). When compared with the images taken before treatment, the epithelial/goblet cells did not change and the stromal hyperreflectivity faded after the oedema resolved.

Comment

The non-contact RCM allows high-resolution imaging of thin or inflamed blebs without the risk of trauma. In our patient, the confocal images showed reduced epithelial cells and increased cellular infiltration, which

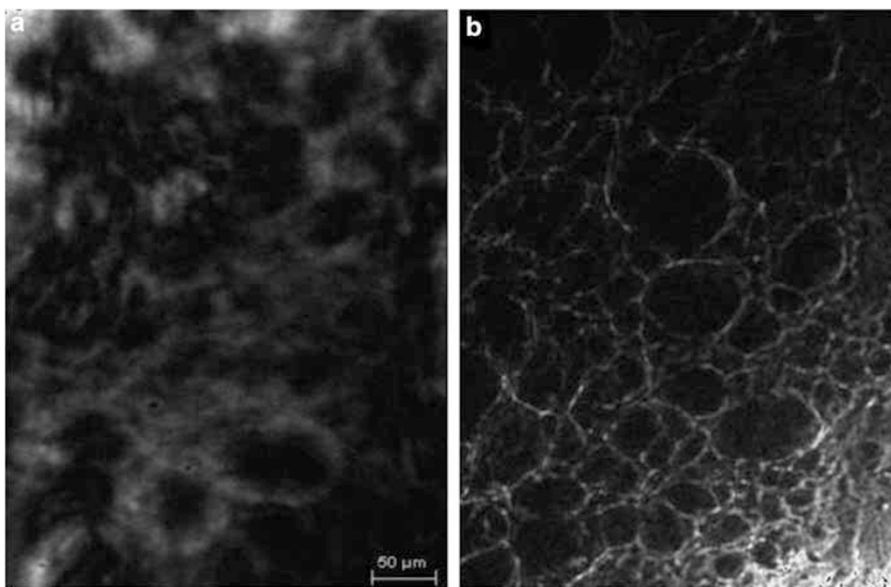


Figure 1 Confocal images of a quiet diffuse bleb showing regular epithelial cells (a) and multiple hyporeflective stroma with cystic spaces (b).