

eye wear whilst fishing. Hard or soft contact lenses offer no protection against angling injuries. Plastic or polycarbonate spectacle lenses rather than glass streetwear lenses offer excellent protection and should be worn by anglers.¹⁰

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Sir,

Surgical management of an unexpected lacrimal sac mass

Patients with lacrimal sac masses can present with symptoms mimicking primary acquired nasolacrimal duct obstruction (PANDO). We present a case of a failed endoscopic endonasal surgical dacryocystorhinostomy (EES-DCR), performed in a patient who was inadequately investigated pre-operatively. We also discuss the surgical options available in the management of this problem.

Case report

A 29-year-old woman was troubled with epiphora for 4 years with one episode of acute dacryocystitis treated medically. She was diagnosed to have PANDO, having no other predisposing factors. She was concerned about the possibility of facial scarring and therefore elected to undergo surgery using the endonasal approach.



Fig. 1. Digital subtraction dacryocystogram showing a rounded, space-occupying mass in the lacrimal sac, blocking the nasolacrimal duct.

A routine EES-DCR with O'Donoghue tubes was performed with no abnormal findings reported. While the tubes were left *in situ* for 2 months, the patient reported recurrent episodes of mucus discharge. Immediately following removal of the tubes her lacrimal duct system was syringed and was patent.

However, she remained asymptomatic for only 2 weeks, after which her epiphora recurred. On syringing 4 months post-operatively, she had developed a mucocoele. The patient was still keen to undergo repeat surgery; therefore, a dacryocystogram (DCG) was performed pre-operatively. The DCG showed a smooth rounded mass in the lacrimal sac and an obstructed upper nasolacrimal duct (Fig. 1). Based on these findings, an external approach dacryocystorhinostomy was planned.

At surgery the lacrimal sac was distended and, when opened, mucus extruded. A pink, round, pedunculated lesion was identified attached to the medial lacrimal sac wall. This was excised for histopathological examination, which showed that this lesion was a polyp consisting of granulation tissue surrounded by chronic inflammatory changes (Fig. 2). The DCR was completed with both posterior and anterior sutured mucosal flaps. Tubes were inserted and left *in situ* for 3 months. The patient remains almost completely symptom-free 2 years after repeat surgery, with only minimal epiphora.

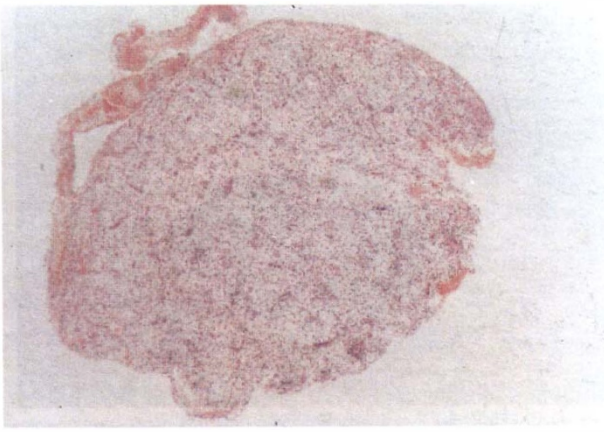


Fig. 2. Photomicrograph of polypoid tissue composed of oedematous inflamed granulation tissue (haematoxylin & eosin, $\times 100$).

Comment

Lacrimal obstruction in adults is usually an acquired problem of unknown aetiology, resulting in chronic inflammation and fibrosis with progressive stenosis of the nasolacrimal duct, called primary acquired nasolacrimal duct obstruction (PANDO).¹ Patients typically present clinically with epiphora or dacryocystitis.

However, patients with lacrimal tumours can sometimes present with symptoms mimicking PANDO, instead of the classic clinical triad of a mass below the medial canthal tendon, chronic dacryocystitis with free irrigation and bloody reflux on irrigation. A recent study by Tucker *et al.*² estimated a 2% incidence for unsuspected lacrimal sac tumours presenting clinically as PANDO. Although lacrimal tumours are relatively uncommon, most are malignant and carry a poor prognosis and, therefore, it is important for the ophthalmologist to be able to differentiate between these pathologies because their subsequent management is usually entirely different. Interestingly, in Tucker's study only pathological examination of lacrimal tissue specimens enabled the correct identification of the underlying pathologies. The study suggested that it is practical to biopsy lacrimal tissue during routine external and endonasal DCR. Our patient differed from the patients described in Tucker's study, as her lacrimal tissue was not biopsied at the time of her first operation.

A review article by Stefanyszyn *et al.*³ in 1994 found that fewer than 300 lacrimal sac tumours have been reported. Primary epithelial neoplasms are the most common, comprising 73% of cases; mesenchymal tumours, lymphomatous lesions, malignant melanomas and neural tumours occur much less commonly. Polyps usually arise in chronically inflamed sacs as round, smooth masses attached to the lacrimal sac wall by a pedicle; the stroma consists of fibrovascular tissue and the epithelium resembles that of the sac mucosa.⁴ Inflammatory masses associated with retained silicone tubing have been reported, mimicking neoplasms.⁵ Dacryoliths develop in the lacrimal sacs of about 15% patients with distal lacrimal obstruction.⁶

External dacryocystorhinostomies commonly fail due to fibrotic occlusion of the rhinostomy site.^{7,8} The failure rate for primary surgery is approximately 10%.^{9,10} Post-operative infection and previous trauma are significant risk factors for failure.

Before surgery, most surgeons routinely syringe the nasolacrimal duct system, and perform a fluorescein dye disappearance test, or a visual Jones test using an endoscope to examine the nasal floor for fluorescein. Not all surgeons request pre-operative imaging. This case demonstrates the usefulness of a pre-operative DCG in assisting the surgeon plan the most appropriate surgery. If a DCG had been performed prior to the primary EES-DCR, it might have demonstrated the presence of a lacrimal sac mass. One can only speculate on whether the polyp was present before the primary operation as a response to the patient's previous acute dacryocystitis, or developed as a result of the surgery.

A failed DCR can be effectively managed surgically, with both endoscopic and external methods of surgery proving complementary.⁹ Orcutt *et al.*¹¹ reported how endoscopic repair of failed DCR can be a useful adjunct. This case demonstrates how the external method can be used to manage a failed endo-DCR. In general, an endo-DCR is contraindicated if sac pathology is suspected, since it does not adequately visualise the interior of the lacrimal sac. An external DCR is sometimes more appropriate because it enables the best access to and largest exposure of the entire interior of the lacrimal sac for visual examination and biopsy. Alternatively, a more extensive surgical endo-DCR can be performed using a 2 mm chisel and/or Kerrison rongeurs to remove more maxillary bone in order to locate the ostium at the lower lacrimal sac or upper lacrimal duct, allowing visualisation of the entire lumen of the lacrimal sac.

The options available for repeat surgery following a failed endo-DCR are:

A laser DCR + tubes. This is not the authors' first choice because the ostium may be too small.

An external DCR \pm tubes, enabling full visualisation of the sac lumen.

Repeat EES-DCR with tubes.

An extended EES-DCR with tubes, taking more maxillary bone to ensure visualisation of the sac lumen.

Pre-operative imaging with a DCG enables the surgeon to choose the most appropriate surgery. Fortunately, in our case, the lacrimal sac mass turned out to be just a benign polyp.

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Sir,

Microbial keratitis following cocaine abuse in a soft contact lens wearer

Topical cocaine solutions have been shown to cause significant corneal epithelial damage.¹ Indeed the association of microbial keratitis and corneal epithelial defects with crack cocaine is now well recognised.²⁻⁴ We describe a soft daily wear disposable contact lens wearer who developed microbial keratitis associated with cocaine powder abuse. To the best of our knowledge this has not been reported before.

Case report

A 23-year-old woman presented with a 1-day history of an intensely painful red left eye. She had abused cocaine powder intranasally the previous night and accidentally administered it into her left eye, which she then rubbed vigorously. She also wore soft weekly disposable contact lenses on a daily basis for myopia. Chemical disinfection was used to clean her contact lenses, her pair at that time being only 1 day old.

On examination, corrected visual acuity with spectacles was 6/9 in both eyes. The left conjunctiva showed marked hyperaemia and a moderate degree of



Fig. 1. Clinical appearance of the left cornea on presentation, showing stromal infiltrate.

fibrinous exudate. A left corneal ulcer measuring 3.5 mm 4.0 mm was present, with stromal infiltrates temporarily in a semicircular configuration (Fig. 1). Corneal sensation was present, and there was a marked degree of cells and flare but no hypopyon. Corneal scrapings were immediately obtained for culture and Gram stain, the latter showing scanty pus cells and Gram-negative rods. The patient was admitted and treated with topical cefuroxime 5% and gentamicin forte 1.5% half-hourly, with atropine sulphate 1% three times a day. By day three, cultures yielded *Pseudomonas aeruginosa*, sensitive to ciprofloxacin and gentamicin. Topical cefuroxime was therefore discontinued and topical prednisolone sodium phosphate 0.5% commenced three times a day. She responded well to this treatment, and 5 days later tapering of topical gentamicin to 6-hourly was possible. Following 3 weeks of treatment she absconded from further follow-up visits, but finally attended after 5 months. A superficial left corneal stromal scar sparing the visual axis now remained with a visual acuity of 6/9 in both eyes.

Comment

This report describes the presentation of microbial keratitis immediately following abuse of ocular cocaine powder in a soft contact lens wearer. Soft contact lens wear is well recognised as a predisposing factor for microbial keratitis.⁵ However, the rapidity of symptom onset following ocular contact with cocaine powder suggests it to have been a significant contributory factor in this patient.

Cocaine is directly toxic to corneal epithelium, causing disruption of intercellular spaces and epithelial cell motility complexes, leading to a reduction in corneal epithelium cell adhesion.^{1,3} The transient anaesthetic effect of cocaine would also have facilitated inadvertent rubbing of the eye, which would denude the corneal epithelium and predispose towards microbial keratitis. These effects would be further aggravated by mechanical trauma from contact lens wear.

The combination of soft contact lens wear with some or all of the above possible mechanisms related to the presence of cocaine in the eye may have led to the