Eye (2021) 35:2048–2050
https://doi.org/10.1038/s41433-020-1073-z

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CORRESPONDENCE

Acidovorax keratitis: a novel case of bilateral insidious keratitis secondary to toxicity from fruit contamination

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Received: 15 June 2020 / Revised: 16 June 2020 / Accepted: 24 June 2020 / Published online: 3 July 2020

To the Editor:

Infectious keratitis is an important cause of ocular morbidity with early diagnosis and effective treatment resulting in a favourable outcome. We describe a novel case of bilateral infectious epithelial keratopathy secondary to contact with watermelon fruit contaminated with bacteria. To our knowledge, this is the first report of such a case in the literature.

A 59-year-old Mediterranean man was referred to our subspecialty cornea clinic. He had initially presented outside our hospital institution with a 3-day history of severe bilateral ocular pain associated with redness and blurred vision. He had no past ocular history. He denied previous trauma, contact lens wear, recent fresh water activities, and recent travel.

Outside our institution, his best corrected visual acuity (BCVA) was count fingers bilaterally and examination findings were documented as bilateral eyelid swelling with mucus discharge, thickened erythematous conjunctiva, and corneal epithelial defects of 5.5 mm × 5 mm covered with a gelatinous grey plaque. He was diagnosed with bilateral epithelial defects secondary to a presumed viral conjunctivitis. A treatment regime of topical dexamethasone 0.1% four times a day, cyclopentolate 1% three times a day, and moxifloxacin 0.5% four times a day to both eyes plus therapeutic bandage contact lens was commenced. There was minimal improvement over the next month, therefore superficial keratectomy with amniotic graft for visual rehabilitation was recommended and hence he was referred to our clinic.

At his first visit to our subspecialty clinic, his BCVA was right 6/60 pinhole 6/24 and left 1/60 pinhole 6/36. He had bilateral eyelid swelling with dry excoriated periocular skin. There was bilateral conjunctival hyperaemia associated with mucoid discharge. Slit lamp biomicroscopy showed a well-defined atypical grey gelatinous epithelial plaque degeneration across the inferior half of the cornea with amoeboid type fluorescein staining (Fig. 1, left and middle) in both eyes. The epithelial defect measured right 8 mm × 5 mm and left 7.5 mm × 4.4 mm. There was mild corneal oedema and haze with Descemet's folds. There was no corneal scarring or infiltrate. The anterior chamber was deep and quiet. The remainder of the anterior and posterior segment examination was unremarkable.

Initial investigations performed included corneal scrapes which were unremarkable, however PCR was positive for *Acidovorax Sp*. Pentacam topography readings demonstrated irregular astigmatism. Anterior segment OCT demonstrated a thickened epithelium and sub-epithelial area.

The patient underwent right then left EDTA-assisted superficial keratectomy with amniotic membrane graft (Fig. 1, right). Histopathological analysis of the tissue sample demonstrated normal Bowman's layer and epithelium. He was treated with gentamicin 1.5% four times a day, moxifloxacin 0.5% four times a day, and dexamethasone 0.1% once a day to both eyes.

Once the ocular inflammation had quietened and infection had cleared, the residual sub-epithelial scarring was treated with sequential bilateral phototherapeutic keratectomy with mitomycin C treatment. The patient's symptoms much improved and his vision 6 months after initial presentation improved to right 6/36 pH 6/24 and left 6/12 pH 6/12.

The growth of *Acidovorax Sp*. promoted us to further explore this gentleman's history. Interestingly, he remarked that he is an avid watermelon connoisseur, buying a minimum of 15 watermelons a year direct from the farm. In order to check the ripeness and health of the fruit, he would bring it up to his face and ballot it. He admits that he would

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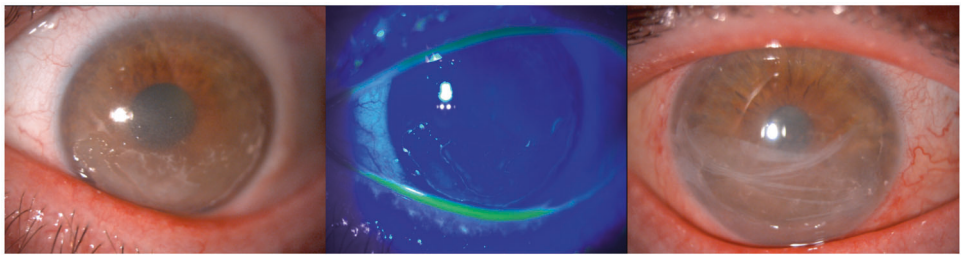

Fig. 1 Left eye anterior segment photographs of epithelial gelatinous map-like degeneration located inferiorly with inflammation (left); area of amoebic-like fluorescein stain (middle); amnion membrane graft following EDTA-assisted superficial keratectomy (right). Images for right eye identical.

bring the fruit very close to his eyes, and at times the watermelon would rub his eyes. The period when he developed these ocular symptoms, coincided with the watermelon peak season.

Acidovorax is a Gram-negative bacterial fruit blotch which has devastating effects on the viability of fruit. The infected area begins as small water-soaked areas that rapidly expand into larger lesions with irregular margins. The entire surface of the fruit may become covered with dark green greasy-looking lesions within a few days. Older fruit become necrotic and cracked, exposing the flesh of the melon [1]. A whitish bacterial ooze may exude from the cracks and eventually the fruit will rot.

Whilst *Acidovorax* is a rare pathogen, there are reported cases of nosocomial bacteraemia, endocarditis, otitis, and keratitis in which the pathogen has been isolated from sputum, urine, cerebrospinal fluid, and the pharynx [2]. Its presence in the eye is a rare entity. Manotosh et al. [3] describe a case of polymicrobial keratitis in a 14-year-old who wore cosmetic contact lenses bought online. The presentation was acute with pain, redness, photophobia, and reduced vision. There was mucopurulent discharge with a moderately defined paracentral corneal ulcer and stromal infiltration which was successfully treated with topical ciprofloxacin and gentamicin. Lema et al. [4] also describes a contact lens associated keratitis from a hydrogel monthly contact lens which was successfully treated with gentamicin and ciprofloxacin. Lee et al. [2] describe two cases of *Acidovorax* in patients with immunocompromised eyes; a severe scleritis post-cataract surgery and chemical eye injury. In both cases, there was stromal infiltration without any epithelial defect causing a long indolent infection with eventual resolution following topical and systemic ceftazidime.

Plant seeds, extracts, and saps are well-known causes of ocular irritation and inflammation that may lead to serious ocular surface abnormalities. Symptoms suggestive of toxic keratoconjunctivitis were common to all patients and often present with epithelial irregularities. Kocak et al. [5] reports a case of late-onset diffuse lamellar keratitis 11 months after LASIK, when an *Ecballium elaterium* herb fruit burst and splashed into the patient's eye. Raikhlin-Eisenkraft [6] also observed six cases of conjunctivitis, corneal oedema, and erosions following ocular exposure of *Ecballium elaterium*. All patients responded well to topical steroid and antibiotic eye drops. Vemkatesh et al. [7] reported a moderately severe keratoconjunctivitis following contact with rose-hip fruit and Nagaraja et al. [8] published a case series of six consecutive patients who developed toxic keratoconjunctivitis within hours of ocular exposure to custard apple seeds (seeds of *Annona squamosa*).

Ours is the first reported case of sporadic infectious keratopathy from *Acidovorax*. The likely mechanism is a toxic acute keratoconjunctivitis. Successful management can be achieved through a combination of intensive topical antibiotics, superficial keratectomy, and surface laser.

Compliance with ethical standards

Conflict of interest The authors declare no conflicts of interests.

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