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ABSTRACT

A 47-year-old man presented to our emergency department complaining of acute ocular pain and redness of his left eye. Ophthalmological antecedents included use of semi-rigid contact lens and primary open-angle glaucoma. Slit-lamp examination revealed a small central corneal ulcer associated with stromal inflammatory infiltrate. Scraping from the corneal ulcer was positive for *Elizabethkingia meningoseptica*. He was empirically treated with topical 0.5% levofloxacin and 0.3% gentamicin, and five weeks later the infection had resolved. In this case report we describe the uncommon association between contact lens and *Elizabethkingia meningoseptica*. Despite possible serious complications associated with this atypical agent, prompt diagnosis and adequate treatment lead to good visual prognosis.

Keywords: Contact Lenses; Corneal Ulcer; Chryseobacterium; Flavobacteriaceae Infections; Keratitis.

RESUMO

Doente de 47 anos, sexo masculino, recorreu ao serviço de urgência por início súbito de dor ocular e hiperemia conjuntival no olho esquerdo. Os antecedentes oftalmológicos incluíam o uso de lente de contacto semi-rígida e glaucoma primário de ângulo aberto. O exame na lâmpada de fenda revelou uma pequena úlcera de córnea central associada a infiltrado inflamatório estromal. A zaragatoa da base da úlcera de córnea permitiu a identificação de colónias de *Elizabethkingia meningoseptica*. O doente foi empiricamente tratado com levofloxacina colírio 0,5% e pomada de gentamicina 0,3%, tendo a infeção resolvido após cinco semanas. Neste caso clínico, descrevemos a associação incomum entre lentes de contacto e *Elizabethkingia meningoseptica*. Apesar das possíveis complicações graves relacionadas com este agente etiopatogénico, o diagnóstico rápido e tratamento adequado permitiram um bom prognóstico visual.

Palavras-chave: Chryseobacterium; Infecções por Flavobacteriaceae; Lentes de Contacto; Queratite; Úlcera de Córnea.

INTRODUCTION

Elizabethkingia meningoseptica, formerly known as *Flavobacterium meningosepticum*, belongs to the family of *Flavobacteriaceae*. It is widely distributed in different geographical areas and habitats, but not in human microflora.¹ We describe the first clinical case of corneal ulcer caused by *E. meningoseptica* registered in Europe.

CASE REPORT

A 47-year-old caucasian man presented to the ophthalmology emergency department of the Centro Hospitalar São João (Porto, Portugal) in August 2013 with a two day history of increasing pain and redness of his left eye (OS). He had no relevant systemic antecedents but he was regularly followed in the outpatient department due to primary open-angle glaucoma (treated with topical latanoprost, brimonidine, timolol and brinzolamide) and pathological myopia. Right eye visual acuity (VA) was hand movement due to terminal glaucoma. Ophthalmological antecedents also included the use of semi-rigid contact lens in the left eye. On our first examination, left eye visual acuity was 20/32 and biomicroscopy revealed a stromal keratitis with ill-defined borders and a small epithelial

defect measuring 0.5 mm x 0.5 mm (Fig. 1). Scrapings from corneal ulcer and lower conjunctival fornix were sent for microbiological testing and topical empiric treatment (0,5% levofloxacin drops 1/1 hour and 0,3% gentamicin ointment 4/4 hours for 3 days) was prescribed. Evaluation 72 hours later showed loose re-epithelialization of the ulcer and

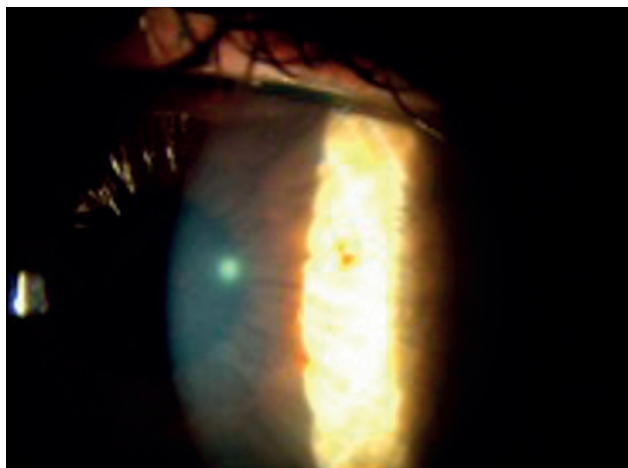


Figure 1 - Slit-lamp examination revealed a central corneal ulcer 0.5 x 0.5 mm with stromal inflammatory infiltrate

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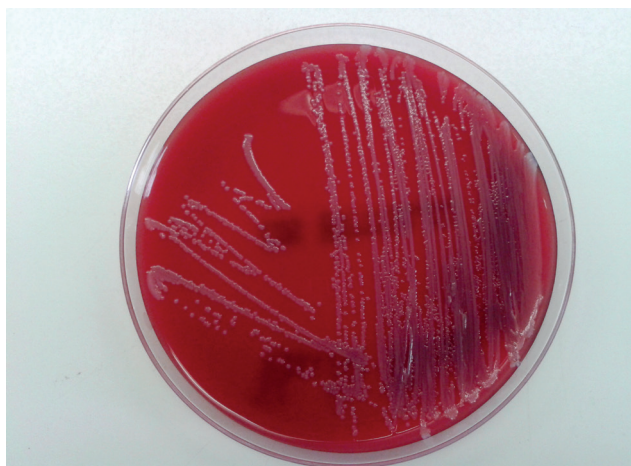


Figure 2 - Growth of yellowish colonies in blood sheep agar medium (24 hours after incubation with CO₂ atmosphere)

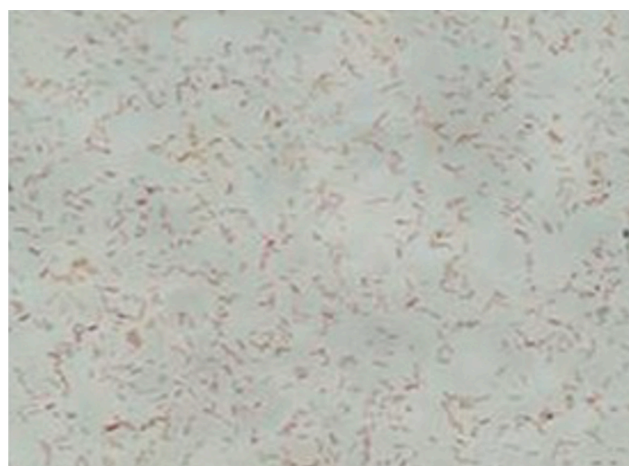


Figure 3 - Gram negative rods, gram stain (x1000)

a micro-abscess. At this time, we decided to remove the epithelium and the infected stroma.

Bacterial cultures of the conjunctival swab were negative. However, culture of the corneal ulcer showed prominent growth of yellowish colonies on 5% sheep blood agar plates (Fig. 2) and no growth on MacConkey agar, a selective media for Gram negative bacilli. The isolate was subsequently identified as *Elizabethkingia meningoseptica* using a matrix-assisted laser-desorption/ionisation time-of-flight mass spectrometry (VITEK MS) and VITEK2 system (GN Card). Conventional methods like Gram stain, oxidase, catalase and indole tests were additionally performed (Fig. 3). According to guidelines of Clinical and Laboratory Standards Institute, minimum inhibitory concentrations (MIC) were determined by E-test, presenting bacteria susceptibility to levofloxacin, trimethoprim-sulfamethoxazole, gentamicin, tigecycline, vancomycin and resistance to tobramycin, imipenem, ceftazidime and colistin.

After one week, a small central leucoma developed with no evidence of epithelial defect. Levofloxacin drops and gentamicin ointment were tapered and we decided to add 0.1% fluorometholone 8/8h. Two weeks later the patient had no complaints, yet slit-lamp examination revealed superficial punctate keratitis associated with the central leucoma. The patient completed a tapering course of the antibiotics and 5 weeks after our initial observation the infection was totally healed.

DISCUSSION

Ocular infections caused by *Elizabethkingia meningoseptica* are extremely rare and frequently associated with local predisposing conditions. Ocular surgery (penetrating keratoplasty)² and trauma,³⁻⁵ contact lens use^{6,7} or ocular surface disorders⁸⁻¹⁰ have been identified as possible risk factors. In our patient, combination of long term topical ocular hypotensive drugs and contact lens use might have created the perfect environment for *Elizabethkingia* to grow. Both conditions are known to significantly change ocular surface and predispose to

corneal infection.

Contact lens and its case were not available for examination, so it was not possible to ascertain the origin of contamination. However, it is the most probable etiology since *Elizabethkingia* can survive in chlorine-treated municipal water used to wash contact lens case.¹¹

Our case report highlights the importance of correct microbiological diagnosis in patients with predisposing factors for corneal infections. Typically, *Elizabethkingia* infections have a poor prognosis due to its unusual resistance patterns to routinely used antibiotics (beta-lactams, aminoglycosides and chloramphenicol).¹² However, a correct microbiological diagnosis and adequate treatment can lead to good clinical response and minor sequelae as in this case.

Meeting presentation

"24th European Congress of Clinical Microbiology and Infectious Diseases", Barcelona, Spain, May 10-13th 2014.

"5th Congress of the European Society of Cornea and Ocular Surface disease Specialists-EUCORNEA", London, United Kingdom, September 12-13th 2014.

"Congress of European Society of Ophthalmology", Vienna, Austria, June 6-9th 2015.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patient's data publication.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest.

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