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CASE REPORT

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Corneal Endothelial Deposits and Intracapsular Calcification: An Unusual Infection Caused by *Edwardsiella tarda*

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Abstract

Purpose:To present a unique ocular infection with intraocular calcification and corneal deposits after blunt ocular trauma in a 85 year old male patient caused by *Edwardsiella tarda*, which is a facultative anaerob, mainly a pathogen of fish species .

Case presentation:Anterior chamber tap was carried out but culture yielded no result. Anterior chamber washout and intraocular lens extraction was performed and corneal depeosits with fibrinoid membrane was sent for anaerobic culturing and cytologic analysis.The anaerobic culture of the anterior chamber washout material grew *Edwardsiella tarda*, an unusual human pathogen

Conclusion: This is the first documented corneal and capsular infection and calcification caused by *Edwardsiella tarda*. It may be a rare cause of endophthalmitis

Introduction

A 85 year-old man with a history of wooden stick trauma to his left eye was referred to the department of ophthalmology with sudden blurring in vision, pain and redness in his left eye. His vision had deteriorated despite five days of topical antibiotic therapy elsewhere. His medical history was significant for hypertension. He had history of bilateral cataract surgery about ten years ago. His visual acuity was hand motion bilaterally.

Case Presentation

The biomicroscopic examination revelaed bullous keratopathy in right eye with anterior chamber intraocular lens (IOL) and multiple, tiny, unusual chalky white corneal endothelial deposits in the left eye .The deposits were noted to form a membrane attached to endothelium and the details of the anterior chamber and intraocular lens were not distinguishable.The orbital CT scan showed hyperdensity at the level of left intraocular lens measuring 7-8 mm in diameter suggesitive of calcification. (Figure 1) The USG examination of the left eye showed posterior vitreus detachment with mild vitreous condensation and hyperechocity behind the intraocular lens position. Topical moxifloxacin and amphotericin B was initiated and intravitreal vancomycin and amphotericin B injection was performed with the presumed diagnosis of mixed bacterial and fungal infection after anterior chamber tap for obtaining sample for microbiologic analysis. The culture yielded no growth.

Upon deterioration of the corneal findings, anterior chamber washout with corneal endothelial fibrinoid material removal revealed a fibrinoid and hard, calcific material accumulation in the capsular bag and on the PMMA lens. (Figure 2) The intraocular lens was extracted and anterior chamber tap fluid, extracted fibrinoid and calcific material was sent for culture and cytologic analysis. The cytologic analysis reported hyaline membrane

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and fibrinoid material suggestive of endopthalmitis. The anerobic culture yielded an unusual microorganism: *Edwardsiella Tarda*.

After IOL extraction and removal of fibrinoid and calcific material with anterior chamber washout, the intraocular inflammation subsided. The patient was followed for 6 months without recurrence. After the pandemic started, the patient lost follow-up.

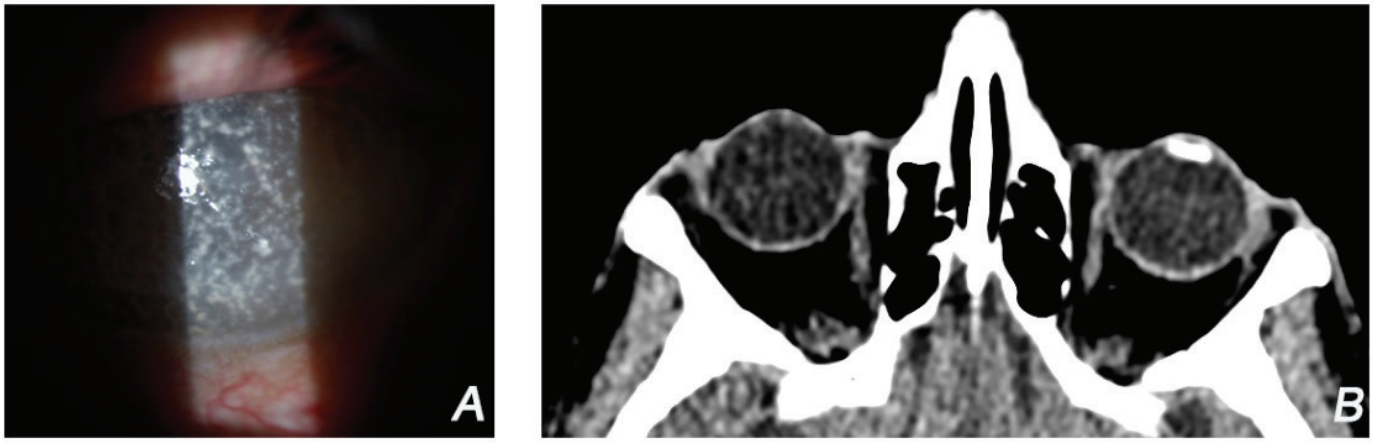

Figure 1: Corneal endothelial deposits forming anterior chamber membrane at initial presentation (A), axial orbital computed tomography scan of the patient showing hyperdansity at the level of intra ocular lens in left eye.

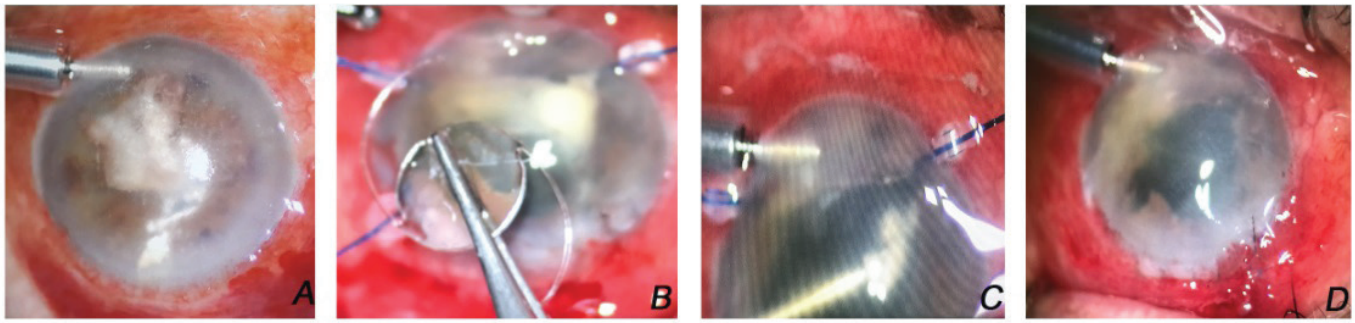

Figure 2: Removal of corneal deposits and membrane(A), intraocular lens extraction (B), removal of calcific material (C), the view of the left eye after anterior chamber wash out.

Discussion

The microorganism *Edwardsiella tarda (E. tarda)* belonging to Enterebacteriaceae, which is a facultative anaerobic gram negative rod infecting mostly fish species(1). *E. tarda* was also shown to form crystalline materials containing calcium.(2) *E. tarda* is a rare human pathogen causing mainly gastroenteritis, however there are infrequent reports of *E. tarda* food and waterborne infections in humans as bacteremia, abscesses, meningoencephalitis.(3-5)

This case with corneal inflammation and capsular bag infection is unique in that it is the first documented ocular infection caused by *E. tarda* in an old male patient. *E. tarda* may be a cause of an anaerobic bacterial keratitis and capsular infection and endophthalmitis.

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