



MICROBIAL KERATITIS ASSOCIATED WITH THREE YEARS' CONTINUOUS WEAR OF THE SAME SOFT CONTACT LENS: CASE REPORT

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<p>Article Info Received 15/06/2015 Revised 27/07/2015 Accepted 12/08/2015</p> <p>Key words: Contact lens, Extended wear, Keratitis.</p>	<p>ABSTRACT The aim of this study was to report a case of microbial keratitis following extended contact lens wear. Clinical Presentation and Intervention: A 56-year-old male patient associated with three years of extended wear of the same contact lens was admitted to our hospital with ocular pain, redness, and vision loss in his left eye. An initial slit-lamp examination showed central corneal infiltrations and epithelial defects. Microbiological examinations were performed from corneal scrapings and the contact lens. The culture results from the contact lens and corneal scrapings were all positive for coagulase-negative <i>Staphylococcus</i>. The patient was treated with 5% (50 mg/ml) fortified vancomycin. After treatment, the corneal epithelial defect completely healed, and residual subepithelial corneal opacity was observed. Patients should be accurately informed of the proper use of therapeutic contact lenses.</p>
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INTRODUCTION

Infectious corneal diseases are an important cause of visual impairment, with a reported annual incidence between 1.5 to 8 million, and being more prevalent in developing countries [1,2].

Microbial keratitis rarely occurs in a normal eye due to the cornea's natural resistance to infection. Predisposing factors such as trauma, contact lens wear, dry eye, ocular surface disorders, and immunosuppression may alter the defense mechanisms and allow bacteria to invade the cornea. Contact lens wear has been reported to be a major risk factor for keratitis in the literature [3]. We herein report a case of microbial keratitis caused by three years of extended continuous wear of the same therapeutic contact lenses.

Case Presentation

A 56 - year -old male patient presented to our

ophthalmology department for a painful and red left eye with decreased visual acuity. He had been wearing the same soft contact lenses, which were given for therapeutic purposes 3 years earlier. On our initial examination, visual acuity was 20/20 in the right eye and 20/80 in the left eye. A slit-lamp examination revealed a corneal epithelial defect with a whitish infiltrate and hyperemia of the right bulbar conjunctiva near the lesion (Figure 1). The lens, vitreous body, and retina were all normal. A corneal scraping was performed for a microbiologic investigation. A bacteriological test was conducted on both the corneal scrapings and contact lens. The scrapings were cultured on a 5% sheep blood and chocolate agar plate. Coagulase-negative *Staphylococcus* was then identified using conventional methods (gram stain, catalase, and coagulase test) from both corneal scrapings and the contact lens. Antibiotic susceptibility for vancomycin was determined



by the E-test method. The antibiotic susceptibility of *Staphylococcus* spp. isolates revealed that isolates were sensitive to vancomycin. The patient was treated with 5% (50 mg/ml) fortified vancomycin with an initial one-hour

interval and a later reduced frequency. Complete re-epithelialization of the lesion was observed within the subepithelial corneal opacity 2 weeks after treatment (Figure 2) and visual acuity was 20/32.

Figure 1. A slit-lamp photograph of the first visit showed an epithelial defect with stromal infiltration.

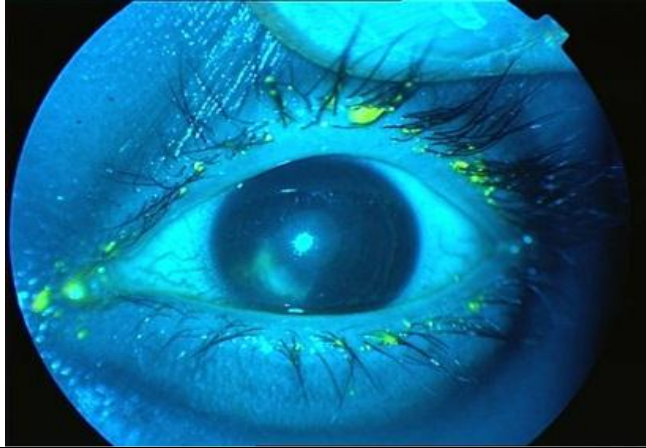
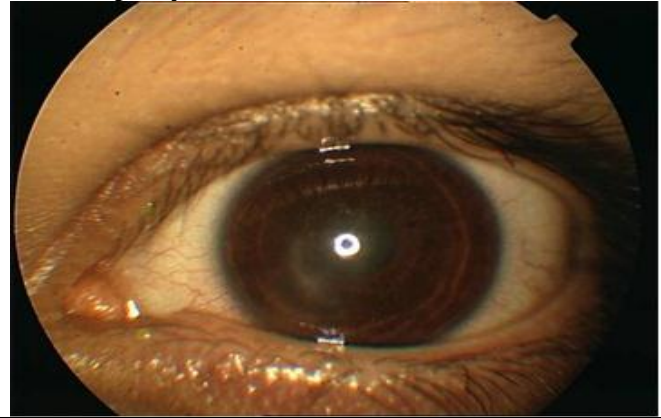


Figure 2. Two months after treatment, the corneal lesion showed re-epithelialization within the subepithelial corneal opacity.



DISCUSSION AND CONCLUSION

Keay et al [3], showed that contact lens wear and ocular trauma are the major predisposing factors for microbial keratitis. Contact lens-induced corneal hypoxia may predispose contact lens wearers to corneal infections due to a destruction of the corneal epithelial integrity, impaired wound healing, and increased susceptibility of corneal epithelial cells to bacterial binding [4]. A corneal ulcer develops when there is a break in the corneal epithelium. In a normal eye, the surface of the cornea is constantly lubricated by the tear film. Tears play a major role in delivering adequate oxygen to the cornea and maintaining adequate lubrication for the cornea. Studies have shown that continuous overnight use of contact lenses is a major risk factor for corneal ulcer formation [5]. Contact lens wear during sleep results in reductions in both tear flow and oxygen delivery to the cornea. Hence, hypoxia and hypercapnia of the corneal epithelium occur, resulting in ischemic necrosis. A study found that the relative risk for overnight contact lens wear (for any lens type) was 5.4 times higher than for non-contact lens users [6]. *Pseudomonas aeruginosa* has been reported to be the main organism in contact lens-associated microbial keratitis [7,8]. However, *Staphylococcus* and

gram negative organisms other than *Pseudomonas* are also common [9]. Park et al [10] found *Staphylococcus epidermidis* as the most commonly isolated microorganism in therapeutic soft contact lens users and suggested prophylactic topical tobramycin or ciprofloxacin use for preventing secondary corneal infections. In our case, coagulase-negative *Staphylococcus* was isolated and the patient was treated with 5% (50 mg/ml) fortified vancomycin. Vancomycin is an effective anti-staphylococcal drug that is rarely associated with resistance, hence, it is important that this drug be used in cases of severe corneal infections.

To our knowledge, this is the first report of microbial keratitis associated with the continuous wear of the same lens for this length of time. Contact lens misuse is a serious cause of microbial keratitis. Therefore, patients should be informed about the appropriate use of contact lenses.

Conflict of interests

The authors report no conflict of interests. The authors alone are responsible for the content and writing of the paper.

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