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Case report

Vision stolen by a hidden thief: 5-Year retention of a bandage contact lens☆

Yan-Xiu Sun[a,b], Rong Wu[b], Hai-yan Yang[b], Chang-yu Yan[b], Jing Hong[a], Chang-Guan Wang[a,*]

[a] Dept. of Ophthalmology, Peking University third Hospital, Beijing Key Laboratory of Restoration of Damaged Ocular Nerve, No. 49, North Garden Road, Haidian District, 100191, Beijing, China

[b] Dept. of Ophthalmology, Peking University Third Hospital Yanqing Hospital, No. 28, Nanshuncheng Street, 102100, Yanqing District, Beijing, China

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ABSTRACT

An 80 year-old male patient was prescribed a bandage contact lens on the left eye 5 years ago because of an injury on the eye by a wooden stick. He was never followed up to remove the contact lens. Two years ago, he suffered from gradually decreased visual acuity in the left eye. After removing the contact lens, his visual acuity gradually increased to 12/20 and the symptom revealed. Intraocular pressure, corneal endothelium density, corneal curvature, and the anterior chamber depth were within the normal range in the left eye, and were comparable with the right eye. Although no permanent damage was found in the patient, a strict follow-up procedure is strongly recommended for patients who receive a bandage contact lens.

1. Introduction

A therapeutic contact lens, also called a bandage contact lens, is a type of hydrophilic contact lens. This type of lens is designed to be larger and relatively tighter for treating ocular surface disorders and corneal endotheliopathies, and as surgical adjuncts. Instructions of most bandage contact lenses recommend continuous wearing for no longer than 21 days. Extended wear of such contact lenses may result in related adverse reactions, such as papillary conjunctivitis, acute red-eye, peripheral ulcers, and corneal vascularization, as well as lens deposition and discomfort.

2. Patient and methods

An 80-year-old male patient was admitted for gradually decreased visual acuity (VA) of the left eye for longer than 2 years and aggravation for 3 months. He was diagnosed with corneal degeneration on the left eye in another hospital and was suggested to have keratoplastic surgery, which was refused by the patient.

When admitted, a physical examination of the left eye showed that VA was Figure Counting at 1 m and could not be corrected. Intraocular pressure could not be measured with non-contact tonometry (NCT) and touched normal. The eyelids showed mild irritation, ptosis, and trichiasis on the upper and lower eyelids. Obvious bulbar conjunctival congestion (Fig. 1 A–C) was observed. A slit lamp examination showed thickening of the cornea, which was similar to corneal bullae at the central cornea (Fig. 1D). The corneal stroma remained clear and the anterior chamber depth was normal. Keratic precipitate and Tyndall sign were not clearly observed. The diameter of the pupil was 3 mm and round in shape. The lens nucleus was mildly opacified and the fundus could not be observed. After sufficient exposure of the upper and lower bulbar conjunctiva, a circular indentation approximately 2 mm beyond the corneal margin was observed. Drooping upper eyelids and congested conjunctiva covered this indentation.

Further detailed inquiry of the patient's medical history showed an injury of the left eye by a piece of wood 5 years ago. A contact lens was applied at this time. However, the patient did not visit the doctor again to remove the lens. The patient was diagnosed with contact lens retention, trichiasis, Meibomian gland dysfunction, conjunctivitis and an age-related cataract.

For treatment, the contact lens was removed under topical anesthesia. Levofloxacin eye drops and sodium carboxymethyl cellulose eye drops were prescribed for the left eye. The patient was followed up at days 1, 3 and weeks 1, 3, 5, 8.

3. Results

The removed contact lens was light yellow (Fig. 1M), uneven, and harder than a new lens. The patient's VA obviously increased immediately after removal of the contact lens, even though the tear film

☆ The data of this patient were reported at the 1st Conference of the Chinese Association of Female Ophthalmologist in July 2017.

* Corresponding author at: Dept. of Ophthalmology, Peking University Third Hospital, Beijing Key Laboratory of Restoration of Damaged Ocular Nerve, No. 49, North Garden Road, Haidian District, 100191, Beijing, China.

E-mail address: yxs0283@yahoo.com (C.-G. Wang).

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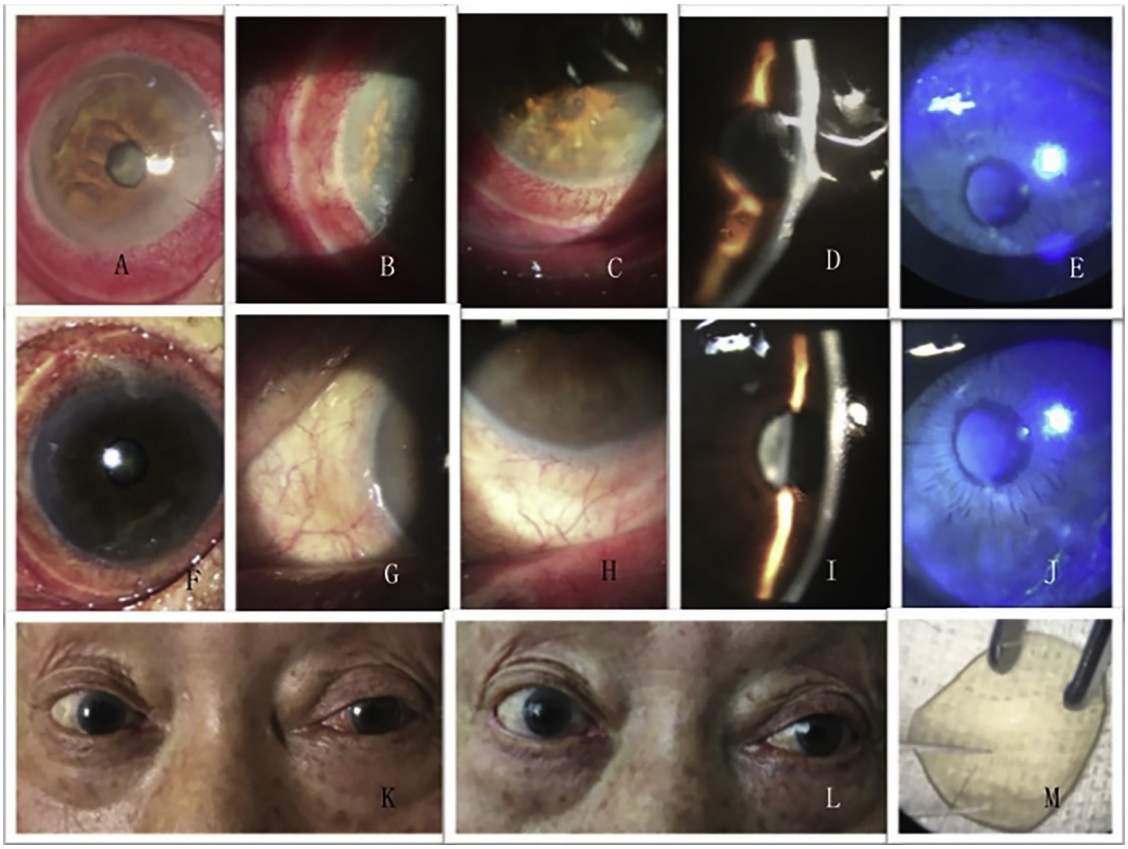

Fig. 1. Clinical findings before and after removal of the bandage contact lens. (A–C) Bulbar conjunctival congestion and circular indentation. (D) Bullous keratopathy-like appearance, which was caused by the contact lens. (E) Fluorescein staining of the cornea is negative. (F, K) One week after removing the contact lens. (G–J, L) Eight weeks after removal of the contact lens, conjunctival congestion is diminished. (M) The contact lens is rigid and light yellow.

was not stable. Fluorescein staining of the cornea was negative, except for a stain at the inferior part of the corneal margin where a nourishing vessel was observed (Fig. 1E).

The uncorrected VA gradually increased from 2/20 to 12/20 by the last review. The bulbar conjunctival congestion gradually diminished, but the circular indentation was still visible (Fig. 1F–H, K, L). The cornea remained clear with complete epithelium (Fig. 1I, J). The tear film became stable. Bilateral corneal topography (Pentacam) showed regular astigmatism with a symmetrical axis, with 1.2 diopters in the right eye, and 1.6D in the left eye. Corneal endothelial cell density was 2499/mm^2 in the right eye and 2464/mm^2 in the left eye.

4. Discussion

Corneal contact lenses have been applied to correct refractive errors in the ophthalmic clinic since the 70 s. Wearing a contact lens after corneal injury can mechanically protect and splintage the corneal epithelium, reduce pain, optimize the epithelial healing process, and maintain corneal hydration [1]. Conventional hydrogel contact lenses are not intended for extended wear, and do not provide adequate corneal oxygenation, which may inhibit the healing process. A silicone hydrogel lens is a superior option for maintaining oxygenation during epithelial regeneration [2,3]. Previous studies have shown a faster re-epithelization and reduced discomfort using silicone hydrogel lenses compared with conventional hydrogel lenses [4–7].

In this patient, using the mark on the peripheral part of the contact lens, the contact lens can be confirmed a Bausch and Lomb PureVision (Balafilcon A) bandage contact lens. The lens was 14 mm in diameter and made of silicone hydrogel. The water content was 36%. Arora et al reported safe and efficacious continuous wear of PureVisionTM contact lenses for therapeutic use for a maximum of 90 days [8]. Contact lens deposits have been previously reported with extended wear of soft contact lenses, and with proteins, lipids, mucous, and various salts, such as chloride, potassium and calcium, being deposited on the lens surface [9].

This case is the longest continuous wearing of a bandage contact lens to be reported. Various deposits on both surfaces of the contact lens, ultraviolet irradiation, and natural aging of the lens are the main reasons for the lens to become rigid and yellow, which affect adaptation of the lens. The lens separates from the corneal surface at the central part and results in a “bullous keratopathy” appearance. Changes in lens shape greatly affect refraction of the eye and thus reduce VA. After nearly 5 years of continuous wearing of a bandage contact lens, no severe complications and irreversible structural and functional changes were found in this case. The silicone hydrogel material contact lens showed good safety and efficacy in this case.

In this case, the patient and his family lived in a rural area and were not well educated. Only one family member was aware of wearing this contact lens. He thought that the contact lens should melt by itself and did not need to be removed. When the patient had symptoms, such as irritation, photophobia, and blurred vision, he did not provide his contact lens wearing history and was misdiagnosed as bubal keratopathy. He refused the proposal of keratoplastic surgery because of poor economic conditions and good vision of the other eye. Findings from this case suggest that more extensive education and explanations should be provided for contact lenses, especially for those who receive a bandage contact lens.

All authors have no financial and personal relationship with other people or organizations that could inappropriately influence the treatment of this case. Informed consent was obtained from the patient to report the data of the examination and treatment of his eyes, and the privacy rights of human subjects were observed.

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