CASE REPORT

Crystal Deposits in Cornea from the Use of Vitamin C Eye Drops

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Summary

There are a number of differential diagnoses for crystal deposits in the cornea. With the presence of a corneal epithelial defect, the differential diagnosis can be narrowed down to either infective causes or deposits from topical medications. This report describes a case of crystal deposits in the cornea from the use of Vitamin C eye drops.

Key Words: Crystal deposits, Vitamin C, Persistent corneal epithelial defects, Methylhydroxypropylcellulose

Introduction

Management of persistent corneal epithelial defects is always a challenge to the ophthalmologist. This report describes a case of persistent corneal epithelial defect with crystal deposits in the cornea from the use of Vitamin C eye drops, in an attempt to promote epithelial healing.

Case Report

A 62 years old diabetic lady underwent left cataract surgery on the 8th of June 1998. The surgery was complicated by vitreous loss. Anterior vitrectomy was performed and an intraocular lens was positioned in the ciliary sulcus. The eye developed a corneal epithelial defect from postoperative day. The epithelial defect failed to heal with topical treatment and a trial of bandage contact lens. Multiple topical medications (Garasone, Fucithalmic, Solcoseryl, Zovirax, chloramphenicol, artificial tears and dexamethasone) were tried along the course of treatment. On the 28th of July 1998, Vitamin C 10% eye drops was added as a form of treatment. During the follow up visit on the 18th of August 1998, crystalline deposits within the mid and superficial stroma were noted under the epithelial defect (Figure 1). Scrapping for Gram stain as well as culture and sensitivity was performed to rule out an infectious cause. Vitamin C eye drops were withdrawn. During the follow up visit on the 25th of August 1998, the crystalline deposits were noted to

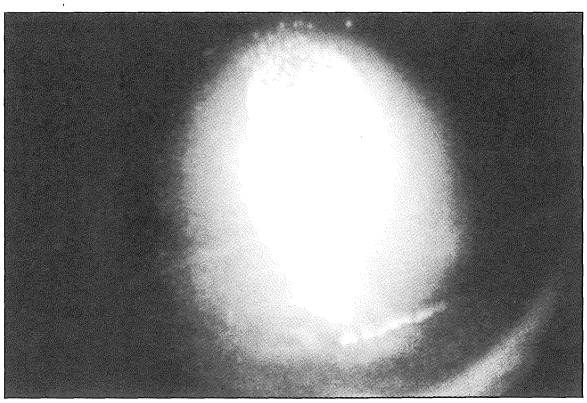

Fig. 1: Crystal deposits in the cornea within the area with epithelial defect.

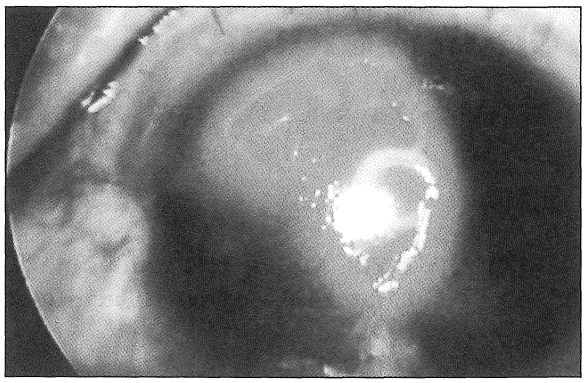

Fig. 2: One week after stopping Vitamin C eye drops crystal deposits have disappeared.

have disappeared completely (Figure 2). Bandage contact lens was then applied with only chloramphenicol 0.5% eye drops bd. The epithelial defect healed completely in just one week.

Discussion

A persistent epithelial defect in this case could be the result of drug toxicity from excessive use of topical medications. It is prudent to investigate the cause of the epithelial defect before commencing topical drops. It is usually unnecessary to use more than one type of topical antibiotic for the treatment of persistent epithelial defects unless infective keratitis is strongly suspected as the underlying cause. Simple treatment with a bandage contact lens and chloramphenicol eye drops healed the persistent corneal epithelial defect in just one-week. This demonstrates the significance of drug toxicity in delaying epithelial healing.

The presence of crystal deposits in the corneal stroma with an overlying epithelial defect and the history of chronic topical steroid application led to a possible differential diagnosis of Infectious Crystalline Keratopathy (ICK). However, a number of reports showed that ICK is an indolent infection[1]. The crystalline deposits usually take weeks to months to progress.

In this case, the crystal deposits were noted two weeks after the commencement of Vitamin C eye drops. The deposits were diffusely located in the anterior and mid-stroma within the area of the epithelial defect. The most likely cause for these deposits is either Vitamin C or the carrying vehicle, which is 2% Methylhydroxypropyl-cellulose. These deposits cleared completely in seven days after the Vitamin C eye drops were withdrawn. This finding strongly suggests Vitamin C eye drops as the cause of the crystal deposits.

This may be the first case report on crystalline deposits in the cornea with Vitamin C eye drops. To my knowledge, no such case has been described in the literature. The more frequently reported deposits on the cornea were the result of topical ciprofloxacin[2,3]. However, it is still uncertain from this case whether the deposits came from Vitamin C or the carrier. Clearly, a differential diagnosis of crystalline keratopathy should include topical medications and carriers.

References

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