Short communication

Crystalline keratopathy in pterigium treatment: Case report

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Abstract

Case report: A 65-year-old female who consulted due to the emergence of a white spot in the eye that had grown over the last year. The physical examination showed an intrastromal white crystal-like infiltrate and a tree-like morphology, with minimal inflammatory response. It was treated topically with no clear improvement, requiring a penetrating keratoplasty.

Discussion: A crystalline keratopathy is a rare event and characteristic of, but not exclusively, to a Streptococcus viridans infectious keratitis. It has been associated with prolonged use of topical steroids after penetrating keratoplasty and usually has a poor response to treatment.

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Queratopatía cristalina en el tratamiento del pterigión: a propósito de un caso

Caso clínico: Mujer de 65 años que consultó por la aparición de una mancha blanca en el ojo izquierdo, que ha crecido en el último año. A la exploración se observa, un infiltrado intraestromal blanco, con aspecto de cristales de morfología arboriforme, con una mínima respuesta inflamatoria. Se instaura tratamiento tópico sin franca mejora, requiriendo una queratoplastia penetrante.

Discusión: La queratopatía cristalina es una manifestación poco frecuente, y característica, aunque no exclusiva, de queratitis infecciosa por Streptococcus del grupo viridans. Se ha relacionado con el uso prolongado de corticoides tópicos tras queratoplastia penetrante y suele presentar mala respuesta al tratamiento médico.

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Introduction

Crystalline keratopathy is a form of infectious keratitis having as most frequent causing agents Streptococcus of the viridans group, with mitis being the one most frequently isolated. Other microorganisms such as Haemophilus aphrophilus, Peptostreptococcus, Staphylococcus epidermidis, Alternaria and Candida tropicales, can also produce this type of infectious keratopathy although with lower frequency.1

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From the morphological point of view, keratopathy is characterized by the presence of crystal-like, tree-shaped white stromal infiltrates which do not affect the underlying epithelium in most cases. Keratopathy involves slowly with very little inflammatory response\(^2\) and responds poorly to specific antibiotic treatment.

**Case report**

Female, 65, visits the practice due to the appearance one-year goal of a painless white spot in the left eye (LE) which has grown progressively. The only relevant information in her ophthalmological records involves a pterygium operation one year ago carried out by simply exeresis in another hospital. The initial exploration revealed a corrected visual acuity (CVA) of 1 in the right eye (RE) and of 0.2 looking for position in the LE. Pupil motility was normal and intraocular pressure (IOP) was of 12 mmHg in both eyes (BE). On the anterior biomicroscopy (ABM), the RE did not exhibit alterations whereas the LE exhibited at conjunctival bullae and a small cicatricial conjunctival defect where the pterygium exeresis was carried out. The same area also exhibited a whitish and highly compact infiltrate which forms crystal-like aggregate branches without the presence of activity in the anterior chamber\(^2,3\) of about one year evolution on the basis of anamnesis (Fig. 1). The ocular fundus (OF) was normal in the RE, and what could be seen in the LE was also normal. Antibiotic and topical corticoids treatment was prescribed, without clear improvement. Due to the suspicion of crystalline keratopathy (Fig. 2) and in the absence of any improvements, penetrating keratoplasty was performed as curing treatment (Fig. 3).

The material culture of the lesion revealed growth of Streptococcus of the viridans group, confirming the diagnostic of crystalline infectious keratopathy.

At present the patient is under regular checkups and the lesion has not exhibited regression.

**Discussion**

Crystalline keratopathy is an infrequent but potentially severe entity. It has mainly been described in association with eyes operated for penetrating keratoplasty and closely linked to the use of corticoids. In the present case this association was not found as the only history of the patient was exeresis of a pterygium\(^2,3\).

The infection in this case is an example of the lesion that expresses as white and compact branched aggregates containing microorganisms. In general, the host does not exhibit any inflammatory response. It is believed that it arises due to the development of a slow-growing sequestered colony of microorganisms after stromal implant in the cornea, with compromised inflammatory response.

The use of corticosteroids, contact lenses and infected corneal grafts predisposes to this infection. Infectious crystalline keratopathy is due to several bacterial species, mainly alpha-hemolytic Streptococcus. These are a part of the normal flora of the upper airways and exhibit a low level of pathogenicity. For this reason, a certain degree of local...
Immunosuppression is necessary for the corneal infection to develop.

In general, crystalline keratopathy responds poorly to specific antibiotic treatments despite the in vitro sensitivity they exhibit. *Streptococcus* of the *viridans* group are microorganisms capable of producing exo-polysaccharides which make up a biofilm. This biofilm interferes in the action of antibiotics and higher concentrations thereof are required to be effective. In addition, these microorganisms have a lower metabolic activity which also diminishes the activity of antibiotics. It has been established that biofilm is also an important factor in the poor inflammatory response to infections by *Streptococcus*.2,3,5

In the present case there is no characteristic antecedent which may give rise to the development of this type of infection. Even so, the typical crystalline keratopathy pattern was present, specifically the lack of response to topical treatments which required penetrating keratoplasty.

**Conflict of interests**

No conflict of interests has been declared by the authors.

**REFERENCES**