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Case Report

Pediatric Ocular Rosacea with Complication

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Abstract

Introduction: Ocular rosacea (OR) is a chronic, inflammatory disorder covering a large spectrum of both eyelid and ocular surface manifestations, including meibomiam gland dysfunction (MGD), blepharoconjunctivitis (BC), corneal vascularisation and keratoconjunctivitis (KC).

Case Report: We report the case of a 13-year-old child who presented with a red painful right eye. Based on the clinical findings, we concluded that she had a corneal perforation on ocular rosacea. she benefited an corneal patch graft. The evolution was marked by a good healing and a good visual recovery despite a corneal scar.

Discussion: Ocular rosacea is a multifactorial disease, with an unclear physiopathology. Corneal involvement remains the least common, but the most challenging since serious complications can occur. Corneal perforation is the most severe. Several techniques have been reported and used in the management of corneal perforations such as conjunctival flap, amniotic membrane grafting, and the use of a corneal patch.

Conclusion: Ocular rosacea is a pathology that is still poorly understood and of delayed diagnosis. It can lead to serious vision-threatening complications such as corneal perforation. The corneal patch is a simple, effective and efficient technique that has given good results in our case.

Keywords: Corneal Patch; Children; Corneal Diseases; Corneal Perforation; Ocular Rosacea

Introduction

Ocular rosacea (OR) is a chronic, inflammatory disorder covering a large spectrum of both eyelid and ocular surface manifestations, including meibomiam gland dysfunction (MGD), blepharoconjunctivitis (BC), corneal vascularisation and keratoconjunctivitis (KC).

Photophobia, chalazion and recurrent ocular redness, potentially evolving to corneal neovascularization (CNV), vision impairment and scaring are also frequently noted.

Milder forms of Ocular rosacea represent the vast majority of cases and are commonly undiagnosed, particularly in children where, in nearly 55% of cases, ocular manifestations precede skin involvement, and the presentation of signs and symptoms is similar to other dermatological diseases.

Consequently, in children is frequently diagnosed at the late stage presentation of corneal complications and visual comorbidities.

In this report we describe the case of a morrocan children who presented with atypical ocular features of rosacea and who developed inferior corneal melting and perforation. This study has been reported in accordance with the SCARE criteria.

Case Report

This case involved a 13-year-old child with a history of Recurrent chalazions on the lower eyelid of the OD for 5 years never treated.

The child presented a painful red right eye with decreased visual acuity, without any notion of trauma two day prior to his

consultation. The ophthalmological examination of the right eye revealed an uncorrected visual acuity of counting fingers, the slit lamp examination revealed conjunctival hyperemia, blepharitis, phlyctenes, a corneal perforation of about 5mm/4 mm in the infero-temporal area, partially sealed by the iris with a spontaneous seidel, superficial punctate keratitis in the inferior area and a very shallow anterior chamber.

Examination of the opposite eye revealed an uncorrected visual acuity of 8/10 and a meibomitis with follicular conjunctivitis. The rest of the examination was normal.

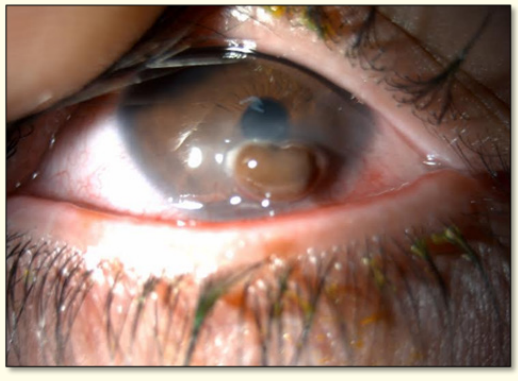

Figure 1: Corneal perforation 5mm/4mm infero-temporal.

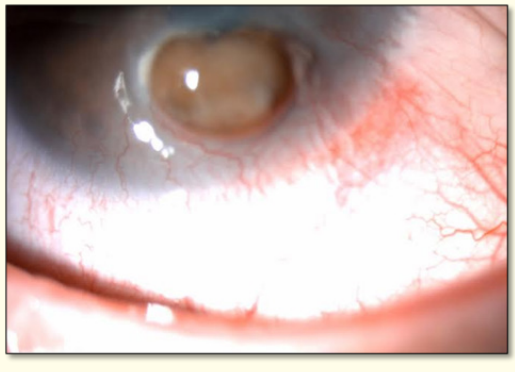

Figure 2: Iris hernia and corneal neovascularization.

The parents were informed about the situation and gave their consent for the surgery.

The patient was then hospitalized. She underwent an corneal patch graft.

After local disinfection and careful trimming of the bottom and edges of the perforation, a corneal patch graft was carefully dissected and then transposed into the ulcerated area where it was fixed with single 10/0 filament stitches.

The child was prescribed a 20-day course of oral antibiotics with Josamycin, a short course of local corticosteroids, 6 months of local antibiotics with azythromicin, artificial tears and 2 months of cycloplegia. We also insisted on the necessity of a good palpebral hygiene.

The outcome was satisfactory: healing of the graft, anterior chamber reformation and regression of inflammatory signs.

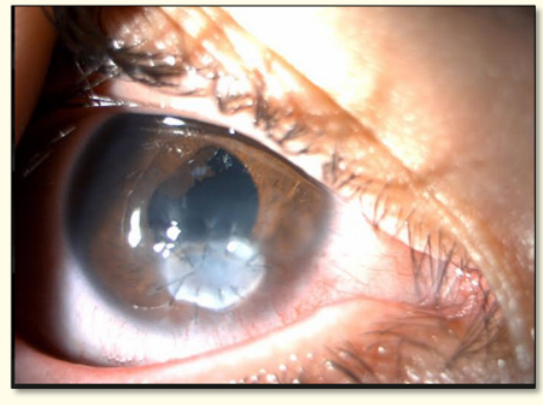

Figure 3: Corneal patch graft.

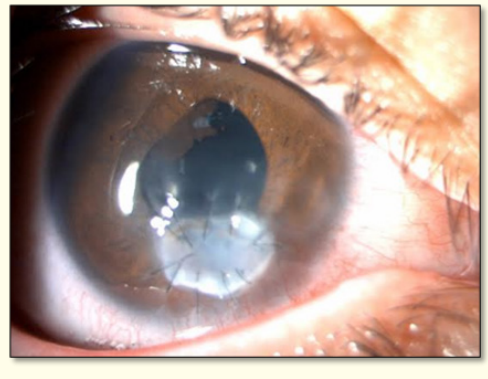

Figure 4: Fixed by 10/0 filament stitches.

The ophthalmological examination of the right eye at 3 months post-operatively found a corrected visual acuity of 5/10, regression of blepharitis and a clear cornea apart from a slight scar at the site of the perforation.

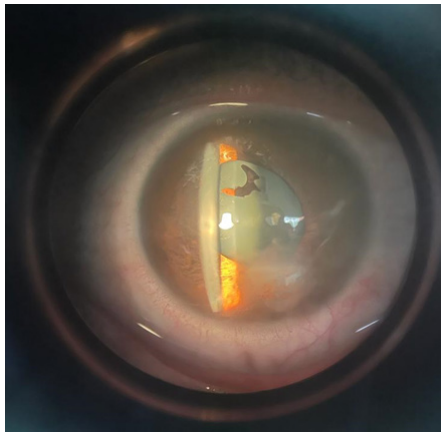

Figure 5: Clear cornea apart from a slight scar at the site of the perforation.

Discussion

The diagnosis of rosacea is usually clinically defined. Flushing, centro-facial erythema and papules are the most frequently observed [1].

In 2002, the expert committee of the National Rosacea Society developed a classification of rosacea, describing 4 different subtypes: erythemato-telangiectatic, papulopustular, phymatous and ocular rosacea.

In children's cases, clinical signs are often misleading and may be limited to an isolated red eye without skin involvement. Symptoms may include blinking, pruritus, tearing and/or secretions. Ocular rosacea in children initially presents as blepharoconjunctivitis and as blepharokeratoconjunctivitis in more advanced forms [2].

Ocular rosacea is a multifactorial disease. Recent studies have revealed some factors that may be implicated in ocular surface disorders. Barton., *et al*. demonstrated that the level of interleukin (IL)-1 is abnormally high in the tear fluid of patients with ocular rosacea. IL-1 is produced by corneal epithelial cells, lacrimal glands and inflammatory cells of the conjunctiva.

IL-1 increases the production of matrix metalloproteinases (MMP) such as gelatinases (MMP 2 and 9), collagenases (MMP 1, 8 and 13). Matrix metalloproteinases (MMPs) are pro-inflammatory endopeptides involved in corneal epithelial and stromal loss.

Rosacea patients with recurrent erosions, peripheral infiltrates and ulcers have high gelatinase B activity. IL-1 also alters the neurosensory threshold and reduces corneal sensitivity. This impaired sensitivity leads to decreased tear production [4,5], thus contributing to dry eye. The epithelial cells of the ocular surface, in response to the stress of a dry environment, produce IL-1 and MMP-9 resulting in further inflammatory reactions. All this leads to epithelial and conjunctival degeneration [6].

Interferon (IFN) may also play a role in ocular surface inflammation. This inflammatory factor leads to increased expression of HLA-DR and intercellular adhesion molecule-1 (ICAM-1) on the conjunctival epithelial cells membrane. Leonardi., *et al*. demonstrated that the levels of eosinophilic cationic protein (ECP), eosinophilic neurotoxin (EDN), myeloperoxidase (EPO) and soluble interleukin-2 receptors were elevated in the tears of rosacea patients with blepharokeratoconjunctivitis [7].

Studies of additional pro-inflammatory agents in the skin of rosacea patients showed a production of cathelicidin (LL-37) and kallikrein (KLK5). In fact, LL-37 promotes inflammation, angiogenesis and neovascularization. Although there is no immunohistological study yet on rosacea patients cornea, it can be hypothesized that LL-37 levels would be elevated in their tear film and could contribute to corneal neovascularization. A better understanding of the pathogenesis of this disease may help to find more effective therapeutic modalities [8].

Various surgical techniques have been described. Gracner., *et al*. reported cases of keratoplasty on extensive corneoscleral perforations complicating ocular rosacea. Jain., *et al*. described the use of amniotic membrane grafting for spontaneous corneal perforation in rosacea patient resulting in improved visual acuity at 3 months after surgery. Conjunctival flaps have also been used to manage corneal perforation and pre-perforative ulcers [10].

The standard treatment of rosacea is based on palpebral hygiene with the application of heat to the eyelids (heating glasses, wet compresses, etc.). Eyelid care is associated with topical azithro-

mycin-based antibiotic therapy as a first-line treatment. In the most severe forms, oral antibiotic therapy is prescribed: cyclins, suitable for adults, are contra-indicated in children under 8 years of age and may in some cases be replaced by erythromycin or metronidazole. Short-term corticosteroid therapy may be prescribed during inflammatory outbreaks [11,12]. Finally, ciclosporin is used during therapeutic escalation, in case of lack of improvement with previous measures, for cortisone sparing.

Conclusion

Ocular rosacea in children may be misdiagnosed as viral or bacterial infections. Unlike in adults, associated cutaneous changes are uncommon. Most disease is bilateral, although involvement may be asymmetric. Response to conventional treatment is excellent, although long-term treatment may be necessary to prevent relapses.

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