Periocular necrotizing fasciitis associated with kerato-conjunctivitis and treated with medical management: A case report

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We report a 25-year-old systemically healthy male who presented with periocular necrotizing fasciitis (NF) in the left eyelid. This was associated with the presence of immunologically mediated marginal kerato-conjunctivitis, in the same eye. This potentially dangerous lid infection and the associated ocular surface infection resolved successfully, with medical management. We report this case to highlight the successful conservative management of periocular NF and the hitherto unreported anterior segment involvement.

Key words: Kerato-conjunctivitis, medical management, necrotizing fasciitis, periocular infection.

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Necrotizing fasciitis (NF) is the anatomical description used to describe the extensive necrosis of the subcutaneous tissues that is most commonly caused by a rapidly spreading infection of *Streptococcus pyogenes* in the subcutaneous plane.[1] Necrotizing fasciitis is a serious life-threatening condition, with reported mortality of more than 20%. The limbs, perineum and abdomen are frequently involved with facial involvement being rare. The organisms most closely linked to NF are *Group A beta-hemolytic streptococci* (NF Type II), though these bacteria are isolated in only a minority of the cases.[1] The rarer NF Type I is caused due to polymicrobial infections and the usual pathogens are obligate and facultative anerobes.[1]

Periocular NF is reported to have a better prognosis.[2] Though reports of resolution of periocular NF post surgical debridement are common, a detailed Medline and Embase search revealed only one case series reporting resolution with conservative management.[3] In addition, to the best of our knowledge, there are no published reports of anterior segment ocular involvement in periocular NF. We report this case to highlight the successful conservative management of periocular NF and the hitherto unreported ocular involvement.

Case Report

A 25-year-old systemically healthy male patient presented with complaints of severe photophobia, redness, discharge, pain and severe swelling of the lids in the left eye, since two days.

Past history was significant for a boil on the lower eyelid, two days ago. On examination, the best-corrected visual acuity was 20/20 and 20/30, in the right and left eyes respectively. Right eye examination was unremarkable. The left eye showed severe lid edema with scales on the skin and associated kerato-conjunctivitis [Fig. 1A]. The cornea showed multiple marginal infiltrates. Photographic documentation of the anterior segment condition was impossible because of the severe photophobia. Extraocular movements were full. A conjunctival swab and a periorbital skin swab were sent for culture and sensitivity. The corneal infiltrates were also cultured on blood agar and Sabouraud's dextrose agar. The patient was seen by our infectious diseases expert and started on intravenous co-amoxiclav (Augmentin, GlaxoSmithKline) 1 g twice daily, intravenous ceftriaxone (ceftriaxone sodium, Sandoz, Novartis) 1 g twice daily and oral metronidazole (Flagyl, Searle) 500 mg three times daily, pending sensitivity reports. Topical loteprednol etabonate (0.5%) (Alrex eye drops, Bausch and Lomb Incorporated) every three hourly and ciprofloxacin (0.3%) (Ciplox eye drops, Cipla) six times a day were started, in the left eye.

On follow-up two days later, the patient was symptomatically much better. The skin scabs had fallen off, revealing violaceous, sub-epidermal necrosis. The conjunctival inflammation had reduced and the corneal marginal infiltrates had almost disappeared [Fig. 1B]. Culture and sensitivity results showed *Staphylococcus aureus*, sensitive to the administered medications. The culture plates for corneal infiltrates showed negative growth and were discarded after three weeks. The patient was sero-negative for HIV.

Five days later, the skin lesions had healed and the conjunctivitis had resolved. Intravenous antibiotics were stopped and the patient was started on oral co-amoxiclav (Augmentin, GlaxoSmithKline), 625 mg thrice a day, for a week.

On final follow-up a month later, periocular skin discoloration was the only sequalae noted [Fig. 2].

Discussion

Infections in the periocular region occur post surgical procedures, post trauma, furunculosis or even without any antecedent cause.[2]

Ideally, a combination of intensive parenteral antimicrobial therapy and prompt surgical debridement of necrotic tissue should be done. Intravenous pooled immunoglobulin and

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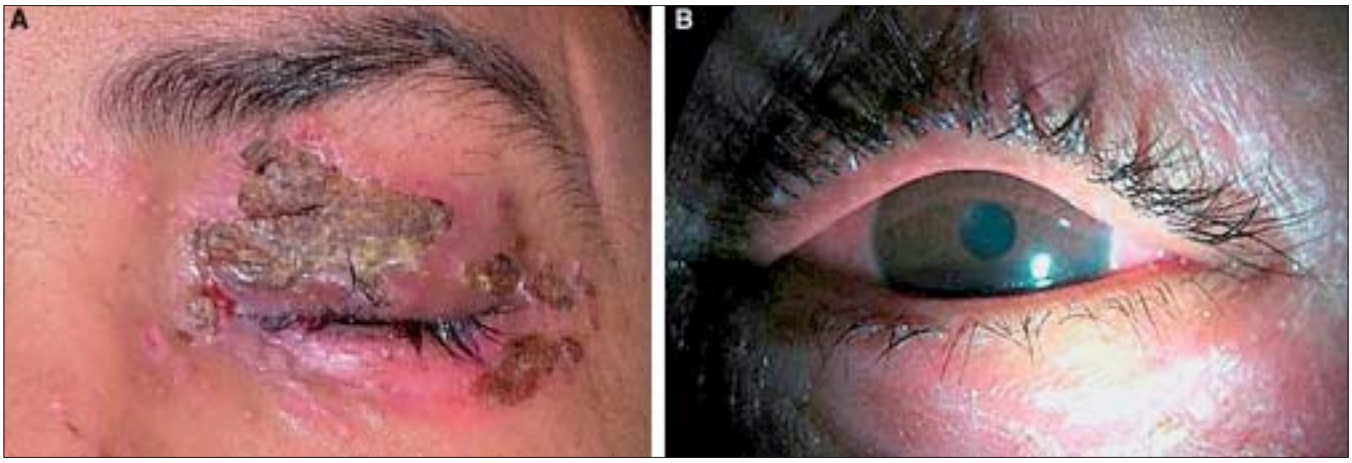

Figure 1: (A) External photograph of patient at presentation, showing left-sided severe lid edema, erythema and necrotic tissue with overlying skin scabs. (B) Slit-lamp photograph of the left eye, in diffuse illumination (with upper eyelid retracted), showing periocular skin erythema and kerato-conjunctivitis

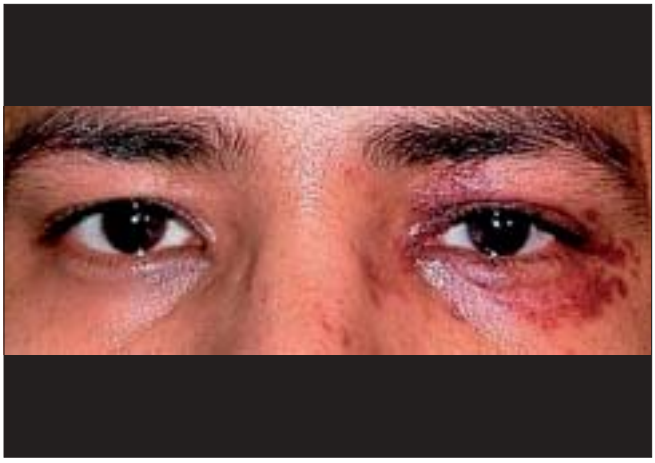

Figure 2: External photograph of patient, a month post presentation, showing healed skin lesions, with symmetrical palpebral apertures

heparinization may also have beneficial roles by neutralizing super-antigen activity and aiding antibiotic perfusion.[4]

Necrotizing fasciitis is a clinical diagnosis. Necrotizing fasciitis limited to the eyelids looks and behaves differently from NF affecting other parts of the body, due to the excellent blood supply in the eyelid area.[3] Mild cases, especially those restricted to the eyelids alone may respond to medical therapy. The increased blood supply allows for delayed debridement, because the local vasculature allows for better access of the systemic antibiotics to the infected area. The marginal zone of tissue surrounding the infected area has better local blood supply and hence a higher chance of avoiding necrosis.[3]

We report the case of a 25-year-old male patient who presented with periocular NF associated with kerato-conjunctivitis. Associated kerato-conjunctivitis is commonly reported following lid infection of staphylococcal etiology. The paucity of literature regarding this entity, in association with *staphylococcus*-induced periocular NF probably stems from an under-reporting bias. These infiltrates are usually the result of an immunological reaction with staphylococcal antigens but in cases with severe infection as in our patient, the infiltrates need to be cultured for an infectious etiology. The patient responded to conservative medical management with systemic antibiotics, topical antibiotics and topical steroids. We report this case to highlight the successful conservative management of periocular NF and the hitherto unreported anterior segment involvement.

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