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Bilateral Oculo-Palpebral Necrotizing Fasciitis Blinding in an Infant

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Abstract

Introduction: Necrotizing fasciitis is a rare and serious pathology responsible for rapid massive necrotic destruction of oculo-orbito palpebral tissue following infectious vascular thrombosis. The interest of this work is to underline the diagnostic and therapeutic urgency of this exceptional pediatric ophthalmological pathology which rapidly threatens the visual but above all vital prognosis. We report to you the observation of an apparently perfectly healthy infant whose bilateral ocular involvement despite intensive treatment led to blindness.

Observation: The infant B.H aged 9 months hospitalized urgently for purplish edema with ulcerations of the four eyelids occluding the two eyes dating back to 3 days previously. In the antecedents, we find the notion of recurrent conjunctivitis treated by many antibiotic eye drops. On examination, extensive ischemic necrosis of the conjunctiva, underlying sclera and cornea, the rest (of the anterior segment and the fundus) is inexplorable. Cytobacteriological samples came back negative. The inflammatory and immunological assessment is inconclusive as is the conjunctival skin biopsy. The pediatric examination is unremarkable. The diagnosis of necrotizing fasciitis is retained in view of the clinical aspect and especially progressive. Treatment consisted of local and general probabilistic antibiotic therapy, autologous serum as well as daily surgical debridement. The evolution has taken place towards very slow healing at the cost of phthyse of the eyeballs and welding of the four eyelids.

Discussion & Conclusion: The literature reports few cases of necrotizing fasciitis in children but always emphasizes the dramatic evolution on the ocular and even the vital level. Our case illustrates this picture well, since despite intensive treatment, both medical and surgical, the evolution has taken place towards healing at the cost of bilateral blindness.

Keywords: Necrotizing fasciitis; Child; Emergency; Blindness

1. Introduction

Necrotizing fasciitis is a rare and serious infectious disease responsible for rapid massive necrotic destruction of the oculo-orbito palpebral tissue following vascular thrombosis. The treatment must be very rapid because it can be life threatening. We report to you the observation of an infant whose bilateral atypical condition despite intensive treatment led to blindness.

2. The Observation

The 9-month-old BH infant hospitalized urgently for purplish edema of the four eyelids with a picture of necrotizing keratoconjunctivitis dating back to 3 days. History of recurrent pseudo-membrane conjunctivitis treated with antibiotic eye drops. Concept of recurrent nasopharyngitis treated with antibiotics and nonsteroidal anti-inflammatory drugs.

The ophthalmologic examination at the entrance shows at the levels of the two eyes, an important purplish eyelid edema (FIG. 1A), an extensive ischemic necrosis of the bulbar and inferior tarsal conjunctiva (FIG. 1 B), spreading in depth and affecting the entire thickness of the underlying sclera and cornea (FIG. 1 C), the rest of the anterior segment and the fundus is inexplorable.

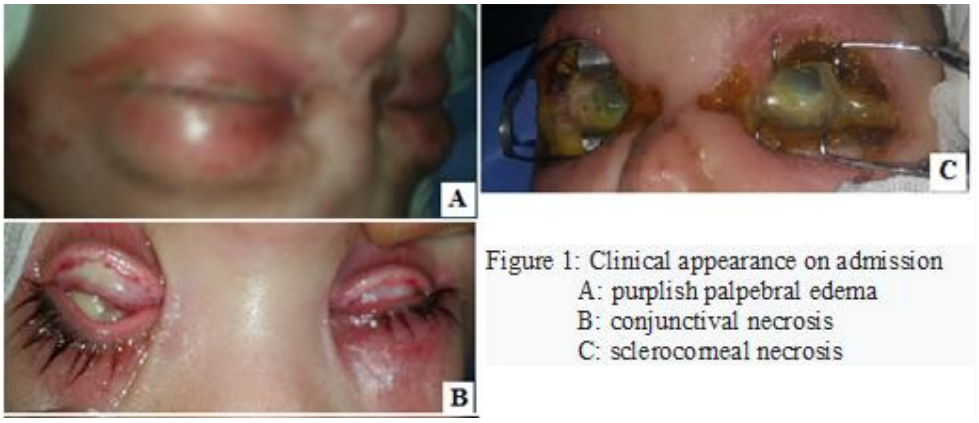

Figure 1: Clinical appearance on admission
A: purplish palpebral edema
B: conjunctival necrosis
C: sclerocorneal necrosis

FIG. 1. **Clinical appearance on admission. A). Purplish palpebral endema. B). Conjunctival necrosis. C). Sclerocomeal necrosis.**

The pediatric examination found a common nasopharyngitis. The standard initial assessment finds a CRP at 24, the rest is unremarkable. A sinus and brain CT scan returned to normal. Cytobacteriological samples after a therapeutic window of 48 hours came back negative.

The first conjunctival skin biopsy speaks of woody conjunctivitis.

We awaited the result of the plasminogen level and although the clinical picture was not in favor of a ligneous plant, the management was: abundant and repeated washing with heparinized saline serum, debridement of the conjunctival sac culverts, broad-spectrum antibiotics in eye drops, corticosteroids subconjunctival every other day, alternately touching with ciclosporin diluted at 2%, instillation of autologous serum and a broad-spectrum antibiotic therapy by general route prescribed by the pediatrician for nasopharyngitis.

The evolution (1st evolution) after two weeks despite the plasminogen level having returned to normal, we saw a marked improvement in the palpebral and conjunctival areas with persistence of the extensive corneal ulcer (FIG. 2). The patient is kept under wetting agents without preservative, autologous serum and abundant washing with physiological serum.

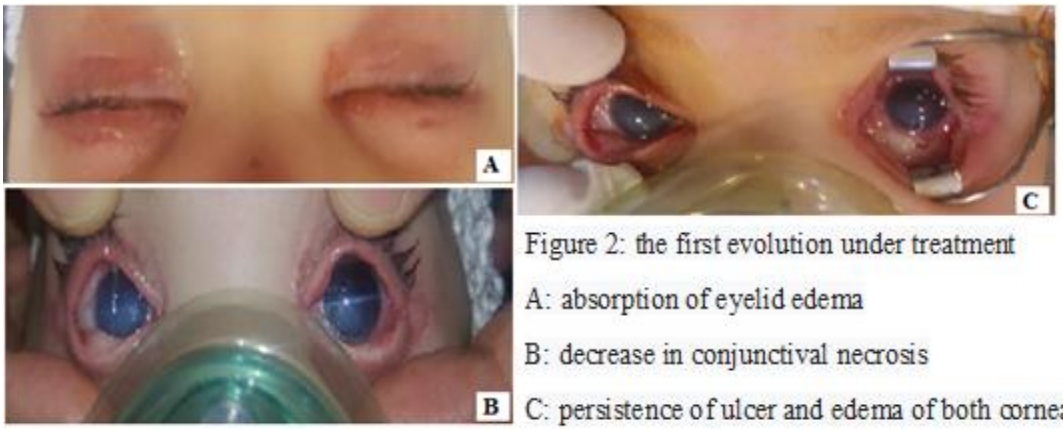

FIG. 2. **The first evolution under treatment. A). Absorption of eyelid endema. B). Decrease in conjunctival necrosis. C). Persistence of ulcer and endema of both corneas.**

The patient was released on leave at the weekend with the same local treatment, but unfortunately, she was readmitted 24 hours later with a more serious picture than on admission in both eyes: Necrotic edema of both eyelids, extensive conjunctival scleral necrosis and ischemic edema with extensive pre-perforating corneal ulcer (FIG. 3).

The mother's questioning reveals that the child was given ibuprofen syrup for a hypothetical unstated fever.

FIG. 3. **Clinical aspect of the relapse 24 hours after discharge on leave. A). Necrotic ulceration of the eyelids. B, C). Extensive and deep necrosis of the eyeballs 72 hours later.**

In front of this table, the diagnoses mentioned:

- An ocular Stevens Johns Lyell syndrome? Probably related to NSAIDs (Ibuprofen) the
- mother gave to the child for a fever
- A caustic burn from a traditional treatment? That the mother denies the use
- A drug allergy?
- Necrosis linked to immunological vasculitis (Wegener, Systemic lupus erythematosus, etc.)
- Necrotizing fasciitis

A second assessment including a VS inflammatory assessment, CRP, protein electrophoresis, the results are compatible with an acute inflammatory syndrome. The temperature curve shows a febricle not exceeding 38°C. The immunological assessment, namely C3, C4 are normal, the FAN is negative and the ANCA are negative. Another cytobacteriological and mycological surface sample came back negative.

The cytology of the bone marrow is unremarkable; A 2nd skin and conjunctival scleral biopsy shows a necrotic necrotizing process with arterial occlusion.

The diagnosis of necrotizing fasciitis was retained and intensive medical-surgical treatment was started consisting of daily care under sedation, surgical removal of necrotic lesions, abundant washing with physiological serum, use of reinforced eye drops (antibiotic & antifungic) despite the negativity of the cytobacteriological samples, debridement of necrotic skin and conjunctival tissue and coverage by eye dressing with antibiotic.

Systemic antibiotic coverage with betalactamine has been associated with formal prohibition of the use of ibuprofen. The evolution after another 3 weeks of intensive treatment was towards progressive healing of the lesions at the cost of atrophy of both eyeballs and palpebral weld (FIG. 4).

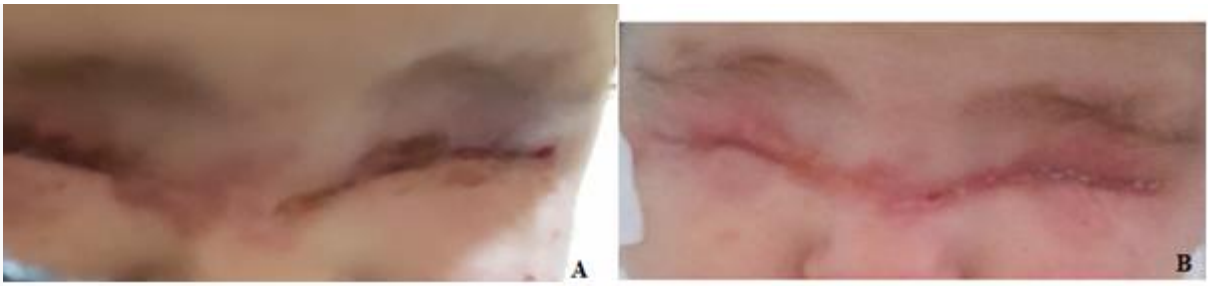

Figure 4: The final appearance of the lesion after healing
A / after 1 month B / aspect at 6 months

FIG. 3. **The final appearance of the lesion after healing. A). After 1 month. B). aspect at 6 months.**

3. Discussion

Necrotizing fasciitis, so called for the first time in 1952 by Wilson [1], is an exceptional infectious disease with a severe local and general prognosis [2].

Usually due to a Group A hemolytic Streptococcus β, Staphylococcus Aureus or any germ. The infection spreads rapidly from a portal of entry to the subcutaneous fascia, marked by inflammation followed by skin necrosis, sometimes within 24 hours [3]. Orbito-palpebral localization is rare [2].

Diabetes, immunosuppression, and the use of nonsteroidal anti-inflammatory drugs (NSAIDs) are the main predisposing factors [2-4]. In almost a third of cases no obvious cause was found [5]. It is often preceded by even a minor trauma, more rarely by

an infection of the upper airways with the use of NSAIDs [5] as is the case in our patient. The infection progresses very quickly within 48 to 72 hours with the onset of inflammatory edema followed by a change in skin color which turns to purplish blue [2-5]. Skin necrosis develops on days 4-5 with underlying suppuration between days 8 and 10 [2,5].

All of these steps were observed in our patient. Vascular thromboses with chorioretinal ischemia and blindness have also been reported [2]. The diagnosis is clinical; the treatment must not be delayed because the vital prognosis could be involved.

The therapeutic management, associates an adapted parenteral antibiotic therapy with a broad coverage (gram +, gram - and anaerobic) while waiting isolation of the germ and resuscitation measures in severe cases.

Surgical debridement of necrotic tissue should be immediately associated in order to limit the extension of the infectious process and to facilitate the action of intravenous antibiotic therapy. Subsequent repair of the loss of substances is carried out using the various techniques of eyelid repair in plastic surgery [6]. Fortunately, the general condition of our patient did not require a transfer to intensive care, but the evolution of the eye lesions was made towards healing and scarring at the cost of blindness and eyelid welding by the scar process.

The patient is scheduled for plastic surgery for eyelid repair surgery after the inflammatory reaction has completely resolved.

4. Conclusion

Necrotizing fasciitis is an extremely serious infectious process leading to gangrene by vascular thrombosis. It is necessary to think about it in front of an atypical clinical picture of blepharo-conjunctivitis and necrotizing scleritis (especially if there is a notion of using non-steroidal anti-inflammatory drugs) so as not to delay the initiation of appropriate therapy.

5. Conflict of Interest

The authors declare that they have no connection of interest.

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