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Endophthalmitis Complicating A Sclera Wound: A Case Report

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Abstract :
Purpose : *To describe a case of endophthalmitis complicating a sclera wound in a child.*
Introduction :
Endophthalmitis is an infection of the vitreous and/or aqueous humor by bacteria and fungi. Post-traumatic open globe injury endophthalmitis is a serious complication that can lead to irreversible blindness. Post-traumatic endophthalmitis accounts for 25 to 30% of all cases of endophthalmitis.
Observation :
We reported the clinical case of a 3-year-old female child, who consulted for a right eye trauma by a metal wire that occurred 72 hours before his admission during a game.
The clinical examination on admission had made it possible to note, in the right eye, a visual acuity that was difficult to assess (non-cooperative child), a temporal subconjunctival bubble at 9 a.m., a significant inflammatory reaction in the anterior chamber in particular: a cellular tyndall rated 4+ and a cyclitic membrane in the pupillary area, an inaccessible fundus examination. The examination of the contralateral eye was unremarkable.
The therapeutic conduct consisted of suturing the wound under general anesthesia. Intraoperatively, after a conjunctival discovery, a sclera wound had been highlighted without foreign body visible.
The evolution on the second postoperative day was marked by the occurrence of a hypopion associated with a dense intravitreal organization clinically and to the ultrasound. This required intravitreal injections of antibiotics and then corticosteroids, as well as subconjunctival injections of corticosteroids.
Conclusion :
Post-traumatic endophthalmitis in children is a serious pathology that can compromise the visual prognosis. It is necessary to carry out awareness campaigns in order to prevent eye trauma in children.
Keywords : *Endophthalmitis-Open-globe injury-Intraocular Infection*

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I. Introduction :

Endophthalmitis is an infection of the vitreous and/or aqueous humor by bacteria and fungi [1]. Post-traumatic open globe injury endophthalmitis is a serious complication that can lead to irreversible blindness [2,3]. Post-traumatic endophthalmitis accounts for 25 to 30% of all cases of endophthalmitis [2-4]. The risk factors of endophthalmitis in open-globe injuries are classically represented by an intraocular foreign body [5-7]. The dalay in therapeutic management is also a risk factor to be taken into account [6,8-11]. Thus, adequate treatment should be initiated within 24 hours of the open globe injury (OGI). Some authors estimate that this period would be more like 12 hours [10]. Antibiotic treatment and modern surgical techniques have improved the success rate for post-traumatic endophthalmitis.
The objective of the study is to describe a case of endophthalmitis complicating a sclera wound in children.

II. Observation :

We reported the clinical case of a 3-year-old female child, who consulted the ophthalmological emergency department of the 20 August 1953 hospital in Casablanca for a right ocular trauma by a metal wire that occurred 72 hours before his admission during a game.

The clinical examination on admission had made it possible to note, in the right eye, a visual acuity difficult to assess (non-cooperative child), a slightly decreased ocular tone on soft bidigital palpation, a temporal subconjunctival bubble at 9 o'clock, a clear cornea, a significant inflammatory reaction in the anterior chamber in particular: a cellular tyndall rated 4+ and a cyclitic membrane in the pupillary area, an inaccessible fundus. The examination of the controlateral eye was unremarkable.
The radiography of the orbit had not objectified any radiopaque foreign body (Figure 1).

The therapeutic conduct consisted of suturing the wound under general anesthesia. Intraoperatively, after a conjunctival discovery, a sclera wound was highlighted (Figure 2) without a visible foreign body. It was a horizontal wound, parallel to the limbus located 3 mm from it and measuring 2 mm. After trimming the wound, we sutured the wound with absorbable suture 6.0 followed by suturing the conjunctiva with absorbable suture 8.0. Intraoperative medical treatment consisted of intravenous antibiotic therapy, in particular ceftazidime at a dosage of 50 mg/kg/day, continued postoperatively, fortified antibiotic eye drops, including vancomycin (50 mg/ml) and ceftazidime (20 mg/ml), atropine dilation, a topical corticosteroid including dexamethasone (eye drops and ointment).

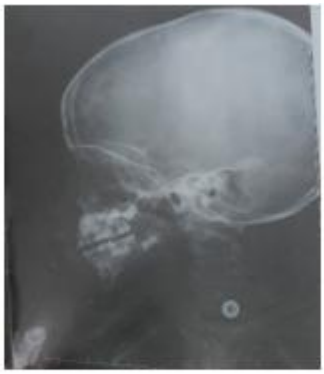

Figure 1 : Absence of radiopaque foreign body on orbital radiography.

Figure 2 : Discovery of a sclera wound (arrow) after coniunctival discovery.

The evolution on the second postoperative day (D2) was marked by the occurrence of a hypopion (Figure 3A) associated with a dense intravitreal organization clinically and to ultrasound. This required intravitreal injection (IVT) of antibiotics: ceftazidime (2 mg) and Vancomycin (1 mg). The evolution of antibiotic post-IVT on day 1 was marked by a clear regression of the hypopion and the cyclitic membrane (Figure 3B). After three (3) IVTs of antibiotics, the last of which was combined with dexamethasone, and 3 subconjunctival injections of dexamethasone, there was a complete regression of the hypopion and cyclitic membrane (Figure 3C) as well as a brightening of the anterior vitreous (Figure 3D).

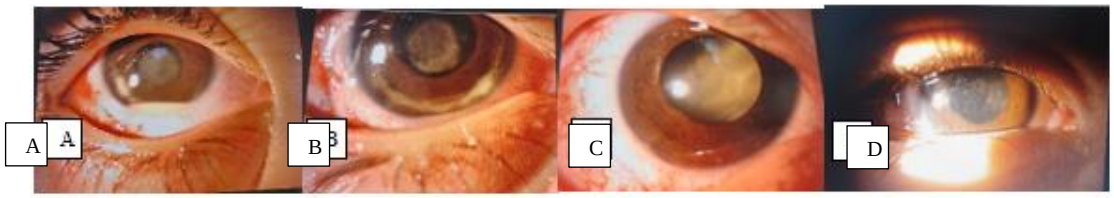

Figure 3 : Images showing the presence of hypopion (A) and the evolution after treatment: B: Partial resorption of the hypopion and the cyclitic membrane, C: Complete resorption of the hypopion and cyclitic membrane, D: Brightening of the anterior vitreous.

III. Discussion :

Post-traumatic endophthalmitis is a rare but serious complication that can lead to irreversible blindness [2,3]. It accounts for 25 to 30% of all cases of endophthalmitis [2-4]. The incidence of post-traumatic endophthalmitis in the pediatric population is estimated to be 2.8 to 54.2% [12-14].

Clinically, post-traumatic endophthalmitis is similar to postoperative endophthalmitis. The diagnosis of endophthalmitis is initially clinical, and ocular ultrasound is an aid in diagnosis when the fundus is inaccessible. It (ultrasound) is contraindicated in the case of a non-watertight eyeball wound, it should not delay the start of adequate treatment.

Endocular samples (aqueous humor and vitreous) must be taken before starting antibiotic therapy, for bacteriological study. However, the reduced volume of intraocular sampling and the low bacterial inoculum initially present mean that this direct examination is often negative, with 18.9% positivity in the Endophthalmitis Vitrectomy Study (EVS) [15]. The most frequently found germs are Staphylococcus, Bacillus, Streptococcus or Gram-negative bacteria. They are associated with poor visual recovery [16-18].

Therapeutic management is based on local and general antibiotic therapy. Baillif-Gostoli S. and Paoli V. [19] have proposed the following treatment regimen:

- For intravitreal injection: vancomycin: 1 mg in 0.1 ml of saline (NaCl 0.9%) and ceftazidime: 2 mg in 0.1 ml of saline (NaCl 0.9%).
- For systemic antibiotic therapy: a fluoroquinolone (Ciprofloxacin) 750 mg twice a day orally and imipenem 500 mg 4 times a day by intravenous injection.

In our practice, we use cefixime in children, at a dosage of 8 mg/kg/day divided into two doses. Antibiotic therapy is then adapted according to the results of the bacteriological examination.

Pars plana vitrectomy is widely recommended. It reduces intraocular inflammation and improves the distribution of antibiotics.

There is no national or international consensus on the nature or dosage of antibiotic prophylaxis after eye wounds. However, in France, experts convened by the French Agency for the Safety of Health Products (AFSSAPS) recommend antibiotic therapy administered immediately after the perforating trauma and continued for 24 hours with possible prolongation depending on the clinical evolution [19].

The chances of visual recovery are proportional to the time taken to receive treatment. Indeed, Ma J et al. [21] had noted in their series a better visual recovery when treatment was done within 1 day after the appearance of the signs of endophthalmitis. This result was similar to that of Narang S. et al.[22] who reported that poor visual recovery in endophthalmitis was associated with delay in diagnosis and treatment.

IV. Conclusion :

Post-traumatic endophthalmitis in children is a serious pathology that can compromise the visual prognosis. There is currently no consensus on the prevention of post-traumatic endophthalmitis, however it is necessary to carry out awareness campaigns in order to prevent eye trauma in children.

Conflict of interest:
No conflict of interest is declared.

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