Review Article

Orbital cellulitis revealing neglected intraocular foreign bodies: about 58 cases

Abstract: Orbital cellulitis is defined by acute inflammatory orbital swelling of infectious origin. Most often secondary to sinusitis. Intraocular foreign bodies neglected because of their small size, or sometimes radiolucent nature, can be difficult to diagnose even with radiology and be responsible for orbital cellulitis. we thus demonstrate the diagnostic and therapeutic difficulties. Patients and methods: This is a retrospective, descriptive study of patients with orbital cellulitis revealing neglected intraocular foreign bodies, conducted in our ophthalmology department, involving 58 patients, from January 2018 to July 2022. Results: The mean age of the patients was 38.5 years. The most affected age group is between 21 and 30 years old with a clear male predominance. visual acuity loss was found in all patients (unilateral blindness 43%) and cellulitis complicated by purulent melting (43%). On orbital scanner, the nature of foreign body was dominated by metallic foreign body (58%). All patients received medical treatment or even intravitreal injection of antibiotics in 71% of cases and surgical treatment consisting of extraction foreign body and evisceration of the eyeball in 25% of cases. Discussion: Orbital cellulitis, although mainly secondary to sinusitis, can reveal various etiologies, including intraocular foreign body. Diagnosis is often difficult because the patient's history is sometimes misleading and orbital wounds can be difficult to assess clinically or are underestimated. Any diagnostic and/or therapeutic delay can be a source of serious complications. In the case of purulent casting; evisceration remains the surgical treatment of choice. Conclusion: Orbital cellulitis is a serious condition that can be

life-threatening and functional, especially when the diagnosis is late and the treatment is inappropriate. The presence of an intraocular foreign body must be suspected in all cases of orbital trauma associated with a palpebral wound, even minimal, or in the presence of clinical aggravation.

Keywords: Neglected Intraocular foreign bodies, Orbital cellulitis, Orbital trauma, Orbital scanner, Antibiotics

INTRODUCTION:

Orbital cellulitis is defined by the presence of acute inflammatory orbital swelling of infectious origin. They represent the most frequent primitive orbital pathology, they are most often secondary to an infectious focus such as sinusitis, more particularly ethmoiditis in the majority of cases. It is a serious pathology due to its local, locoregional and general complications. Intraocular foreign bodies overlooked because of their small size, or sometimes radiolucent nature, or when they are externally invisible, can be difficult to diagnose even with ocular scanner or magnetic resonance imaging (IRM) and so be responsible for orbital cellulitis. Hence a delay in recognition and or treatment can lead to serious consequences leading to evisceration when the hopes of preserving the intact and functional globe are lost.

GOAL:

The purpose of this study is to report cases of neglected foreign bodies revealed by orbital cellulitis, and thus demonstrate the diagnostic and therapeutic difficulties and the possible sequelae.

MATERIAL AND METHODS:

This is a retrospective, descriptive study of patients with orbital cellulitis revealing neglected intraocular foreign bodies, conducted in the Adult Ophthalmology Department at the August 20 Hospital in Casablanca, involving 58 patients, over a period of 4 years. and a half, from January 2018 to July 2022. Excluded from the study were orbital cellulitis of sinus origin, cellulitis secondary to a lacrimal infection, cellulitis complicating endophthalmitis on corneal abscess, cellulitis post -traumatic, post-surgical cellulitis, or those revealing tumours.

RESULTS:

The average age of the patients was 38.5 years, with a minimum age of 21 years and a maximum age of 63 years. The most affected age group is between 21 and 30 years old. Our study involved 13 men and 1 woman. The male/female sex ratio was 13 with a clear male predominance. The nature of the foreign body was dominated by metallic foreign body in 57.14% of cases, followed by pieces of stone in 21.42%, a plant thorn in 7.16% of cases, while it is of an indeterminate nature in 14.28% of cases. 86% had no particular pathological history. The delay in consultation was noted in all patients with an average of 4 days and self-medication in 21% of patients. The affected eye involved in the majority of cases the left eye. The portal of entry was dominated by corneal involvement found in 65% of patients. The ophthalmological examination showed a decrease in visual acuity in all patients with unilateral blindness in 43% of cases, chemosis (93%), exophthalmos (52.71%), ophthalmoplegia (43%), orbital fistula (14%), purulent cast iron (43%). The majority of patients underwent orbital X-ray, ocular ultrasound and orbital scanner. However, IRM was not performed in any patient. Analysis of the orbital scanner results noted: the presence of metallic foreign body (58%), pre septal cellulitis (14%), orbital cellulitis (35%), collected cellulitis (36%). All the patients benefited from a medical treatment associated in 71% of the cases with intravitreal injection of antibiotics, from a surgical treatment having consisted of

an extraction of the foreign body by the electromagnet or using a forceps in 36 % of cases and evisceration of the eyeball unfortunately in a quarter of cases.

DISCUSSION:

Orbital cellulitis, although mostly secondary to sinusitis, can reveal various etiologies. Through this study, we have tried to show that the array of orbital inflammation should not be labeled as sinusitis without a careful diagnostic approach. The diagnostic approach makes it possible not to ignore more unusual etiologies such as intra-orbital foreign bodies that have gone unnoticed. Indeed, the diagnosis and management of an intraorbital foreign body are often difficult because the patient's history is sometimes misleading and the wounds of the orbit can be difficult to assess clinically or are underestimated. Essentially plant foreign bodies also have a high infectious potential due to their porous constitution which provides a good culture medium for bacterial agents and due to the diagnostic delay because they are sometimes difficult to detect in imaging. The early signs that should lead to the suspicion of a foreign body are visual function disorders, persistent inflammation, a severe infection, in particular cellulitis with or without involvement of the sinuses or the central nervous system, ptosis, ocular motility disorders, proptosis, dystopia of the globe, chemosis or persistent pain. The consequences of the retention of foreign bodies in the orbit are multiple and potentially serious. Cases of chronic orbital inflammation, orbital cellulitis, orbital abscess, foreign body granuloma, ophthalmoplegia, ptosis, palpebral retraction, chronic sinus tract and blindness have been described. One case of orbital osteomyelitis and one case of panophthalmos with corneal perforation have also been reported after foreign body trauma. The etiological assessment will necessarily involve a careful clinical examination followed by orbital imaging, urgently if necessary. Suspicion of foreign body requires orbital imaging. Ultrasound and orbital scanner can visualize metallic foreign bodies and very often broken glass. Other foreign bodies (plastic, stone, plant debris) are more difficult to identify.Plant foreign bodies

are rare and no imaging technique is fully sensitive for the detection of orbital plant foreign bodies (up to 50% failure for some). X-rays of the orbits can show metallic foreign bodies, but generally not plant foreign bodies. Orbital ultrasound is very effective for the detection of "everything coming" foreign bodies since it can detect them in 95% of cases when they are located in the globe and in 70% of cases in intraorbital topography. This examination also makes it possible to see if the foreign body is mobile with the movements of the globe or the head or if it is magnetizable. On the other hand, its sensitivity is more limited if we are only interested in plant ECs, and in particular in the case of very deep plant foreign bodies (near the orbital apex). Moreover, it is very dependent on the experience of the operator. For many authors, MRI is the best examination for the detection of foreign plant bodies. However, this examination is formally contraindicated in the event of a magnetizable metallic foreign body: it is therefore more prudent to carry out an x-ray or scanner of the orbits just before, to eliminate a metallic foreign body. However, IRM is not always available and remains an expensive examination. Diagnosed and treated early, orbital cellulitis evolves well and without sequelae; any diagnostic and/or therapeutic delay can be a source of serious complications that can compromise the functional and even life-threatening prognosis. Broad-spectrum antibiotic therapy should be instituted systematically after penetrating orbital trauma. A tetanus prophylaxis is necessary if the vaccination is not up to date. The surgical management of orbital foreign body must be entrusted to specialized teams because the surgical risk is not negligible. The surgical approach depends on the location of the foreign body, guided by imaging. A double team involving ophthalmologists and neurosurgeons may be necessary. The main surgical complications are the occurrence of iatrogenic lesions of the orbital structures, the fragmentation of the foreign body and the partial or total failure of the ablation. In the context of endophthalmitis or purulent melting despite well-adapted treatment, evisceration remains the surgical treatment of choice.

CONCLUSION :

Orbital cellulitis is a serious condition that can be life-threatening and functional, especially when the diagnosis is late and the treatment is inappropriate. The presence of an intra-orbital foreign body should be suspected in all cases of orbital trauma associated with a palpebral wound, even a small one, or in the presence of clinical aggravation. Orbital scanner is the first examination to be performed after trauma to the orbit, especially if the nature of the foreign body is not known, followed by an IRM in case of doubt (after eliminating a metallic foreign body). Clinical suspicion of foreign body should encourage repeat ophthalmological and radiological examinations. The combination of strong clinical suspicion, good interpretation of complementary examinations and an experienced surgical team is the key to the diagnosis and management of neglected orbital foreign body.

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Pictures1,2: orbital cellulitis

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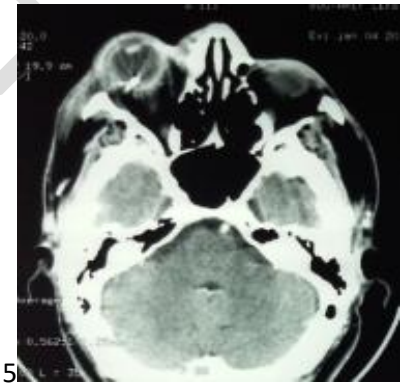

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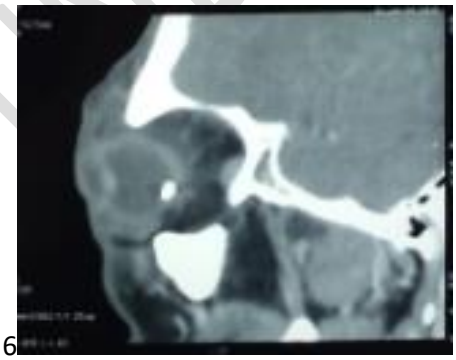

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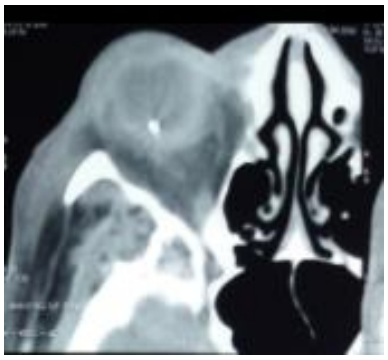

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Pictures 4,5,6,7 : Orbital scan showing intraocular foreign bodies

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Picture 3 : Purulent cast