

Conjunctival Granuloma Caused by an Unknown Metallic Foreign Body

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Abstract

Introduction: Conjunctival granulomas are tumor pathologies of various origins. A foreign body, whatever its nature, is often involved in its genesis. To date, there is very little data on foreign body conjunctival granulomas, the prevalence would be approximately 10% and their underestimation is probably linked to the inconsistency of their clinical presentation. **Patient and Observations:** We report a case of conjunctival granuloma caused by a metallic foreign body that went unnoticed in a young boy, the interest of rigor on primary protection measures for high-risk occupations, and of the strict application of the diagnostic protocol relating to ocular trauma. **Discussion:** foreign body granulomas, despite their usually harmless nature, can jeopardize the anatomical and functional prognosis of the affected eye. Only a detailed interview and a meticulous clinical examination allow the diagnosis to be made and the distinction to be made with conjunctival granulomas of different causes. **Conclusion:** the possibility of the involvement of a foreign body in the genesis of conjunctival granulomas must impose the rigorous application of diagnostic and therapeutic protocols.

Keywords

Granuloma, Conjunctiva, Foreign Body, Metallic (Mali)

1. Introduction

Conjunctival granulomas are tumor pathologies generally secondary to an infection, surgery or ocular trauma such as a foreign body. They are characterized by a conjunctival inflammatory process that manifests itself in the form of an

accumulation of connective tissue elements and inflammatory cells with a pseudotumor appearance [1]. To date, very little data is available on foreign body conjunctival granulomas, their prevalence is estimated at approximately 10% according to a study carried out on post-mortem samples in adults [2]. They can appear spontaneously without the patient having any notion of exposure or penetration of a foreign body or following a proven trauma [3]. We report through a case of conjunctival granuloma caused by an unnoticed metallic foreign body in a young boy (after obtaining the informed consent of his father), the interest of rigor on primary protection measures for high-risk occupations and that of the strict application of the diagnostic protocol relating to ocular trauma.

2. Clinical Case

A 13-year-old boy, an apprentice welder, was seen in an ophthalmology consultation for pain and discomfort related to the presence of a left eye mass that had started 15 days earlier.

In his history, we found bilateral eye trauma that had occurred three weeks earlier. In fact, during a professional manipulation, he had received pieces of iron thrown into his eyes. He had received gentamicin eye drops as self-medication without success. It was because of the growth of the eye mass that his parents decided to consult a specialist.

At the initial ophthalmological examination, visual acuity was assessed (on the Snellen optotype scale) at 10/10 without optical correction in both eyes.

At the external examination, a lesion was noted at the level of the anterior sclera near the external canthus of the left eye.

At the slit lamp examination: the right eye was normal in all its elements.

The left eye was characterized by moderate hyperemia, a conjunctival tumor presenting as an exuberant conjunctival lesion located at the external canthus.

Ocular pressure was assessed at 12 mm Hg in both eyes, fundus examination was normal in both eyes. General condition was unremarkable.

The diagnostic hypotheses retained were: Conjunctival cyst (transparent, thin-walled bag that contains a clear liquid), papilloma whose occurrence is associated with conjunctival infection with human papillomavirus, achromic nevus (appears as a flat or sessile lesion with very slight relief), conjunctival granuloma secondary to trauma. No additional examination was necessary.

The diagnosis of conjunctival granuloma secondary to ocular trauma was retained on the basis of the elements of the clinical examination, in particular, the history of projection of metal particles and the appearance of a rapidly growing tumor mass after the trauma.

The ophthalmological treatment established was based on the combination of dexamethasone, neomycin sulfate and polymyxin B sulfate in eye drops and ointment. No general treatment was necessary.

At the first follow-up examination carried out one week after the initial examination, a reduction in the tumor mass of almost 50% was noted. Functional

parameters were normal in both eyes, with visual acuity assessed as 10/10 and intraocular pressure of 12 mm Hg.

At the second follow-up examination performed 10 days later, the residual mass represented only about 10% of the initial tumor mass. We opted for the current treatment.

Three weeks after the second check-up, despite a well-conducted medical treatment (initially effective) and given the persistence of the residual tumor mass and the appearance of a symblepharon at the level of the left external canthus, we proceeded to its surgical excision, which revealed the metallic foreign body adhering to the sclera opposite and the release of the conjunctivo-palpebral adhesion.

Three months after surgery, the patient fully recovered (without recurrence) with a normal clinical ophthalmological examination and resumed his activity. (Figures 1-5)

3. Discussions

Due to their inconsistent clinical presentation, foreign-body conjunctival granulomas are most likely underestimated [4]. Many foreign bodies, such as eyelashes, hair, natural or synthetic textile fibers, and plant spines have been reported since

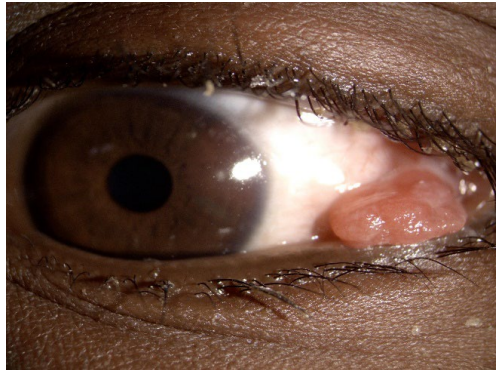


Figure 1. The patient on admission to the ophthalmology department with an exuberant tumor mass.



Figure 2. The patient, on day 7 after the start of treatment, had a tumor mass reduced by half.

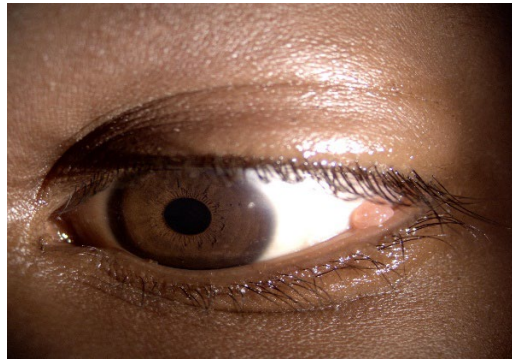


Figure 3. The patient on D17 at the 2nd follow-up examination with approximately 10% of the initial tumor mass.



Figure 4. The patient nearly 40 days after the start of medical treatment, with the persistence of the residual tumor mass and the appearance of symblepharon.

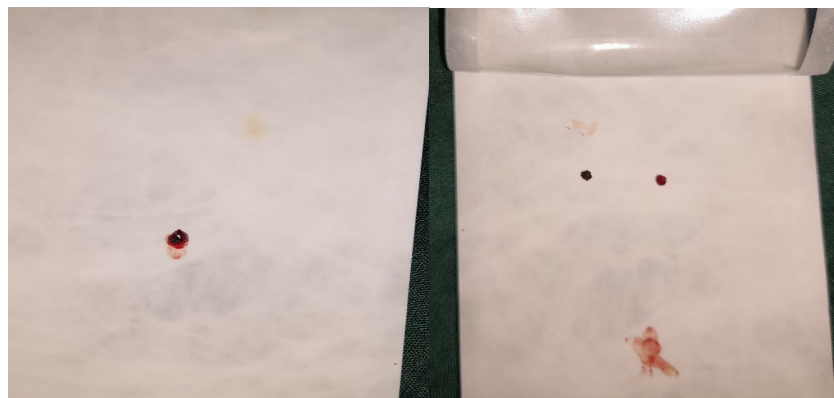


Figure 5. The discovered metallic foreign body and the excision piece of the residual granuloma.

the first description of this entity in 1861 by Schön under the term “nodular conjunctivitis”, in reaction to exposure to caterpillar hairs [2] [4] [5]. It is a generally asymptomatic benign tumor formation that presents as a solid mass with increased vascularization that may contain a foreign body, most often located in the anterior sclera. Histologically, this mass contains giant cells, blood vessels, and proliferating connective tissue surrounding the foreign body [1]. Some authors maintain that various metal microfragments can accidentally be embedded in tissues and lead to the formation of granulomas of varied pathogenesis and histological

aspects, partly depending on the nature of the metal [6]. It must be differentiated from pyogenic granuloma, episcleritis, localized anterior scleritis, sarcoidosis of nodular conjunctivitis, ligneous conjunctivitis, dermolipoma, rhabdomyosarcoma, Wegener's granulomatosis [1] [7] [8]. Despite their harmless nature, foreign-body granulomas can jeopardize the anatomical and functional prognosis of the affected eye, and the level of severity depends on the nature of the foreign body involved. Also, following its contamination, it can be the cause of a serious infection that requires a particular therapeutic protocol. The treatment of conjunctival granulomas is based on the use of anti-inflammatories and surgical excision if necessary [9] [10]. In all cases, care must be rapid and appropriate to avoid the occurrence of severe and potentially dramatic consequences for visual function, including Post-traumatic endophthalmitis, Bulbar siderosis (If the foreign body is metallic, it can slowly impregnate the intraocular tissues), retinal detachment, cataract, glaucoma.

In the case studied it was a young boy who was the victim of trauma by a metallic foreign body whose presence was not noticed and which was the source of conjunctival granuloma. Medical treatment significantly reduced the volume of the tumor without making it disappear. Surgical excision carried out in view of the persistence of the residual tumor made it possible to expose the responsible foreign body. The failure to perform a radiology examination at the beginning and later that of anatomopathological examination could be the limits of this clinical presentation.

4. Conclusion

This study shows that it is important to be strict in the application of preventive measures for all high-risk occupations. Also, the possibility of the involvement of a foreign body in the genesis of conjunctival granulomas must impose the rigorous application of diagnostic and therapeutic protocols, in particular, the systematic search for a foreign body by appropriate radiological examinations in all cases of ocular trauma.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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