Chorioretinitis Sclopetaria from BB Ex Memoria

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Abstract. Chorioretinitis sclopetaria presents a characteristic pattern of choroidal and retinal changes caused by a high velocity projectile passing into the orbit, in close proximity to the globe. While it is unlikely that a patient should completely forget the trauma causing such damage, preserved or compensated visual function may blur the patient's memory of these events over time. Characteristic physical findings help to clarify the antecedent history. Despite the lack of an acknowledged history of ocular trauma or surgery, in our case, the characteristic ocular findings discovered at presentation allowed for recognition of the underlying etiology. Because of good visual function, the patient had completely forgotten about the trauma that occurred 12 years earlier. Strabismus surgery was performed for treatment of the presenting symptomatic diplopia. The pathognomonic findings in chorioretinitis sclopetaria are invaluable in correctly diagnosing this condition, especially when a history of ocular trauma is unavailable. [Ophthalmic Surg Lasers 2001;32:152-155]

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INTRODUCTION

Chorioretinitis sclopetaria (CRS) results from trauma caused by a high velocity object passing into the orbit, in close proximity to the globe. The changes that occur within the choroid and retina are time dependent, and therefore helpful in establishing the time course of this kind of injury, especially when knowledge of previous ocular trauma is not initially forthcoming. It seems highly unlikely that a patient could completely forget such a significant injury. However, preserved vision and lack of ocular discomfort may cause the memory of such an accident occurring in childhood to blur over time. We present a case of CRS caused by a BB that had lodged at the left orbital apex 12 years prior, which at presentation had been completely forgotten by the patient.

CASE REPORT

A healthy, 23-year-old black male with a reportedly benign ocular history complained of diplopia of four months duration. Best-corrected visual acuity was 20/20 in the right eye and 20/20- in the left. Detailed ocular examination showed a normal right eye and several significant abnormalities in the left eye. These included an area of redundant conjunctiva medially, a 3+ APD, an incomitant hypertropia of 8PD and exotropia of 10PD, optic nerve pallor, and dramatic retinochoroidal atrophy and fibrosis with marked nasal dragging of the left macula (Figures 1-3). Despite denial of previous ocular trauma, retinal findings were consistent with chorioretinitis sclopetaria. Radiologic studies revealed a 6 mm spherical metallic foreign body medial to the optic nerve at the left orbital apex (Figures 4 & 5). When presented with these ocular and radiologic findings, the patient vaguely remembered being struck by a BB 12 years prior when a friend acci-

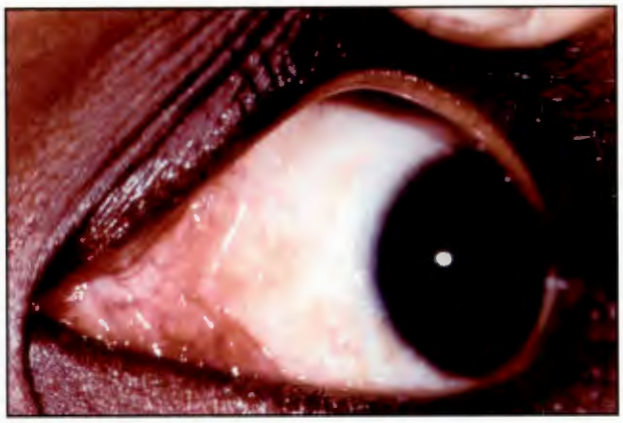

Figure 1. External photograph of the left eye showing redundant, scarred medial conjunctiva.

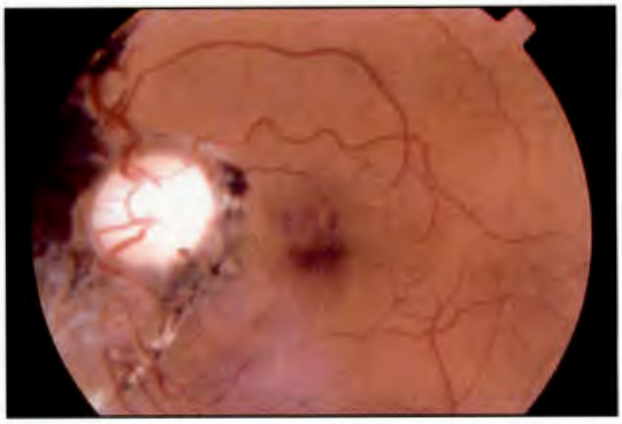

Figure 2. Fundus photograph of the left eye showing nasal dragging of the macula and optic nerve pallor.

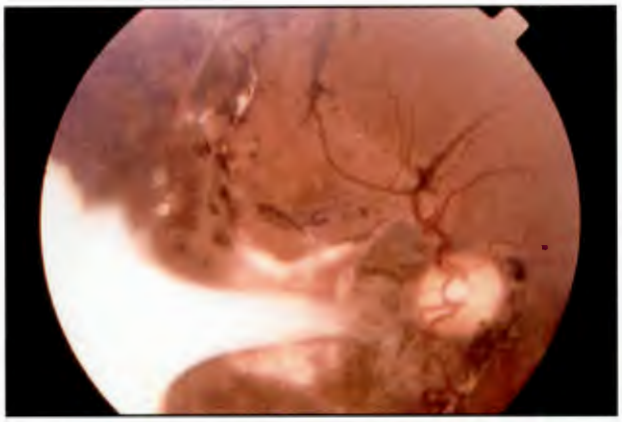

Figure 3. Fundus photograph of the left eye showing white fibrous membrane with hyper-pigmentation and fusion of choroid and retina.

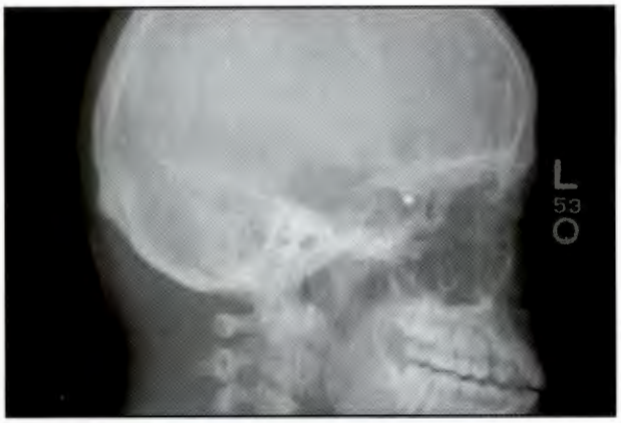

Figure 4. Lateral radiograph of the skull providing first evidence of a metallic foreign body in the left orbit.

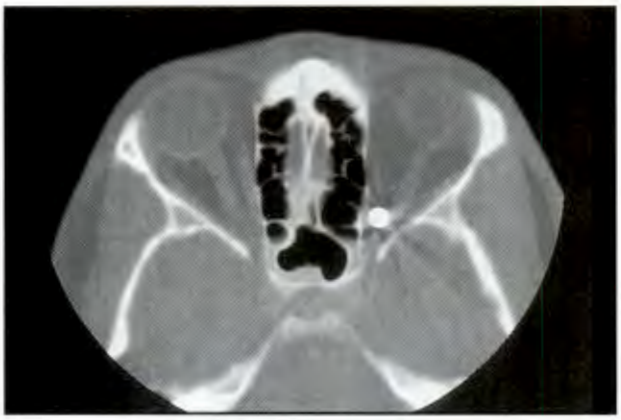

Figure 5. Axial CT of the orbits showing retained BB at the left orbital apex, between the left medial rectus and optic nerve.

dentally shot him in the left eye. The patient then recalled being taken to an "emergency room-type doc" approximately 5 days after the incident because of a small amount of blood that his mother had noticed at the medial aspect of the left eye. Aside from "some kind of eye drops" to help with localized inflammation, the patient did not recall receiving any other medical or surgical treatment after the injury, and was surprised to learn that a BB had actually entered the orbit and caused damage to his eye. During questioning for clarification of his surgical history, the patient was fairly confident that there had been no surgery following the BB injury, but was uncertain as to whether he had undergone any eye surgery prior to this event. The patient's mother could not be contacted for historical clarification of the accident.

With 20/20- vision and functionally compensated visual fields, surgical removal of the BB was deferred. The patient elected to undergo muscle surgery to correct the small angle strabismus in an attempt to resolve his symptomatic diplopia, and to have the redundant conjunctiva excised concomitantly. Despite denial of any previous ocular surgery, evidence of previous

medial and lateral peritomies was found at the time of strabismus surgery. The insertion of the medial rectus muscle was noted to be significantly scarred, and the lateral rectus was found attached 7 mm posterior to its original insertion. These findings were consistent with previous surgical treatment of a divergent strabismus. The surgical plan was then modified intraoperatively to accommodate the discovery of the modified lateral rectus position and previous surgery. The lateral rectus was recessed an additional 3 mm and the superior rectus was recessed 3 mm. The area of redundant medial conjunctiva was also resected. At two months follow-up, the patient's diplopia had completely resolved and he remains free of the diplopia one year later.

DISCUSSION

Chorioretinitis sclopetaria is a distinctive pattern of choroidal and retinal degeneration that results from the trauma caused by a high velocity projectile passing into or through the orbit without penetrating the globe. The first description of CRS appeared in the German literature in 1901, when Goldzieher described a collection of choroidal and retinal findings that he believed were pathognomonic for this condition. Findings typical of acute CRS consist of extensive choroidal and retinal hemorrhages, with subsequent reactive fibroglial proliferation of loose and dense fibrous tissue, accompanied by surrounding glial and retinal pigmented epithelium proliferation. This leads to formation of a white fibrous membrane with serrated margins, with eventual fusion of the adjacent choroid and retina.[1-5]

Acute intraocular hemorrhage results from rupture of the choroid and retina caused by the direct concussive forces of the projectile. Early investigators believed that disruption of the posterior ciliary arteries and nerves and the irritative effect of intraocular hemorrhage was the cause of the ensuing reactive fibroglial proliferation, but others have noted that disruption of the posterior ciliary neurovasculature is an inconstant finding.[5-7] While the peripheral findings of CRS are a manifestation of direct trauma, macular disruption may also occur as a result of indirect countercoup trauma generated by the concussive force of the missile passing close to the globe. The strength of these forces is proportional to the size and velocity of the projectile, and may be significant enough to cause remote choroidal and macular rupture. In more severe injuries there can be confluence of peripheral and macular involvement, with proportionally worse prognosis for visual recovery.[5,6]

In the previously reported cases of CRS that were reviewed, ocular involvement was evident immediately following the precipitating trauma.[3,5,6,8,9] It is highly unusual that any such ocular injury could go unnoticed for any length of time, especially given the changes in visual acuity that are usually associated with such an insult. In this case, the offending projectile had not only entered the orbit undetected by the patient but had done so without any recognized effect on visual function for 12 years, despite its proximity to the optic nerve, the manifest optic neuropathy, and the marked retinal disorganization. Given the nature of the retinal pathology, it might be expected that a negative angle kappa caused by nasal dragging of the macula would cause a pseudo-*eso*tropia. However, the patient's complaints of horizontal diplopia and the preoperative muscle balance testing were consistent with a true *exo*-deviation for which he required reoperation. The lack of confirmable history in this case makes it difficult to positively identify the entry site of the BB and to be certain of when the initial strabismus surgery was performed. However, based on review of the available history, our conclusion is that the area of redundant medial conjunctiva represented a combination of previous surgery and foreign body penetration, and that the patient's original strabismus surgery predated the BB accident.

This case serves as an important reminder that clinical findings are often unsupported by available history, especially when the patient's recollections of ocular trauma have become blurred by the lack of noticeable symptoms. Evidence of prior strabismus surgery—discovered intraoperatively—also emphasizes the point that discrepancies in ocular history should alert the surgeon to expect the unexpected.

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