

Traumatic Amaurosis in the Management of Panfacial Trauma: A Case Report

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Abstract

Traumatic orbital injuries following maxillofacial trauma occur significantly with the most common etiology being road traffic accidents. Despite natural protective anatomy and reflexes of the eye the injuries to the orbital following facial fractures have a higher degree of vulnerability. The injury so sustained leads to greater morbidity, which may be due to loss of vision. Cases of traumatic amaurosis is seldom reported in the literature. The present article presents a case of closed head injury with pan-facial trauma associated with symptomatic traumatic amaurosis of the left orbit which was managed by conventional open reduction and internal fixation followed by orbital evisceration.

Introduction

Traumatic orbital injuries following maxillofacial trauma occur significantly and is estimated to be approximately 10 to 25% of all cases of facial injury, in similarity to all facial injuries, the most common cause is Road Traffic Accidents (RTA) [1-3]. RTA-related orbital fractures, in particular, tend to be more destructive and are associated with more concomitant organ injuries, zygomatic complex fractures, and multiple orbital wall fractures than the other common causes of assault, sports-related, falls, and so forth [4]. Despite the natural protective reflexes of the eye, the orbital contents remain vulnerable to injury owing to the nature of maxillofacial injuries. Although injuries to the orbit and its contents are common, the incidence of traumatic amaurosis is seldom reported in the literature. The present article presents a case of closed head injury with pan facial trauma associated with symptomatic traumatic amaurosis of the left orbit which was managed by conventional open reduction and internal fixation followed by orbital evisceration.

Case Report

This 55-year-old male patient was reported to our department as a referred case from the department of neurosurgery as a case of closed head injury with diffuse axonal injury with pan facial trauma. Initial evaluation revealed that the individual had altered sensorium with decreased midfacial height and widening of intercanthal distance. The evaluation of the eyes revealed enophthalmos with left orbit. There was loss of papillary reflex both direct and consensual in the left eye, whereas the reflexes were intact in the right eye. The occlusion was deranged due to associated mandibular fracture. The computed tomogram revealed multiple facial fractures over the naso-orbito-ethmoid, zygomatic maxillary complexes bilaterally, and

associated. On the left side, the contents of the orbit were seen to be prolapsing into the left antrum via the defect into the orbital floor with entrapment of the medial rectus into the medial wall of the left orbit. Ophthalmologic consultation revealed loss of vision in the left eye with persistent pain and discharge from the left eye. A diagnosis of closed head injury with panfacial trauma associated with traumatic amaurosis of the left eye was made. A decision was made to take up the case in conjunction with the ophthalmology team after obtaining informed consent from the next of kin, for orbital evisceration of the left orbit followed by open reduction and internal fixation of midface fracture segments by approaching via existing laceration and lateral brow incisions. The post-operative period was uneventful and further treatment plan for reconstruction of left orbit with orbital prosthesis is planned.

Discussion

Orbital trauma associated with partial or complete blindness is rarely reported in the literature. Mackinnon et al in a review of 2516 patients with facial fractures reported a rate of amaurosis of 0.8%. Seider et al in a more recent study of 2503 patients with maxillofacial fractures reported an incidence of 1.52% and Zachariades, et al. [5] in their review of 5936 patients suggested that the incidence of blindness is even lower (0.32%). The most prevalent fracture site associated with blindness according to many investigators is the zygomaticomaxillary complex fracture [3,4]. This was also concluded by a recent systematic review by Jiang, et al. [6]. It is also interesting to note that in the studies conducted by Scott R, et al. although the zygomaticomaxillary complex is the most frequently encountered facial fracture pattern among patients who lost their vision (47%), there was no significant statistical relation with amaurosis [7]. Most probably, the fact that 31% of the patients who were blinded were recorded to have suffered

a panfacial fracture could justify why the ZMC fracture pattern was so frequent but did not reach the level of statistical significance [8]. It appears that although orbital fractures are more frequently associated with concomitant ocular injuries, zygomaticomaxillary complex fractures are more commonly related to blindness [9]. The present case is similar to that seen in the case of studies conducted by McClenaghan, et al. [10]. The case presently discussed presented with diffuse axonal injury where subjective evaluation of orbital function was not possible as commonly seen in such cases with severe maxillofacial injuries who present with unconsciousness, intoxication or unresponsiveness. The evaluation of papillary reflex and pupil size may provide insight for urgent ophthalmic evaluation. Nevertheless, a request for a formal Ophthalmologic evaluation regardless of the specific site and etiology of the injury is needed to avoid orbital morbidity. Even in the combat setting, surgeons recommended that surgical exploration and primary repair should be the first line of treatment for open globe injuries with no perception of light vision, the preservation of the globe even if nonfunctional may be necessary for aesthetic reasons, however, it has been argued that enucleation or evisceration of the damaged eye should be performed within 14 days of the injury to decrease the risk of sympathetic ophthalmia. There is a debatable consensus for enucleation versus evisceration as the best treatment modality for unsalvageable eyes. In this case, we planned to eviscerate the left globe within 48 hours of injury and in conjunction with open reduction and internal fixation of the panfacial fractures.

Conclusion

The incidence of traumatic amourosis although rare in a maxillofacial setting, it still is of paramount importance that an early diagnosis be made to avoid further complications that might arise leading to morbidity to the individual. A well-planned protocol in tandem with the ophthalmologists is needed to avert complications. A thorough evaluation is necessary as subjective assessment may not be possible in cases where there is altered neuro sensorium in cases that have sustained a considerable head injury.

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