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AN UNUSUAL OCULAR INJURY FOLLOWING FACIAL TRAUMA: A CASE REPORT

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ABSTRACT

Objective: To report a case of an unusual ocular injury following a road traffic accident

Materials and Methods: A case report of a sixty - year - old female patient seen by the authors. The literature on ocular injuries following facial trauma is reviewed.

Results: An eye globe initially confirmed missing from its socket on clinical examination and thought to have been avulsed during the accident was found laterally below the right zygomatic bone during wound debridement. The eye was relocated and mobilized and its vision improved over a month to 6/18.

Conclusion: This case reinforces the importance of comprehensive investigations in the management of extensive cases of maxillofacial trauma.

KEYWORDS: ***Unusual; ocular injury; facial trauma.***

INTRODUCTION

Trauma to the maxillofacial region is usually associated with varying degrees of disruption of the soft and hard tissues in the region and involvement of neighbouring structures such as the eyes, the brain, nasal apparatus and the paranasal sinuses [1].

Injuries to the eyes and the adnexae are sometimes commonly associated with fractures of the facial skeleton especially midfacial or frontal fractures. Injuries to the visual apparatus range from mild ophthalmic disorders such as eyelid bruising and subconjunctival haemorrhage to severe disorders like hyphema, vitreous haemorrhage, retrobulbar haemorrhage, optic nerve injury and ruptured globe that may lead to blindness [2].

Although road traffic accident is an important cause of ocular injuries in Nigeria[3,4], it appears there have been no previous reports of road traffic accident associated with translocation of the eyeball followed by retention of vision after surgical mobilization and relocation. The purpose of this paper is to report an unusual injury to the eye as a result of road traffic accident and to emphasize the need for thorough investigations in extensive cases of facial injuries.

CASE REPORT

A 60-year-old Nigerian female presented in the Accident and Emergency department of the University College Hospital, Ibadan with a history of road traffic accident, which occurred 4 hours earlier. The patient was a front seat passenger in an intercity bus. The headlamps of the bus suddenly went off during a night journey causing the bus to run into a metal barrier in the middle of the road.

Figure 1: **Extensive soft yissue injury on the right side of the face. Note the absence of the right eye in the socket. The socket was filled with blood clot.**

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On clinical examination, she was fully conscious and well orientated in time and space. There was an extensive soft tissue injury on the right side of the face and blood clot over the socket of right eye. There was depression and tenderness around the right zygomatic region. A consultation was sent to an ophthalmologist for examination and management of the right eye. The ophthalmologist's review confirmed that there was no eye globe in the right socket and it was concluded that the globe was likely avulsed during the accident (Fig 1).

Posterio-anterior, occipitomental and submentovertical views of the facial skeleton confirmed a comminuted right zygomatic complex fracture while the CT scan could not be done because the machine was faulty. The patient was given tetanus prophylaxis, analgesics and antibiotics.

Wound debridement, closure, reduction and immobilization were done under general anaesthesia. During debridement of the right zygomatic region, a structure which looks like the eye was visible below the zygomatic bone. The ophthalmologist was immediately called in and it was confirmed that the right eye was displaced laterally below the right zygomatic bone. The eye was manually mobilized and relocated close to its original anatomical position to avoid severance of the optic nerve and ophthalmic artery (Fig 2). The right zygomatic complex was approached via

Figure 2: **The presence of the right eye mobilised lateral to its original socket**

infra-orbital and lateral eyebrow incisions and reduced and immobilized – a procedure that also secured the eye in place. The subcutaneous tissues and the skin were closed with 3/0 chromic catgut and 3/0 black silk sutures respectively. Postoperative course of medication consisted of iv ampiclox 500mg 6hourly and iv metronidazole 500mg 8hourly for 5 days, im dipyrone 2,5000 units 8 hourly for 3 days and topical application of chloramphenicol ointment every 2-3 hours to the right eye. An eye pad was placed over the right eye.

Twenty-four hours after the operation, the eye was reassessed. There was a narrow palpebral fissure, chemosis of the eye and visual acuity was 6/36. The globe and the occlusion of the teeth were intact. Vision gradually improved over a month to 6/18.Further surgery and comprehensive investigation with CT scan and angiogram to determine the cause of obstruction to the mobilisation were not carried out because the patient was discharged home against medical advice. She failed to keep her appointment and was lost to follow – up.

DISCUSSION

The incidences of ocular trauma following midfacial fractures vary widely between 2.7% and 67.0% [5]. However, the results obtained depend on whether the study was prospective [6] or retrospective [7], the specialty that conducted the estimation [8] and whether minor injuries were included in addition to the major ones. The ocular injuries following midfacial fractures vary from mild ophthalmic injuries such as ecchymosis of periorbital soft tissues, subconjunctival haemorrhage, moderate ophthalmic disorders such as enophthalmos, macular oedema, conjunctival laceration to severe ophthalmic ailments such as choroidal and optic nerve injuries which will lead to blindness [9,10].

Studies have shown that severe ocular injuries may be ascertained with ease by any medical and maxillofacial practitioner but minimal injuries may be overlooked by the non–ophthalmologist [11]. However, there are some injuries to the eyes which may be difficult to detect without the essential dexterity and equipment [12]. The maxillofacial surgeons and the ophthalmologists saw this case but the line of investigations could not be fully exhausted because the CT scan was faulty. The limitation of plain radiographs such as occipitomental view of the skull lies in the reduced resolution of these images in orbital floor fractures. The axial and coronal views of CT scan allow good resolution of the soft tissues and bones of the orbital margin. Orbital sonography would have been a welcomed alternative but the soft tissue injuries around this area precluded this examination in this patient. Also, an adjunct investigation like magnetic resonance imaging (MRI) would have enabled localisation of intra-orbital masses and it does not have the radiation hazard associated with CT scan [13]. The combination of plain radiographs and CT scan would therefore suffice in the evaluation of ocular trauma.

Due to the aforementioned, the presence of the eye could not be established with the plain radiographs and the patient's history that the eye was avulsed during the road traffic accident was unreliable .In a developing country like ours, high cost and non-availability of newer imaging techniques limit good management of patients. Moreover, intricate equipment such as the CT scanner and MRI would require technological skill that may not be readily available.

Severe trauma disrupts the orbital wall and deprives the eye and its adnexae of the usual protection [8]. RTA causes more severe ocular injuries than any other causes of facial trauma [2,3,7].

This patient had a comminuted fracture of right zygomatic complex, which had been associated with the highest incidence of visual dysfunction [9]. Al-Quirainy [9] reported that 20% of his patients with RTA, associated with midfacial fractures suffered ocular abnormality while 33.3% of all patients with comminuted malar fracture suffered a severe ocular disorder.

Treatment of ocular injuries depends on the severity and nature of the injuries. While non-perforating injuries such as corneal abrasions can be treated conservatively, a condition such as post-traumatic haemorrhage requires an immediate treatment to prevent occurrence of blindness[14]. Retro-bulbar haemorrhage could be decompressed by either surgical or medical methods or a combination of the two. Surgical decompression must be promptly done if medical measures such as infusion of mannitol and steroids fail to improve proptosis and visual acuity.

In this case, we had to choose between forceful manipulation of the eye into the socket and risking injury to the optic nerve, ophthalmic vessels with loss of vision, and temporarily positioning the eye lateral to the socket and undertaking a comprehensive investigation to determine and correct the cause of obstruction at a later operation.

Ideally, the eye should be repositioned into the socket and properly secured. Patients with ocular trauma should be followed up for at least one year. It would have been very interesting to monitor the improvement of visual acuity, which is the principal predictor for detection of ophthalmic injury [12].

The case further illustrates the problems of inadequate equipment and poverty in the emergency management of trauma to the maxillofacial region in our environment. It is hoped that this case report will establish the need for extensive investigations for complex injuries to the maxillofacial region in order to prevent as well as to identify damage to important surrounding structures for early treatment.

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