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Remote penetrating orbital trauma due to a snooker cue through the mouth

CASE REPORT

Alejandro Roisentul[1], Peter Gilbey[2,3], Joseph Pikkel[3,4]

[1]Oral and Maxillofacial Surgery Unit, Ziv Medical Center, Safed; [2]Otolaryngology, Head and Neck Surgery Unit, Ziv Medical Center, Safed; [3]Rapaport School of Medicine, Technion Haifa; [4]Ophthalmology Department, Ziv Medical Center, Safed, Israel

Correspondence to: Alejandro Roisentul, The Oral and Maxillofacial Unit, Ziv Medical Center, Safed, Israel
Tel.: +972 46828619
Fax: +972 46828536
e-mail: alex.r@ziv.health.gov.il

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Abstract – *Purpose*: This is a unique case report of a self-inflicted orbital injury that presented as a simple upper vestibulum laceration. A 43-year-old man presented to the Oral and Maxillofacial Surgery Unit with a small laceration in his mouth and complaints of pain in his left eye due to a snooker cue penetration. Upon admission, clinical findings included a small laceration on the upper left vestibulum and a subdermal hematoma in the left eye lid with restricted movements of the left eye. Further examination revealed remote trauma to the orbit, penetrating through the oral cavity, passing the maxillary sinus, and the orbital floor causing traumatic optic neuropathy with partial visual loss. The patient was treated conservatively with antibiotics and corticosteroids and a 6-week follow up. *Conclusion*: In cases of remote penetrating injury, meticulous examination revealing precise injury mechanism is crucial. All cases of Dento-maxillofacial trauma should include a high degree of clinical suspicion for ocular injury, requiring early diagnosis and treatment to reduce risk of visual loss.

In epidemiologic urban population studies, traffic accidents account for the majority of orbital fractures followed by motor vehicle accidents, sports, falls, and machinery (1).

The American Academy of Opthalmology annual report lists other common causes for eye injuries as projectiles (13%), blunt objects (13%), fingers, fists, and other body parts (12%), airbags (10%), and tools or power tools (10%). (2).

Injuries by a snooker cue to the craniofacial region are uncommon and very few cases have been reported (3–5).

Case report

A 43-year-old man presented with a small laceration in his mouth and complaints of pain in his eye. The patient unintentionally forced a snooker cue tip into his oral cavity while waiting his turn to play. He immediately felt a painful sensation in his left eye and was taken to the emergency department for evaluation. Upon admission, oral examination revealed a small laceration of the left upper vestibulum of the oral cavity and the patient complained of pain in his left eye, requiring referral to the Ophthalmology Department. Clinical findings included left eye lid subdermal hematoma, left visual acuity 6/18, restricted left eye movements to the upper right (Fig. 1), and mid dilated left pupil due to traumatic mydriasis. Computerized Tomography (CT) imaging revealed a fracture of the left anterior maxillary sinus wall; left orbital floor fracture with a 'blow-in' fracture near the apex of the orbit, optic nerve edema and proptosis (Fig. 2).

The patient's left eye with signs of Traumatic Optic Neuropathy was treated accordingly with IV antibiotics cefuroxime and metronidazole, and IV methylprednisolone 2.5 g first dose; 250 mg qtd for 5 days then 100 mg for 3 days (6). The patient's left eye visual acuity improved to 6/12p SC; however, the upper half of his visual field showed a total loss and the lower half showed a constriction of up to 10–20 central degrees (Fig. 3). Brightness test results showed improvement from 20% to 50%. A follow-up CT scan showed significant reduction in optic nerve edema and proptosis. Upon discharge, the patient's left eye visual acuity showed further improvement to 20/40p SC; however, brightness remained 50% compared to his right eye. The ocular pressure was 16 mm Hg and he regained full eye movements to the upper, lower, and left gaze. He still had no movement to the right beyond the primary position, exhibiting exotropia of 30 prism diopter at primary position. Left pupil reaction was a beat less to light compared with the right pupil. At discharge, the recommendations were PO methylprednisolone 80 mg for 2 days then tapering off 10 mg every 2 days. The patient's follow up extended to 6 weeks (until he went back to his country). Informed consent for this case report was then obtained.

Discussion

In this unique report, we have presented a self-inflicted case of orbital injury due to a remote trauma to the orbit, penetrating through the oral cavity, passing the maxillary sinus and the orbit floor. As a consequence of the

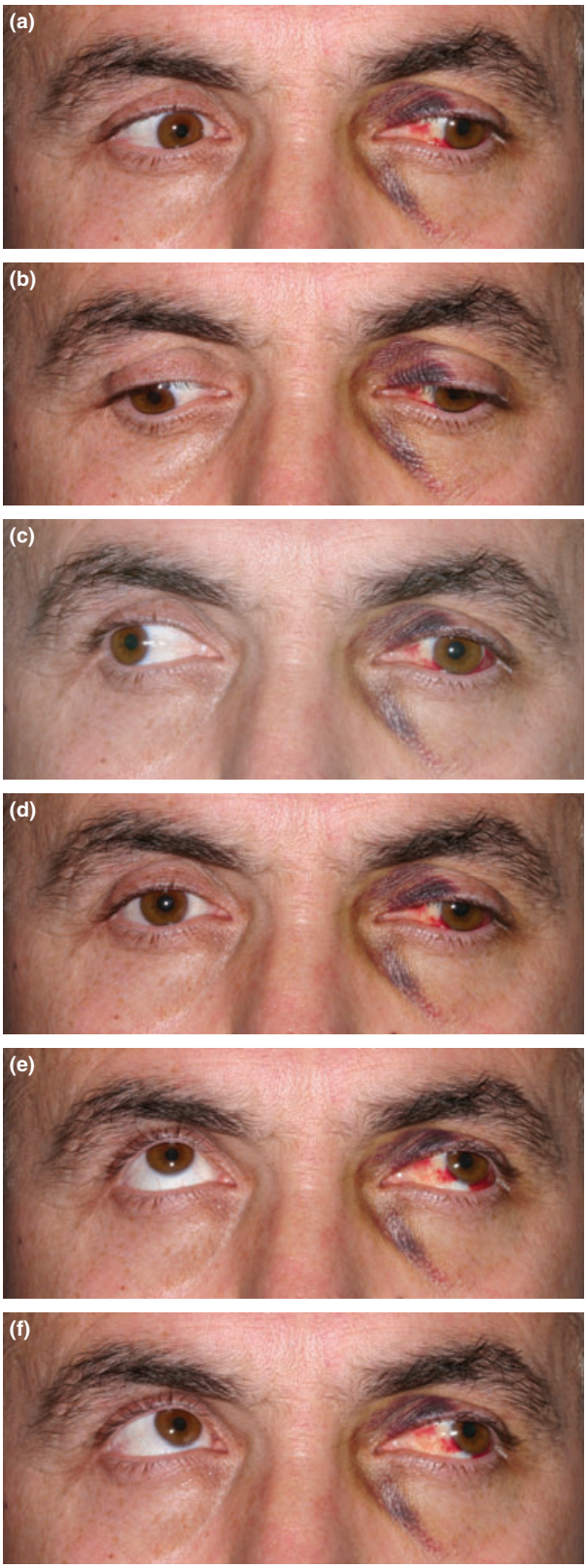

Fig. 1. Eye movements. (a) lower left; (b) lower right; (c) right; (d) straight; (e) up; (f) up left.

injury, traumatic optic neuropathy with partial vision loss developed.

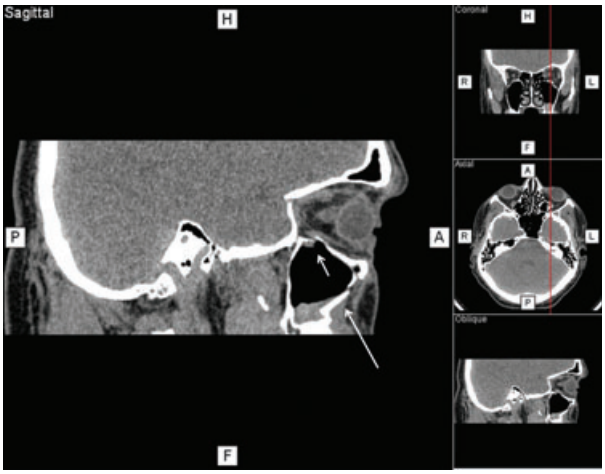

Fig. 2. Computerized tomography scan view. Long arrow: the anterior maxillary sinus wall fracture. Short arrow: the 'blow in' fracture of the orbital floor.

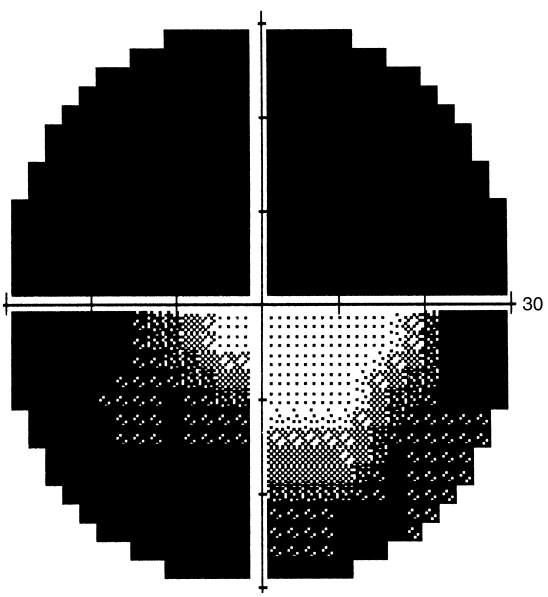

Fig. 3. Visual field of the left eye: Total loss of upper half; Remnant of central 20°at the lower temporal quadrant and central 10° at the lower nasal quadrant.

Traumatic optic neuropathy presents as sudden loss of vision, secondary to either blunt or penetrating trauma to the orbit that cannot be explained by other ocular pathologic changes. The damage to the optic nerve is either direct (hemorrhage or compression), shearing (acceleration of the nerve at the optic canal where it is tethered to the dural sheath), or transmission of a shock wave through the orbit (7).

Findings from the International Optic Nerve Trauma Study conducted in 1999 (6) indicate that choice of treatment does not strongly affect the visual outcome in indirect traumatic optic neuropathy.

In summary, it is crucial to perform meticulous intra-oral and extra-oral examinations to reveal the precise

mechanism of injury in cases of remote penetrating injury as in this case. Early diagnosis and treatment of ocular injury are needed to reduce the risk of visual loss. All cases of Dento-maxillofacial trauma should include a high degree of clinical suspicion for ocular injuries.

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