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CASE REPORT

Unusual Case of Gunshot Injury to the Face

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ABSTRACT

An unusual case of facial gunshot injury with the missile lodged in the cervical spine region, but without any neurological impairment, is reported. The extent of tissue damage and missile track termination in a male patient who sustained gunshot trauma to the face was assessed by plain radiography and by computed tomography scans. The patient was treated conservatively and observed for clinical manifestations of neurological deficit for one year. We present a case of gunshot injury to the face with the missile lodged in the cervical spine region and atypical absence of clinical manifestation that may occur even when a bullet remains in the vicinity of the cervical spine.

Key words: Computed tomography, face, gunshot, spine injury

INTRODUCTION

Although the incidences of gunshot wounds to the face[1-3] as well as penetrating spinal injuries[4-7] have increased during the past decades, craniofacial injuries caused by missiles are not generally as common as they are in other areas.[8-10] The association of gunshot traumas to the face with cervical spine injuries is infrequent: the reported incidence varies up to 8.1% of facial gunshot wounds.[1,11,12] According to the study of Kihtir et al.,[13] gunshots to the mid-face and orbit carry the highest risk for concomitant cervical spine injury (up to 20%). There is consensus about the four main steps in the management of patients with gunshot wounds to the face: securing airway, controlling hemorrhage, identifying other injuries, and repairing the traumatic facial deformities.[1,12,14] However, the literature reports are controversial in terms of time and methods of subsequent surgical facial reconstruction.[14,15]

CASE REPORT

A 24-year-old male patient, who was referred to the Department of Oral and Maxillofacial Surgery for evaluation of a left facial swelling, gave a history of the gunshot injury to his face. The patient was conscious, walking, anxious, complaining of facial pain with a wound on the left side of the face. The patient stated that the firearm used was a handgun at a close distance of around 2.5 m. Physical examination revealed an entry wound in the left maxillary region, with subconjunctival ecchymosis but no exit wound [Figure 1]. There were no signs of damage to the orbital contents. The patient was in good general condition without any signs of respiratory distress, hemorrhage, significant hematoma, retropharyngeal edema, or neural

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Figure 1: Photograph of the patient showing a wound on the left maxillary region – the site of entry of the missile.

Figure 3: Radiograph of the cervical spine in lateral projection showing the missile at the level of C2 and C3 vertebrae.

Figure 2: Radiograph of the skull in the posteroanterior projection showing the missile.

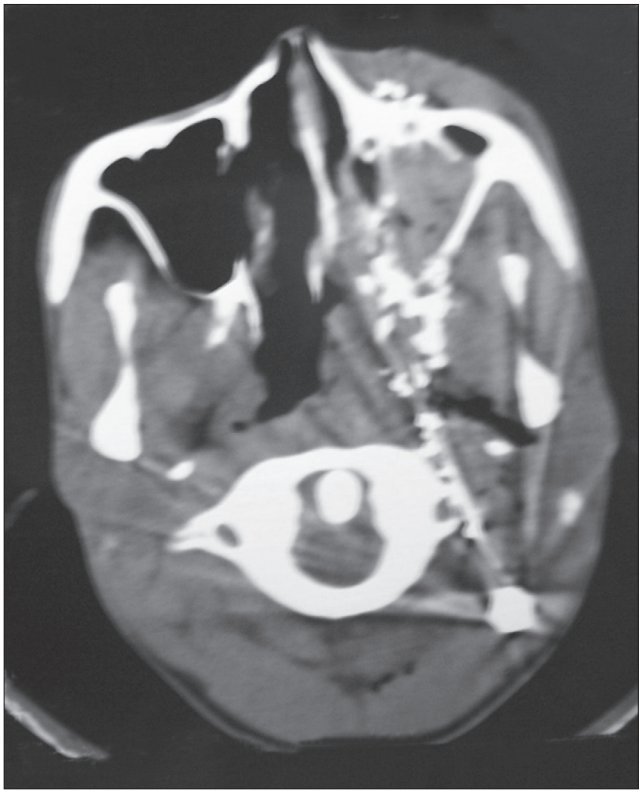

Figure 4: Axial computed tomography section of the neck indicating position of the missile on the lateral aspect of the cervical vertebrae and fluid in the left maxillary sinus.

impairment. Radiography of the skull in the posterior–anterior (PA) projection [Figure 2] and lateral radiography of the cervical spine [Figure 3] revealed location of the foreign body at the level of C2 and C3. There were no radiographic

signs of damage to the surrounding bone elements. A computed tomography (CT) scan confirmed the presence of an isolated missile in relation to the cervical vertebrae [Figure 4]. The injury was managed with conservative debridement and, after a series of wound dressing changes, 4 weeks of permanent monitoring, and antibiotic therapy, the patient was discharged from the hospital as there were no signs of infection or neurological changes. The patient underwent regular follow-up for one year and no neurological complications were observed. He was advised regular check ups in the future.

DISCUSSION

Penetrating cervical spine traumas usually lead to spinal cord injury by direct spinal cord transection, contusion or ischemia due to arterial injury.[4] The main reason for not performing surgical bullet removal in the reported case was the absence of neurological deficit. The firearm damage of the upper cervical spine without neurological deficit occurs very infrequently.[7] Saxon et al [10] illustrated possible delay in onset of clinical manifestation of cord injuries (Brown-Sequard syndrome) following a gunshot wound to the face. Delayed complications due to migration of the impacted bullet[12] are also described, although it was not always associated with neurological deficit.

The extent of tissue damage in gunshot wounds depends on the distance from which the gun is fired, missile track, and bullet structure, size, and velocity.[13] In the reported case, a small-caliber missile of comparatively low velocity caused the injury by direct tissue crushing and laceration, producing the cavity that is not as large as can be seen in high-speed bullets, such as in rifle injuries.[14] There was no injury to any vital structure. The missile, track, passed through the left maxillary bone, ethmoidal labyrinth, and pharynx, and stopped in the left lateral to C2 and C3 vertebrae. All the main blood vessels and nerves were distant enough from the missile trajectory.

There are very few reported cases of transpharyngeal cervical spine injury, but most agree that progression of neurological deficit is an indication for urgent bullet removal.[15-17] Retained bullets rarely cause problems of delayed infection and late neurological decline, and only if a neurological deficit develops, which is possible after many years, should surgical intervention be considered.[18] Even in patients with static neural deficit, surgical decompression and bullet removal are sometimes not useful because of the absence of a significant effect on the neurological outcome and possible post-operative complications.[18] In a reported case of fractures of the C1 anterior ring and the odontoid process, both associated with multiple bullet fragments, the patient's motor and functional recovery supported the decision of not performing spinal surgery.[19] The clinical benefits of bullet removal to avoid lead toxicity or neurotoxic effects of copper are still unclear.[20,21]

Our report illustrates that knowledge of the path of the missile and close clinical observation of the patient are critical for assessment of management of patient with gunshot wounds to the face. No surgery was performed, and the patient remained stable for a year without any complication or migration of the missile, which was lodged on the lateral aspect of C2 and C3 vertebrae.

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