



Brutality of 'Sword' Injuries in a Rare Maxillofacial Region: 2 Case Reports

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ABSTRACT: Oral and maxillofacial trauma consists of various injuries but penetrating injuries are very rare and frequently require a multidisciplinary approach to treatment. The primary survey is always the initial step in trauma management before continuing with further evaluation and treatment. The following case reports discuss the clinical strategy of our rare encounter of penetrating injuries at the same time. These cases demonstrate that complex penetrating injuries of the oral and maxillofacial region require a structured and multidisciplinary approach to prevent further side effects and obtain an ideal clinical outcome.

KEYWORDS: Maxillofacial injuries, trauma, sword injuries

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Introduction

Sharp object injuries in the maxillofacial region are rare and infrequently reported. These injuries are life-threatening to the patient, especially in cases where blood vessels are involved and the resultant haemorrhage obstructs the airway.¹ The approach to treatment should be multidisciplinary² beginning with the trauma unit to provide airway maintenance, haemodynamic stabilisation if needed neurologic, ophthalmologic and vascular evaluation.^{3,4}

In this report, 2 cases of sharp object injuries are presented, and the treatment approach and a hypothesis about the low rate of occurrence of this kind of wound are discussed.

Case 1

A 40-year-old man was brought to the emergency with a sharp cut injury which involved the mandibular inferior border and the midline of the neck (Figure 1). He was assaulted with a sword as described in the trauma history given by the relatives after arriving at the hospital. The patient was conscious and haemodynamically stable, the SPO₂ was deteriorating gradually, an attempt to control the bleeding in the emergency room proved to be challenging. There was posterior fall back of the tongue due to the fracture of the genium thus making it a difficult airway.

Noting the severity of the injury, pre-operative radiological investigations could not be done. The patient was immediately posted for emergency surgical intervention. The patient received tetanus prophylaxis and antibiotics. A multi-speciality departmental intervention was done involving ENT, General Surgery and Oral and Maxillofacial surgeons. After successful oral intubation for GA, the soft tissue wound was explored, washed copiously, and all bleeders were cauterised carefully in the deep neck region.

On careful examination it was found that the mandibular inferior border was separated from angle to angle and was

attached to the hanging soft tissues. The cut was very similar to a mandibular osteotomy cut. The mandibular inferior border was then reduced anatomically and fixed with the help of titanium plates (3 hole plate in both angle region and 2 hole in the midline region) in the correct position (Figures 2 and 3). Chin alignment and inferior border continuity was achieved. The wound was closed with the help of 3-0 vicryl and 4-0 prolene sutures. The patient was discharged after 4 days without any complications. Follow-up was continued post operatively for 3 weeks (Figure 4).

Case 2

A similar patient (not related to the earlier) reported just in an interval of few hours after the first case reported. A 38-year-old man was brought to the emergency with a similar history of sharp cut injury which involved the mandibular inferior border and the midline of the neck (Figure 5). He was assaulted with a sword as described in the trauma history given by the relatives after arriving at the hospital. The patient was conscious and haemodynamically stable, SPO₂ was well maintained independently by the patient, the wound when examined was not as deep as the first case and there was no airway compromise.

Lateral and posteroanterior skull radiographs (the investigations were affordable and less time taking) were taken as the patient was stable which revealed the mandibular inferior border fragment separated in the mental region (Figure 6). He was shifted to high dependency unit for careful monitoring and management. The patient received tetanus prophylaxis and antibiotics.

The patient was posted for open reduction and internal fixation. After successful nasal intubation for GA, intraoperatively the soft tissue wound was explored, washed copiously. It was found that the mandibular inferior border was separated in the mental region and was attached to the hanging soft tissues





Figure 1. Preoperative case 1.

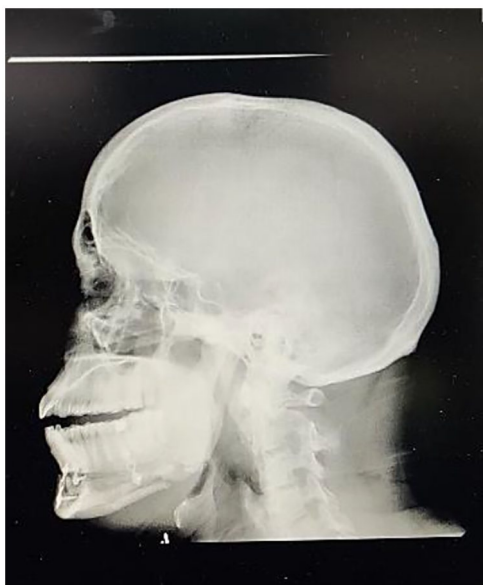


Figure 2. Post operative lateral cephalometric radiograph case 1.

in a similar fashion as the first case. The cut was similar to a mandibular osteotomy cut. The mandibular inferior border was then reduced anatomically and fixed with the help of titanium plates (2 hole and 3 hole plates) in the correct position (Figure 7). Chin alignment and inferior border continuity was achieved. The wound was closed with the help of 3-0 vicryl and 4-0 prolene sutures. The patient was discharged after 3 days without any complications. Followed-up for the next 3 weeks (Figure 8).

Discussion

Penetrating Sharp object injuries are very complex variety of oral and maxillofacial trauma most published occurrences are from South Africa.⁴⁻⁷ Male (87.5%), relatively young (mean age 26.5 years) and from a low socioeconomic background are 3 main demographic patient factors.⁷ Zygomatic-temporal and frontozygomatic regions and the bridge of the nose are the most affected anatomical regions.⁷ In the cases which reported to us were both in the inferior border of mandible which is a rare scenario in facial injuries.



Figure 3. 3 Months postoperative case 1.



Figure 4. Pa skull view postoperative radiograph case 1.

Transoral penetrating knife injuries are very uncommon. Mepani and Antscherl⁸ reported a 17-year-old male patient who developed a huge haematoma of the floor of the mouth after getting stabbed in the orofacial region; they recommended emergency tracheotomy. Kim et al⁹ discussed a case of a self-inflicted transoral intracranial stab wound that led to brain stem and medulla oblongata lesions, but the patient fully recovered after intensive rehabilitation.



Figure 5. Preoperative case 2.



Figure 6. Preoperative lateral ceph radiograph case 2.



Figure 7. Postoperative lateral skull view radiograph case 2.



Figure 8. Postoperative case 2.

Associating injuries can also be seen in the thoraco-abdominal region, and some of them present with cut wounds in the hands because of self-defence attempts. This explains the low rate of occurrence of patients with impacted knife injuries in the facial region, because the face was protected by the hands when they were assaulted. In the cases reported to us the victims were targeted at their neck but due to the sudden protective reflex the head bowed down thus leading the mandible to come in the way of the sword impact.

Sharp objects can be extracted under general anaesthesia without any complications.⁴ However, ATLS principles should be followed with emphasis on airway protection as well as radiographic imaging should be done prior to the surgical intervention. Tracheostomy was not required in our cases as there was no airway compromise. Here, lateral and posteroanterior skull radiographs were used as the primary diagnostic imaging because it has various advantages: non-invasiveness, short examination time and cost effective.

The postoperative protocol should include intensive care rehabilitation and treatment with broad-spectrum antibiotics and analgesics. Interestingly, there were no signs of wound infection or sepsis in this case, which agrees with other recorded cases.^{10,11} Furthermore, care should be taken regarding any neurological disorders.

Conclusion

Penetrating sword injuries deprived of sure signs of vascular injury can be safely managed after a thorough clinical and diagnostic examination. The preliminary management should follow the ATLS principles with a focus on airway protection. A tetanus prophylaxis and antibiotics should be initiated. Other specialities (General surgery and ENT) should be consulted if indicated prior to any surgical intervention.

Author Contributions

Ballamudi Sarat Ravi Kiran: Data collection, Conceptualization, Writing, Surgical intervention.

Ramashankar Choudhary: Editing, Designing, Surgical intervention.

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