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Unusual Presentation of Mandibular Fracture: A Case Report

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Abstract **Case Report**

A 37-year-old male patient with no medical history was admitted after a road traffic accident (motorcyclist hit by a car). The patient was stable and conscient with no signs of head or neck injury. The patient had a CT head scan performed suggesting a comminuted fracture of the anterior body of the mandibule with a horizontal line associated. This unusual fracture was treated by an open reduction and internal fixation under general anesthesia, with three-dimensional plates and 10 holder maxiplate. The follow up was excellent without any postoperative complications.

Keywords: horizontal fracture, mandibule, oral and maxillofacial surgery, comminuted fracture.

INTRODUCTION

The mandible forms the lower one-third of the facial skeleton. Due to its prominence, it is the most commonly fractured bone in the maxillofacial skeleton [1, 2]. The most common fracture sites are the body, the condyle, and the angle. The symphyseal/Para symphyseal area is less commonly fractured, last. The ramus and coronoid process are rarely involved [3]. A very unusual presentation of mandibular fractures is the Horizontal variety with only few cases reported in the literature [4].

We report a case of a 37-year-old male patient with an anterior horizontal communited fracture of the mandible secondary to road traffic accident. The surgical management of this particular fracture will be further discussed.

Our Case Presentation:

We received a 37-year-old male with no medical history, the patient was a victim of road traffic accident (motorcyclist hit by a car) with isolated facial impact (lower third of the face).

The initial general examination found a conscient and hemodynamically stable patient. Clinical maxillo facial exam noted the presence of pain, paraesthesia and moderated swelling on the lower lip, abrasion wound on the mental area of the face, along with lateral deviation of the mandible toward the left side. Intraorally there was avulsion and missing of few teeth associated with a limited mouth opening with occlusal derangement (Figure 1).

Figure 1: Image showing the clinical presentation of the patient

The rest of the exam showed no other maxillofacial fractures.

We then ordered a CT scan of the head and neck that revealed an association of a horizontal fracture of the anterior mandible with a subcondylar one (Figure 2).

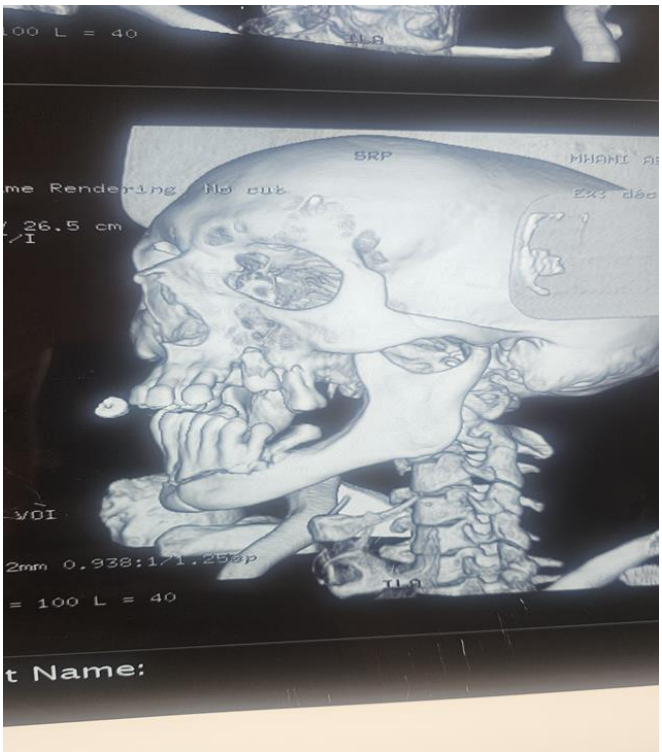

Figure 2: CT scan of the head, 3D view showing communited horizontal anterior fracture of mandibule body

The patient underwent surgery the same day for an open reduction and internal fixation (ORIF) under general anesthesia. An intraoral vestibular incision was made then full thickness mucoperiosteal flap was elevated, to expose the fracture site considering bilateral mental nerves which we carefully preserved.

Restoration of occlusion was accomplished with application of intermaxillary fixation using Erich arch bars.

The fractured fragment was reduced to the anatomical position and was fixed using 2 three-dimensional (3D) plate in the symphysis region and a single 10 holder maxiplate over the lower border at the ends of the fracture line. Closure was then accomplished using 3-0 absorbable polyglactin sutures (Figure 3 & 4).

Figure 3: Intraoperative image showing open reduction and internal fixation of horizontal mandibular fracture

Figure 4: Intraoperative image showing open reduction and internal fixation of horizontal mandibular fracture

A soft diet was recommended, Analgesics and antibiotics were prescribed pre and post op, and the patient was instructed to gargle with chlorhexidine mouthwash for a month. before discharging the patient (2 days post op) we took an orthopantomogram (Figure 5).

Figure 5: Image showing post op orthopantomogram

A year follow-up was good, the patient reported persistence of paraesthesia on the metal area for the first 6 months which we treated with B12 vitamin for 3 months that lead to complete neurosensory recovery, the erich arch bars were removed after 6 months.

No other postoperative complications were noted (Figure 6 & 7).

Figure 6: Clinical image of the patient 1 year follow up

Figure 7: Clinical image of the patient 1 year follow up

DISCUSSION

The mandible is one of the most frequently fractured facial bones, those fractures result mostly of trauma, such as road traffic accidents, assault, work accidents, falls, and contact sports. For this reason, it is important to evaluate patients with mandible fractures for other associated traumas especially brain and cervical spine injuries [5]. The fracture patterns in mandible depend on the external force impact and can affect various areas of inherent weakness. 8the weakest area is the mandibular angle due to its nature followed by the condylar process then the parasymphysis region because of the presence of the roots of canines [8, 9]. Akama *et al*., [6] and Roode *et al*., [7] concluded that the most frequently encountered sites in mandibular fractures are the condyle and the angle of the mandible due to its weak nature. In addition to the parasymphysis region because of the presence of the roots of canines [9].

Horizontal fracture of anterior mandible is extremely rare. Three cases were described in literature regarding those type of fractures [10-12]. The mechanism occurs only when an object approaching at high produces enough of an impact force to fracture the bone in a “non-conventional” way [13]. Mitsukawa *et al*., [10] described the impact of an object (shell splinter) penetrating the mentum and causing a fracture of the mandibular symphysis that resembled horizontal osteotomy for genioplasty. Ladeinde *et al*., [11]. Ajun *et al*., [12], described assault non penetrative object impact.

Except for ladeine et al case who opted for close reduction using circum-mandibular wiring. Horizontal fractures require ORIF using miniplates for solid stability and to prevent secondary displacement.

CONCLUSION

Horizontal fractures of the mandibule are a rare entity that managed by open reduction and internal fixation for stable and quick recovery.

Footnotes:
Conflict of Interest: None declared.

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Patient Consent: Obtained

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