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CASE REPORT

UNUSUAL PRESENTATION OF MANDIBULAR FRACTURE: CASE REPORT

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ABSTRACT

Background: Mandibular fracture is the second most common fracture in the maxillofacial region. Various classification systems for mandibular fractures exist in the literature, some are incomplete and some are very complex. The purpose of this study was to present an unusual mandibular fracture and simplified classification system to include such fractures.
Method: We report an unusual case of mandibular fracture in which the fracture pattern could not be classified according to any of the classification system except the one given by WHO. Open reduction and internal fixation was done under general anaesthesia with fixation of two miniplates and occlusion was achieved.
Conclusions: As WHO classification is very complex and do not generally used in clinical practice. So we are proposing a modification in the existing AO classification of mandibular fractures so that such cases can be included.

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INTRODUCTION

Mandible is one of the most common site,comprises of 36-70% of all the fractures in the maxillofacial skeleton (Brook and Wood, 1983; Van Hoof *et al.,* 1977; Ellis *et al.,* 1985; Sojot *et al.,* 2001). Male predominance is noted with the age range of 21-30 years (Manson, 2006). There has been considerable changes reported in the etiology of mandibular fracture over the past decades due to changes in the lifestyle and safety measures. The most common cause of facial fracture in motor vehicle accident, inter personal violence, fall and sports related injuries. Although facial injuries alone are rarely life threatening, early diagnosis of associated injuries should be ruled out to prevent mortality and morbidity. There has been considerable advances in the diagnosis and management of the mandibular fracture since the Persian period. However the basic principle of management is same from the Hippocrates i.e. repositioning and the immobilization of bony fragments. We present a case of a mandibular fracture where fracture line extended from the posterior border of ramus of mandible at the mid-level to the body of the mandible without involving the alveolar process despite the presence of third molar which creates area of weakness. None of the classification system explained this type of fracture except AO classification precision level 2 and WHO.

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Both these system is complex and generally not used in clinical practice. So we are proposing a modification in FLOSA.

CASE REPORT

A 21 years old patients came to our outpatient department with the chief complain of pain and swelling over the left side of face since 1 day. According to the patient, he met an accident 1 day ago when his bike on which he was driving skids on the road and he fell down. After that he was taken to the local practitioner where he was conservatively managed and discharged. On the next day patient developed pain and then swelling over the left side of the face for which he consulted to our side. There was no history of loss of consciousness, vomiting, seizure, ear, nasal and oral bleed or any associated injury. On general examination, patient vitals were normal, he was conscious, well oriented to time, place and person. GCS score was 15 and all the systems were within normal limit. Extraoral examination revealed a single, oval shaped, sized about 4*5 cm, smooth surfaced with diffuse margin swelling over the left angle and ramus of the mandible. Paraesthesia was present over the left lower lip. There was no localised rise in temperature and swelling was firm in consistency. Tenderness was present with step deformity at the left lower border of mandible in the body of mandible region. Intraorally, mouth opening was reduced (2.4 cm) with intact ocllusion. Tenderness was present in the left lower labial vestibule in the region of body and angle of the mandible area.

Table 1. Proposed modification in FLOSA

Categories of localization (site) L1-L8- AO system	Categories of localization (site) L1-L9- Modification
L1 : Precanine	L1 : Precanine
L2 : Canine	L2 : Canine
L3 : Postcanine	L3 : Postcanine
L4 : Angle	L4 : Angle
L5 : Supra-angular	L5 : Supra-angular
L6 : Condyle	L6 : Condyle
L7 : Coronoid	L7 : Coronoid
L8 : Alveolar process	L8 : Alveolar process
	L9 : Unspecified

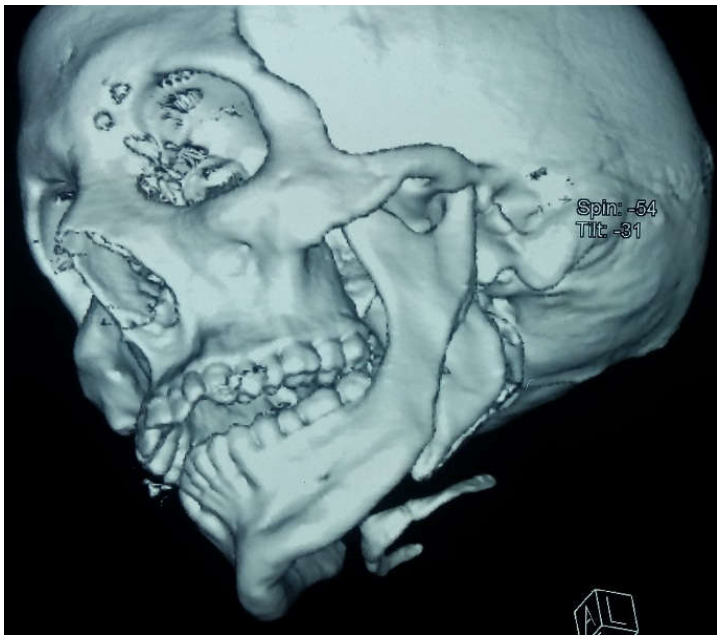

Fig 1. Preoperative CT scan of patient showing unusual fracture pattern

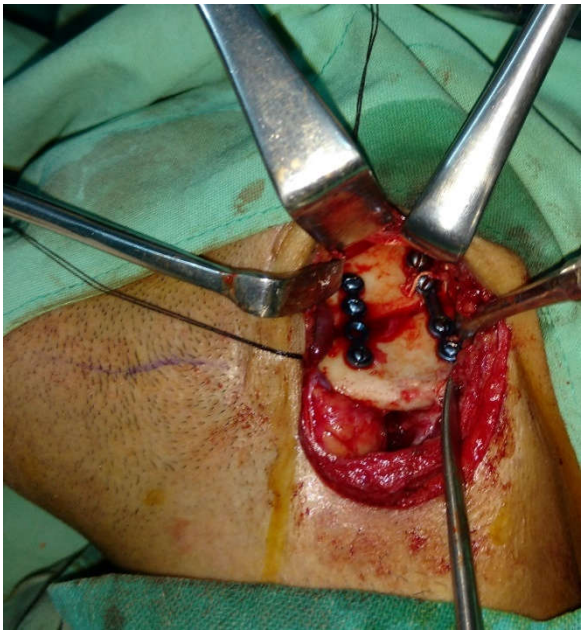

Fig 2. Intraoperative clinical photograph after reduction and fixation of bony segments

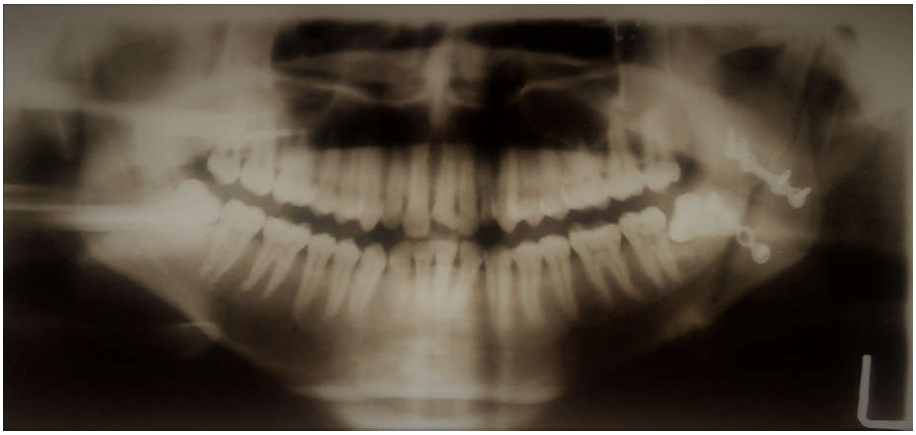

Fig 3. Panoramic radiograph showing the post-operative reduction and fixation

Routine blood investigations were send and panoramic radiograph was advised. OPG showed fractures mandible in the left mandible with the fracture line passing from the posterior border of mid-ramus to the lower border of mandible just below the roots of second molar. Over-ridding was also noted in the superior region of fractured segments. CT scan was advised to evaluate the unusual fractured line and same fractured line was obtained as by the panoramic radiograph with additional finding of medially displaced fractured segment (Fig. 1). No classification used clinically was applicable to this type of fracture line. Open reduction and internal fixation was planned under general anesthesia though submandibular approach.

After exposure, fractured segments were reduced with the help of bone holding forceps and two titanium miniplates were adapted and fixed with 8 mm titanium screws (Fig 2.). Irrigation was done and incision was closed in layers.Post-operative panoramic radiograph was done to assess the position of plates and screws (Fig 3.) The patient was followed up for 3 months and the healing was found to be uneventful.

DISCUSSION

Edwin Smith papyrus (Breasted, 1944), Egyptian medical text in 17th century BC first described the mandibular fracture. It was brought by Smith in Luxor in 1862 and later translated by

Breasted. The Egyptians' attitude to mandibular fractures was rather pessimistic: they considered fracture as a lethal ailment due to infection if not treated properly. Considerable advancement had been take place since then in the diagnosis and management of maxillofacial fractures. Mandibular fracture has been reported to be the second most common fracture of facial skeleton among maxillofacial injury, which is subsequent to its unique characteristics such as the mobility and limited bone support (Ellis, 1977). The main causes of mandibular fractures worldwide include motor vehicle accidents (MVAs), interpersonal violence (IPV), falls, and sports-related injuries. A minimum of two radiographs at right angles to each other is recommended for maxillofacial injuries to best define fractures (Rowe and Killey, 1970). Panoramic views is superior in detecting fractures to both plain radiography and nonhelical CT scans (Chayara *et al.,* 1986; Markowitz *et al.,* 1999). Maxillofacial injuries generally occur in isolation or in association with other injuries (Alvi *et al.,* 2003; Cannell *et al.,* 1996; Perry *et al.,* 2005).

The possible complications of such injuries may range from minor oedema or abrasion to life threatening complications. In addition, contamination of wound and compounding of the fractures are other possible complications, which may be left untreated until the patient has been fully stabilised, without affecting the rate of morbidity and mortality (Ward *et al.,* 1999). 4 weeks all that was needed to achieve clinical union for 80% of mandibular fractures treated with open or closed reduction and maxillomandibular fixation (Juniper and Awty, 1973). Hippocrates (5^{th} – 4^{th} BC) was the first person who described the modern method of reduction with the help of the hand and fixation by the gold or linen thread tied around the adjacent teeth of the fractured mandible (Siegert and Weerda, 1990). Michelet *et al.* in 1973 and further developed by Champy and Lodde in 1975 first introduce miniplateosteosynthesis. We present an unusual case of mandibular fracture where fracture pattern did not belong to any classification system except AO classification precision level 2 and WHO. These classifications are complex and also very rarely used in the day to day communication or management of mandibular fractures due to complexity. So we are proposing a new group in FLOSA classification system in the category of localization (Table. 1). This will help in the better understanding and management of mandibular fracture.

Conclusion

WHO classification is very complex and do not generally used in clinical practice. So we are proposing a modification in the existing AO classification of mandibular fractures so that such cases can be included.

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