

Mandibular Parasymphyseal Fracture and its Management: A Case Report

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Abstract

Trauma is injury resulting from an external force that involves break in continuity of bone. Mandible fractures have a vital place within the injuries of the other bones of the oral and maxillofacial system. Management of mandibular fractures involves cosmetic and functional aspects such as chewing, speaking, and swallowing. Parasymphyseal fractures are most common form of mandible fractures. They involve the breach in continuity of mandible leading to masticatory and occlusal problems due to the biomechanical forces. The purpose of this case report is to discuss the associated problems and its management.

Keywords: Fractures; Occlusal; Derangement; Biomechanical Forces

Introduction

Maxillofacial fractures are one of the most frequent due to the prominent position in human body. These mandible injuries are of great importance as they lead to varying degree of physical, functional and cosmetic disfigurement they may cause. Mandible fractures count for the 38% of cases. Fractures of mandible can lead to morbidities at high level. According to various studies, they account for 15.5 to 59% of all facial fractures [1-4]. Biomechanical forces acting on the mandible maintain the normal masticatory functions. Mandibular Parasymphyseal fractures lead to the loss of occlusion with step deformity formation. Forces of compression acting on the inferior border and forces of tension acting on the superior border tend to pull the segments apart creating the gap/step. Mandibular unfavorable Parasymphyseal fractures need to be treated by open reduction and internal fixation to compensate both the forces and form a neutral zone. Management of injuries in the maxillo-facial complex remains a challenge for oral and maxillofacial surgeons, demanding both skill and a high level of expertise [5,6].

Case Report

A 17 years male patient reported with alleged history of trauma due to fall from bed few hours back with no history of ENT (ear, nose and throat) bleed. Patient was examined thoroughly extra-orally and intraorally and was found to have normal TMJ movements and no extra-oral or intra-oral lacerations. Intraorally, slight

step was felt in right side mandible canine region with tenderness. Occlusion was found to be deranged due to pull of muscles. Patient was thoroughly examined for head injury and was kept under observation for next 72 hours followed with normal GCS (Glasgow Coma Scale). All basic hematological investigations along with OPG (Orthopantomogram) were done. OPG revealed right mandible Parasymphyseal fracture. After thorough preanesthetic checkup, patient was taken for open reduction and internal fixation under G.A. (general anesthesia). Erich's arch bar fixation was achieved under L.A. (local anesthesia). Anterior vestibular incision extending from right central incision to second premolar region was placed after administering L.A. for hemostasis. Mentalis muscle was cut in oblique fashion and bone exposed. After reducing bony segments using IMF (internal maxillary fixation), Champy's lines of osteosynthesis principle was used to achieve semi-rigid fixation using miniplates in parasymphysis fracture. Two 2 mm plates were fixed using four 2 x 6 mm and four 2x8mm screws at superior border just below root apices of teeth and at inferior border of mandible to neutralize the forces of compression and tension at inferior and superior border respectively. Interrupted suturing was gained using resorbable sutures and extra-oral pressure dressing given to prevent ptosis of lip and muscle. Patient was extubated uneventfully. Intra-oral occlusion was examined on discharge and was found to be in normal limits (Figure 1a and 1b).

Post-operative OPG was taken to reveal the position of plates (Figures 2).

(a)

(b)

Figure 1: Post-operative Intra-oral occlusion (a and b).**Figure 2:** Post-operative OPG revealing position of miniplates.

Discussion

Maxillo-facial injuries lead to the functional and cosmetic deformities affecting the normal healthy life of the person. Interpersonal violence, traffic accidents, gunshot wounds, sports injuries, falls are some of the factors leading to the mandible fractures [7]. Road traffic accidents in developing countries and interpersonal violence in rural areas are the major causes of mandible fractures [2,8-10]. Generally, mandible angle fracture or combined angle-parasymphysis fractures are seen in cases of interpersonal violence and only para-

symphysis fracture seen in road traffic accidents [11,12]. Males between ages of 18 - 34 years of age group are more prone to fractures due to the fact that they are involved in the violent activities, fights, sports and high speed transportation [5,6,13,14]. The treatment modalities in treating maxillofacial fractures depend on the patient's affordability, patient's willingness, and doctor's skills. In conclusion, management of mandible fracture is very important in order to gain satisfactory cosmetic and functional results.

Conclusion

Mandible plays a vital role in maintaining the functional and cosmetic presentation of the patient. Mandibular unfavorable fractures treated using "champy's lines of osteosynthesis" principle achieve a better occlusion and functional results.

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