ACTA SCIENTIFIC DENTAL SCIENCES (ISSN: 2581-4893)

Volume 3 Issue 4 April 2019

Case Report

# Subcondylar and Parasymphysis Fracture and its Management: A Case Report

**Kanwaldeep Singh Soodan[1]* and Pratiksha Priyadarshni[2]**

[1]*Department of Oral and Maxillofacial Surgery, M M College of Dental Sciences and Research, Mullana, India*

[2]*Dental Surgeon, India*

***Corresponding Author:** Kanwaldeep Singh Soodan, Department of Oral and Maxillofacial Surgery, M M College of Dental Sciences and Research, Mullana, India.

**Received:** February 27, 2019; **Published:** March 29, 2019

## Abstract

Mandibular trauma is a common fracture seen by maxillofacial surgeons. When fractures occur, they have the ability to affect the patient's occlusion significantly, cause infection, and lead to considerable pain. Interventions to prevent these sequelae require either closed or open forms of reduction and fixation. The purpose of this study is to discuss the case report of maxillofacial trauma in relation to mandible and its management.

**Keywords:** Trauma; Subcondylar; Parasymphyeal; Fracture

## Introduction

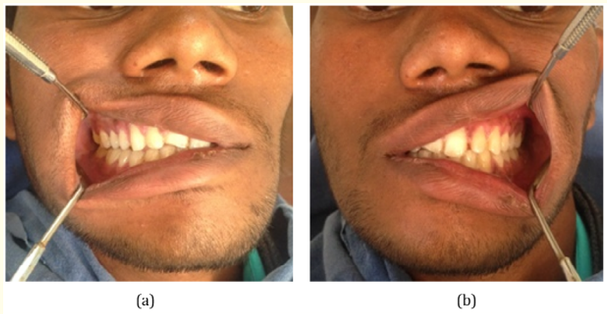
Mandibular fractures play a significant role in craniofacial trauma. Seventy percent to 85% of mandibular fractures occur in males, with the majority occurring in individuals in their twenties and thirties [1-3]. The most common causes are aggravated assaults and motor vehicle collisions (MVCs) in males, and falls and MVCs in females [4]. Other common causes include sporting activities and gunshot wounds. The mechanism of injury is important to take into consideration as it provides the physician with an index of suspicion for concomitant injuries, which may delay repair or necessitate a different treatment modality. Due to the nature of forces created, MVCs and gunshot wounds tend to be the most destructive to the craniofacial skeleton [5]. Mandibular Condylar injuries are often a matter of discussion and controversy among maxillofacial topics. These traumas constitute 11-16% of all facial fractures and 30-40% of mandibular fractures [6,7]. Anatomically; the subcondylar area is the distal part of the condylar process. This area is superiorly confined to the line passing through the sigmoid notch and anteriorly to the line obliquely connecting the sigmoid notch to the masseter tuberosity [8]. This area has a great clinical value due to important components such as the facial nerve and temporomandibular joint (TMJ). Both of these are prone to functional disability due to either the fracture itself or the surgical intervention. 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 [9].

## Case Report

A 18year male patient reported with alleged history of RTA (road traffic accident) which took place due to skid of bike while turning. He gave no history of LOC (loss of consciousness), ENT bleed (ear nose throat). Patient gave positive history of pain in left mandible anterior region and in right anterior and inferior to lobe of ear. On extra oral examination, there was no laceration, swelling present. There was positive history of tenderness in relation to Mandibular left chin region and right mandible ramal region. On intra oral examination, there was step present in relation to left mandible canine region with premature occlusion present in right region. The patient complained of incomplete mouth opening of around one and half finger. There was tenderness present in left canine region without Coleman's sign and right ramal region without break in the continuity of tissues. Hematological and radiographic investigation was performed. OPG (Orthopantomogram) revealed right subcondylar fracture and left unfavorable parasymphyseal fracture of mandible (Figure 1).

**Figure 1:** Preoperative OPG.

Patient was planned for ORIF (open reduction internal fixation) under general anesthesia. Erich's arch bar fixation was achieved with split bar in step region. Following pre-anesthetic evaluation, patient was intubated under general anesthesia for ORIF. Following infiltration using 1:2,00,000 local anesthetic with adrenaline for hemostasis, Intra oral vestibular incision was taken extending from left central incisor to left second premolar exposing the parasymphyseal fracture site. IMF (internal maxillary fixation) was done to achieve occlusion. According to Champy's lines of osteosynthesis, semi-rigid fixation was done using two 2.0mm 4 hole titanium miniplates with monocortical and bicortical screws at superior and inferior border respectively. Exposed fracture site was packed with ribbon gauge soaked in betadine. Hind's incision was taken on right side to expose the subcondylar fracture site following infiltration. One titanium miniplate (2mm) was fixed to posterior border of ramus using 4 bicortical screws (2x8mm). Incision was closed in layers using resorbable sutures in the deep layers and subcuticular suturing was done using non-absorbable suture. Intraoral incision was closed using non absorbable suture. Patient IMF was released and exturbated uneventfully. Post operatively patient was examined and Erich's arch bar was removed after six weeks (Figure 2 a and b). Follow up was done for 4months and no discrepancy in occlusion was examined and incison line healed uneventfully without any scar formation (Figure 3).



(a) (b)

**Figure 2:** Post op occlusion (a and b).

**Figure 3:** Post op incison line healed without scar formation.

## Discussion

Commonly Mandibular fractures are hardly isolated and are associated with two or more anatomic fracture sites. Occurrence of multiple fractures of mandible is generally associated with the highest risk for postsurgical complications like persistent pain, malocclusion and facial contour deformity [10]. Such fractures stabilization requires large stabilizing forces to counter biomechanical changes in forces and to bring into its normal occlusion. The treatment line of condylar fractures depends on the specific location of the injury. Management options have been an open or closed approach (Figure 4).

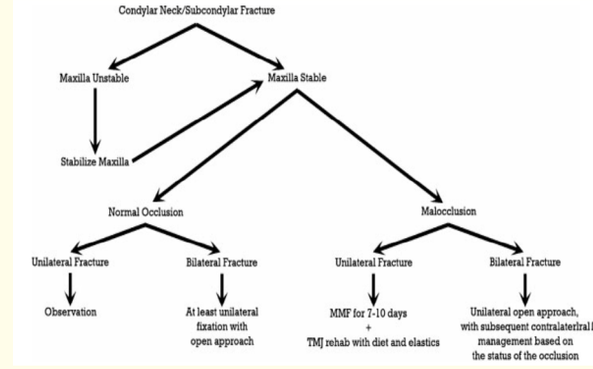



**Figure 4:** Algorithm for management of Condylar fractures.

Condylar fractures involving capsule of TMJ are significant because of their associated risk of TMJ ankylosis. A conservative technique of internal maxillary fixation/maxillomandibular fixation (IMF/MMF) for 7 to 10 days with an early return to function is the best treatment option [11]. This may be due to devascularization and difficulty associated with gaining stability of a small distal segment through ORIF. Subcondylar fractures are an area of great importance. Great amount of expertise is required in extra oral technique as there are chances of traction injury to facial nerve. Fractures of symphysis and Parasymphysis region can be managed

in various ways. One is that they may not be treated using internal fixation except for IMF using arch bars to regain the occlusion. Other is to gain internal fixation using lag screws or using a miniplate placed monocortical at superior border to counter tension band and second plate at inferior border bicortical to counter compression forces. Both buccal and lingual aspects of mandible should be examined as inappropriate plate bending can cause gapping on the lingual aspect resulting in cross bite and increased mandibular width.

## Conclusion

Mandibular fractures are the most common fractures of facial region due to their prominent position. Treatment options depend upon the type of fracture of mandible according to the anatomic variations. Skilled work of the surgeon decides the pros and cons associated with the treatment plan and outcomes.

## Bibliography

1. Erdmann D., *et al*. "A retrospective analysis of facial fracture etiologies". *Annals of Plastic Surgery* 60 (2008): 398-403.

2. Sojot AJ., *et al*. "The epidemiology of mandibular fractures treated at the Toronto general hospital: a review of 246 cases". *Journal of the Canadian Dental Association* 67 (2001): 640-644.

3. Ellis E III., *et al*. "Ten years of Mandibular fractures: an analysis of 2,137 cases". *Oral Surgery, Oral Medicine, Oral Pathology* 59 (1985): 120-129.

4. AM Schweinfurth JM and May WL. "Factors associated with long-term complications after repair of Mandibular fractures". *Laryngoscope* 116 (2006): 427-430.

5. Haug RH and Foss J. "Maxillofacial injuries in the pediatric patient". *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology* 90 (2000): 126-134.

6. Chrcanovic BR., *et al*. "1,454 mandibular fractures: a 3-year study in a hospital in Belo Horizonte, Brazil". *Journal of Cranio-Maxillofacial Surgery* 40.2 (2012): 116-123.

7. Zandi M., *et al*. "Maxillofacial injuries in western Iran: a prospective study". *Journal of Oral and Maxillofacial Surgery* 15.4 (2011): 201-219.

8. Hackenberg B., *et al*. "Management of subcondylar mandible fractures in the adult patient". *Journal of Cranio-Maxillofacial Surgery* 25.1 (2014): 166-171.

9. Kanwaldeep Singh Soodan., *et al*. "Mandibular Parasymphyseal Fracture and its Management: A Case Report". *Acta Scientific Dental Sciences* 2.8 (2018):: 39-41.

10. Carinci F., *et al*. "Scoring mandibular fractures: a tool for staging diagnosis, planning treatment, and predicting prognosis". *Journal of Trauma* 66 (2009): 215-219.

11. Lee JW., *et al*. "Reappraisal of the surgical strategy in treatment of mandibular condylar fractures". *Plastic and Reconstructive Surgery* 125 (2010): 609-619.

**Volume 3 Issue 4 April 2019**