

Parasymphyseal fracture –A case report and it’s Management

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Abstract

An external force that involves break through the mandibular bone which results in injury is known as trauma. Mandibular fractures occur more frequently than any other fractures of facial skeleton. Para symphyseal fractures are the most common form of mandibular fractures.¹

Masticatory and occlusal problems may occur due to biomechanical forces as they break the continuity of mandible, resulting in difficulty in chewing, speaking, and breathing. Management of mandibular fractures involves a multifaceted approach to correct the cosmetic and functional aspects of the involved structures.²

The purpose of this case report is to discuss the management of para symphyseal fracture and address its associa

ted problems. We reported the case of a 30-year-old male patient with parasymphyseal fracture involving the lower left anterior tooth region of jaw. The clinical diagnostic approach and different imaging modalities for definitive diagnosis have been elaborated.

Keywords: Trauma, mandible, fracture, Parasymphyseal.

Case Report

A 30-year-old male patient reported to the OPD in the Department of Oral Medicine and Radiology. He had a chief complaint of trauma in the lower left front tooth region of jaw since 1 day.

Patient was asymptomatic 2 days back. Then, he met with an accident approximately 10-12 hours before visiting the clinic, resulting in trauma to the lower one-third of the face and body pain. Patient usually rode a

motorcycle; therefore, it is estimated that he fell from the motorcycle by himself and rolled over. The patient first visited the private clinic of a general physician. No one witnessed the incident and the patient was also drunk at the time of the accident, so he couldn't recall the incident and also was unable to give any proper information.

Patient reported severe jaw pain during movement and abundant intraoral bleeding was also observed. Patient gave a positive history of pain in the mandible on both sides in the anterior region. He was unconscious for 10-15 minutes after the accident. No history of vomiting, but he gave a history of nose bleeding from the left nostril.



Fig 1: Appearance of the patient on the 1st day of visit.

On extraoral examination, it was found that the patient had normal TMJ movements. However, lacerations were seen on the cheek, symphysis region and forehead on the left side. On inspection, a single swelling of approximately 6x4 cm was present on the left side of the face. It was diffused and extended from the infraorbital margin till the lower border of mandible supero inferiorly and ala of nose till tragus of ear Antero posteriorly as shown in (figure 1). Colour and skin overlying the swelling was normal as compared to the adjacent skin.

All inspectory findings were confirmed on palpation. The consistency of the swelling was soft and tender. Sub mandibular and submental lymph nodes were non tender and non-palpable. There was no evidence of blood, pus

or any other fluid discharge from the swelling. No rise in local temperature was noted.

On intra-oral examination, slight pain was felt in the left side of the mandible in the canine region with tenderness. Frank Coleman sign on the floor of mouth is considered a characteristic feature para symphyseal mandibular fracture.



Fig 2: Frank Coleman sign seen in floor of the mouth.

All basic hematological investigations showed all the parameters to be within normal limits. The investigations included Bleeding Time (BT), Clotting Time (CT), Complete Blood Count (CBC), Blood Glucose Level (BGL). Systemic examination was also done and it was found to be normal. Systemic examination included cardio vascular system (BP, pulse), respiratory system (rate of respiration, rhythm of respiration), central nervous system (consciousness, response to anesthetics). The radiographic examination included an Ortho pan Tomo gram (OPG) and Postero-anterior (PA) view of the mandible. OPG showed an ill-defined radiolucency in the para symphysis region of the mandible on the left side which concluded the parasymphyseal fracture.



Fig 3: OPG revealing parasymphiseal fracture.



Fig 4: Posteroanterior view of the mandible.

Management

Management of the parasymphiseal fracture was done in following steps

1. After thorough preanaesthetic checkup, patient was taken for open reduction and internal fixation under G.A. (general anesthesia).
2. Erich's arch bar fixation was achieved under L.A. (local anesthesia).
3. Anterior vestibular incision extending from left central incisor to second premolar region was placed after administering L.A. for hemostasis.



Fig 5: Anterior vestibular incision was made.

4. Mentalis muscle was cut in oblique fashion and bone was exposed.



Fig 6: The mentalis muscle was cut in an oblique fashion.

5. 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 Para symphysis fracture.



Fig 7: Bone was exposed.

6. Two 2 mm plates were fixed using four 2 x 6 mm and four 2 x 8mm 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.



Fig 8: Miniplates inserted.

7. Interrupted suturing was gained using resorbable sutures and extra-oral pressure dressing given to prevent ptosis of lip and muscle.

8. Patient was extubated uneventfully.

Discussion

Mandible is the largest and strongest facial bone; mandibular fracture occurs more frequently than any other fracture of facial skeleton. Although 56% of hospitalized patients are found with Mandibular fracture³. In 15-20% patients symphysis and Para symphysis fracture occurs while body fractures are rare⁴. High male-to-female ratio has been observed among patients with cranio-maxillofacial injury. Recently there has been equal incidence of fractures in both the genders (6). The most frequent causes of mandibular fractures are the traumas related to traffic accidents, falls, interpersonal violence, and sports activities, etc. 5. Biomechanical forces acting on the mandible maintain the normal masticatory functions. Mandibular Para symphyseal 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 Several classifications of mandibular fractures using

nonstandard terminology are available.⁶ One of these classifications is related to the anatomical site involved: symphysis, body, angle, branch, condylar process, coronoid process, and alveolar process. The symphysis is bound by vertical lines distal to the lower canines. Fractures in this region, when not located in the midline, are commonly referred to as para symphysis fractures. Together they can be referred to as the chin or mental region. Mandibular para symphysis 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. Fractures of Mandible may be classified as :⁷

1. Fractures with gross comminution of the bone and without significant loss of hard and soft tissue.

2. Fractures with gross comminution of bone with extensive loss of both hard and soft tissue (1).

Mandibular unfavorable para symphysis 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 expertise⁸. Treatment of mandibular bone fractures requires certain considerations compared to other fracture treatments. The emergency treatment takes precedence. Treatment of mandibular fractures aims to restore occlusion and function and facilitate direct bone healing by adequate reduction and immobilization on the fractured site 9. . 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^{10,11,12}.

Conclusion

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

References

1. Kanwal deep Singh Soodan., et al. "Mandibular Para symphyseal Fracture and its Management: A Case Report ". Acta Scientific Dental Sciences 2.8 (2018): 39-41.
2. Wedayanti DPK, Dinatha GNK, Partama PG, Saputra MKA. Management of mandibular para sym physis fracture: a case report. Int J Adv Med 2021; 8: 1423-6.
3. Eskitaşcioglu t, özyazgan i, coruh a, günay G, Yon tar Y, Altiparmak M. Fractures of the mandible: a 20-year retrospective analysis of 753 patients. Ulusal Travma ve acil cerrahi dergisi-turkish journal of trauma & emergency surgery. 2013;19(4).
4. Kumar D, Kulkarni D, Purohit D, Abraham D, Ann A, AP D, Rehman D, Mohd SQ. Patterns & incidence of mandibular fractures: an epidemio logical study. Euro pean Journal of Molecular & Clinical Medicine. 2021 Mar 16;7(11):7144-9.
5. Bohner L, Beiglböck F, Schwipper S, Lustosa RM, Pieirna Marino Segura C, Kleinheinz J, Jung S. Treat ment of Mandible Fractures Using a Miniplate System: A Retrospective Analysis. Journal of Clinical Medicine. 2020 Sep;9(9):2922.
6. Subhash raj K, Ramkumar S, Ravindran C. Pattern of mandibular fractures in Chennai, India. British journal of oral and maxillofacial surgery. 2008 Mar 1;46(2):126-7.
7. Patrocínio LG, Patrocínio JA, Borba BH, Bonatti Bde S, Pinto LF, Vieira JV, Costa JM. Mandibular

fracture: analysis of 293 patients treated in the Hospital of Clinics, Federal University of Uberlândia. Braz J Otorhino laryngol. 2005 Sep-Oct;71(5):560-5. doi: 10.1016/ s1808-8694 (15)31257-x. Epub 2006 Mar 31. PMID: 16612514; PMCID: PMC9441990.

8. Lucas gomespatrocínio, Jose a. patrocínio, Bruno henri quecarrijoborba, brusantibonatti, Lauro Figueira pinto, Juliana vellelavieira, josémarianocarvalhocosta3rev bras otorrinolaringol.v.71, n.5, 560-65, Sep./oct. 2005
9. Kumar BP, Kumar J, Mohan AP, Venkatesh V, Kumar HR. A comparative study of three-dimensional stainless-steel plate versus stainless steel miniplate in the management of mandibular para symphysis fracture. J Bio Innov. 2012;1(2):19-32.
10. Saluja H, Kini Y, Mahindra U, Karkar V, Rudagi BM, Dehane V. A comparative evaluation of different treatment modalities for para symphysis fractures: a pilot study. International journal of oral and maxillofacial surgery. 2012 Aug 1;41(8):906-11.
11. Agarwal M, Meena B, Gupta DK, Tiwari AD, Jakhar SK. A prospective randomized clinical trial comparing 3D and standard miniplates in treatment of man dibular symphysis and para symphysis fractures. Journal of maxillofacial and oral surgery. 2014 Jun; 13:79-83.
12. Saluja H, Dehane V, Kini Y, Mahindra U, Gaikwad P. Use of miniplates in para symphysis fractures: A survey conducted among oral and maxillofacial surgeons of india. Journal of maxillofacial and oral surgery. 2013 Sep; 12:312-4.
13. Kumar BP, Kumar J, Mohan AP, Venkatesh V, Kumar HR. A comparative study of three-dimensional stainless-steel plate versus stainless steel miniplate in the management of mandibular para symphysis fracture. J Bio Innov. 2012;1(2):19-32