

Open Reduction Internal Fixation for Low Subcondylar/Ramus Fracture and High Condylar Fracture – A Case Report

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Abstract

Introduction: Mandibular low subcondylar fractures have a high incidence but not much is given in literature regarding the best method of treatment. This paper describes a surgical management of a low subcondylar /ramus fracture in a 30 year old male patient. **Method:** Access to the fracture line was taken via Risdon's approach that gave the good visualization of fracture line and facilitated better reduction and fixation. Plating was done on the lateral cortex of the ramus of mandible. There was a risk of damaging the marginal mandibular nerve and trauma to facial artery. **Result:** Resulted into good anatomical reduction and better functional rehabilitation. **Conclusion:** Open reduction and internal fixation (ORIF) can create better function for the temporomandibular joint, compared with closed treatment in low subcondylar/ramus fracture surgery.

Keywords: Maxillofacial Trauma, Subcondylar Fractures, ORIF

1. Introduction

Despite the fact that the mandible is the largest and strongest facial bone, it is very commonly fractured. Generally, occurs 3 times as often as midfacial fractures¹. The fractures of the mandible at low subcondylar/ramus region are usually minimally displaced. This is due to the anatomical position of the ramus between the masseter and the medial pterygoid muscle. As a result of the minimal displacement of these fractures, most surgeons manage these fractures by closed reduction. However mandibular fractures treatment by open reduction and rigid internal fixation provides a number of advantages. The most important is avoiding MMF, which results in an early return to function, easier maintenance of oral hygiene, improved nutrition and reduced risk of airway compromise².

2. Case Report

A 30 yrs. Male patient was referred to the department of dentistry for evaluation and subsequent correction of a case of mandibular fracture. Clinical examination showed slight deviation of mandible on unaffected side, derangement of occlusion and inadequate mouth opening, swelling anterior to rt. ear was another finding (Figure 1).

Intraoral clinical examination was not possible because of inadequate mouth opening and laterognathia. Patient was giving H/o bleeding from both the ears immediately after the accident and impaired hearing.

Pt. had already visited a local hospital and had done the 3D CT scan of face. 3D CT revealed unilateral low subcondylar/ramus fracture on rt. side and high

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Figure 1. Restricted mouth opening.

condylar fracture on opposite side and also lingual cortical plate fracture on rt. Side of mandible at the body region (Figures 2–4).

Placing arch bars was not possible with such a less mouth opening so we decided to open the mouth forcefully under local anesthesia on dental chair. Bilateral mandibular nerve block with Vazirani Akinosi technique was given. Fortunately we could open the mouth about 4 cm with the help of Heister’s jaw opener.

We decided to post the case for ORIF on rt. side no active surgical intervention was planned on left side.

Patient was taken under general anesthesia with nasotracheal intubation. Scrubbing and draping was done. Intraoral scrubbing was performed with betadine.

Arch bars were placed in maxilla as well as mandible as mouth opening was improved. Extra oral retromandibular incision was made, dissection was done until the angle of mandible, fibers of masseter were cut, periosteum was reflected and fracture site was exposed (Figure 5). Fracture fragments were maneuvered and reduction of fractured segments achieved. MMF is done after we could achieve the satisfactory conclusion. A 2mm titanium miniplate with four holes with gap was fixed with 8 mm screws. Suction drain no.10 (Romovac) was placed and suturing was done in layers (Figure 6).

MMF was released, pt. was extubated and shifted to ward.

Patient was Nil By Mouth (NBM) for 6 hrs. and advised medications and to maintain the oral hygiene.

On the third post operative day pt. was discharged after evaluating the oral hygiene and mouth opening. He was advised to take only liquids and semisolid food for three weeks, recalled after 1 week.

Pt. reviewed on 1st 3rd and 5th postoperative weeks. Healing was satisfactory but patient c/o pain while mouth opening over left TMJ region.



Figure 2. High condylar fracture.



Figure 3. Low subcondylar/ Ramus fracture.



Figure 4. Lingual plate fracture.



Figure 5. Extraoral incision.



Figure 6. Reduction and fixation.

Pt. was advised not to open too wide and that relieved his complaint. At the end of one and half month pt. returned to work with complete functional rehabilitation.

3. Discussion

Low subcondylar/ramus fractures are conventionally treated by closed reduction because of the difficulty in access to these fractures and also these fractures seldom cause derangement of occlusion. In our case the occlusion was deranged and mouth opening was restricted. Low subcondylar/ramus fractures are seldom seen alone, in our case it was in combination of other fractures like high condyle fracture on opposite side and lingual plate fracture. So we decided to go for ORIF with extra oral approach because intraoral or transbuccal approach is difficult due to limited access. Extra oral approach facilitates better exposure of the operating field and simplifies fracture repositioning compared to the cosmetically more favorable intra oral approaches. 2.0mm miniplate seemed capable of neutralizing compression and tensile forces, thus there was no need to use second plate. It is evident from recent literature review that though complications concerning plate fracture or screw loosening have been reported by various authors, the technique used

most frequently for fixation is the placement of a single plate³. A number of reports have now suggested that, the management of low subcondylar/ramus fractures by open reduction and internal fixation creates more favorable results compared with non-operative treatment. Although there is debate on concerning the management of low subcondylar fractures⁴ still exists.

4. Conclusion

ORIF of ramus fractures ensures adequate functional and anatomic reduction. Extra oral approach gives better access and visibility with better fixation of fractured fragments. Hence should be considered the protocol for management of low subcondylar/ramus fractures. There are no evidence based literatures on the management of low subcondylar/ramus fractures associated with high condylar fracture on opposite side and lingual plate fracture at body. This article makes an attempt to throw light on the successful protocol on management of same. The main disadvantage was compromised facial aesthetics due to scar tissue formation.

5. References

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