



# MANDIBULAR FRACTURE AFTER MANDIBULAR THIRD MOLAR REMOVAL – A RETROSPECTIVE STUDY

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## INTRODUCTION

The first dictum of medicine and surgery is- **Primum Non Curarum- first do no harm**<sup>[25]</sup>!

Mandible is the only mobile bone which is responsible for various functions namely mastication, speech, swallowing.<sup>[60]</sup>

Removal of Mandibular third molar is a common procedure in oral surgery<sup>[3,20]</sup>.

It is removed due to caries, periodontal disease, cyst, tumor<sup>[5]</sup>. It is associated with a variety of risks, which are possible<sup>[1]</sup>.

Mandibular fracture during third molar extraction surgically is a rare, but a serious complication. It is a most commonly fractured bone in face due to prominence and exposure<sup>[2]</sup>.

Fracture in the mandibular angle accounts nearly **40%** of mandibular fractures.<sup>[39]</sup>

**Sand et al** in 2014, “Mandible is considered as **mobile bone** and consists of some weak areas”<sup>[48]</sup>.

According to **Reitzik**, sharp angulation concentrated stress, thus making angle, a weaker area<sup>[37]</sup>.

The fracture of mandible is a very rare occurrence ranging from 0.0046-0.0075%<sup>[3]</sup>. 22% fractures occurring during the procedure and 78% occurring postoperatively<sup>[16]</sup>.

The factors contributing to the mandibular fracture after third molar extraction are the level of impaction, the amount of bone around the tooth, the dental anatomy, curvature of roots, side of fracture, age, sex<sup>[4]</sup>.

Other factors are pre-existing bony lesions or infections, failure to maintain soft diet after surgery and of course the technique performed<sup>[11]</sup>. The complications include dry socket, infection, sensory nerve damage, which are more common.

Mandibular fracture pattern depends upon many clinical factors such as size, direction, nature and surface area of the impacting force<sup>[50]</sup>. Minimal osteotomy with odontosection and proper use of extractors with gentle pressure should be norm for removal of third molars<sup>[31]</sup>.

## AIMS AND OBJECTIVES

- To do a retrospective study, in order to find out the superior management methods for post-operative fracture due to extraction of mandibular molars
- Follow the standard protocols and methods to manage the same.
- To find out incidence of mandibular fracture after extraction of mandibular third molar.

## DISCUSSION

- The mandibular angle region with an impacted third molar is the area of least resistance to external forces. In my study, the mandibular angle is the most thinner region of mandible and subjected to fracture during the procedure.<sup>[1]</sup>
- In an article by Karpal Singh Sohal et al(2019)has found out The teeth occupying an area covered by the bone is more prone to fracture due to the local distribution of traumatic forces.<sup>[55]</sup>
- The fracture of mandible occurs due to improper instrumentation and inadvertent force during lower third molar removal performed in patients aged between 42-50 years<sup>[1]</sup>, who are at an increased risk of osteoporosis followed by demineralization, thus weakening skeletal system. In my study, improper instrumentation and application of force greater than the required amount leads to fracture of the mandible, as it is less elastic in the posterior than the anterior region.

- Angle of mandible is the area which sustains the fracture. Fractures after an impacted lower third molar removal is very rare. A greater incidence of fracture were found in cases with full bony impaction requiring more bone removal. In my study, with proper planning and removal of bone during the procedure is recommended to avoid fractures postoperatively.<sup>[2]</sup>
- In an article reviewed by Tomaso Cutili et al (2013) in his study “Excessive force for the mobilization of impacted tooth could lead to incomplete or complete iatrogenic intraoperative mandibular fracture, which is a severe one<sup>[13]</sup>. In my study, application of inadvertent force leads to mandibular fracture.

## SUMMARY AND CONCLUSION

Necessary bone removal should be conservative during third molar removal. Tooth sectioning is the recommended method.<sup>[3]</sup>

Extraction of the lower third molar is encouraged before 20 years to avoid complications.<sup>[9]</sup>

Performing sagittal split osteotomy to extract deeply impacted third molar, which is a safer and provides good exposure of surgical field, reduces the bone loss and incidence of fracture.<sup>[11]</sup>

Selection of **appropriate** surgical approach minimizes the risk of fracture of mandible.<sup>[25]</sup>

Surgical difficulty and professional inexperience are the two contributing factors for mandibular fractures iatrogenically.<sup>[28]</sup>

Preoperative evaluation, treatment planning, adequate surgical exposure, good visualization, application of appropriate instruments with an acceptable amount of force, adds success to the surgery. Tooth sectioning is important to avoid fractures unnecessarily.<sup>[42]</sup>

Thus in my study, I would like to conclude that, Iatrogenic fractures of the mandible during mandibular third molar extraction can be minimized or prevented in the near future by proper diagnosis, careful pre-operative planning, careful selection of armamentarium needed for removing lower third molar and application of appropriate force followed by proper method of removal.