

Impacted Mandibular Third Molar to be Removed or Retained?

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DOI: <http://dx.doi.org/10.13005/bpj/719>

(Received: July 25, 2015; accepted: September 10, 2015)

INTRODUCTION

An unerupted tooth is a tooth lying within the jaws, entirely covered by soft tissue, and partially or completely covered by bone⁽¹⁾.

A partially erupted tooth is a tooth that has failed to erupt fully into a normal position. The term implies that the tooth is partly visible or in communication with the oral cavity⁽¹⁾.

An impacted tooth is a tooth which is prevented from completely erupting into a normal functional position. This may be due to lack of space, obstruction by another tooth, or an abnormal eruption path⁽¹⁾.

Indications and contraindications

Indications for the removal of impacted mandibular third molar tooth⁽¹¹⁾:

1. Overt or previous history of infection including pericoronitis. (This indication will generally exclude self limiting inflammation that may be associated with normal eruption teeth.)
2. Unrestorable caries
3. Non treatable pulpal and periapical pathology
4. Cellulitis, abscess and osteomyelitis
5. Periodontal disease
6. Orthodontic abnormality
7. Internal or external resorption of tooth or adjacent tooth.

Contra-indications for the removal of impacted third molars¹¹

1. Possible damage to adjacent structures of

an asymptomatic impacted tooth when the position is such that the removal adversely influences any adjacent structures.

2. Compromised health status and age of the patient.
3. Adequate space for eruption of the tooth.
4. Abutment tooth.
5. Orthodontic reasons – i.e. when first or second molars/premolars have been extracted.
6. Transplantation of the third molar to extraction site of another molar.
7. An unwilling patient should have his/her wishes respected.

Pathologies that may become associated with retained impacted mandibular third molars

Many surgeons believe that retention of impacted mandibular third molars may be the cause for pathological changes to occur in the oral cavity soon or later.

The following is a list of pathological changes that can occur due to the presence of a retained impacted mandibular third molar:

Pericoronitis

Presence of pericoronitis is the indication for removal of impacted lower third molar. Pericoronitis is the swelling occur in the gingiva surrounding the crown of impacted teeth. This most commonly seen in the younger patient compare to older patient. Clinical features pain ,swelling, and fever, most commonly seen in females compared to males^{2,4}.

Cyst Development

Impacted third molars may be a cause for development of cyst in the oral cavity. Mostly its occur in the mandibular impacted third molar region. Dentigerous cyst is most common cyst to occur in the impacted third molar region. Severe impaction of lower third molar is predisposing factor for the cyst development⁽¹³⁾. Development of cyst can be diagnosed by the IOPA. Shear and Shighin an epidemiological study also reported an incidence of 0.001% and 0.0002% of cyst development for black and white population in South affrica^(6,13). Most cystic changes were found in patients between 20 and 25 years, and they therefore concluded that age may be used as an indication for surgical removal of Impacted lower third molar, as the risk of surgical morbidity also increase with the increasing age. Guven et al also reported an incidence of cyst formation associated with impacted third molars¹⁴.

Tumour Development

If the impacted mandibular third molars are retained in the oral cavity sometimes they may cause tumour development. Most common tumours developed are ameloblastoma, epidermoid carcinoma, odontogenic carcinoma. These indication for prophylactic removal of impacted lower third molar^{6,13}. Guven et al. reported an incidence of 0.79% (benign, 0.77%, malignant, 0.2%) of odontogenic tumours among 9994 impacted third molar in their study, a majority (92%) of which were found in the mandible^(6,13,14).

Mandible fracture due to impacted third molar

Impacted lower third molar is cause for mandibular fracture. most commonly angle fracture occur. Patients with impacted mandibular third molar have increased risk of mandible fracture compared to patients whose mandible third molar is not impacted⁽²⁾. One mechanism by which impacted Mandibular third molar have been found to increase the risk of mandible angle fracture is by occupying the osseous space, and there by weakening the angle region by decreasing the cross sectional area of bone^(12,13,14). One of the study reported another dimension to mandibular fractures and the presence of impacted lower third molar. They found that the frequency of occurrence of

the mandibular angle fracture was higher in the group with incompletely erupted mandibular third molars ($P < .001$), and that of the condylar fracture was higher in the group without it ($P < .001$). Their result showed that the presence of incompletely erupted mandibular third molars diminished the incidence of condyle fractures with a statistical significance in both results of the patients ($P < .001$) and the side of the mandibles ($P < .001$). They therefore concluded that the presence of impacted lower third molar helps to prevent the condylar fracture¹³.

In terms of patient care, mandibular angle fractures are easily accessible, and excellent reduction and stable fixation are easily performed with minimal postoperative complications. On the other hand, most surgeons would agree that condylar fracture is one of the most difficult to treat in the maxillofacial region, and may be associated with malocclusion and facial nerve injury. Condylar fractures are usually more severe, are more difficult to treat, and have greater risk of long-lasting complications than angle fractures. Is it appropriate to strengthen the Mandibular angle region and to make the mandible more vulnerable to condylar fractures by means of removing an asymptomatic impacted mandibular third molar? Therefore, prophylactic removal of asymptomatic impacted mandibular third molar may not be beneficial as a means for reducing the chances of angle fracture in those patients at risk of maxillofacial trauma^{13,14}.

Complications associated with surgical removal impacted mandibular third molar

- ' Pain
- ' Swelling
- ' Trismus
- ' Hemorrhage
- ' Alveolar osteitis (dry socket)
- ' Periodontal damage
- ' Soft-tissue infection
- ' Injury to temporomandibular joint
- ' Malaise
- ' Temporary paresthesia (numbness of the lips, tongue, and cheek)
- ' Permanent paresthesia
- ' Fracture of adjacent teeth
- ' Fracture of the mandible
- ' Fracture of the maxilla

- ✓ Sinus exposure or infection
- ✓ Anesthetic complications

DISCUSSION

Presence of symptoms with impacted tooth is commonly seen in the patients coming to the dental office.

The removal of impacted mandibular third molar is a frequently performed surgical procedure worldwide in almost all country^(11,13). Recurrent pericoronitis is the most frequent indication for removing impacted lower mandibular third molars. Pain, swelling occur surrounding the crown of impacted teeth. Some surgeons favour a conservative approach while others surgeons favour for surgical removal of impacted lower third molar. The prophylactic removal was justified on the basis that the risk of surgical morbidity increases with increasing age (Adeyemo *et al.*, 2006). McArdle and Renton (2006) suggested that the early or prophylactic removal of a partially erupted mesioangular impacted mandibular third molar could prevent distal cervical caries formation in the mandibular second molar and also prevent the mandible fracture^(11,12,13).

There is a large discrepancy amongst oral surgeons in terms of opinion on the need for the removal of asymptomatic third molars and these opinions have not changed over the last 10 years^(2,3,4,5).

The benefits of conservative treatment is avoiding the future post operative complication. It is important to be aware that it is impossible to predict whether or not pathologies will occur if asymptomatic, unerupted teeth are not removed. The evaluation of the asymptomatic, unerupted teeth is mainly performed by radiographic examination¹⁴.

Impacted mandibular third molars whether need to be removed or retained should be best based on the clinical judgement and radiographic

appearance. It appears that, as yet, for many patients insufficient evidence exists to permit development of absolute indications and contraindications for either deliberate retention or surgical removal of the impacted third molars. The case of either the removal or retention of the asymptomatic third molar in many instances appear not be clear cut⁽¹¹⁾.

In many situations almost all patients happen to be in a dilemma whether to retain or to have the impacted tooth removed. In many instances the cases are not clear cut whether to retain or remove the asymptomatic third molar⁽¹²⁾. The fact that most mandibular third molar impacted or not, do not become diseased and that the risk of itrogenic injury from performing such a surgery is greater than the risk of leaving asymptomatic tooth alone should not override the expert opinion of oral maxillofacial surgeon⁽¹⁵⁾.

CONCLUSION

The important finding of previous studies is that the most common indications for removal of impacted third molar is pericoronitis, unrestorable caries, non-treatable pulpal and periapical diseases, periodontal diseases, while the most common assumptions for the removal of asymptomatic impacted mandibular third molar removal are increased the risk of cyst and tumour development, favourableness towards crowding, mandible fractures etc. The arguments which are available both for the support and rejection towards the prophylactic removal of impacted third molars are valid. The current scientific literature opinion of maxillofacial and oral surgeons suggest that for the benefit of the patient, each case should be assessed on the patients's oral health status currently and in the future as the priority which determines the need to retain or remove the impacted mandibular third molar tooth and the prophylactic removal of an asymptomatic impacted mandibular tooth may not be justified on assumptions.

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