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THE BUCCAL LID APPROACH: THE PATH TO THE IMPACTED TOOTH

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ABSTRACT

Surgical procedures form an integral part of dentistry. It is not very uncommon to diagnose impacted mandibular third molars. The conventional approach requires massive bone removal for better access, therefore sagittal split osteotomy (SSO) and extra-oral approaches have been proposed as alternative approaches. Excellent access to the impacted tooth, the great proximity of the crown/root to the inferior alveolar canal and the separation and protection of the nerve under direct visualization shows the superiority of the buccal lid approach technique over other techniques.

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INTRODUCTION

Surgical procedures form an integral part of dentistry and its treatment aspects. It may include extractions, curettages, orthopedic surgeries or any cosmetic procedures. As time has progressed, these treatments have increased at an enormous rate with different approaches as not all treatments can be performed by the same technique. Further, each treatment approach has its own relative and absolute indications/contraindications varying for each and every individual taking into account many factors like age, sex, health status, etc

It is not very uncommon to diagnose impacted mandibular third molars, as it has been reported in about 20% to 30% of the cases.[1] On the contrary, the impaction of the mandibular first and second molars is rare with its prevalence being less than 0.01% and 1.36% respectively.[2,3,4] This makes the surgical removal of impacted mandibular third molars a routine daily procedure carried out by the oral and maxillofacial surgeons.

The conventional treatment approach poses a challenge for the management of deeply impacted molars, unusual impaction locations and intimate proximity to the inferior alveolar nerve.[5]The conventional approach requires massive bone removal for better access which increases the risk of iatrogenic mandibular fracture and the formation of periodontal defects distal to the mandibular second molar after wisdom tooth extractions.[5]

The most common complication of surgical procedure of impacted mandibular molars is the neurosensory deficit of the Inferior alveolar nerve and the lingual nerves in 0.26 - 8.4% and 0.1 - 22% cases respectively. Further in another study done by Cheung *et al*. reported a 0.35% and 0.69% neurosensory deficit of the Inferior alveolar nerve and the lingual nerves.[7]

In addition to the fracture of the mandible, injury to the adjacent teeth and displacement of tooth or its fragment are other complications.[8] Also pain, swelling, reduction in mouth opening capacity, odynophagia and dysphagia are the other signs and symptoms of the surgical approach for the removal of the mandibular third molars.[8,9,10]

In such circumstances, coronectomy, sagittal split osteotomy (SSO) and extra-oral approaches have been proposed as alternative approaches.[5] However, not all of these treatment approaches can be used as they have their own advantages, limitations and complications.[8]

In order to eliminate the above mentioned issues, an alternative approach was stated by Alling with a lateral cortical plate removal approach.[11]Over the years various titles have been assigned for the technique which includes; the bone lid, buccal mandibular osteotomy, buccal window and buccal corticotomy.

Apical root resection of lower molars, repair of inferior alveolar nerve and removal of impacted mandibular molars or implants are some of the indications for this technique. However, it is not an ideal treatment approach for deeply

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impacted molars as the buccal approach will not provide a complete access to the operator.[11,12,13,14]

The intraoral approach not only provides an excellent direct vision and surgical approach to the impacted tooth but it also enables bone saving with minimal injury to the adjacent teeth, supporting structures and their tissues.[15]

Buccal osteotomy is preferred over SSO and extra-oral approaches as both necessitate hospitalization. The drawbacks of SSO are that it is a major surgical procedure with undesired morbidity and complications whereas on the other hand the extra-oral approaches can cause injury to the facial nerve and lead to a skin scar. Both the approaches come into practice when extracting impacted or highly displaced teeth or its fragments in the mandibular ramus, at the lower border or in the extreme lingual positions.

Coronectomy and orthodontic forced are the technique of choice when the impacted mandibular molars with root apices are in close proximity to the mandibular canal.[5,16,17] High patient compliance is necessary for optimal treatment outcome which have the potential for neural damage. Further the process of forced extrusion is laborious and time consuming; upto a period of 12 weeks which includes extrusion with a follow up visit every 2 - 3 weeks to monitor movement and swap the elastic chain.[17]

Dysphagia is one of the most common complications caused due to the surgical removal of mandibular molars because of soft tissue flap elevation and bone reduction at the lingual side of the tooth causing a swelling. This is in agreement with a prospective study performed on 201 patients who underwent mandibular third-molar surgery.[18,19] In the buccal lid approach, the lingual tissues are spared; hence there are no/reduced chances of postoperative dysphagia with also reduced chances of injury to the lingual nerve.[20] As we know the effects of damaged lingual nerve include drooling and changes while swallowing.[7,20]

The removal of buccal bone window provides superb access to the impacted tooth with excellent visibility of the entire surgical site, safe separation and removal of the teeth without nerve injury (as evident by the non-existents of permanent nerve injury) and without applying excessive forces over the bone.[10]

However, the bone lid approach cannot be performed when the inferior alveolar nerve is buccally placed, as there is a risk of direct damage to the nerve, further complicating the treatment procedure. This can be overcome by lateralization of the nerve away from the tooth and transposition of the nerve after the procedure.[10]

Frius microsaw technique can be used for the anterior, posterior and inferior boundaries of the buccal window osteotomy. The instrument helps in providing sharp and precise lines with probable and controllable depth 3 mm for the osteotomy procedure.

Further other aspects, which should be considered while selecting the treatment plan include the age and body mass index which can intensify the extraction procedure.[21]
Therefore, the buccal window approach with its several advantages like excellent access to the impacted tooth, the great proximity of the crown/root to the inferior alveolar canal and the separation and protection of the nerve under direct visualization shows the superiority of the buccal lid approach technique. Also minimal damage to the periodontal tissues of the adjacent teeth and no need for lingual flap elevation protects the Lingual nerve and keeps the nerve outside the surgical field and eliminates the possibility of dysphagia. Hence buccal corticotomy is the preferred choice of treatment modality in comparison to the other treatment approaches for the removal of the impacted mandibular molars.

CONCLUSION

It is the decision of the surgeon to select the most suitable technique which will facilitate a fast and effective treatment with the reduced postoperative complications and morbidity. The choice of the technique depends on the position of the tooth and its proximity to the Inferior alveolar nerve. When removing the tooth whose nerve lies lingual to the tooth, the bony lid approach ought to be the considered as the best validated treatment option.

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