

## Impacted Mandibular Third Molar Extraction: An Idea to Share

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**Abstract:** Removal of impacted tooth is one of the most common surgical procedure performed by the oral and maxillofacial surgeons. The mandibular third molar is the most commonly impacted tooth. Mandibular third molar extraction carries many complications of which injury to inferior alveolar nerve is most significant.

In the case described here; after adequate bone removal and drilling a hole in the horizontal impacted tooth's crown; a (2 \* 10) mm titanium screw preattached with a 26mm stainless steel wire ligature was tightened to the impacted tooth crown. The tooth was then elevated while a constant upward and diagonal force along its path of removal was applied with the wire ligature tightened to the crown. With further removal of any obstruction; the tooth was elevated; luxated and pulled out of the socket. Thus in selected cases; a constant upward force during elevation and sectioning of the tooth can minimize the chance of injury to the nerve canal and its content below by diminishing the resultant downward force created by elevation or extraction force.

**Keywords:** Impacted Mandibular third molar; Inferior alveolar nerve; Titanium screw;

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### I. Introduction

Removal of impacted teeth is one of the most common surgical procedure performed by the oral and maxillofacial surgeons. The mandibular third molar is the most commonly impacted tooth. Mead [1] in 1954 has defined an impacted tooth as a tooth that is prevented from erupting into position because of malposition, lack of space, or other impediments. Peterson [2], characterized impacted teeth as those teeth that fails to erupt into the dental arch within the expected time. Farman [3] in 2004 wrote that impacted teeth are those teeth that prevented from eruption due to a physical barrier within the path of eruption. Third molar extraction carries many complications of which injury to inferior alveolar nerve is most significant. Close relationship of the canal with the roots can evoke inferior alveolar nerve damage during the surgery [4]. Surgical third molar extraction can be done intra orally and extraorally. Two main approaches for intraoral route are: one through the sublingual space and the other buccally through the entire mandibular thickness. Extraorally it can be approached via the submandibular space [5-7].

### II. Case Report

The case described here is that of a right sided horizontal mandibular third molar impaction. The impacted tooth's position shows close proximity with inferior alveolar nerve canal and the crown is below the distal root apex of the 2<sup>nd</sup> molar respectively ( Fig-1 ). As the patient gave a history of occasional tingling sensation in the right side of the lip during some episode of pain on that side; it was decided to extract the second molar to create space for third molar removal so as to reduce the chance of compression or injury to the mandibular canal during surgery.

#### Procedure:-

The second molar was initially extracted. A three cornered flap was prepared extending from mesial border of second molar and extending posteriorly. Under copious normal saline irrigation, bone was removed with a flat fissured no-2 surgical bur; from buccal side and the shelf of bone above the impacted 3<sup>rd</sup> molar distal to 2<sup>nd</sup> molar respectively; till the cemento- enamel junction of the impacted tooth was exposed ( Fig-2 ). Any other bony undercuts on extracted 2<sup>nd</sup> molar side was also removed. Now with a 1.5mm drill; a hole for a (2 \* 10)mm titanium screw was made as shown in ( Fig-3 ) and a screw preattached with a 26mm stainless steel wire ligature was tightened to the impacted tooth crown. Utmost care was taken to firmly fix the screw to the crown. Elevator was placed on the impacted tooth as shown in Fig-4 and tooth elevated while a constant upward and diagonal force as much as possible in direction of long axis of the tooth was applied. As the tooth was luxated in the socket and with removal of any obstructing bone; the tooth was pulled out of the socket.

### III. Discussion

Tooth close to inferior alveolar nerve canal always pose a threat of injury to the nerve during its surgical removal. Sectioning of crown or root in close proximity of nerve also always poses a threat of injury to it by over cutting of the tooth and injuring the bone or tissue below. In this case with root pattern of the tooth favourable without any hooks or flaring, elevation and traction forces were applied as shown in Fig-4. Fig-5

and Fig-6 ; which shows the difference of forces acting on tooth and socket with and without wire screw traction respectively . It can be seen that without traction the reaction force(R) is acting more on the bone socket without any force distribution aiding in the path of removal as shown in Fig-6 . When a continuous traction is given along or near to the long axis of the tooth as shown in Fig-5 ; the resultant force vector (R1) aids in pulling up of the tooth from the socket . When the tooth or root is pulled up a little along with luxation in the socket and held in that position ; sectioning if required would also safeguard tissue injury below the tooth as it has been lifted up . With careful elevation and luxation the tooth is pulled out of the socket .

The most serious and unpleasant iatrogenic complication that arise from third molar surgery is inferior alveolar and or lingual nerve injury and the following neurosensory function disturbance. The incidence of inferior alveolar nerve injury according to different authors varies from 0.81% to 22% of cases [8- 13]. In selected cases a constant upward force during manipulation of the tooth minimizes the chance of injury to the nerve canal and its content below by diminishing the resultant downward force and at the same time creating a space below by lifting of the tooth . In some cases after sectioning a tooth ; if a screw for traction can be adequately applied to the remaining portion , the pull along with elevation can be favourable for retrieving the remaining segment .

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