

Accidentally encountered perforated root by inferior dental canal: A Case Report

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ABSTRACT

Perforation of the lower third molar roots by the inferior alveolar nerve is uncommonly encountered during their surgical extraction. It is difficult to determine perforation of root by conventional radiographic methods like intra oral periapical radiograph or Orthopantomogram because they depict two dimensional view of tooth. This paper is a case report of accidentally encountered perforation of root by inferior dental canal.

Key words: Impacted Third Molar, Inferior alveolar nerve, Inferior dental canal, Orthopantomogram.

INTRODUCTION

The removal of impacted third molar is the most common minor surgical procedure in the specialty of oral and maxillofacial surgery. The procedure can be simply performed by using elevator and or forceps, but may require surgical intervention. This increases the risk of complications such as nerve paresthesia alveolar osteitis or even fracture of the jaw.

One of the most common complications that may occur following the extraction of mandibular third molar is injury to the inferior alveolar nerve. The reported frequency of the inferior alveolar canal injury associated with mandibular third molar removal ranges from 0.6 % to 5.3%. The risk of permanent injury to nerve is less than 1%.

Hence, the accurate assessment of the position of the IAN in relation to the impacted third molar will minimize such complications. This paper is case report of the patient whose inferior dental canal was touching the apex of mandibular third molar.

CASE REPORT

A 22 yrs old female patient reported with pain in Left lower back region.

On examination, food lodgment was found distal to lower second molar leading to pain in that region. Lower third molar was found impacted. Orthopantomogram was done which showed mesio-angular class 2 position B impacted third molar whose root apex was touching the inferior dental canal. Same finding was also present in right side also.

Surgical extraction was planned under local anesthesia keeping in mind the nerve proximity. It has been told to the patient regarding the temporary or permanent loss of labial sensation. All routine blood investigations were carried out which came out to be normal. Surgical extraction was done by hemi sectioning the tooth. Carefully both the roots were elevated and extracted out. It was found that mesial root was perforated by the canal while in distal root grooving was present. Sutures were removed after seven days. No paresthesia was noted. Healing was uneventful.

DISCUSSION

The relationship of the mandibular canal to the apices of the lower third molar is of great academic and practical importance. The precise anatomic location of the mandibular canal with respect to that of the lower third molar is of great

importance in preventing injury to the inferior alveolar nerve. Between the apex of the third molar and the canal, there are several types of relationship that have been established which should be identified before surgical intervention by means of diagnostic imaging especially Orthopantomogram

These radiographic relationships was assessed and categorized according to the following criteria;

1. **Adjacent:** the superior border of the canal was either touching the roots apices or within 2 mm below them.
2. **Superimposed:** The canal was superimposed over part of the roots which appeared less radio opaque than the remaining radiological image of the roots.
3. **Notching:** Radiolucent band at the apex of the roots, a break in the continuity of the upper radio dense border, and narrowing at the expense of the top of the canal.
4. **Grooving:** Radiolucent band across the root above the apex, interruption of both superior and inferior borders of the canal, and narrowing of the canal space.
5. **Perforation:** Radiolucent band crossing the root above the apex, loss of both superior and inferior borders of the canal at the area where they cross the roots, and constriction of the canal maximal in the middle of the root.
6. **None:** A relationship between the canal and the root apices could not be decisively assessed.

Various preoperative radiographic techniques are there to evaluate the relationship between the mandibular third molar and the inferior dental canal like IOPA radiograph, OPG, CT Scan etc. However, the OPG has been recommended as the primary radiographic investigation of choice. OPG is readily available and useful for screening purpose as well as planning of surgical procedures. CBCT is gold standard in such type of cases to minimize the severance of nerve. The position of the canal varies with respect to the apices of the roots of impacted mandibular third molar with the majority being “adjacent” followed by superimposition, notching, grooving and only few cases could not be placed under any of these categories and therefore placed in the category none. The mesioangular impaction had the great number of impactions and adjacent relationship of apices of the third molar to the inferior dental canal for both mesial and distal root had a great number followed by superimposition and notching.

The method to assess the relationship of third molar to inferior dental canal depends on the following:
Angulations; the third molar could be Mesio angular, Disto angular, Horizontal, Vertical and inverted.
Crown; looking to; Size, Shape, appearance and extension of caries presence and severity of resorption.
Roots; number, shape, curvature, whether they are favorable or unfavorable. Stage of development.

CONCLUSION

The removal of impacted third molar is one of the most common minor surgical procedures performed in dental clinic in India, which can be complicated by inferior alveolar nerve injury. The mandibular canals are mostly bilaterally symmetrical and their position varies with respect to the apices of the roots of the impacted mandibular third molars. Hence, preoperative assessment is carried out in an attempt to identify the proximity of the impacted tooth to the mandibular canal. This knowledge and evaluation helps in assessing the possible post operative occurrence of labial sensory impairment and thus its prevention.

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FIGURE LEGEND PAGE

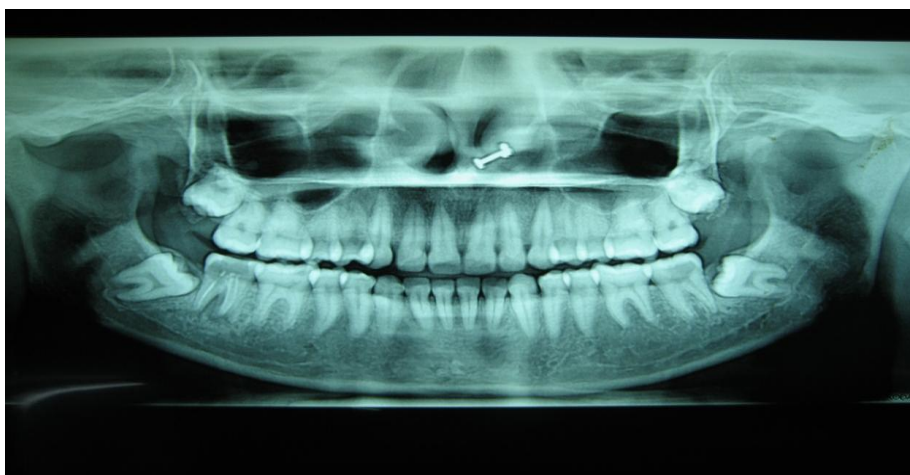


Figure 1: A. Intraoral front profile view showing paramolars bilaterally distal to 1st molar.



B. Intraoral occlusal view of maxillary teeth showing paramolars, lingually displaced 2nd molars & rotated lateral incisors.



C. Maxillary model.



D. IOPA view of right side molar region with paramolar.



E. IOPA view of left side molar region with carious paramolar. F. Extracted paramolars.