SURGICAL REMOVAL OF TRANS-ALVEOLAR MANDIBULAR 2ND PREMOLAR IMPACTIONS BY LINGUAL APPROACH

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ABSTRACT

There is an abundance of literature on impacted teeth but only a few papers have addressed impacted premolars. A case of a young female with bilaterally impacted mandibular 2nd premolars in trans-alveolar position with their crowns facing lingually and roots buccally is reported. The patient was under orthodontic treatment for correction of malocclusion with an orthodontic plan for surgical removal of impacted mandibular 2nd premolars. Due to lingual position of crowns of these impacted teeth, it was decided to adopt lingual surgical approach rather than conventional buccal approach for their removal. The surgical approach with discussion on the various management options for management of impacted premolars is described here.

Key Words: Impacted mandibular premolar, trans-alveolar impaction, lingual approach.

INTRODUCTION

Impacted teeth are those which fail to erupt in dental arch within expected time. Different local causes of impacted teeth include lack of space in the jaw, premature loss of primary teeth, abnormal positioning of tooth bud, inflammatory or pathological lesion etc.

Mandibular second premolars rank third after permanent 3rd molars and maxillary canines, in frequency of impacted teeth. Overall prevalence of impacted premolars is 0.5% and that of mandibular premolars is 0.2 to 0.3%. Mandibular second premolars alone account for 24% of all dental impactions excluding molars. Premolar impactions may be due to local factors e.g. mesial drift of teeth by premature loss of primary molars, ectopic positioning of premolar buds; or pathology e.g. dentigerous cyst. Various treatment methods have been suggested including observation, interceptive orthodontics, surgical exposure with orthodontic intervention, auto-transplantation and extraction depending on position of impacted tooth, relationship with adjacent teeth and need for orthodontic treatment.

CASE REPORT

A 22 years old female was referred to oral and maxillofacial surgery department from orthodontic department of Punjab Dental Hospital with query for surgical consultation of impacted teeth. On clinical evaluation, there were missing bilateral mandibular 2nd premolars (Fig 1a). There was also crowding in mandibular arch. On radiological evaluation (Periapical, lower occlusal and OPG) both of these teeth were found to be impacted in trans-alveolar position with their crowns facing lingually and roots buccally (Fig 1b,c,d). Due to abnormal positioning of these premolars, it was not possible to bring these teeth in the arch with conventional orthodontic traction with or without surgical intervention. The auto-transplantation of these teeth was also not possible due to their peculiar position and lack of space in the arch. So, it was decided to extract these premolars. Due to lingual position of crowns of these teeth, it was decided to adopt lingual surgical approach for their removal rather than conventional buccal approach.
After achieving proper local anaesthesia, incision was made with Bard Parker blade # 15 in the gingival crevice on lingual aspect of right mandibular premolar teeth. A full thickness mucoperiosteal flap was raised with Molt periosteal elevator. The flap and tongue were retracted with Lae’s tongue depressor. The bone bulge on lingual cortex due to crown of impacted tooth was identified and decortication of lingual cortex was carried out with surgical hand piece & round bur under coolant irrigation. The crown of impacted tooth was visualized and drilling was performed around the crown for creation of a gutter (Fig 1e,f). Then the crown was sectioned and some of its portion was removed. The rest of the tooth was also chased by bone drilling and was retrieved with a Cryer elevator by making a purchase point. The wound was irrigated with normal saline and flap was repositioned. The suturing was performed with 3/0 black silk sutures which were removed after seven days. Post-surgical healing was good without any significant complications.

After a time period of two weeks, the other sided (i.e. left) 2nd pre-molar was also extracted with the same technique and without any significant complications (Fig 1g,h).

**DISCUSSION**

Treatment options for impacted teeth include observation, surgical exposure with or without orthodontic intervention, auto-transplantation, and extraction. In selecting an appropriate treatment option, underlying etiological factors, space requirements, need for extractions of primary molars, degree of impaction and root formation of the impacted premolar should be considered. Factors such as patient’s age, medical and dental status, oral hygiene, functional and occlusal relationship and attitude towards and compliance with treatment will also influence choice of treatment options.

In this particular case, age of patient, degree of impaction, trans-alveolar position of impacted teeth, complete root formation and interference with orthodontic alignment of adjacent teeth made monitoring a bad choice of treatment. Moreover, leaving these teeth in situ may lead to root resorption of adjacent teeth and cyst or tumor formation in the jaw. The position of the transversely impacted second premolars was so unfavorable that no orthodontic intervention was planned and hence extraction was done. Andreasen suggests that surgical exposure with or without ortho-

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Figure 1.
(a & b): Intra-oral view showing the absence of mandibular 2nd pre-molars in the arch & mandibular occlusal view showing bilateral trans-alveolar 2nd pre-molar impactions.
(c & d): Pre-operative peri-apical radiographs showing mandibular 2nd pre-molar impactions (R & L).
(e & f): Intra-operative view of impacted 2nd pre-molars (R & L).
(g & h): Post-operative peri-apical x-rays after removal of 2nd pre-molars (R & L).
Odontic intervention should be confined to cases with no more than 45°% tilting and limited deviation from the normal position.\textsuperscript{4,8} Hence, this case definitely required removal of the impacted teeth. As the crown was on lingual aspect and root on buccal side, through lingual approach, crown sectioning and retrieval of root was the logical choice. The buccal approach may jeopardize the mental nerve emerging from mental foramen and the apices of the adjacent teeth. But lingual approach comes with the inherent risk of damage to sublingual gland and infection in sublingual space. Careful tissue handling and irrigation of the surgical area can prevent many complications. Correct knowledge of regional anatomy and application of mechanical principles of tooth extraction allow surgical success. This peculiar and rare case will contribute towards the minimal literature available regarding impacted second premolar teeth and offers lingual approach as an alternative in such situations. The unusual (trans-alveolar) orientation of the crown and root of impacted 2nd premolars makes this case report unique and interesting.

\textbf{REFERENCES}