

# Characterizing Extreme Dehiscence of a Maxillary Molar

Khurshid A Mattoo<sup>1\*</sup>, Satyam Khare<sup>2</sup>, K Nagaraju<sup>3</sup>

<sup>1</sup>Department of Prosthodontics, College of dentistry, Jazan University, Jazan, KSA

<sup>2</sup>Department of Anatomy, Subharti Medical College, Subharti University, Meerut, India

<sup>3</sup>Department of oral medicine and radiology, Subharti Dental College, Subharti University, Meerut, India

\*Corresponding author: [drkamattoo@rediffmail.com](mailto:drkamattoo@rediffmail.com)

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**Abstract** Fenestrations and dehiscence's are variations of the natural teeth and the alveolar bone that are significant not only to anatomy and periodontology but also to a prosthodontist who should be able to characterize such natural and normal features within his dental prosthesis. Although their etiology has been attributed to heavy occlusal forces, this article presents a case where opposing occlusion did not exist and patient's history revealed that the dehiscence was aggravated after removal of opposing teeth thus suggesting a strong relation between degree of dehiscence and lack of occlusal forces.

**Keywords:** collision, rollover, drifting, steering control, car spin and shunt

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## 1. Introduction

Alveolar bone defects in one of its few forms are commonly encountered out of which dehiscence and fenestrations have been reported frequently. Whereas, fenestration is termed as the situation when the root is denuded of the bone and the root surface is covered only by the periosteum and the overlying gingiva [1,2], Dehiscence on the other hand are denuded areas that extend through the marginal bone. [3,4] Both are considered as normal variations with regard to the presence of the teeth, rather than pathological conditions. Irrespective of their biological status both anatomic entities are extremely important when related to periodontal surgery. Affecting more than 20% of the teeth, they are commonly placed on the mandibular teeth than maxilla and show a more preponderance to anteriors than posteriors. [5] Although traditional books of anatomy lack of information on these defects, they largely depend on the relation between alveolar bone and the teeth especially the inclination of the teeth. [6] Role of opposing occlusion has been rarely discussed in the literature. This clinical case report presents a rare case of extreme dehiscence which was perpetuated by lack of opposing occlusion. An alternative mechanism of such adaptation has also been discussed.

## 2. Case Report

An elderly male patient reported to the department of Prosthodontics for possible intervention to his deteriorating

existing dentition with expectation of immediate dental rehabilitation due to his occupational demands. Medical history disclosed underlying diabetes that was at times controlled. Existing medication was contributory with social history also having a definite impact (occupation - teacher). Dental history revealed that the patient had gotten his mandibular posterior teeth extracted more than three years back, within a period of 6 to 7 months. Extra orally the patient inherited a symmetrical face with a wide (broad) smile that exposed the cervical third of existing natural teeth. Intraorally, the patient presented a Kennedy class 2 modification 1, partial edentulous situation in the mandible while the maxillary dentition was completely dentulous. Generalized recession, plaque accumulation, anterior calculus deposits along with striking and extreme dehiscence in relation to maxillary right first molar was present (Figure 1A). The tooth in question had both the buccal roots out of the sockets and was overhanging in the buccal corridor of right side (Figure 1B). Upon a detailed questioning, the patient did not exactly disclose the time when he observed the change in the tooth, but disclosed that about one and a half years back, he would frequently touch the area with the tongue and with the passage of time he would feel that the surface was becoming more and more prominent.

Palpation of the maxillary first molar revealed firm tooth, with severe mesiolingual inclination, supraeruption, dehiscence, non-tender to palpation and percussion and generalized gingival recession. After thorough radiographic and clinical investigations, patient was given three different treatment options out of which he chose the option of an immediate removable partial denture for maxillary arch with removal of maxillary right second premolar and first

molar and a transitional partial denture for the mandibular arch. Both maxillary and mandibular dentures would be characterized to mimic existing generalized gingival recession.



**Figure 1.** (A) Maxillary first molar showing extreme dehiscence (B) Maxillary molar literally hanging on palatal root

Regular procedures for the fabrication of two separate partial dentures was initiated by making primary impressions (Alginate, Dentsply Intl, York, Pa), definitive impressions (Addition silicone, Reprosil, Dentsply/Caulk; USA), jaw relations and surgical template for the maxillary arch (Denture resin, Fortex; Lucite Intl, Durham) and final insertion. At the stage of final insertion, maxillary right sided second premolar and first molar were extracted followed by alveoplasty and suture placement. Immediate partial denture for maxillary and a transitional partial denture for mandibular were inserted (Figure 2A and Figure 2B). The patient was instructed regarding maintenance and care and the patient was put on a follow up. The patient was highly satisfied with the outcome of the characterized partial dentures.



**Figure 2.** Characterized partial immediate transitional dentures in place (A) Extra oral view (B) Intra oral view in right lateral position to view denture characterization

### 3. Discussion

Fenestrations and dehiscence are normal variations of the relation between the natural teeth and the alveolar bone. Although mandibular teeth are affected more than maxillary teeth with slight predilection to anteriors than posteriors, the case reported in this article is unique because it is usually fenestration that has been reported to

be mostly associated with the mesio buccal root of the maxillary first molar and not dehiscence. [7,8] Although the association of factors like alveolar bone development, composition, structure, maturation and aging have been discussed in relation to fenestration and dehiscence, [9,10,11,12] this article will discuss the role of lack of occlusion in the light of evidence that is present.

Dental history of the patient disclosed that the mandibular teeth were lost due to caries about 3 years back (3-4 years range) with no past history of wearing mandibular partial dentures. Lack of opposing dentition allows supraeruption to take place, but as is evident in this case that the palatal root of maxillary first molar was firm, therefore with continued eruption the maxillary first molar started rotating along the palatal root, thus resulting in the tilting of the molar (buccal cusps tilting lingually whereas the roots tilting vocally into the vestibule space). As more and more supra eruption takes place the roots move farther from the fulcrum ( palatal root in this case) thus resorbing the buccal cortical plate (if present) from inside. This is in contrast to the studies who consider heavy occlusal forces as an etiologic factor for development of dehiscence and fenestration. [13,14] Although it cannot be denied that heavy occlusal forces could lead to their development while at the same time it cannot be denied that lack of occlusal forces aggravate the problem as is evident in the present case. After extraction of the mandibular opposing teeth if opposing partial denture would have been in place then further supraeruption would have been prevented this in turn would have not allowed the roots to assume an aggravated buccal position. Another contributing factor in this particular case is the tendency of the tongue to perceive developing abnormalities within the mouth especially within the surfaces of the teeth. Perforation of the buccal cortical plate with subsequent exposure of two roots on the buccal surface would be perceived by the tongue as alteration of form within that area due to its stereognostic ability. [15] As admitted by the patient, his habit of touching the area frequently would also result in lateral forces being transmitted to the tooth that was assuming a more lingual position coronally. These lateral forces exerted on the tongue would aggravate the condition rather than have no effect.

### 4. Conclusion

A rare and extreme case of dehiscence of maxillary right first molar has been described in the light of lack of opposing occlusal forces that are seen as aggravating factors for such a condition.

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