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Case Report

Multidisciplinary Management of Supra-Erupted Periodontally Compromised Maxillary Molar

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Abstract

This article showcases multidisciplinary management of an extruded maxillary molar with gingival recession. Non-surgical periodontal and endodontic treatment were initiated. Micro implants were placed to intrude the molars. Periodontal surgery was then planned to cover the gingival recession, following which the tooth had a better prognosis.

Keywords: Coronally Advanced Flap; Connective Tissue Graft; Micro-Implant; Recession; Supra-Erupted; Periodontal

Highlights

1. Supra erupted maxillary molar with gingival recession are frequently encountered problems.
2. A multi-disciplinary approach to improve the prognosis of tooth was planned.
3. Endodontic→Orthodontic→Periodontal treatment was followed.
4. The treatment resulted in improved tooth function and made replacement in the lower arch possible

Introduction

Food impaction is the forceful wedging of food into the periodontium by occlusal forces. Loss of an opposing tooth causes extrusion of the unopposed dentition. Extrusion of a tooth beyond the occlusal plane is a common cause for food impaction [1]. Sequelae of food impaction includes gingival inflammation, vague pain, gingival recession, pocket formation, periodontal abscess, destruction of alveolar bone and proximal decay. To provide a suitable replacement in the lower arch, upper molars need to be intruded. Various orthodontic techniques are available to achieve the required result [2]. Gingival recession [3] is the displacement of the soft tissue margin apical to the cemento-enamel junction. Miller [4] classified gingival recession into four classes. The success for root coverage in class I and II is good to excellent but for class III where interproximal bone loss is there, only partial coverage [4] is possible. Prognosis for Class IV is very poor. Many techniques have been attempted for coverage of isolated tooth recession but the combination of Coronally Advanced Flap with Connective Tissue Graft (CAP+CTG) showed the highest probability of complete root coverage [5]. We frequently encounter missing mandibular molars and extruded maxillary molars in clinical practice. But supra-erupted non-vital molar with Miller's class III recession without mobility are not common. Their treatment poses a quandary among clinicians as the treatment is complex and may involve multiple dental specialties for successful outcome.

Case History

A 50 year old female reported to our Department of Periodontology with complaint of food lodgment between left upper molars and vague pain in that region. On examination, lower molars were missing and there was an over-erupted maxillary molar with Miller's Class III gingival recession (Figure 1). There was a deep proximal carious lesion and the tooth was non- vital.

Figure 1: *Pretreatment position of extruded maxillary 1st molar.*

Discussion

After the primary non-surgical periodontal therapy, endodontic treatment was initiated. Along with root canal, molar intrusion was planned with the help of a micro-implant [6] as treatment with removable appliance is compliance dependent [7]. Bone sounding [8] was performed with a periodontal probe to measure the probing depth following local anesthesia administration. The deepest point at which the probe met strong resistance from contact to the bone was recorded as the bone probing depth (Figure 2). From this knowledge, micro-implants were placed on buccal as well as palatal aspect in the inter-radicular bone between upper left 2nd premolar and 1st molar. The micro-implant screw (SK Surgicals, Pune, India) used was titanium alloy one-piece device with an endosseous body and intraoral neck section, 1.3 mm diameter and 8-mm length and application was done under local anesthesia. Two attachments were bonded on the lingual and buccal surface of first molar. An elastic chain (3M, UNITEK, Monrovia, CA, USA) was then placed between the 2 implants and passing over the occlusal surface of molar (Figure 3a-3e). Intrusion was achieved in 7 months following which micro-implants and attachments were removed.

Figure 2: *Bone sounding done with periodontal probe.*

Figure 3a-e: *Microimplant placement and post orthodontic intrusion*

After successful intrusion of molar, a stainless steel crown was placed on the endodontically treated tooth restoring proper proximal contacts (Figure 4). Patient was advised to use interproximal aids to maintain the health of proximal region. Root coverage for a gingival recession of 10 mm on mesio-buccal root of first left maxillary molar was planned by using a combination of modified coronally advanced flap [9] with connective tissue graft (CAF + CTG).

Figure 4: *Post endodontic treatment and crown placement.*

On the day of periodontal surgery, adequate anesthesia was achieved using posterior superior alveolar nerve block for 26 (first upper left maxillary molar). Before surgery, the root planing was performed with Gracey curettes (Hu-Friedy Manufacturing Company) which reduced the buccal prominence of the root. The root surface was then conditioned using tetracycline for 5 min to promote the attachment of the fibroblasts to the dentin [10].

The design of the flap consisted of two horizontal, beveled incisions and 2 vertically oblique, beveled incisions. The horizontal incisions (3 mm) were given sub-marginally in the interdental areas, mesial and distal to the molar. An intra-sulcular incision was made around the molar that connected the two horizontal incisions. The vertical incisions started at the end of the horizontal incisions were slightly divergent and extended to the alveolar mucosa. This resulted in a trapezoidal shaped flap which was raised with a split-full-split approach in corono-apical direction. The apical most portion of the flap was partial/split thickness to allow the coronal repositioning of the flap without any tension. The mesial and distal papillae were de-epithelialized to achieve a connective tissue bed.

A sub-epithelial connective tissue graft was harvested from the palate using trap door incision technique [11] and the donor site was sutured. The procured graft from the palate was placed over the exposed root of the maxillary molar up to the cemento-enamel junction and the adjacent connective tissue bed. It was secured under the coronally advanced flap with sling suture and periosteal suture (EthiconTM, Vicryl 4-0). The overlying flap was advanced coronally to cover the connective tissue. The flap was sutured along with closure of vertical incisions using non-resorbable silk suture (EthiconTM, MersilkTM 4-0, Johnson and Johnson) and compressed with a wet gauze to minimize clot size. Periodontal dressing was placed over the donor and the recipient site to protect the underlying tissues (Figure 5a-5f). The patient was instructed to use 0.2% chlorhexidine gluconate mouthwash twice daily. Antibiotics (amoxicillin, thrice daily for five days) and analgesics (ibuprofen, thrice daily for 5 - 7 days) were prescribed to reduce pain and prevent infection. She was recalled for suture removal 10 days postoperatively.

Figure 5a-f: *Periodontal flap surgery and 1 week post-surgery*

At 10 days postoperatively, the healing was uneventful. Tissue at both the recipient and donor site was slightly red and edematous as a part of normal postsurgical inflammation. Patient was advised to continue Chlorhexidine mouthwash for another 10 days. 1 month postoperatively, the donor and recipient sites healed well with increased width of keratinized tissue and 2.5 - 3 mm of residual recession at the recipient site (70% root coverage). The interdental bone loss at the treated site with class III Miller's recession might have prevented complete root coverage [4]. The patient had no sensitivity and was advised to use dental floss regularly to prevent inflammation and food impaction in the proximal areas in future (Figure 6).

Figure 6: *3 months Post treatment*

Conclusion

This case report presents a successful treatment of a supra-erupted, proximally decayed molar with severe recession with a multidisciplinary approach. After initial non-surgical periodontal therapy and endodontic therapy, the maxillary molar extrusion was corrected with the help of a micro-implant followed by gingival recession coverage and prosthodontic rehabilitation of missing teeth.

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