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A THEFTALLONS	Original Research Paper	Dental Science	
	SURGICAL EXPOSURE OF AN IMPACTED MAXILLARY CENTRAL INCISOR AND RECONSTRUCTION OF A BAND OF KERATINIZED GINGIVA -A CASE REPORT.		
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	PETPACE Delayed and ectopic eruption of a permanent tooth is a significant concern and needs an interdisciplinary		

ABSTRACT management. Ectopic eruption of permanent teeth restricts or eliminates the keratinized tissue between the erupting cusp and the deciduous tooth and as a result, labially or buccally erupting teeth show reduced dimensions of the keratinized gingiva. Lack of attached gingiva imposes potential risk for gingival recession in labially or buccally erupted teeth due to the possibility of accumulation of plaque and/or traumatic tooth-brushing during subsequent orthodontic treatment. A good interdisciplinary team-work is needed between the orthodontist and periodontist for guiding the ectopic tooth into its proper position within the dental arch with an adequate band of keratinized gingiva surrounding the tooth. This paper discusses the validity of utilizing pedicle split-thickness flap surgery to increase a band of keratinized tissue in a case of an impacted maxillary central incisor erupting from the alveolar mucosa.

KEYWORDS : Surgical exposure of impacted tooth, split-thickness pedicle flap, Reconstruction of attached gingiva, Orthodontic tooth movement.

Introduction:

Ectopic eruption is a condition in which the permanent teeth, because of deficiency of growth in the jaw or segment of jaw, assume a path of eruption that intercepts a primary tooth, causes its premature loss and produces a consequent malposition of the permanent tooth.[1] Failure to treat ectopic eruption can result in loss of arch length, inadequate space for the succedaneous permanent teeth, and malocclusion. When teeth erupt with normal eruption pattern in the centre of the alveolar ridge, an adequate amount of keratinized tissue will surround the erupted permanent tooth. Labially or buccally erupting teeth has a tendency to show reduced width of keratinized gingiva as abnormal eruption of permanent teeth restricts or eliminates the keratinized tissue between the erupting cusp and the deciduous tooth.[2] Inadequate width of attached gingiva imposes a potential risk for gingival recession in labially or buccally erupted teeth due to the possibility of accumulation of plaque and/or traumatic tooth-brushing during subsequent orthodontic treatment. An interdisciplinary team-work between Orthodontists and Periodontics with good understanding can meet-up this mucogingival problem. Surgical intervention is often indicated for teeth erupting ectopically. To create a satisfactory width of the gingiva for the permanent tooth, the tissue entrapped between the erupting tooth and the deciduous tooth is usually utilized as donor tissue. Different surgical techniques can be utilized to uncover the impacted teeth, depending on the distance from the donor site (entrapped gingiva) to the recipient site (area located facially-apically to the erupting permanent tooth) (Agudio et al. 1985; Pini Prato et al.2000b): The goal of these mucogingival interceptive surgeries is to prevent the ectopic permanent tooth from developing periodontal lesions in its most incipient stage.[3] In this paper, a case report is presented to discuss the validity of utilizing periodontal surgery to increase a band of keratinized tissue in a case of an impacted maxillary central-incisor erupting from the alveolar mucosa.

Case Report: The patient was a 14 year-old male. A delayed eruption of the maxillary right central incisor was noted upon intraoral and radiographic examination (Figure 1).



Figure 1: Preoperative view

On palpation, the tooth showed an erupting position that was facial to the crest of the alveolar process and almost entirely within the alveolar mucosa. A split-thickness pedicle flap is the procedure of choice for soft tissue management.

PROCEDURE: [Figure 2-4]

1. Vertical releasing incisions were carried high enough into the vestibule and rotated along the probable cemento-enamel junction of erupting tooth to permit rotation and apical positioning of the flaps. 2. A split-thickness flap was raised by sharp dissection using a number 15 scalpel blade along the tip of the unerupted central incisor. 3. The flap was raised to permit the exposure of impacted tooth.



Figure 2: Split-thickness pedicle flap raised.

4. The pedicle flap was rotated and apically positioned below the cemento-enamel junction of erupting tooth and stabilized with 4-0 silk sutures.



Figure 3: pedicle flap was rotated and apically positioned below the cemento-enamel junction of erupting tooth and stabilized with 4-0 silk sutures

5. Orthodontic bracket placed on exposed labial surface of the tooth. 6. Periodontaal dressing given. The patient was instructed for 0.2% chlorhexidine rinsing of the mouth for seven days, but no tooth-brushing on the surgical field. One week later, periodontal pack and sutures were removed and the area evaluated. On clinical examination a favourable response with absence of bleeding and inflammation was noticed. After three weeks, the surgical site had revealed an adequate width of keratinized gingiva. The patient was followed up by his orthodontist to bring the maxillary central incisor into proper occlusion. The three month postoperative view is depicted in Figure 4.



Figure 4: Three month post operative view showing 4 mm band of keratinized gingiva.

Discussion: An impacted tooth is a tooth that fails to erupt through the gum tissues and/or bone into the proper position within the dental arch. This can occur due to the presence of bone, dense soft tissue, space-discrepancy, tooth malposition, presence of cysts, or another tooth.Surgical extraction followed by implant placement may be an answer to this problem. A combined ortho-perio interdiscliplinary approach to preserve the natural tooth with a band of keratinized gingiva is advantageous and brings intangible values to patient. Orthodontic tooth movement can be used by direct bonding brackets to erupt teeth in adults. Direct bonding during the surgical exposure of impacted tooth crown reduced morbidity by minimizing wound size and reduced tissue overgrowth and additional surgeries by having a bracket placed at the time of exposure. Proper soft tissue management permitted an increase in keratinized gingiva, and eliminate the need of secondary surgery to treat mucogingival problems and prevent recession.[4] A study by Lang and Loe (1972) demonstrated that although tooth surfaces may be kept free of clinically detectable plaque, areas with less than two millimetres of keratinized gingiva tend to remain inflamed.[5] The study proposed that a movable gingival margin would facilitate the introduction of microorganisms into the gingival crevice, resulting in a thin subgingival bacterial plaque that would be difficult to detect and not easily removed by conventional tooth-brushing. The gingival integrity is augmented by creating a band of keratinized gingiva. During forced tooth eruption by orthodontic treatment, it is particularly important to maintain a healthy band of keratinized gingiva around a labially positioned teeth. Otherwise, the mobile tissue around the tooth may strip away from the crown and root surface, leaving a periodontal defect.[6] A gingivectomy procedure could lead to removal of all the attached gingiva for the tooth, and result in an alveolar mucosal attachment. An adequate band of attached gingiva can be achieved by a) double pedicle flap b) apically poisoned flap c) free gingival graft.[7] Double pedicle flap procedure is indicated when the permanent tooth erupts within the zone of keratinized tissue but close to the

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mucogingival junction. When the permanent tooth is erupting apical to the mucogingival junction, vertical releasing incisions have to be placed to allow for apical positioning of the keratinized tissue. If the tooth is erupting within the alveolar mucosa distant to the mucogingival junction, a free gingival graft procedure may be selected.[7] Ideally, mechanical traction should be activated immediately after surgery, and force should be applied to an existing fixed or removable appliance.[8] Traction was activated 7-14 days after the operation. This delay did not produce any longterm orthodontic or periodontal complications. In the present case the impacted tooth was erupting within the alveolar mucosa distant to mucogingival junction and a split-thickness rotated pedicle flap procedure instead of free gingival graft, was employed for reconstruction of band of keratinized gingiva around the labially erupting maxilla central incisor. Hence greater vascularity of the flap accomplished which aided in good and predictable clinical result.

Conclusion: This case report shows an unique variety of a surgical procedure for uncovering impacted maxillary central incisor. The tooth was erupting within the alveolar mucosa distant to the mucogingival junction, and still a pedicle flap procedure rather than a free gingival graft, was selected and performed judiciously, to obtain excellent clinical results and helps in preventing future mucogingival problems. Future studies are required to evaluate the long-term efficiency of such procedures.

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