

CASE REPORT

Frenectomy to free buried implant

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ABSTRACT:

Mini-implants used as temporary anchorage devices, are an excellent adjunct to providing stable, bone based anchorage in the field of Orthodontics. However, prior to the placement of the implant, care must be taken to relieve the perioral musculature at that region to avoid interference and patient discomfort. This case report highlights the importance of consideration of periodontal tissue harmony prior to commencement of any dental procedure and elaborates the diagnosis and management of an orthodontic patient, where the temporary anchorage device has undergone inadvertent, complete coverage by maxillary frenal muscle attachment.

Key words: *Temporary anchorage device, Maxillary labial frenum, Frenectomy.*

Introduction:

Recently, the multidisciplinary treatment approach has become increasingly obligatory and it is helping to deliver comprehensive, well planned and contemporary treatment modalities, tailor-made to suit specific needs of each patient. In that context, there has been a dramatic increase in the use of the new concept of integration of the dental implantable devices into contemporary orthodontic practice for the purpose of temporary anchorage. Orthodontic anchorage is defined as resistance to undesired tooth movement.¹ It is a prerequisite for the orthodontic treatment of dental and skeletal malocclusions.^{2,3} Micro-implants are temporary anchorage devices which have become very popular in the orthodontic community in recent years for providing anchorage.⁴⁻⁸

Mini screw implants require only a minimal invasive surgical procedure for placement. However, a major problem experienced while using the

anterior alveolus for placement of the miniimplant in the maxillary frenulum region, is the labial slope of the anterior alveolus. The available space diminishes due to this, requiring an apical insertion of the temporary anchorage device, leading to increased potential risk of the implant being readily covered by the mucosa. There is every possibility that the implant will get buried within the mucosal tissues, if a frenectomy and the complete relieving of the frenal muscle attachment, prior to implant insertion is not accomplished.

This case report highlights the importance of consideration of periodontal tissue harmony prior to commencement of any dental procedure and elaborates the diagnosis and management of an orthodontic patient, where the temporary anchorage device has undergone inadvertent, complete coverage by maxillary frenal muscle attachment.

Case Report:

A 20 year old male patient reported with a chief complaint of discomfort in the gums of the upper front teeth region experienced in movement of the

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lips during mastication and speech. The medical and family history was non-contributory. The patient's past dental history revealed that the patient has been undergoing orthodontic treatment and had undergone surgical placement of miniimplant for orthodontic anchorage on the labial mucosa in the midline between the maxillary central incisors. The patient had failed to report for further appointments for the past three months and this had resulted in the complete coverage of the miniimplant by the maxillary labial frenal attachment.

On clinical examination, the region of embedded miniimplant was seen as a projection beneath the maxillary frenum causing severe blanching of the overlying mucosal tissue (Figure 1). Intraoral periapical radiograph also indicated the presence of miniimplant in that region (Figure 2).

Treatment plan was established to perform frenectomy and surgical exposure of the buried miniimplant for facilitating further orthodontic treatment. Informed consent was obtained from the patient.

Surgical procedure:

The surgical site was anesthetized by local administration of 2% lignocaine hydrochloride (LOX, Neon Laboratories Ltd, Mumbai, India) with 1:200000 adrenaline. The frenum was engaged with a hemostat at the depth of the vestibule and incisions were placed on the upper and undersurfaces of the hemostat. The interfering tissue was excised and removed completely, exposing the embedded miniimplant (Figure 3, 4). The surgical site was irrigated thoroughly with normal saline solution and consequently sutured using a non-absorbable suture material (3-0 Silk, CENTENAIL Surgical Suture Ltd, Thane, India)(Figure 5).

Post-operative instructions included an antibiotic and analgesic regimen of Amoxicillin 500mg and diclofenac respectively, for 5 days. The patient was also advised to use a 0.12% Chlorhexidine gluconate mouthrinse (Peridex, Zila Pharmaceuticals, Phoenix, AZ) for the next three

weeks to facilitate adequate plaque control. The patient was referred back to dept of Orthodontics and Dentofacial Orthopedics for continuation of orthodontic treatment.

Discussion:

The bone quality in the anterior alveolus area is favorable, providing good primary stability while also being an ideal position for delivering intrusive forces to the anterior teeth with a labioversion vector. However, there is comparatively limited available space because of narrow interdental and labio-lingual dimensions. The steep slope of the labial side of the anterior alveolar bone may lead to impingement of the implant into the soft tissues, leading to patient discomfort. The discomfort is further enhanced due to high stress caused by the perioral muscle activity. This case report showcased the importance of performing a simple yet significant surgical procedure to completely relieve the frenal muscle attachments to the level of periosteum to facilitate further orthodontic management for the patient.

Conclusion:

Mini-implants used as temporary anchorage devices, are an excellent adjunct to providing stable, bone based anchorage for the application of orthodontic forces, but research in this field is still in its infancy. Hence, any such treatment procedures performed should first give due consideration to the harmony and integrity of the periodontal attachment apparatus.

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FIGURE 1: Pre-operative view of the embedded implant completely covered by the maxillary labial frenum



FIGURE 2: Intraoral periapical radiograph of the maxillary incisor region showing the presence of miniimplant in position



FIGURE 3: Miniimplant exposed following frenectomy



FIGURE 4: Excised frenal tissue

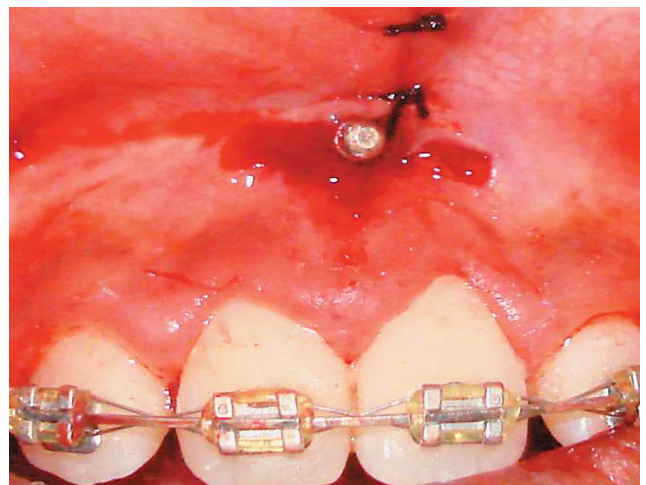


FIGURE 5: Surgical site sutured using non-absorbable suture material