

Impacted Canine Peel Using Laser For Orthodontics: A Collaborative Triumph

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Abstract

Impacted canines pose a functional as well as an esthetic concern in the patients as they provide a major support for the cheek. Surgical exposure of an impacted tooth is necessary to allow the orthodontist access to the unerupted tooth, in order to bring it into the dental arch and into alignment. This case reports the surgical removal of the soft tissue covering the maxillary impacted canine with diode laser.

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Introduction

Permanent canines are the foundation of a balanced smile and functional occlusion. Impacted canines pose a functional as well as an esthetic concern and their absence accentuates the appearance of a flattened upper lip. Impactions are mostly asymptomatic but some impacted tooth presents pathological complications in the form of resorption of root of adjacent teeth, cyst formation, loss of arch length, referred pain, etc. Surgical exposure of an impacted tooth is necessary to allow the orthodontist access to the unerupted tooth, in order to bring it into the dental arch and into alignment and a good understanding between the orthodontist and periodontist along with proper management of periodontal tissues, can prevent these problems.

LASER is an acronym for 'Light Amplification by the Stimulated Emission of Radiation' It was first applied in dentistry by Miaman, in 1960, and since then various hard and soft tissue lasers have been successfully used in dentistry. Its use has proved to be an effective tool to increase efficiency, specificity, ease, cost and comfort of the dental treatment. The active medium of the diode laser is a solid state semiconductor made of aluminum, gallium, arsenide, and occasionally indium, which produces laser wavelengths, ranging from approximately 810 nm to 980 nm.

Soft tissue Lasers can be used for aesthetic gingival re-contouring, soft tissue crown lengthening, exposure of impacted teeth, removal of inflamed and hypertrophic tissue, frenectomies, and photos stimulation of the aphthous and herpetic lesions.

This paper reports a case of surgical exposure of the soft tissue using diode laser for exposure and orthodontic positioning of an impacted maxillary canine.

Case Report

A 19-year-old female was referred to the out patient department of periodontology, Institute of dental studies and technologies, Modinagar from Department of Orthodontics for comprehensive management of impacted maxillary permanent canine on left side of the arch. Medical history was non-contributory. On examination, a delayed eruption of the maxillary left canine was noted which revealed maxillary canine impaction with position favorable for orthodontic extrusion and alignment within the dental arch. (Fig 1,2). The patient was undergoing orthodontic treatment and was referred to the periodontist for the surgical exposure of the impacted canine to extrude it directly down from its current position.

The procedure of choice for soft tissue

management was surgical exposure of the tooth with diode laser. After obtaining an informed consent, local anesthetic infiltration was administered. Diode laser at wavelength 980nm was used at 2.5 W, and the soft tissue over the impacted tooth was removed (Fig. 3,4) using LASER tip in contact mode. Post-operative medication included non-steroidal anti-inflammatory drug twice a day for 3 days. The patient was given oral hygiene instructions that included chlorhexidine rinses, gentle tooth-brushing. One week later, patient was recalled and the area was re-evaluated. The impacted tooth was cleaned and scaled to permit bonding and an orthodontic bracket/ button was bonded to position. After three weeks, the surgical site had revealed adequate width of keratinized gingiva (Fig. 7) and further orthodontic treatment was carried out.



Fig 1: Pre-operative photograph of submerged maxillary canine covered with soft tissue.

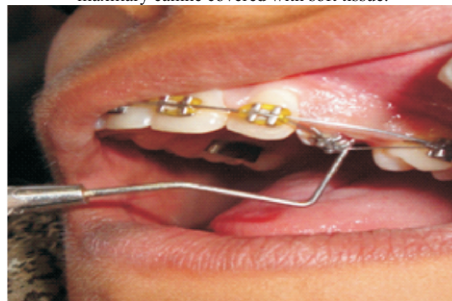


Fig 2: Probing around impacted canine



Fig 3: Soft tissue laser tip at site laser laser



Fig 4: Canine exposure using soft tissue

Discussion

The most desirable approach for managing impacted maxillary canines is early diagnosis and interception of potential impaction and the most common method used to bring impacted canines into occlusion is surgically exposing the teeth and allowing them to erupt naturally during early or late mixed dentition and placing a bonded attachment and using orthodontic forces to move the tooth. Some other clinicians first create adequate space in the dental arch to accommodate the impacted canine and then surgically expose the tooth to give them access so that they can apply mechanical force to erupt the tooth. Kokich reported three methods for uncovering a labially impacted maxillary canine, gingivectomy, creating an apically positioned flap, and using closed eruption techniques. Use of laser technique has added advantages: Its less painful, and some times anaesthetic injection is not required. Due to the biostimulating effect of laser, the healing process is fast and without any discomfort. The greatest advantage is the complete absence of bleeding, which gives the possibility to immediately bond the bracket in dry enamel, so preventing the possibility of detach and reducing the risk of a further re-intervention.

Conclusion

The use of diode laser in the surgical intervention of submerged tooth exposure during orthodontic treatment is full of advantages like patient compliance, reduced pain and discomfort, faster healing process with a good quality of the periodontal tissues, absence of bleeding, and no use of sutures, and disinfection of the operative field without the necessity to prescribe antibiotics. The haemostasis increases the success of the bracket bonding, due to the possibility to maintain the enamel dry, thus reducing the risk of its detachment.