

Surgical exposure and fix orthodontic combination for maxilla canine impacted treatment

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Abstract

Objective: Teeth that are buried in the jawbone or obstructed by gum tissue and fail to emerge from the typical occlusive surface, causing malocclusion, are known as impacted teeth. Canine teeth are kept for masticatory function strength, aesthetics, and malocclusion repair. Impacted canines can be retrieved using a combination of surgery and fixed orthodontic equipment to restore a normal arch and position

Methods: An impacted maxillary left canine caused edema in the palatal area in a 22-year-old female patient at RSKGM-P UNAIR who was referred by orthodontics. The impacted tooth's position was determined using radiography, occlusal projection, and CBCT. The procedures included flap surgery with a full thickness incision, flap opening, orthodontic button insertion on the crown of the buried canine, ligature wire implantation, and flap repositioning and suturing.

Results: Combined surgical technique and orthodontic appliance placement on impacted canines can place canines in normal arches and in the space available and in the occlusive position of the teeth, Surgical exposure combined with fixed orthodontic treatment of the affected maxillary surgery on the left maxillary canine was performed.

Conclusion: In terms of the ultimate position of the canines in the normal arch and aesthetic appearance, a combination of surgical exposure and fixed orthodontic treatment of the impacted maxillary left canine produced good results.

Keywords: Impacted Tooth; Surgical Exposure; Fixed Orthodontics; Perio Surgery

1. Introduction

In the phases of primary and permanent teeth, the eruption of teeth in the oral cavity will occur physiologically. Eruptive diseases, such as impacted teeth, can occur during tooth eruption. A tooth is impacted by neighboring teeth, thick soft tissue and dense bone layers. Impacted teeth can also be caused in eruption space is smaller than the complete length of the dental arch and hence the tooth is not in the jaw arch [1,2]. Impacted canines are the second teeth after third molars to impact, with a frequency of 0-28 percent. 85 percent of impacted canines are in the palatal part of the dental arch, whereas 15% are on the labial or buccal side [3,4]. According to Bishara et al., primary and secondary causes might cause the etiology of impacted canines. Trauma to the primary tooth germ, the rate of primary tooth root resorption, seed rotation, disturbance of the tooth eruption sequence, lack of room in the arch of the jaw, early root closure, and cleft palate tooth eruption are all primary contributors. Secondary reasons include aberrant muscular pressure, endocrine problems, and vitamin D insufficiency, to name a few [4,5]. Preservation of the case patients with impacted canines, on the whole, have no symptoms and are unaware that they have an impaction until they visit the dentist. Impacted canines can press against nearby teeth, creating irritation and inflammation over time, as well as resorption

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of neighboring teeth, patients may experience pain, neuralgia, and headaches. Another complication that may arise if the canine is impacted is the absence of cysts surrounding the teeth [5]. The success of retraction of an ectopic canine so that it can occupy the correct dental arch depends on several factors, namely the age of the patient, the presence of diastema, the presence of crowding of teeth, the inversion of the crown [6].

2. Case

A 22-year-old female patient was referred from the orthodontics department to Spesial Dental and Oral Education Hospital (RSKGM-P) Faculty of Dentistry Airlangga University Surabaya for treatment of a buried left maxillary canine, with the complaint that the upper left permanent canine had not been identified. Extra oral examination is positive, and the patient's overall health is good. All permanent teeth had grown except the left maxillary canine (figure 1 and 2), the bone in the palatal region of the tooth was projecting and perceptible hard on palpation, and the molar relationship was Class 1 Angle with a distance of 3mm on intra-oral examination. The panoramic radiograph revealed the presence of a tooth positioned apically to tooth 24 and pushing it mesially (figure 3). The clinical examination revealed that tooth 23 was impacted, and the treatment strategy included Dental Health Education (DHE), scaling and root planing, Intra oral and panoramic photography, and CBCT during the initial visit to the periodontal clinic, as well as a combination of surgical exposure and orthodontic treatment to traction tooth 23 towards the arch.

3. Case Management



Figure 1 Intra oral photo side of edentulous and occlusal view bulging of the maxilla

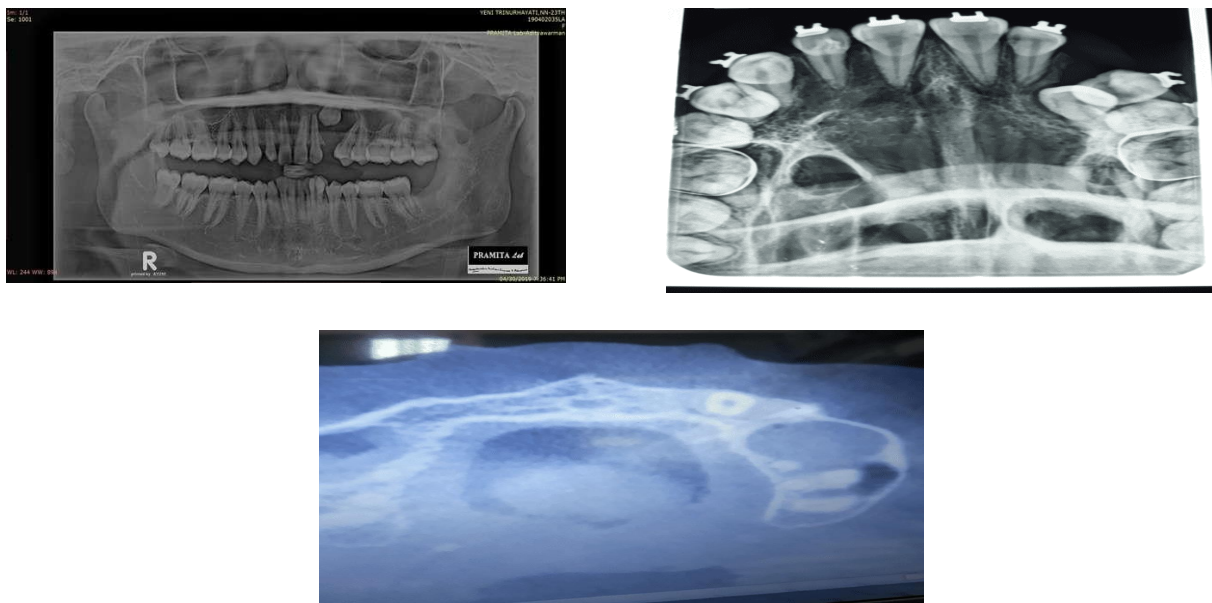


Figure 2 Panoramic photo and Proyeksi oklusal and CBCT

On the second appointment, the steps of the flap surgical process were completed, including tool preparation, vital sign examination with satisfactory KU, and blood pressure of 120/80 mmHg. Furthermore, a smear of povidine iodine was

used to keep the operative region aseptic (figure 3a). Infiltration of a local anesthetic in the labial and palatine regions 23 (figure 3). A low-speed bone bur was used to remove bone from the buccal ridge to the cingulum, and once tooth 23 was revealed, isolated around the tooth was placed on the labial part of tooth 23. (figure 4). The flap was then sewn in its original place (figure 5), and the incision was closed with an assessment tampon and bleeding for about 10 minutes. Following 30 minutes, the tampon is removed, and the patient is told not to rinse too much, not to relish the wound, and not to play with the tongue after operation. The patient was given analgesics and anti-inflammatory medicines after surgery. The seventh day was used to check for wound healing and then sutures were applied (figure 6). The canines started to show downwards three months after surgery. The canines in the control group appeared to be in the jaw arch and had good aesthetics two (two) years later (figure 7).

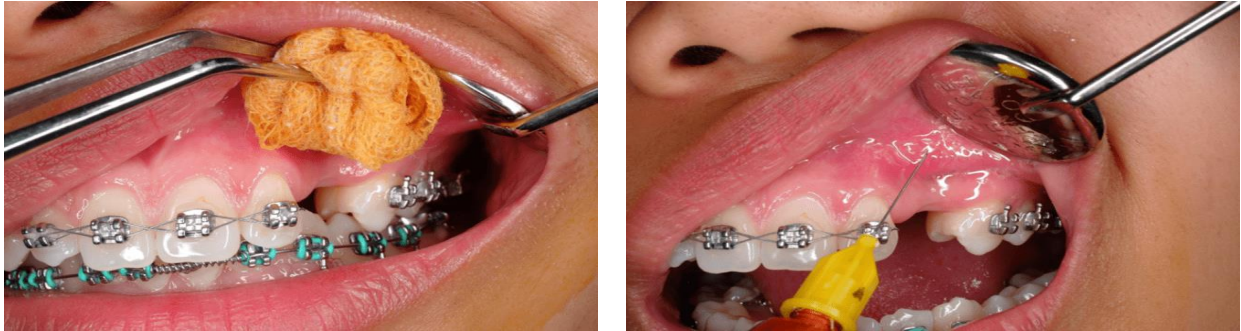


Figure 3 Work area asepsis, topical anesthesia and local anesthesia are performed in labial and palatal



Figure 4 (a) Incision of the flap Full Thickness, (b) Preparation of button installation of the labial



Figure 5 (a) Labial button installation and power chain administration, (b) flap is returned to its original position an interrupted suturing is performed



Figure 6 (a) control 1 weeks after the procedure , (b) control 3 mounth, (c) control 2 years



Figure 7 (a) before treatment (b) treatment results

4. Discussion

Canines are crucial for facial appearance, dental esthetics, jaw development, and functional occlusion. Extraction or removal of impacted teeth, repositioning, exposure and orthodontics, and replantation are among strategies for treating impacted teeth. Exposure surgery and orthodontics are the most common treatments for impacted canines. The prognosis for successfully placing impacted canines so that the dental arch can be found is quite variable. The patient's age, the presence of a diastema or space, the presence of crowding teeth, vertical dimensions, inverted or not located crowns, the inclination of the teeth to the medial line of the face (not more than 45 degrees), experiencing ankylosis, or having crooked roots are all factors to consider.

Because the patient was young, there was room for eruption of the impacted canine after traction, and the inclination of the canine was not more than 45o or the crown and root were not twisted, the treatment prognosis was favorable. Because the impacted canine has pushed the root of the lateral incisor to the mesial, putting the resorption of the root of the lateral incisor in jeopardy, treatment must be started right away. Spontaneous eruption of an impaction usually happens after removing causative causes, exposing the impacted tooth, and preserving the eruption space by surgery and orthodontic treatment. As a result, it is critical to have fixed orthodontic equipment installed.

In this situation, the surgical exposure strategy for the eruption of the canines was closed closure, because there was no more gingival tissue damage, improved esthetics, less postoperative pain, and a shorter recovery time. Fixed brackets are preferable because they allow for better control of the impacted tooth access aperture, control of tensile strength, and comfort. Because the treatment will take longer and it is required to pay attention to the patient's age, the success or prognosis of the combination of orthodontic therapy with surgical exposure will depend, among other things, on the cooperation of the patient and the dentist. Because treatment will take longer, it is also necessary to consider the patient's age, the presence of dental space, the presence of crowding, inverted or non-positioned crowns, inclination of the tooth location to the medial line of the face, no ankylosis, and the tip of the impacted tooth root was formed or bent. Early diagnosis of erupted maxillary permanent canines by the dentist can reduce treatment time, problems, and expenses.

5. Conclusion

The combination of surgical and orthodontic treatment for impacted canines has good outcomes in preventing mal occlusion. The patient's age, dental space, crown position, inclination, and shape of the impacted tooth's apex should all be considered while deciding on surgical treatment exposure. . The aim of the current case reports is to evaluate the implications of surgical exposure in routine dental practice

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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