



Therapeutic Approach to A Case of Retained Tooth Through the Use of a Mini Implant: Patient Management Analysis

Christian David Zapata Hidalgo¹, Vanessa Abigail Sangoluisa Tipantiza², César Paul Enríquez Paucar³

^{1,2,3}Universidad Regional Autónoma de Los Andes Ibarra, Ecuador

Email: ui.christianzapata@uniandes.edu.ec¹, oi.vanessaast13@uniandes.edu.ec², oi.cesarpep45@uniandes.edu.ec³

ORCID ID: 0000-0002-8463-3467¹, 0009-0000-9161-9981², 0009-0007-1764-6210³

*Corresponding author's E-mail: ui.christianzapata@uniandes.edu.ec

Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 11 Sept 2023	Aim: The management of impacted teeth is a major challenge for orthodontists, as it affects the prognosis and success of treatment. A multidisciplinary approach with surgical and orthodontic specialists is required to avoid unnecessary interventions. Material and method: This article presents a case of an 18-year-old male patient with an absent upper right canine and details the procedures necessary to approach this type of patient, combining surgery and orthodontics. The aim of the study is to provide a comprehensive guide for the proper management of impacted teeth, addressing clinical, surgical and orthodontic aspects, as well as possible complications and prevention strategies. Statistics and Result: This work is a valuable contribution to the field of dentistry, providing updated and useful information to improve treatment planning and execution in patients with retained teeth.
CC License CC-BY-NC-SA 4.0	Keywords: Procedure, Impacted Tooth, Patient, Treatment, Surgery, Orthodontics

1. Introduction

According to the World Health Organization (WHO), retained teeth are defined as those that at the time of eruption remain trapped within the bone thickness of the jaws, keeping their physiological pericoronary sac intact, currently retained teeth or impacts can be called a syndrome, since these are wrapped by a set of triggering alterations, In addition to being absent in the oral cavity, this may be presumably due to various factors (Rodriguez, 2019; Rosales et al., 2020).

The etiology of a retained or impacted canine is unknown, but there are several proposals from authors that show us these possible causes, which can be local, general or genetic, within the local causes systemic diseases are present, as well as febrile symptoms, irradiation, Gardner's syndrome (Egido et al., 2013; Norona et al., 2020). In the possible local causes, we can find early losses of the canine, ankylosis, cyst, dental crowding, fibroids, root dilacerations, traumas, etc.

It was found that the highest percentage of complications occur in patients aged between young and adult, despite not being the most surgically operated group. This may be associated with age, over the years the bone becomes more compact and therefore the excision of retained teeth is at greater risk. These results were published by several authors, who presented an increase in complications were older patients. It was observed that when the tooth was fully included in its bone bed there was a type 3 retention (Quevedo et al., 2017; Norona et al., 2020). This is because greater bone retention requires greater complexity in the surgical technique.

A canine retained by not being subjected to a treatment could present aesthetic and functional conditions (phonetic and masticatory), in addition to these complications by not treating a retained canine could trigger displacement or even the loss of incisors, shortening of the dental arch, formation of cysts, ankylosis of the canine, recurrent pains, malocclusions, the study of complications caused by a retained canine is extensive, However, there are patients with a retained canine who have not shown complications throughout their lives, but the risk of presenting them is there, and hence the importance of their treatment (Egido et al., 2013; Diaz et al., 2020).

In this case the tooth is a canine, therefore, the treatment required by this was fully surgical, surgical exeresis is the usual treatment for the retained tooth, but also within the practice of surgery procedures are developed for joint application with orthodontic treatments whenever the occasion allows it, preferably in the anterior region of the oral cavity (Penton et al., 2009). Another treatment used is surgical traction that is preferably performed on canines and incisors, through the use of an orthodontic device such as the cantilever.

2. Materials And Methods

This research is characterized by being a thorough and exhaustive literature review of a descriptive nature. Emphasis has been given to the qualitative approach and an analytical-synthetic method has been used to carry out the analysis of the information collected. To ensure the quality and rigor of the data obtained, various reliable and recognized sources in the scientific field have been consulted, such as Elsevier, PubMed and Science, among others. These sources have provided a wide body of scientific knowledge, allowing comparisons to be carried out and relevant data discovered that have enriched the results of this research.

The selection of articles has been carried out following criteria of relevance and relevance, ensuring that the included studies provide significant and updated information about the object of study. The bibliographic review has been carried out systematically, analyzing in detail each selected article and extracting the most relevant findings for the research in question. Through the use of this methodology, we have managed to obtain a comprehensive and substantiated vision on the subject addressed, supporting our findings with solid scientific evidence. By collecting and analyzing information from a variety of trusted sources, we have established a solid foundation to base our conclusions and recommendations.

This research has been carried out following a rigorous and systematic approach, employing an analytical-synthetic method and consulting a variety of recognized scientific sources. The results obtained from this bibliographic review have contributed to the enrichment of our knowledge in the field of study, thus promoting its progress and development.

3. Results and Discussion

Presentation of the clinical case

This research presents a clinical case in which the management of a patient with retained tooth treated surgically, in a private clinic, in the period of time May – September 2022, which is selected through a non-probabilistic sampling of type subject, is disclosed.

In this research it is a clinical case of an 18-year-old patient, male, student, mixed race, where his mother refers as a reason for consultation that "he has a tooth above that bothers him", in the diagnostic analysis a deciduous canine with late eruption by pre-eruptive rhizolysis is visualized. In the clinical and radiographic analysis, the proximity of the crown of the impacted tooth to the root of the definitive lateral incisor is visualized, so the treatment plan is based on the stimulation of the eruption process of the impacted canine, away from the nearby anatomical structures that may be affected.

Orthodontic treatment with conventional appliances is used, after the alignment and leveling phase, the activation process of the retained canine prior to surgical intervention begins by flap lift, operculotomy, corticotomy at the coronary level and assisted lujación, cementing of orthodontic attachment for traction and a discontinuous suture with synthetic non-absorbable thread 4/0.

As postsurgical recommendations are indicated: Ibuprofen 600 mg orally every 12 hours, for 5 days; Amoxicillin plus clavulanic acid by V/O of 500 mg/125mg every 8 hours for 7 days, soft diet, chlorhexidine-based mouthwashes for 15 days and postoperative control in 8 days.

By means of a temporary anchoring device placed at the level of the first molars complemented with a Cantilever with backward and occlusal direction of force, the dental eruption is stimulated in order to separate the crown of the impacted tooth from the root of the erupted lateral tooth. The activations of the Cantilever are carried out every 30 days having the definitive result at 3 months, causing the eruption in the parasutural area at the level of premolars.

Diagnostic stage



Image 1. Panoramic X-ray

Source: Od. David Zapata Hidalgo Esp.



Photography 1. Frontal socket of the patient's oral cavity.

Source: Od. David Zapata Hidalgo Esp.



Photo 2. Lateral intake of the affected area

Source: Od. David Zapata Hidalgo Esp.



Photo 3. Occlusal socket of the upper arch of the affected area

Source: Od. David Zapata Hidalgo Esp.

ORTHODONTIC STAGE



Photo 4. Treatment process with the retained tooth

Source: Od. David Zapata Hidalgo Esp.



Photo 5. Process of opening space in the upper arcade

Source: Od. David Zapata Hidalgo Esp.

DENTAL EXPOSURE



Photo 6. It results from surgical intervention on the retained tooth

Source: Od. David Zapata Hidalgo Esp.

The finding of retained teeth is a common situation in the field of stomatology. Whether through clinical inspection or during an X-ray, cases of teeth that have failed to erupt properly are frequently identified. In the field of orthodontics, the use of X-rays is considered essential to obtain an accurate diagnosis and establish definitive conclusions.

Retained teeth can result from a variety of causes, regardless of the age, sex, and race of the patient. In many cases, it is the primary caregiver, either the child's mother, father, or guardian, who worries about the absence of a tooth that should have erupted in the oral cavity at a certain age (Diaz et al., 2020; Cardenas et al., 2020; Delgado et al., 2020) tag. This concern motivates to seek professional attention in search of a solution. The detection and proper handling of retained teeth are essential to ensure the development and oral health of the patient. Therefore, the use of radiographs and collaboration between different dental specialties, such as orthodontics and stomatology, are essential for a comprehensive and effective approach to this problem.

The identification of retained teeth is a common finding in the field of stomatology, which is performed both by clinical inspection and through x-rays. This problem can occur in patients of any age, gender, or ethnicity, and is often of concern to the parents or guardians of the affected child (Delgado et al., 2020; Ilaquiche et al., 2019) tag. A multidisciplinary approach and the use of appropriate diagnostic techniques are essential to provide optimal management of retained teeth and ensure long-term oral health.

4. Conclusion

The review of the article leads us to the conclusion that timely intervention is crucial to avoid significant complications in patients. The retention of upper and lower canines poses one of the most difficult challenges for specialists to address, as it involves making decisions about the extraction, retraction or non-extraction of teeth. In addition, in case of opting for extraction, a careful selection of the most appropriate tooth is required. On the other hand, the treatment can become complex if it is decided not to remove any teeth. In these cases, the importance of having an accurate diagnosis and a well-established treatment plan is highlighted. These elements are the fundamental pillars to make informed decisions in the management of retained canines. A good diagnosis provides valuable information about the position and viability of the retained teeth, allowing the specialist to evaluate the most appropriate treatment options for each case.

Treatment planning is essential to efficiently and effectively address canine retention. This process involves considering several factors, such as the patient's age, the developmental status of bone and dental structures, as well as the patient's needs and preferences. The proper choice between the extraction and retraction of canines, as well as the implementation of appropriate orthodontic techniques, are crucial decisions that must be made based on accurate diagnosis and meticulous planning. Canine retention represents a complex challenge for specialists. Making appropriate decisions and implementing an informed treatment plan are critical to ensuring successful outcomes and preventing complications. An accurate diagnosis and a comprehensive approach based on the

individual evaluation of each case will allow to optimally address the retention of canines, providing patients with the best possible treatment.

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