CANINE TOOTH TRACTION INCLUDED: LITERATURE REVIEW

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ABSTRACT

The transition from the mixed to the permanent denture can lead to changes in the sequence or even the path of eruption, leading to impacting teeth. Therefore, ectopic eruption and tooth impingement are very recurrent problems in the population. The permanent maxillary canines, after third molars, present a higher occurrence of impaction, especially in the palatal region, even in the presence of sufficient space for their alignment in the dental arch. Your diagnosis should be made through specific clinical and radiographic exams. As treatment, it is necessary to obtain space through mechanics, surgical exposure and traction with the aid of anchorage. As a resource for the procedure itself, we have: orthodontic attachment of the tooth by vestibular and/or palatine, as a support element for the fixation of a metallic or elastic device, with the purpose of stimulating the eruption of the retention; application of metallic wire to the lacing around the cemented amalgam junction; drilling of the crown and installation of metallic traction wires. The objective of the present work was to carry out a review of the literature in the existent databases, about the most current on canine traction included, that is, diagnosis and treatment. It was concluded that an association between a careful anamnesis, a close clinical examination and the correct complementary tests are fundamental in the correct conduction of the pathology.

KEYWORDS: Impact Tooth; Unruptured tooth; Canine tooth.

1. INTRODUCTION

We can define as impacted teeth those that are prevented from erupting in their normal position, being retained in alveolar bone due to lack of space or their poor positioning, or due to contact with other teeth that prevent the normal eruption of a certain tooth.¹,4,11,13,15,18

Among the regions affected by this problem, the highest frequency in the region of the upper canines, third molars and anterosuperior region, can be found in other regions of the mouth. Both the upper and lower canines may be included; however, it is much rarer to include the latter. In most cases, the diagnosis of an included canine is an occasional, clinical or radiographic finding. However, 1 in 5 patients has complications associated with inclusion, necessitating a detailed study and complementary treatment.¹,2,5,6,11,16

Included canines are those that, due to a failure to erupt, remain within the jaw beyond the age of normal eruption, even having the root completely formed. The inclusion, among other factors, usually occurs due to the size discrepancy between the teeth and maxillary arches, this reason being considered the main cause of dental retention.³,⁷ The maxillary canines are the teeth with the highest frequency of impaction after the third molars and are the ones that most lead the individual to seek orthodontic treatment.¹,2,7,11

The permanent maxillary canines play an important role in the establishment and maintenance of the shape and function of the dentition. Its presence in the dental arch is fundamental for the establishment of a balanced dynamic occlusion, in addition to facial aesthetics and harmony. When undiagnosed and treated, impacted upper canines may cause mechanical, infectious and neoplastic disorders.³,8,12,17

Local and general causes for upper canine impaction include endocrine deficiencies, febrile diseases and irradiation. The most common causes are local and are the results of one or a combination of the following factors: dental size - arch length discrepancy, prolonged retention or early loss of the deciduous canine, abnormal position of the dental germ, presence of an alveolar cleft, ankylosis, cystic or neoplastic formation, root laceration.¹⁸

The general causes result in being able to generalize delays in the eruption of the teeth and with that affect the eruption of the canines since the local causes influence more directly the canines. Endocrine deficiencies are among the general causes, such as febrile diseases or ionizing radiation.¹,16

The canine impaction is twice as large in females and can be uni or bilateral. Approximately 80 to 90% of impacted canines are on the palate and 20% per vestibular. Dental impaction and ectopic eruption are clinical situations that, although not very prevalent, present an unfavorable aspect from an aesthetic and functional point of view.²,17

The aim of the present article is to present a review of the literature in the existing databases on what is most current regarding canine impaction and its traction techniques.

2. METHODS

A bibliographic search was carried out in the search databases carried out in the Virtual Health Library (VHL), Latin American Literature in Health Sciences (Lilacs) and Scientific Eletronic Libray Online (Scielo),
referring to works from 2002 to 2017, using as descriptors: Impacted Tooth, Unruptured Tooth, Canine Tooth, Impact Tooth; Unruptured tooth; Canine tooth. The selected articles were organized in an exploratory way whenever they were related to the proposed theme. Of the 18 scientific articles, 18 were effectively used.

3. DISCUSSION

The prevalence of impacted upper canines in the population is 1 to 2%, but it can also reach 3%, and are more frequent for palatine than for vestibular, varying from 2:1 to 9:12,4,3,17,18.

In children 8 to 10 years old, canine eruption can usually be palpitated. We can have as clinical sign of abnormality the positioning of the incisor crowns during the "ugly duckling" phase. Exaggerated mesial or distal angulation suggests dental impaction2,13.

Radiographic examinations are essential for the final diagnosis and should be performed when there is suspicion of canine impaction1,5,7,9,11.

The best age to make a clinical diagnosis of impacting the upper canines using digital palpation and verifying the presence of bulging by vestibular would be from 8 years of age, because before that period these clinical signs would not be evident. In adults, the prognosis of the treatment of impacted teeth is less favorable due to some factors, such as impacted tooth ankylosis, root resorption of adjacent teeth and limitations of orthodontic mechanics to be employed. However, these factors do not impair the traction of impacted teeth in these individuals2,8,14-17.

The diagnosis of canine inclusion is invariably performed through clinical, radiographic, and currently computed tomography4,5,7,17,18.

Once the canine impaction has been diagnosed, several treatment possibilities can be considered: autotransplantation, extraction of the impacted canine and movement of the premolar to its space; extraction of the canine and osteotomy to move the entire posterior segment; restoration of occlusion by means of a prosthesis; extraction is rarely considered, except in rare cases, such as ankylosed canine, with external or internal resorption, severe impaction or dilaceration, surgical exposure and orthodontic traction4,13.

The evaluation of the position of the retained canines is the key to determine the feasibility of an adequate surgical procedure, as well as the best direction to apply orthodontic forces. Computed tomography made it possible to reconstruct three-dimensional hard tissues, without any overlap, to identify the exact position and shape of the retained canines. In addition, it is very useful in assessing possible damage to adjacent teeth and quantification of surrounding bone4,2,17.

The treatment options used for the retained teeth are basically the non-surgical conservatives, which aim to maintain the dental element without any surgical approach; the non-conservative ones, which consist in its elimination by means of exodontic surgical techniques; and conservative surgical or surgical conservatives, which aim at the maintenance of the retained tooth, but which need to expose it to surgical trauma5,7,9,11.

The choice of the ideal treatment for this alteration may be from a conservative treatment, with the extraction of the deciduous teeth to the site of the impacted tooth, as well as a more complex treatment, by the use of ortho-surgical treatment as a result of a later period of performance3,16,17. The selection between a more invasive or more conservative treatment should be based on a series of factors, such as: chronological age, degree of cooperation and receptivity to treatment, maxillomandibular skeletal relationship, length of dental arches, impacted tooth position, suspected ankylosis, position and stage of root formation, relationship with neighboring teeth and presence or absence of space4,9.

The surgical-orthodontic traction should be advised to the patient when his age no longer allows the interception, if he is enabled for the use of the fixed, motivated, cooperative and in a good state of general and dental health16,18.

The treatment of impacted canines due to lack of space ends up being more complex because besides the canine traction it is also necessary to obtain space for the inclusion of this tooth in the arch. The knowledge of the efficiency of the treatment of this malocclusion becomes fundamental for the establishment of the orthodontic treatment protocol, so that we can choose not only the treatment with a better result, but the one of shorter duration and patient acceptance8,9,16,18.

Orthodontic traction aims to redirect the eruptive and auxiliary trajectory, or even replace, the eruptive force of the unbroken tooth. When canine traction is indicated, surgical access is performed, and the tooth prepared for this procedure by means of a loop, orthodontic accessory glue or perforation of the enamel on the crown16-18.

Fixed orthodontic appliances offer greater control and effectiveness of the applied force, and it is indicated that a rectangular orthodontic wire with a minimum thickness of .018 "X .022" is used, to have minimal deflection and less undesirable effects. Since the use of fixed orthodontic appliances allows the professional to have the desired biomechanical control3,16-17.

The traction is best indicated in cases of incomplete rhizogenesis, canines positioned favorably in relation to the adjacent teeth and positioning closer to the alveolar process. It can be done in several ways: by means of bonding traction accessories, using the wire of steel for lacing the tooth, surgical ring cementation, threaded pin and cusp perforation3,8,10,11,16-17.

Exodontia of maxillary canines included can be considered in the following situations: teeth with ankylosis that cannot be transplanted; internal or external root resorption; root dilaceration; severe impaction (canine between the central incisor and lateral incisor roots); when the first premolar occupies the space of the canine with an acceptable functional occlusion; when there are pathological changes, such as cystic formations or infections7,12.

The prognosis of traction will be linked to some factors such as the position of the canine impacted in relation to the neighboring teeth, the angulation of its
long axis, the distance that the tooth will have to be moved, the presence of root dilaceration or ankylosis. And the treatment of canines included is multidisciplinary, involving both generalist dentists and specialists in the areas of surgery, orthodontics, periodontics and pediatric dentistry\textsuperscript{3,5,8,11}.

4. CONCLUSION

It is concluded that the treatment of the impacted canine is very complex and that whenever possible it is necessary to opt for conservative treatment. And when opting for interventional treatment, the same must be passed by careful planning where clinical examination should be associated with specific radiographic techniques for tooth placement, thus avoiding root resorption of adjacent teeth and ankylosis of the impacted tooth. And, only from this, opt for the traction technique that is most appropriate for each case.

REFERENCES