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REMOVAL OF IMPACTED SUPRANUMERARY TOOTH IN PRE-MAXILA REGION: CASE REPORT

THAÍS EVELLYN DA **SILVA**[1], SUÉLLEN RIBEIRO SILVA DOS **SANTOS**[1], CARLA CRISTINA **NEVES BARBOSA**[2], OSWALDO LUIZ CECILIO **BARBOSA**[3*]

1. Undergraduate student, Dentistry, USS - RJ. **2.** Master in Orthodontics and Facial Orthopedics of the Jaws, Professor of the course of Dentistry, USS - RJ**. 3.** Master's Degree student in Collective Health, Specialist in Implant Dentistry and professor of Dentistry at USS – RJ.

* Lúcio de Mendonça Street, 24/705, Downtown, Barra do Piraí, Rio de Janeiro, Brazil, ZIP CODE: 27123-050.
oswaldolcbarbosa@hotmail.com

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ABSTRACT

Supernumerary teeth (or hyperdontia) affect 1 to 3% of the population and are usually detected in routine exams, mainly affecting permanent teeth. Most of them are asymptomatic and in 90% of the cases are located in the anterior region of the maxilla and if they are not removed early, they can cause changes in the development of the occlusion. Although, a relatively rare anomaly may be the cause of various dental and occlusal disorders, especially in permanent dentition. These complications include dental crowding, permanent tooth impactions, root resorption, diastemas in the midline, eruption in the nasal cavity, and formation of primordial or follicular cyst. Methodology: This is a case study, descriptive and quantitative using a case report. Objective: This study aimed to report a clinical case of a supernumerary tooth discovered by radiographic examination during a consultation with the Orthodontist; The importance of its early diagnosis and its treatment. The study concluded that the early diagnosis of the presence of a supernumerary is what will determine the prognosis and treatment of the case. Thus, avoiding aesthetic, functional and pathological disorders.

KEYWORDS: Supernumerary tooth, impactation, mesiodent.

1. INTRODUCTION

The supernumerary teeth are manifestations of congenital anomaly of development of the number of teeth[1,3,8,11,15].

Abnormalities in the number of dental elements can occur in an isolated or multiple way; Unilaterally or bilaterally; In the maxilla or jaw or in both arches. In addition, they may be responsible for various functional and aesthetic complications. As examples, we cite: dental crowding, permanent tooth impingement, malocclusion, delayed and / or ectopic eruption, temporomandibular joint disorders, dental rotation, diastema formation, dental displacement, dental resorption, And even development of pathologies such as the dentigerous cyst[1,2,4-11].

The etiology of this anomaly is still not well defined. Several theories can be considered: the theory of hyperactivity of the dental blade in the initiation phase, which produces new dental germ, considered the most probable etiology; The atavistic theory, where one has the regression to primitive ancestor patterns and association to developmental disorders; The theory of heredity and the dichotomy theory[2-4,6,8-9,16,21].

Despite its poorly understood etiology, supernumerary dental elements can be classified considering some parameters associated with its occurrence and therefore are classified according to their location, morphology, orientation and position[4,5,15].

The prevalence of hyperdontia has been reported between 0.1 and 3.8% in the permanent dentition, and of 0.3 to 0.8% in the deciduous dentition. It is assumed that this happens because of the presence of space to accommodate these teeth, allowing an alignment and even a reasonable eruption of the teeth[22].

Among the supernumeraries, we have that Mesiodens, which is a tooth present in the midline between the two central incisors[2,6,15]. Its most common form is conid, presenting the short root and in most cases, is impacted [2,7,11,12]. Its prevalence is generally between 0.15% and 1.9%[16].

When the supernumerary is in this impacted condition, it may be totally involved by bone, partially or totally involved by gingival or partially erupted tissue. These can be further classified according to their morphology as: supplementary, resembling the anatomy of anterior or posterior (12% of the cases), and rudimentary teeth, which are dysmorphic, and may be of the following forms: conical (56%), Trabecular or molariform (80% of cases), among others[6,9,11].

It is also known that the earlier the anomaly is diagnosed, the better the prognosis and the permanent dentition is the most favorable for a supernumerary diagnosis. This may be based on information such as: excessive

retention of the upper incisors, cases of asymmetry and in cases of ectopic eruption. Because it is painless, the presence of them, most of the time, is diagnosed in routine exams[3-4,8-9,12].

Image exams are essential components of the dental treatment plan, especially in cases involving structures in the intraosseous location of the dental arches, as is often the case in hyperdontia[10].

The appearance of Cone-Beam Computed Tomography (CBCT) has expanded the field of oral and maxillofacial radiology, since it overcomes the disadvantages of conventional radiographs, obtaining three-dimensional information of the structures, without overlapping and with high precision. Accurate measurements, precise location, optimal surgical approach, and preservation of structures are possible with the use of three-dimensional examination. This method assists an ideal surgical approach avoiding possible complications[9-10,23].

It is important that the dentist can recognize deviations of abnormality, establish an early diagnosis and the appropriate treatment plan for each case[8].

The most discussed, however, is the exact time for surgical interference with the purpose of removing the dental element. There are two methods for extracting mesiodens; Extraction before root formation of permanent incisors and extraction after root formation of permanent incisors. Some authors recommend the extraction of mesiodens in the early mixed dentition, in order to facilitate the spontaneous eruption and alignment of the incisors[2,5-6,8-9,12].

This study aimed to report a clinical case of a supernumerary tooth discovered by radiographic examination during a consultation with the Orthodontist; Highlighting the importance of early diagnosis and its treatment. The study concluded that the early diagnosis of the presence of a supernumerary is what will determine the prognosis and treatment of the case. Thus, avoiding aesthetic, functional and pathological disorders.

2. CASE REPORT

Patient C.O.G.M, 14 years old, female, leucoderma, was referred to the Neves Barbosa Dental Clinic, to evaluate the presence of a supernumerary (mesiodent) tooth that was preventing the onset of orthodontic treatment.

After careful anamnesis and intra-oral clinical examination, nothing worthy of note was observed (Figure 1). After panoramic x-ray analysis (Figure 2), an integral part of the orthodontic documentation brought by the patient's manager, the presence of the Mesiodent was glimpsed. Cone Bean Computed Tomography was then asked for a better evaluation of the supernumerary element and adjacent structures. With the Computerized Tomography, it was diagnosed that the Mesiodent was in a horizontal position, with the crown facing the vestibular and the apex facing the palatine (Figures 3,4,5,6 and 7). According to the complementary examinations, the exodontia was chosen.

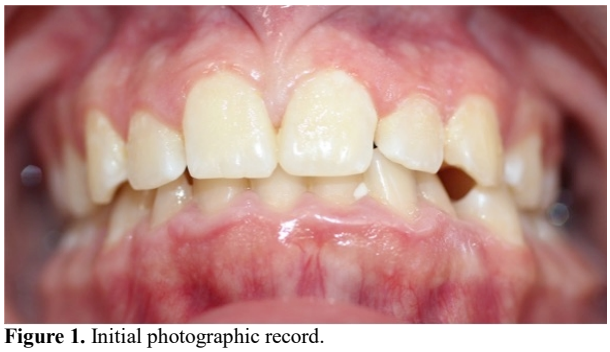

Figure 1. Initial photographic record.

Figure 2. RX Panoramic Initial - initial record.

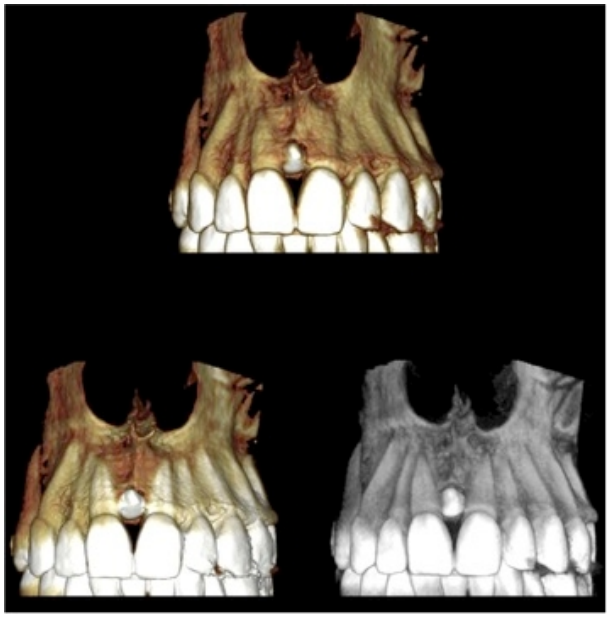

Figure 3. TC Reconstruction 3D.

The surgical procedure was marked and a preoperative drug protocol was made: Amoxicillin 500 mg (2 capsules), Oral, 2 hours before the procedure; Decadron 4mg (1 tablet), Oral, 2 hours before the procedure.

On the day of surgery, asepsis and face antisepsis were performed with topical 2% chlorhexidine diglu-

conate and 0.12% chlorhexidine digluconate mouth-wash.

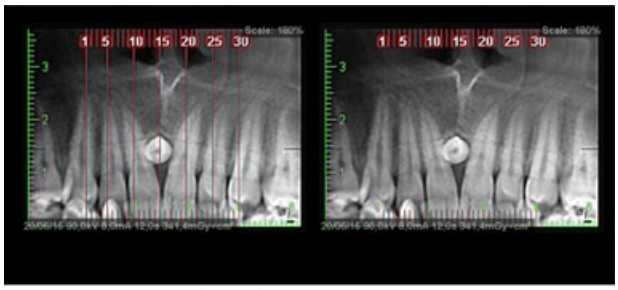

Figure 4. TC Panoramic Cutting.

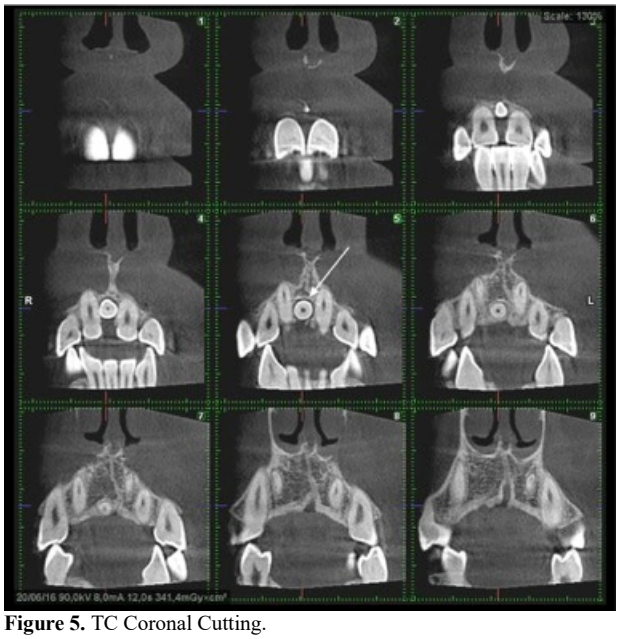

Figure 5. TC Coronal Cutting.

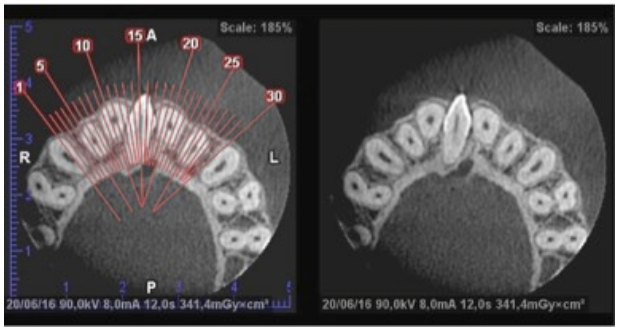

Figure 6. TC Axial Cutting.

The mucosa was anesthetized with topical Benzocaine, then infiltrative anesthesia was performed along the long axis of teeth 12 and 22 and the nasopalatine nerve was blocked with Lidocaine (1: 1000,000). After this an enveloped incision was made using a blade 15 from the distal tooth 12 to distal from the tooth 22 (Figure 8).

Gingival tissue detachment was then performed with Molt detachment and flap folding (Figure 9). Then, the supernumerary tooth syndesmotomy was performed, dislocation and extraction of the same with the apical lever (Figure 10).

Figure 7. TC Sagittal cut.

Figure 8. Surgical incision.

Figure 9. Gingival detachment.

After removal of Mesiodente the cavity was irrigated with 0.9% saline solution chilled. Subsequent to irrigation, the tissue was repositioned, and simple sutures were made with silk thread 4.0 (Figure 11). Shortly thereafter, the final radiographic outlet was taken (Figure 12).

Figure 10. Extraction of Mesiodente.

Figure 11. Suture.

Figure 12. RX - Final record.

The patient´s legal guardian was instructed regarding the standard operative care and the patient was medicated: Amoxicillin 500 mg, 1 capsule, oral, 8/ 8h, 5 days; Nimesulide 100mg, 1 tablet, oral, 12/12 h, 5 days.

3. DISCUSSION

The knowledge of the dental development process is fundamental for understanding the formation of a supernumerary. Dental embryology is divided into phases: initiation, observed in the fetus from the sixth week, when the dental blade and the dental organs are formed; Proliferation, in which there is a multiplication of the cells of the initiation phase, resulting in the formation of the dental germ; Differentiation, marked by the histological differentiation of the cells and an organization of them to determine the size and the shape of the tooth; Apposition and calcification, which correspond respectively to matrix formation and mineral deposition. Changes in each of these phases will determine dental disorders. Supernumerary teeth originate from interference during the initiation process[6].

Any retained tooth is likely to produce disorders of various origins, although often the diagnosis is not made, causing no change to its wearer. If the diagnosis is not early, the consequences can be harmful[1,4,7]. In the case reported, it was diagnosed not so early, without compromising adjacent structures, but the permanence of the mesiodent prevented the onset of orthodontic treatment.

The literature shows that in the majority of cases, the presence of supernumerary teeth can cause functional and aesthetic disorders[1,2,4,7-10]. Among the major problems caused we can mention the malocclusions, the devitalization of the neighboring tooth, the root resorption, crowding[2,16]. The reported clinical case of this study, the presence of the impacted supernumerary did not provoke the disorders described by the above authors.

Mesiodens can be classified according to its occurrence in the permanent dentition (rudimentary mesiodens) and according to its morphology (conical, tuberculous or molariform). Conical mesiodens resemble natural teeth in size and shape when rudimentary mesiodens exhibit abnormal shape and smaller size. The conical mesiodens are generally cucumber shaped and are located palatally between the maxillary central incisors that completely formed the root and may also erupt into the oral cavity. However, they can also be found inverted with the crown pointing superiorly, in which case they are less likely to enter occlusion[21]. The study presented a mesiodent located horizontally to the central incisors with crown facing vestibular and root for the palatal.

The clinical complications of mesiodens reported in some studies include delayed eruption of permanent incisors, midline diastema, axial rotation or inclination of permanent incisors, adjacent tooth resorption, root anomaly, cysts formation (dentigerous or follicular),

intra- Oral, pulpitis, eruption in the nasal cavity, paresthesia and cystic edema in the Pre-Maxilla region[17,19].

The occurrence of double mesiodens and inverted impacted mesiodens has clinical significance, since it may be a clustered ratio in the maxillary anterior region, where the first may be in the cavity, and the second impacted[21]. The study agrees with the statement, since the mesiodent was impacted.

Some epidemiological studies have been conducted and there is considerable variation between their findings. The prevalence of Mesiodens reported in the general population varies between 0.15% and 1.9. Some variations due to differences in demographic and environmental susceptibilities may also have some impact on the reported prevalence[3,6-7,9,12,16].

In contrast to mesiodens not erupted; The eruption of mesiodens in the oral cavity leads to crowding of the anterior tooth, root resorption and non-vitality of the permanent tooth. Already the ectopic eruption of mesiodens in the nasal cavity and midline of the palate were also previously reported in isolated cases[17].

European data showed that the prevalence of supernumeraries is 2.8%. The mesiodens was the most common supernumerary tooth, corresponding to 60% of the cases, the maxilla and the dental arch most affected by the anomaly, corresponding to 82.5%. Regarding the gender variable, the prevalence in the male population in comparison with the female population[6-9,17]. Although the hereditary factor does not fully explain the etiology of these teeth, transmission may be associated with the X chromosome, ie, with sex, but it may also be autosomal recessive or autosomal dominant with incomplete penetrance, which partially explains why relatives of Supernumerary teeth are more affected than the general population[22]. The study reported a clinical case of a female patient which is not in accordance with the prevalence cited by the authors who indicate the highest incidence in males.

The incidence in the maxilla is much higher, reaching a ratio of 8: 1 in relation to the mandible, almost 90% located in the region of maxillary incisors[6,-8,14-15]. The prevalence of supernumeraries in the premaxilla region, mainly between the upper incisors, was confirmed with the clinical case.

Depending on the location in the dental arch, the supernumeraries can be classified into Mesiodent, distomolar and paramolar, the most common being the first, located in the midline of the maxilla[1,11,14,15,17]. The study reported a clinical case of Mesiodent. There are also possible sites for the eruption, such as maxillary sinus and joint process of the mandible, coronoid process, palate, nasal cavity and through the skin[6].

Two-dimensional radiographic examination is part of the dentist's routine and is often the basis for treatment decisions. Panoramic radiographs are simple, low-cost, fast-running exams and can be used in patients with difficult mouth opening. However, in some situations, its limitations may compromise the success of the treatment, which may occur in cases of supernumerary elements, especially when these are included in the bone bases[10,13,18]. The study was initiated with a simple panoramic radiograph that was an integral part of the initial orthodontic documentation.

After the advent of helical computed tomography, it was possible to perform constructions in the axial, coronal, sagittal and oblique planes, with software that shows images in real size (proportions of 1: 1) and / or proportional to the supernumerary tooth and surrounding anatomical accidents, to carry out a surgical planning with greater security and precision and allowing to contemplate the specificities that each case will present6. The study corroborates with the authors above, because due to these complicators it was necessary to perform a Computed Tomography Cone Bean.

The choice of treatment depends on the type and position of the supernumerary tooth and its effects on the surrounding structures, most of which consists in its extraction[3]. Several factors will determine when to intervene, early or late. The first factor is the age of the patient and the tolerability to a surgical treatment. The second factor is the dental development stage and the proximity of the mesiodens to the roots of the permanent incisors, considering the risk of surgical trauma and the amount of bone removal[2,6,12]. The study is in accordance with this assertion because after the evaluation of the variants mentioned above, it was decided to extract the extra cash tooth.

There are two nuances in the treatment of supernumerary teeth, that is, early removal may prevent future complications, which does not prevent impairment of permanent tooth development. In this perspective, it is advised that the extraction is performed carefully, avoiding damage to the adjacent permanent teeth, which can cause disturbances of eruption, such as ankylosis. It is also possible to keep them under observation, without extraction, when the eruption of related teeth is satisfactory, without associated pathology and does not cause functional and aesthetic interference[22]. The study is in accordance with the first treatment strand because an atraumatic exodontia was performed in order to preserve the adjacent ones as much as possible.

In simpler cases, autocorrection after extraction of supernumerary teeth is a more conservative alternative. Thus, orthodontic treatment ensures the preservation of dental structures, as well as optimizing aesthetic and functional results[23]. The study corroborates with this information because soon after the extraction was initiated the orthodontic treatment.

If the dental eruption process is satisfactory and there is no orthodontic treatment, or if surgical removal ex-

poses important structures with risk of injury, it is only necessary to monitor[22].

Very important is also the differential diagnosis, since in the presence of an injury associated with a history of trauma and impacted mesiodens can cause a diagnostic dilemma. One may be left in doubt between a periapical cyst because of a history of trauma or a dentigerous cyst because of one associated with impacted mesiodens. In this case we should opt for the association of complementary exams: histopathological and images to establish the diagnosis[20]. The present study only required imaging tests to establish the diagnosis and conduct to be adopted.

When there is no interference in the chronology of eruption, one should opt for a more conservative approach. In these cases, removal of the supernumerary would be delayed until the apexes of neighboring permanent teeth[2,12]. The immediate removal of Mesiodens is usually indicated in the following situations: inhibition or delay of eruption, displacement of the adjacent tooth, interference and relation with orthodontic appliances, presence of a pathological condition, or spontaneous eruption of the supernumerary tooth[2,5,6,9,12]. The study is in agreement with the indications proposed by the authors, since the supernumerary tooth was inhibiting the beginning of the orthodontic treatment, but the adjacent apices were already closed.

4. CONCLUSION

We conclude that the early diagnosis is of fundamental importance to determine not only the conduct to be adopted with the prognosis of cases where there is presence of supernumerary elements. Being that in most of them, the exodontia is the most indicated treatment, thus avoiding aesthetic, and even pathological disorders.

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