SEQUELA OF MESIODENS IN A PEDIATRIC PATIENT: CASE REPORT

SEQUELA DE MESIODENTE EM PACIENTE PEDIÁTRICO: RELATO DE CASO

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ABSTRACT

Supernumerary teeth are an excess number of teeth, which may appear singly or in multiples. They occur unilaterally or bilaterally, and may be partially or fully erupted, impacted or not. They are most common in the permanent dentition and predominate in the maxilla. Their prevalence ranges from 0.15 to 1.9% in the general population, being common in males aged 6 to 9 years. When located between the upper central incisors, they are called mesiodens and are the most common type of supernumerary tooth. This study aims to describe a clinical case of a supernumerary tooth in a 6-year-old child patient, located in the upper anterior region of the maxilla, identified as mesiodens. This tooth caused aesthetic and functional impairment. After clinical and radiographic examination, the diagnosis was the presence of an erupted mesiodens. Treatment planning consisted of hygiene and dietary guidance as preventive measures against dental caries, followed by surgical removal of the supernumerary mesiodens, in addition to restoration of carious lesions on the vestibular surface of teeth 73 and 83 and installation of a mobile orthodontic appliance Hawley plate with springs in the upper arch to close the diastema, finishing with labial frenectomy.

KEYWORDS: Child, supernumerary tooth, pediatric dentistry, orthodontics, mesiodens.

RESUMO

Os dentes supranumerários são um número excessivo de dentes, que podem aparecer isoladamente ou em múltiplos. Ocorrem unilateral ou bilateralmente, podendo estar parcial ou totalmente erupcionados, impactados ou não. São mais comuns na dentição permanente e predominam na maxila. Sua prevalência varia de 0,15 a 1,9% na população geral, sendo comum em meninos de 6 a 9 anos. Quando localizados entre os incisivos centrais superiores, são chamados de mesiodens e são o tipo mais comum de dente supranumerário. Este trabalho tem como objetivo descrever um caso clínico de dente supranumerário em paciente infantil de 6 anos de idade, localizado na região ântero-superior da maxila, identificado como mesiodente. Este dente causou prejuízo estético e funcional. Após exame clínico e radiográfico, o diagnóstico foi a presença de mesiodentes erupcionado. O planejamento do tratamento consistiu em orientação higiênica e dietética como medidas preventivas contra cárie dentária, seguida de remoção cirúrgica dos mesiodens supranumerários, além de restauração de lesões cariosas na superfície vestibular dos dentes 73 e 83 e instalação de aparelho ortodôntico móvel placa Hawley com molas na arcada superior para fechamento do diastema, finalizando com frenectomia labial.

PALAVRAS-CHAVE: criança, dente supranumerário, Odontologia Pediátrica, Ortodontia, mesiodentes.

1. INTRODUCTION

The human dentition is composed of 20 deciduous teeth that erupt into the oral cavity, later replaced by 32 permanent teeth[1]. Supernumerary teeth correspond to an excess number of teeth and may be present in both deciduous and permanent dentitions, in either arch[2].

These teeth are classified according to their location: mesiodens, when situated between the central incisors; parapremolar, in the premolar region; paramolar, in the molar area; and distomolar or fourth molar, near the third molars[2].

They may appear singly or multiple, unilaterally or bilaterally, partially or fully erupted, impacted or not[3]. The etiology of supernumerary teeth is not completely understood, being attributed to factors such as excessive dental lamina development, heredity, tooth germ dichotomy, systemic conditions, and certain syndromes[4,5]. Their prevalence ranges from 0.15 to 1.9% in the general population[6,7,8] and from 0.3 to 5.3% in permanent dentition[9].

They are more frequent in males, aged 6 to 9 years, and predominantly affect the maxilla. Morphologically, they often appear conical or even inverted, capable of causing several alterations[10]

They are more frequent in permanent than in deciduous dentition[5].

The most common type is mesiodens, typically smaller in size and located between the central incisors of the premaxilla. Due to its position, it can significantly affect both esthetics and occlusion, being considered an autosomal dominant inheritance[11].

Sequelae may include crowding, impaction of permanent teeth, delayed eruption, displacement or rotation of teeth, diastemas, cystic lesions, root resorption, malocclusions, space loss, poor development of the permanent tooth, and even eruption into the nasal

cavity[2,5]. Therefore, early diagnosis is essential, based on detailed anamnesis, clinical examination, and periodic radiographs[12].

Because they are often asymptomatic and retained within the bone, supernumerary teeth may go unnoticed during palpation, highlighting the importance of imaging examinations for their detection and localization[13]. Panoramic radiography is widely used to identify these anomalies, as it provides a comprehensive view of the maxillomandibular structures, including teeth, supporting bone, and adjacent areas such as the maxillary sinus and temporomandibular joints. Furthermore, computed tomography offers high precision in the exact localization of supernumerary teeth, complementing other imaging modalities such as periapical and occlusal radiographs[5].

Cone-beam computed tomography can provide greater accuracy for exact localization, complementing other exams such as periapical and occlusal radiographs[5]. After diagnosis, treatment may be either conservative or surgical, depending on the patient's systemic condition, tooth location, proximity to vital structures, and the presence of associated pathologies[14]. The appropriate management involves individualized evaluation of each case. Although there is a consensus regarding the need for removal of the supernumerary tooth, extraction should be performed at the optimal time in order to avoid damage to permanent tooth germs[13,2,15].

The conservative approach is recommended when no associated alterations are present, such as cyst formation, dental resorption, or displacement of adjacent teeth. Conversely, surgical intervention is prioritized in cases that interfere with the normal development of occlusion[14]. If not removed, supernumerary teeth—particularly mesiodens—may lead to complications. Regardless of the chosen approach, accurate diagnosis and patient consent are essential for successful treatment[14].

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Therefore, the aim of this study is to report a clinical case of a mesiodens in a pediatric patient, which was causing both esthetic and functional alterations.

2. CASE REPORT

This study reports the clinical case of a 6-year-old female patient, systemically healthy, who attended the dental clinic complaining of "a sharp tooth in the front." Clinical examination revealed a healthy mixed dentition with an erupted supernumerary tooth in the maxilla between the two permanent central incisors (Figure 1), identified as a mesiodens. The patient denied painful symptoms, although she reported esthetic discomfort.

After panoramic radiographic examination (Figure 2) and approval by the Uningá Research Ethics Committee (CEP 811358024.3.0000), treatment planning included: oral hygiene and dietary preventive guidance, surgical removal of the erupted mesiodens, installation of a removable orthodontic appliance (Hawley plate with distal springs to the upper central incisors) to close the diastema, and the indication of upper labial frenectomy.

Figure 1. Initial frontal aspect of the upper arch, with the presence of supernumerary. **Source:** Personal Archive

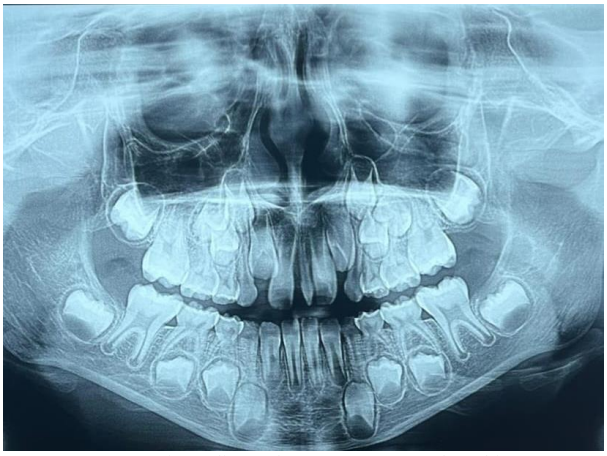

Figure 2. Panoramic Radiograph. **Source:** Personal Archive.

For the procedure, the surgical table was prepared (Figure 3).

Figure 3. Surgical table. **Source:** Personal Archive.

For anesthesia, topical anesthetic Benzocaine 20% was applied (Figures 4 and 5), a few minutes were waited for analgesia, and immediately after, infiltrative anesthesia was applied with local anesthetic lidocaine 2% and a short needle (Figures 6 and 7).

Figure 4. Topical vestibular mucosal anestesia. **Source:** Personal Archive.

Figure 5. Topical palatal mucosal anesthesia. **Source:** Personal Archive.

Figure 6. Interpapillary infiltrative anesthesia. **Source:** Personal Archive.

Figure 7. Vestibular mucosal infiltrative anestesia. **Source:** Personal Archive.

After anesthesia, the periodontal ligament fibers around the mesiodens were detached using an instrument called a Freer detacher (Figures 8 and 9). This facilitated the insertion of the forceps.

Figure 8. Freer's detachment, palatal mucosa. **Source:** Personal Archive

Figure 9. Freer's detachment, vestibular mucosa. **Source:** Personal Archive

Figure 10. Mesiodens extraction. **Source:** Personal Archive.

With the aid of correctly positioned #01 children's forceps, the buccolingual luxation and rotation movements (single-rooted tooth) were initiated, and finally the traction for extraction (Figures 10 and 11).

Once completed (Figure 12), the alveolus was sutured with a simple stitch using 3-0 silk thread (Figures 13 and 14).

Figure 11. Exodontics. **Source:** Personal Archive

Figure 12. Mesiodens. **Source:** Personal Archive.

Figure 13. Post-surgical alveolus. **Source:** Personal Archive.

Figure 14. Sutured alveolus. **Source:** Personal Archive.

After the site healed, the patient's upper arch was molded with alginate to create the study model, and a Hawley plate with springs was fabricated in the upper arch to close the interincisor diastema (Figure 15).

Figure 15. Hawley plate installed. **Source:** Personal Archive

The case remains follow-up.

3. DISCUSSION

Supernumerary teeth are those that appear in greater numbers than usual in the dentition. They may occur singly or in multiples, affecting one or both sides of the arch, and may be present in both the maxilla and the mandible[16]. In the present case, a solitary supernumerary tooth was reported, located in the premaxillary region, which is consistent with the literature, since this is the most common location for this anomaly[17].

Such teeth can appear in the deciduous or mixed dentition, being more common in the permanent dentition4, as in the present case.

Although studies indicate a higher prevalence of supernumerary teeth in males[18], the patient in this study was female. The etiology of supernumerary teeth is multifactorial, possibly related to genetic and environmental factors or disturbances in dental development[19]. However, no similar family history was reported, and therefore the precise cause in this case could not be identified.

These teeth are classified according to their location: mesiodens; parapremolar; paramolar; and distomolar[2]. They may also present four morphological types: (1) conical, peg-shaped, usually located between the maxillary central incisors, known as mesiodens (the most common type); (2) tuberculate, barrel-shaped, with an occlusal surface bearing several cusps; (3) supplemental, resembling normal teeth in anatomy and size; (4) odontoma (hamartomatous malformations), which can be complex or compound; the latter, although classified as a tumor by the WHO, appears to share manifestations of the same process of formation as supernumerary teeth[20].

The supernumerary tooth identified in this case was a conical mesiodens, the most common morphological type described in the literature, characterized by its peg shape and location between the maxillary central incisors. This element was erupted and caused a diastema between the central incisors, consistent with

findings in the literature, which indicate that mesiodens, even when asymptomatic, may negatively affect occlusion, leading to midline diastemas, midline deviations, crowding, gingivitis, as well as delayed or difficult eruption of permanent teeth, root resorption of adjacent teeth, eruption deviations or rotations of neighboring teeth, and the formation of cysts and odontogenic tumors[21,22,23].

In addition to functional impairments, the literature also recognizes the psychological impact, especially in children, due to esthetic and phonetic alterations. In the present case, although the patient did not report pain, she showed evident discomfort with the appearance of her smile-specifically with the spacing between the teeth (diastema) and the atypical appearance of the supernumerary tooth. This esthetic concern was the main reason for seeking care and for the indication of intervention.

According to Senise *et al*. (2021)[5], panoramic radiography allows, in a single projection, the visualization of several anatomical structures, being a fundamental tool for individualized evaluation and definition of therapeutic management in each case. The author also states that although computed tomography has become widely used to precisely locate supernumerary teeth, especially in cases of impaction or suspected involvement with vital structures, other examinations such as periapical and occlusal radiographs are also indicated depending on the complexity of the case. In the present report, panoramic radiography was sufficient for diagnosis and surgical planning, since the tooth was already erupted and clinically visible.

After diagnosis, the professional may choose a conservative or surgical approach, depending on the patient's systemic health, location of the supernumerary tooth, proximity to vital structures, association with pathologies, and occlusion[14]. According to the literature, surgical intervention is most often indicated in order to avoid future complications, in addition to the orthodontic factor. The conservative approach is used when there are no pathological structures (such as cysts or odontomas), resorption, or displacement of adjacent teeth. In the present case, surgical removal was chosen due to the patient's normal systemic condition and the location of the tooth, which caused esthetic discomfort and diastema[24].

According to Harikrishnan, Nivethigaa, and Ganesh (2021)[25], diastema consists of spacing between two adjacent teeth that appears in many individuals, both in permanent and mixed dentitions. Its causes include heredity, physiology, abnormal frenulum attachment, habits, midline pathologies, and iatrogenic factors, including the presence of supernumerary teeth[25]. This reinforces the complexity of diagnosis and the importance of a multidisciplinary approach in managing such cases. In the present patient, an interincisal diastema between the maxillary central incisors was observed, caused by the presence of the mesiodens and a prominent labial frenulum.

This represents an esthetic complication, and when spontaneous regression does not occur, orthodontic treatment is indicated26. Alternatively, restorative procedures with ceramics or composite resin may be used, or even surgical treatments such as frenectomy in cases of prominent lingual or labial frenum[27,28].

Diastema closure through orthodontic treatment can be performed using either fixed or removable appliances[29]. In the second stage of treatment, a removable appliance was chosen. Several types of removable appliances can be used for diastema closure, the most common being those with springs. These are indicated when angulation of the incisors in the mesial direction is desired, and the larger the diastema, the greater the angulation change produced by the springs[30]. For this reason, a Hawley plate was provided for the patient.

The main advantages of removable appliances are comfort, esthetics, and the possibility of removal by the patient for oral hygiene or in social situations[31, 32]. One of the main disadvantages is patient compliance with the orthodontist's instructions, since the removable nature of the appliance allows the patient not to wear it as prescribed, increasing the chances of relapse or loss of alignment[33,34].

Despite the esthetic and functional improvement observed, the patient will require a frenectomy due to the presence of a prominent labial frenum. When the labial frenum develops abnormally, it can extend into the gingiva, creating spaces between the central incisors and resulting in a diastema[35]. Frenectomy surgery often resolves the diastema and may eliminate the esthetic and functional consequences associated with this anomaly[36].

The clinical case remains under follow-up, and the patient continues to be monitored periodically. A maxillary labial frenectomy is planned as part of the complementary treatment plan.

Therefore, the present case reinforces the importance of early diagnosis of supernumerary teeth, individualized treatment planning, and continuous follow-up to ensure functional and esthetic success of orthodontic and surgical treatment. It should also be emphasized that requesting panoramic radiography at preschool age is essential for enabling such early diagnoses.

4. CONCLUSION

Clinical and radiographic examination, combined with early diagnosis of supernumerary mesiodens, is extremely important to prevent potential aesthetic and functional complications. Clinical examination is performed to assess the delayed eruption of permanent incisors. X-rays and, if necessary, computed tomography are essential. Treatment requires multidisciplinary collaboration with a pediatric dentist or general pediatrician and orthodontist, aiming to improve the patient's quality of life by restoring function and aesthetics.

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