

Bilateral impactation of lower premolars associated with supernumerary teeth: case report

Impactação bilateral de pré-molares inferiores associados a dentes supranumerários: relato de caso

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ABSTRACT

Supernumerary teeth are developmental anomalies related to the number of teeth, which may be impacted or erupted, and present asymptomatic or symptomatic. This pathology has an unknown etiology, being more common in permanent dentition and in most cases, it presents an asymptomatic condition. This developmental change brings relevant disadvantages to the individual, such as: functional and aesthetic changes, malocclusion, tooth crowding, tooth impaction, among other factors. Imaging exams such as panoramic radiography and computed tomography are essential to help with the diagnosis and appropriate treatment for the case,

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therefore, favoring a good prognosis. The case report highlights the importance of the surgical and post-surgical approach in the impaction of lower premolars by supernumerary ones, using a descriptive and qualitative methodology. The therapeutic choice contributed to an improvement in the patient's dentofacial development and is expected to inspire reflections, in addition to stimulating continued excellence in the provision of care, promoting the health and well-being of patients, contributing to the collection of scientific knowledge in the area of Dentistry.

Indexing terms: Impacted tooth. Oral surgery. Supernumerary tooth.

RESUMO

Os dentes supranumerários são anomalias de desenvolvimento relacionadas ao número de dentes, podendo estes estarem impactados ou erupcionados, e apresentarem-se de forma assintomática ou sintomática. Essa patologia possui etiologia ainda desconhecida, sendo mais frequente na dentição permanente e, na maioria dos casos, apresenta um quadro assintomático. Essa alteração de desenvolvimento traz inúmeras desvantagens para o indivíduo, como: alteração funcional, estética, má oclusão, apinhamento nos dentes, impatcação dentária, dentre outros fatores. Exames de imagens, como radiografia panorâmica e tomografia computadorizada, são essenciais para ajudar no diagnóstico e tratamento adequado para o caso, por conseguinte, favorecendo o bom prognóstico. O relato de caso destaca a importância da abordagem cirúrgica e pós-cirúrgica na impatcação de pré-molares inferiores por supranumerários, utilizando uma metodologia descritiva e qualitativa. A escolha terapêutica contribuiu para uma melhora no desenvolvimento dentofacial do paciente e espera-se inspirar reflexões, além de estimular a contínua excelência na prestação de cuidados, promovendo a saúde e o bem-estar dos pacientes, contribuindo para o acervo de conhecimento científico na área da Odontologia.

Termos de indexação: Dente impactado. Cirurgia bucal. Dente supranumerário.

INTRODUCTION

Dental anomalies can occur in terms of the number, size, shape, position and structure of the teeth, with supernumerary teeth being defined as an alteration that is related to the development as well as the number of teeth, and can be found in the deciduous or permanent dentition occurring in both the maxilla and mandible [1].

Teeth that exceed the normal number (32 permanent and 20 deciduous) are considered supernumerary. They are more common in the permanent dentition, especially in men. The prevalence varies between 76% and 86% for one tooth, 12% to 23% for two teeth and less than 1% for 3% or more. Mesiodents have the highest occurrence, followed by upper and lower fourth molars, premolars, canines and lateral incisors, while it is rare in lower incisors. Multiple non-syndromic supernumerary teeth are more common in the mandible, especially in the premolar region [2,3].

Furthermore, these supernumerary elements may be impacted or erupted, asymptomatic or symptomatic. As for the etiology, there is still no defined conclusion in the literature, but it may be related to genetic factors and some syndromes and developmental disorders, such as the theory of hyperactivity of the dental lamina, which states that in moments of high excitation of epithelial processes of the dental lamina there is a risk of supernumerary tooth emergence [4].

This developmental change brings numerous disadvantages to the individual, such as: functional and aesthetic changes, malocclusion, tooth crowding, tooth impaction, among other factors, thus requiring

a multidisciplinary intervention to resolve the problem [5]. The diagnosis is normally established through a careful clinical evaluation and anamnesis, revealing bone changes, color and shape. It is essential to direct attention to the patient's or guardian's main complaint, often associated with delayed tooth eruption. Complementing this approach, the use of radiographic examinations, such as periapical radiography, panoramic radiography and computed tomography, plays a crucial role. Computed tomography, in particular, provides a three-dimensional view, ensuring efficacy and safety in the prognosis. This is essential, as the impacted supernumerary elements can present significant variations in terms of position, size and number [6,7].

Furthermore, the therapy used takes into account multidisciplinary approach, and may involve a surgical approach through exodontia of the affected element and/or conservative methodology, as, depending on the individualization of the case, it can be used to replace other missing elements in the cavity. oral, through orthodontic traction, and also the option of non-extraction [8].

Therefore, the objective of this work is to present the report of a clinical case with a surgical approach to the impaction of lower premolars by supernumerary teeth, in order to clarify dental surgeons and dental students about this dental anomaly, correlating a well-established diagnosis. successful with the treatment to be chosen for the case.

CASE REPORT

The present study adopted a qualitative, descriptive approach, based on case report methodology, therefore, it is recognized as a source of high scientific evidence. Data collection involved observation, description of the procedure and previous bibliographic analysis [9].

The research focused on a 12-year-old male adolescent patient who sought orthodontic treatment due to maxillary atresia (figure 1). The absence of the lower first premolars, together with a slight lingual elevation, drew attention during the anamnesis and clinical examination (figure 2).



Figure 1. Front and side view of the patient.



Figure 2. (A) Occluded view of the lower teeth. (B) Occlusal view of the upper teeth. (C) Left side view. (D) Right side view. (E) Buccal view of the arch and confirmation of overbite.

Complete orthodontic documentation, including panoramic radiography, telerradiography, tomography and intra- and extraoral photos, revealed the presence of two supernumerary teeth included in the mandible, impacting the lower premolars (figure 3). On clinical examination, it was found that there was space for eruption, but the presence of supernumeraries impacted the eruption of elements 34 and 44 in the oral cavity. The treatment plan consisted of removal of the supernumeraries followed by orthodontic treatment. The patient did not report any symptoms in relation to supernumeraries, had no comorbidities and no contraindications to the surgical procedure.

Treatment involved intraoral antiseptics with 0.12% chlorhexidine digluconate and extraoral antiseptics with 2% chlorhexidine digluconate, local anesthesia with blockage of the mental and lingual nerves bilaterally, using 2% lidocaine with 1:100,000 epinephrine. The incision was made with a 15c blade scalpel, creating an envelope flap in the lingual region where the supernumerary was, as seen on the computed tomography (figure 4). Furthermore, osteotomy was performed with a No. 6 spherical drill to expose the supernumeraries and, subsequently, removal was performed with a straight lever and irrigation with 0.9% saline solution. The synthesis was performed with 4-0 silk thread, followed by drug therapy with Amoxicillin 500 mg and Ibuprofen 600 mg, in order to reduce postoperative pain and infections, as the

surgical procedure was prolonged and there was bone exposure. After the surgical process, the necessary recommendations were made (figure 5).

Furthermore, post-operative follow-up took place gradually, with 7 days for suture removal and observations regarding the surgical site, which was free of infections and well healed. Then, after 15 days, healing was monitored and after 30 days there was evidence of complete healing. The patient did not report any painful symptoms during the procedure or during the postoperative period.



Figure 3 - Panoramic X-ray.

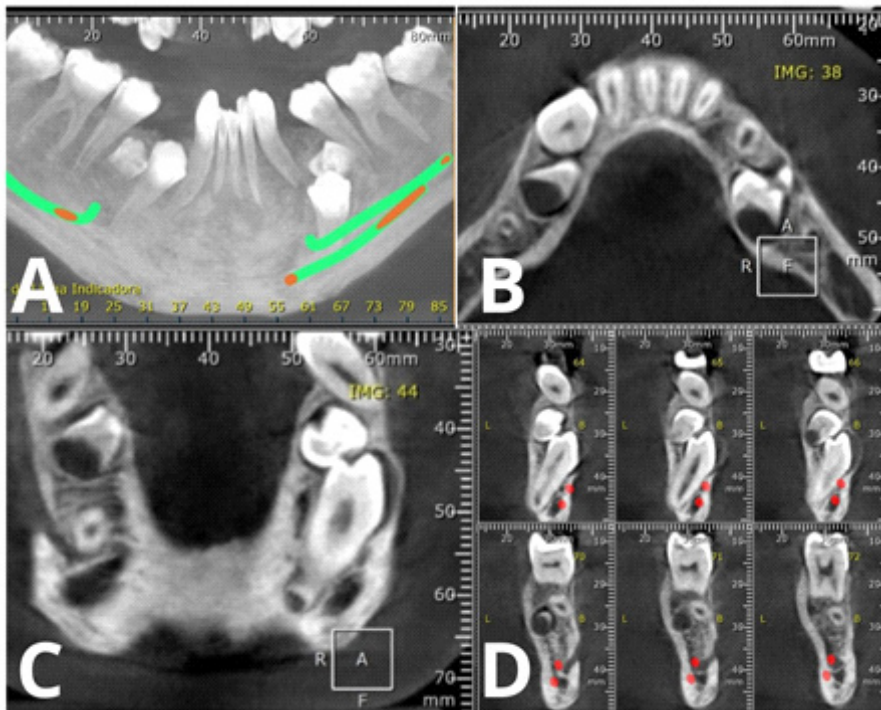


Figure 4. (A) Panoramic reconstruction. (B) Axial reconstruction. (C) Coronal reconstruction. (D) Transverse reconstruction.

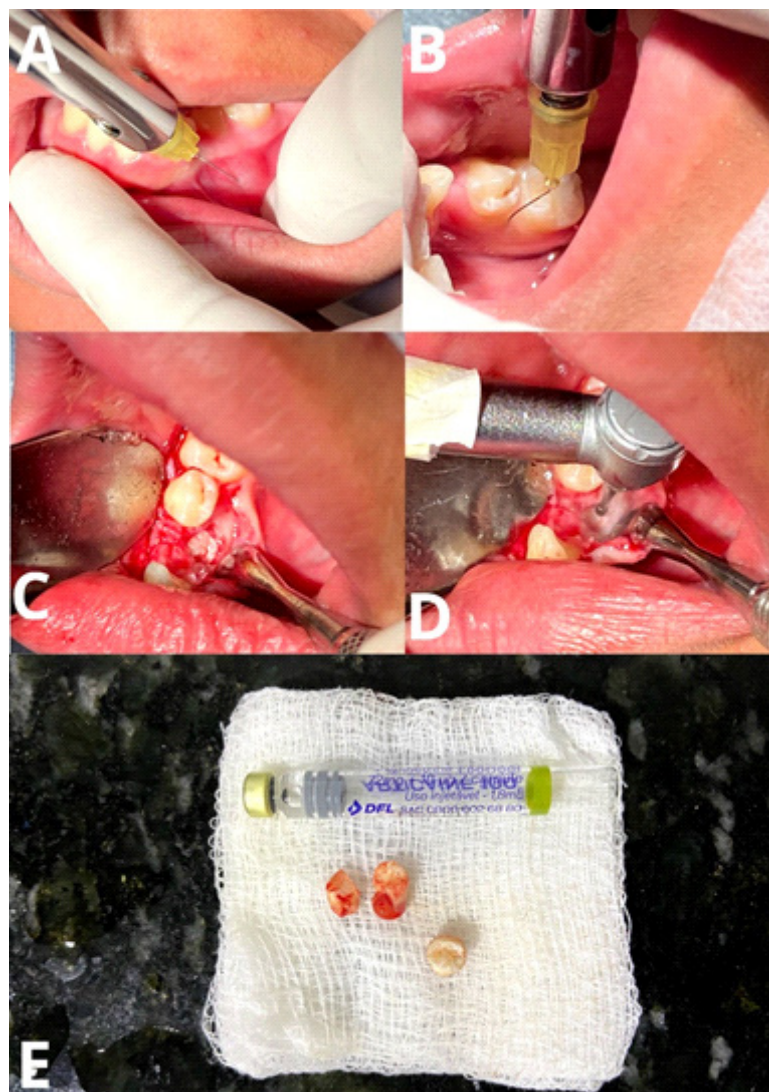


Figure 5. (A) Local anesthesia via vestibular. (B) Local lingual anesthesia. (C) Location of the supernumerary. (D) Osteotomy. (E) Supernumeraries extracted.

The ethical importance of the research is highlighted, with obtaining consent from the patient and guardian, in addition to approval by the Research Ethics Committee (CEP) of the Federal University of Delta do Parnaíba (UFDPPar) under opinion number 6.435.335 (Attachment).

In summary, the integration of qualitative methodology and the detailed description of the clinical case offer a comprehensive view, contributing to the understanding of the complexity involved in bilateral impaction of lower premolars associated with supernumerary teeth. This study not only provides valuable clinical insights but also highlights a multidisciplinary approach in dental practice.

DISCUSSION

Bilateral impaction of lower premolars associated with supernumerary teeth is an uncommon clinical finding, present in 12% of cases in which they are found within the oral cavity of male patients located in

the mandible, challenging diagnostic and therapeutic paradigms in dental practice. The case presented offers a unique opportunity to explore the complexities associated with this rare condition. Its removal was necessary for the correct eruption of the other permanent elements [2,3].

Dental literature has extensively addressed tooth impaction, often focusing on a single tooth or one side of the arch. However, the bilaterality of this condition, as noted in this report, highlights the importance of comprehensive consideration of causative factors. According to the study, it is reported that multiple supernumerary teeth, which are not related to any syndrome, are more common in the mandible, in the premolar region. However, the incidence of bilateral impaction is rarely addressed, making this particular case worthy of further analysis [3].

In the clinical context, early identification and thorough evaluation are crucial for successful treatment. Imaging exams, such as panoramic radiography and tomography, are essential to help with the diagnosis and appropriate treatment for the case, showing the element and its essential structures that cannot be seen during clinical examination and thus carrying out the procedure successfully. Thus, in the current case, a panoramic x-ray and tomography were requested to obtain the position of the elements and thus perform the removal surgery [10].

The crucial combination of surgical and orthodontic treatment in cases of supernumerary teeth may involve the option of keeping the additional tooth in the absence of other elements. Orthodontics plays a vital role in managing the oral space to restore the necessary order. Supernumerary teeth, which can cause disorders, can be treated effectively with orthodontic traction to preserve tooth alignment. However, the preferred approach includes tooth extraction, which is considered after careful assessment of the real risk of root resorption and ankylosis. These risks can result in poor eruption of the permanent tooth, obstruction of passage and inadequate positioning during eruption. The simultaneous removal of supernumerary teeth aimed to create an environment conducive to adequate eruption of premolars. The choice of this approach was based on a comprehensive analysis of the factors involved, considering both the masticatory function and the patient's aesthetics [11,12].

It can be highlighted that the presence of supernumeraries can affect aesthetics as well as cause functional complications for the patient, such as delay in the eruption of permanent teeth, tooth rotations, diastemas, crowding, bone changes, among other changes, in addition to making it difficult even to hygiene of the patient and thus compromising the dental structure with cavities and periodontal diseases [8].

It was exposed in a study and presented in it that after radiographic and clinical evaluation there was a need for surgical intervention and also orthodontic correction after surgery in 45% of the cases evaluated. In the clinical case presented, it was not possible to observe the spontaneous eruption of the impacted dental elements after surgery, given that the patient will require multidisciplinary action in conjunction with the orthodontist to perform orthodontic traction [13].

In view of this, it is essential to highlight that the stage of evolution of the supernumerary tooth is important, especially in the mandible, as there is a risk of damaging an important structure during the surgical procedure. Therefore, it is necessary to pay attention to some factors such as the patient's age, occlusal relationship, stage of development of the root of the adjacent teeth, among other factors [14].

Bilateral impaction of mandibular premolars associated with supernumerary teeth represents an intriguing challenge in dental practice. This case report highlights the importance of detailed assessment, accurate diagnosis, and a personalized approach for successful treatment of these complex conditions. An in-depth understanding of these cases contributes not only to clinical practice, but also to the advancement of knowledge in the field of dentistry.

CONCLUSION

The surgical procedure was carried out successfully, and drug therapy, together with post-operative follow-up, were essential to ensure the patient's positive outcome. Finally, the importance of the constant search for knowledge, updating and professional improvement to face complex clinical challenges is reinforced. This case report highlights the interconnection between effective clinical practice and continuing education, inspiring reflection and encouraging excellence in the provision of dental care. To this end, it is expected that the study will contribute to the collection of dental knowledge and promote the health and well-being of patients.

Collaborators

AFA Damasceno, conceptualization (equal), data curation (equal), formal analysis (equal), investigation (equal), methodology (equal), resources (equal) and writing- original draft (equal). AVS Resende, conceptualization (equal), data curation (equal), formal analysis (equal), investigation (equal), methodology (equal) and writing- original draft (equal). RMI Coelho, conceptualization (equal), data curation (equal), methodology (equal), project administration (equal), resources (equal), supervision (equal), validation (equal), writing- original draft (equal) and writing- review & editing (equal). AM Costa Neto, conceptualization (equal), formal analysis (equal), methodology (equal) and writing- review & editing (equal). ES Leal, formal analysis (equal), methodology (equal), supervision (equal), writing- original draft (equal) and writing - review & editing (equal). LPS Dias, conceptualization (equal), formal analysis (equal), methodology (equal) and writing- original draft (equal).

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