Reporte de Casos
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Non-syndromic impacted and inverted mesiodens with dentigerous cyst in the maxilla of a monozygotic twin. Case report

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Abstract: Mesiodens are supernumerary teeth located in the midline of the maxilla, frequently associated with alterations in dental eruption. Dentigerous cysts, on the other hand, are benign pathologies that occur in third molars and canines. The coexistence of an impacted and inverted mesiodens with a dentigerous cyst is rare, with a reported prevalence of only 5-6%. This report describes the case of an asymptomatic 8-year-old male pediatric patient who presented with absent eruption of the upper left central incisor. Clinical examination showed palatal swelling without mucosal color changes. The periapical radiography showed an inverted and impacted mesiodens with a pericoronal radiolucent image compatible with a dentigerous cyst. The lesion was confirmed by computed tomography and the diagnosis was corroborated histopathologically. Enucleation and extraction of the mesiodens was performed under local anesthesia, and the patient evolved favorably without complications. This case emphasizes the importance of early diagnosis and timely surgical treatment to prevent major complications such as malocclusion and root resorption of adjacent teeth. The particularity of this case lies in the fact that the patient is a monozygotic twin, whose brother did not present this anomaly, which makes it a relevant contribution to the literature on dental alterations in twins.

Key words: Mesiodens, Dentigerous cyst, Supernumerary tooth, Oral surgery.

Mesiodens impactado e invertido no sindrómico con quiste dentígero en el maxilar de un gemelo monocigótico. Reporte de caso

Resumen: Los mesiodens son dientes supernumerarios que se localizan en la línea media del maxilar, frecuentemente asociados a alteraciones en la erupción dental. Los quistes dentígeros, por su parte, son patologías benignas que se presentan compuestas en terceros molares y caninos. La coexistencia de un mesiodens impactado e invertido con un quiste dentígero es poco frecuente, con una prevalencia reportada de solo 5-6%. Este reporte describe el caso de un paciente pediátrico varón de 8 años, asintomático, quien presentó ausencia de erupción del incisivo central superior izquierdo. En el examen clínico se observó tumefacción palatina sin alteraciones en el color de la mucosa. La radiografía periapical mostró un mesiodens invertido e impactado con una imagen radiolúcida pericoronal compatible con quiste dentígero. La lesión fue confirmada mediante tomografía computarizada y el diagnóstico se corroboró histopatológicamente. Se realizó la enucleación y extracción del mesiodens bajo anestesia local, y el paciente evolucionó favorablemente sin complicaciones. Este caso enfatiza la importancia del diagnóstico temprano y del tratamiento quirúrgico oportuno para prevenir complicaciones mayores, como maloclusión y reabsorción radicular de dientes adyacentes. La particularidad de este caso radica en que el paciente es gemelo monocigótico, cuyo hermano no presentó esta anomalía, lo cual lo convierte en una contribución relevante para la literatura sobre alteraciones dentales en gemelos.

Palabras clave: Mesiodens, Quiste dentígero, Diente supernumerario, Cirugía bucal

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Mesiodens impactado e invertido não sindrômico com cisto dentígero na maxila de um gêmeo monozigótico. Relato de caso

Resumo: Mesiodens são dentes supranumerários localizados na linha média da maxila, frequentemente associados a alterações na erupção dentária. Os cistos dentígeros, por outro lado, são patologias benignas que ocorrem em terceiros molares e caninos. A coexistência de um mesiodens impactado e invertido com um cisto dentígero é rara, com uma prevalência relatada de apenas 5 a 6%. Este relato descreve o caso de um paciente pediátrico assintomático de 8 anos de idade, do sexo masculino, que apresentou ausência de erupção do incisivo central superior esquerdo. O exame clínico mostrou inchaço palatino sem descoloração da mucosa. A radiografia periapical mostrou um mesiodens invertido e impactado com uma imagem radiolúcida pericoronal compatível com um cisto dentígero. A lesão foi confirmada por tomografia computadorizada e o diagnóstico foi corroborado histopatologicamente. A enucleação e a extração do mesiodens foram realizadas sob anestesia local, e o paciente evoluiu favoravelmente sem complicações. Esse caso enfatiza a importância do diagnóstico precoce e do tratamento cirúrgico oportuno para evitar complicações maiores, como má oclusão e reabsorção radicular dos dentes adjacentes. A particularidade desse caso reside no fato de o paciente ser um gêmeo monozigótico, cujo irmão não apresentava essa anomalia, o que o torna uma contribuição relevante para a literatura sobre alterações dentárias em gêmeos.

Palavras-chave: Mesiodens, Cisto dentígero, Dente supranumerário, Cirurgia oral.

Introduction

Mesiodens are supernumerary teeth located in the midline of the maxilla, between the incisors. power plants superiors. His prevalence in the population general varies between 0.15% and 1.9%, being further common in men that in women[1]. These teeth they can cause alterations in dental eruption, such as delayed eruption of permanent incisors, dental malpositions and formation of diastemas. [2]

The cysts dentigerous, originated in he epithelium reduced of the organ of the enamel, present a prevalence of 4 to 9% in the general population, while mesiodens have an approximate prevalence of 2.8% in pediatric patients[3]. At an academic level, it is common to find reports on dentigerous cysts and supernumerary teeth as independent entities[4]; however, the coexistence of a dentigerous cyst with a supernumerary tooth, especially a mesiodens not erupted and inverted, it is a unusual presentation, reported in only he 5-6% of the cases. This association is still further infrequent in monozygotic twin children, where the brother does not show these alterations. [5]

The presence of dentigerous cysts can lead to serious complications, such as pathological fractures. and asymmetry facial, and his management surgical No this exempt of risks, already that Complications such as nerve injuries, postoperative infections and iatrogenic mandibular fractures may arise [6]. Regarding mesiodens, it can cause a series of dental and aesthetic complications, including midline diastema, rotation of the incisors power plants, bad alignment and crowding, reabsorption radicular of teeth adjacent and, in cases serious, the training of a journey fistulous between the cavity oral and nasal. It is also associated with pain, swelling, and In certain cases, to the formation of dentigerous cysts.[7]

The present case report aims to highlight an unusual presentation in a monozygotic twin patient, who developed an impacted and inverted mesiodens associated with a dentigerous cyst, while his twin brother did not show this anomaly. This case

provides valuable information. evidence to the literature about variations dental in twins and underlines the importance of a diagnosis early and a treatment surgical prompt. A management adequate can prevent complications as the malocclusion and the reabsorption radicular of teeth adjacent, preserving dental health and promoting harmonious facial development in the patient.

Case report

We present the case of an 8-year-old male, mixed-race, native of Lima, with no known systemic or surgical history or allergies. He attended the Child and Adolescent Clinic I (CINA I) of the School of Dentistry at the National University of San Marcos (UNMSM), accompanied by his father and monozygotic twin brother. The reason for the consultation was the absence of eruption of the upper left central incisor, unlike his brother, who did not present this alteration. For this reason, the father requested a general dental evaluation, signing the corresponding informed consent form; the child's assent was also obtained.

Exam Clinical:

Intraoral examination revealed regular oral hygiene and the presence of gingival melanosis. The patient presented an early mixed dentition. The permanent upper right central incisor (piece 1.1) showed exogenous pigmentation, while deciduous tooth 6.2 remained in the mouth, showing incisal wear and mobility. The permanent upper left central incisor (piece 2.1) had not erupted. In the anterior region of the palate, posterior to the expected position of both central incisors, a firm swelling was identified, with no alterations in the color of the mucosa, accompanied by prominent palatal wrinkles. These findings suggest the presence of mesiodens as a presumptive diagnosis (Figures 1A and 1B).

Radiological Assessment:

To confirm and complement the presumptive clinical diagnosis of mesiodens, a periapical radiograph of the upper anterior region was requested. This revealed the presence of an impacted and inverted mesiodens, located between teeth 1.1 and 2.1. This supernumerary tooth was surrounded by a well-defined radiolucent image with cortilicalized

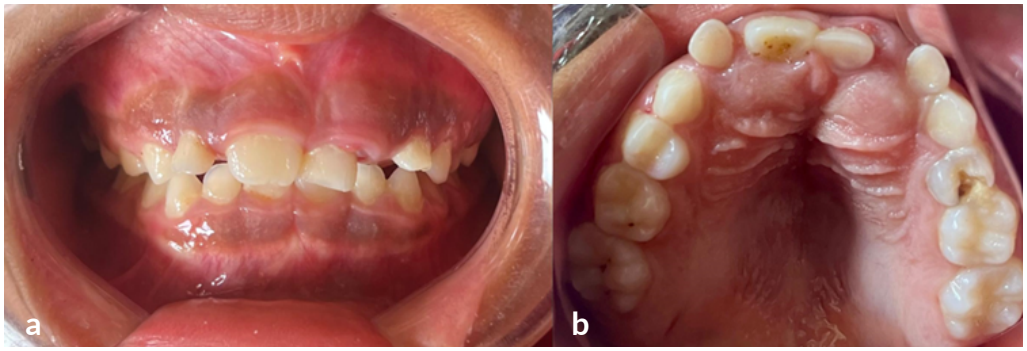

Figure 1A. *Intraoral clinical examination of the affected twin: a) Frontal view showing the remaining deciduous left incisor; b) Palatal swelling without alteration in the color of the mucosa*

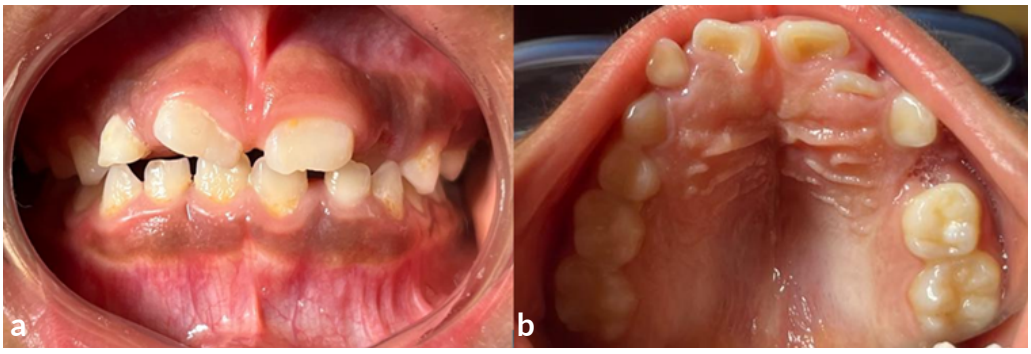

Figure 1B. *Intraoral clinical examination of the unaffected twin: a) Frontal view showing erupted and gyrated permanent maxillary central incisors; b) Palatal view showing prominent rugae and no change in mucosal color.*

edges, approximately 5 mm in extension at its greatest dimension, located in the anterior palate and compatible with a possible dentigerous cyst. Furthermore, radiographic evidence of the absence of eruption of the upper left central incisor (tooth 2.1) was observed. To determine the three-dimensional location of the mesiodens and plan treatment, a panoramic radiograph and a computed axial tomography (CT) scan were ordered, which were evaluated by a radiology specialist. The panoramic radiograph confirmed the presence of the impacted mesiodens, projected onto the apex of tooth 2.1 (Figure 2b).

TAC:

a. Axial section: Identifies a supernumerary tooth in the anterior region of the maxilla, in a transverse position, with the crown adjacent to the nasopalatine canal.

b. Sagittal section: Observe the piece in a transverse position, with the crown towards the palatine and the root towards the vestibular, showing torsion radicular in he cervical third and a hypodense image around the crown, with perforation of the palatine bone table.

Figure 2. *a) Periapical radiograph b) Panoramic radiograph*

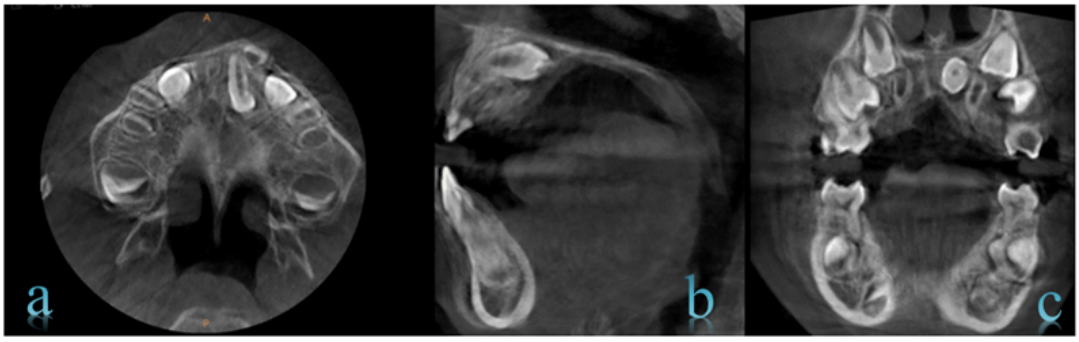

Figure 3. *CONE BEAM tomography: a) Axial slice; b) Sagittal slice; c) Coronal slice*

c. Coronal section: Shows the supernumerary tooth on the palatine process of the left maxilla, with a hypodense image partially surrounding the crown. Figure 3.

Procedure Surgical:

At the Undergraduate Clinic VII of the Faculty of Dentistry of the UNMSM, a surgical procedure was scheduled after get the informed consent of the patient's father. He prepared a splint surgical palatine and HE adopted measures rigorous of antisepsis and asepsis in the preparation of the surgical area.

He procedure began with the administration of local anesthesia, in two phases: initially with 10% lidocaine spray, followed by infiltration of 2% lidocaine with epinephrine in the nerves alveolar previous, media, nasopalatine and palatine elderly. HE made a A racket flap was used to preserve the incisal papilla, with a 5 mm margin of the palatal marginal gingiva. A full-thickness flap was then raised using a periosteal bone graft and held apart with a Minnesota retractor to expose the palatal bone tissue. An osteotomy was then performed with a round surgical burr under constant irrigation.

Once the supernumerary tooth was exposed, it was dislocated in a controlled manner, held with surgical forceps, and removed using gentle traction movements. The surgical cavity was irrigated with sterile saline solution, and the palatal mucosa was subsequently sutured using 6/0 absorbable polyglycolic acid suture. Finally, an acrylic surgical splint was placed to protect the wound, and the patient's father was given the appropriate postoperative instructions.

Postoperative pharmacological management included oral administration of 250 mg of paracetamol (every 6 hours for the first two doses, then every 8 hours as needed due to pain) and 125 mg of amoxicillin (every 8 hours for 7 days). Emphasis was also placed on adherence to oral hygiene recommendations, a soft diet, and clinical follow-up at 48 hours. Figure 4.

Since epithelial tissue is observed adhering to the extracted piece, it is sent for histopathological analysis, obtaining a definitive diagnosis of mesiodens. shocked and invested No syndromic with cyst Dentigerous. In the macroscopic analysis performed by the specialist in Stomatological Medicine and Pathology, soft tissue was observed adhered to the neck of the tooth

Figure 4. *Surgical procedure .*

corresponding to the cystic wall that clearly surrounds the crown, associated with inverted mesiodens. Figure 5 and 6.

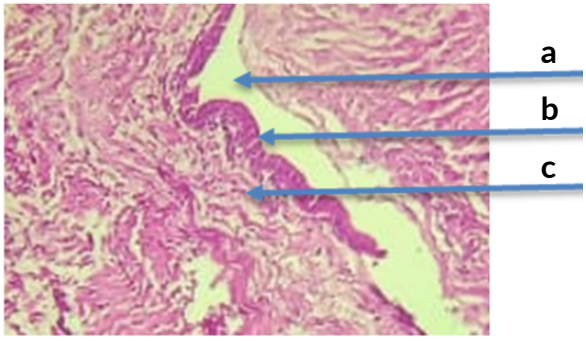

Figure 5. *Microphotograph with HE staining, 100X magnification. A cystic cavity (a) lined by a uniform nonkeratinized stratified squamous epithelium (b), 4 to 5 cell layers thick, and a thick capsule of fibrous connective tissue with a moderate amount of chronic inflammatory cells (c).*

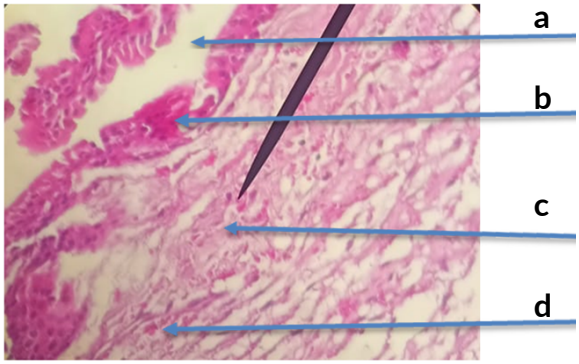

Figure 6. *HE-stained micrograph, 400X magnification. A cystic cavity (a) is lined by a uniform non-keratinized stratified squamous epithelium (b), 4 to 5 cell layers thick, and a thick capsule of fibrous connective tissue with a moderate amount of chronic inflammatory cells (c) and some inflammatory capillaries (d).*

Five months after surgery, a follow-up periapical radiograph was taken in the upper central incisor region. The image showed the absence of the mesiodens, with no signs of recurrence or presence of residual supernumerary structures. Adequate bone regeneration was also observed in the treated area, with the presence of developing trabecular bone, characteristic of the post-surgical remodeling process. The roots of the permanent incisors showed open apices , corresponding to the expected stage of root development for the patient's age. No signs of root resorption or morphological alterations associated with the previous presence of the mesiodens were observed. No periapical lesions, pathological radiolucent areas, or changes in the periodontal ligament space were identified. These findings indicate a favorable , complication-free outcome after surgery. Figure 7.

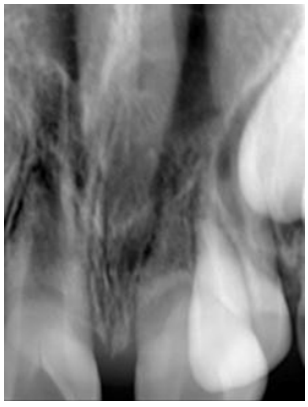

Figure 7. *Radiography periapical control*

Discussion

Cruz *et al* 2020 [8], they point out that the highest prevalence of mesiodens occurs among the 7 and 9 years old, being further common in children, with a proportion of 1.8:1 forehead to the girls. This fact This is consistent with the present case, which documented a mesiodens in an 8-year-old male patient. Most dentigerous cysts are associated with maxillary third molars and canines; their occurrence in supernumerary teeth is less common, with an estimated prevalence of between 5 and 6%[9]. This case report contributes to this percentage by demonstrating a mesiodens in the anterior maxillary region.

This study presents the peculiarity of document a mesiodens in a twin Monozygotic. Although the literature up to 2010 generally reported mesiodens in both monozygotic twins[10], in this case it was only detected in one of them. Mesiodens is the most common dental anomaly in the permanent dentition and usually prevents the eruption of the incisors. It can manifest as a single or paired tooth, erupted, impacted, or even inverted, with a form conic and root short, characteristic that usually predominate in he 66% of cases[11,12].

In the present case, the mesiodens was inverted and impacted, accompanied by a dentigerous cyst that blocked the eruption of a permanent incisor. This presentation is consistent with previous studies that have documented complications associated with mesiodens, such as eruption disturbances, crowding, displacement, root resorption of adjacent teeth, and cyst formation[13,14]. Although the development of a dentigerous cyst in a tooth supernumerary No erupted is unusual[15], in this case HE identified a cyst dentigerous associated with an inverted and impacted supernumerary tooth in an 8-year-old boy.

He diagnosis and treatment early of the mesiodens are essentials for prevent complications such as: resorption of permanent teeth, cyst formation, malocclusions and aesthetic problems [8]. In he present case, the extraction surgical of the tooth supernumerary allowed for the appropriate intervention of the permanent incisor, which underlines the importance of timely intervention.

Radiography plays a fundamental role in the diagnosis of oral disorders, including those of low prevalence, such as impacted inverted supernumerary teeth. This case study demonstrates that inverted mesiodens can be discovered incidentally in a radiography of routine, it that underlines the importance of the controls newspapers for early detection and monitoring of these conditions [16].

The methods used in this study include clinical, radiographic and tomographic examinations, allowing a assessment exhaustive and planning surgical adequate for the extraction of mesiodens in the oral cavity of patient[17].

This article highlights the clinical peculiarity of a dentigerous cyst associated with an inverted mesiodens, located between the maxillary central incisors. Treatment included complete enucleation of the lesion and extraction of the mesiodens under local anesthesia, with histopathological confirmation of a dentigerous cyst associated with the inverted mesiodens[18] .

Furthermore, this case of a monozygotic twin with a paternal history of supernumerary teeth suggests the possible influence of genetic factors on the development of mesiodens. Alarcón *et al.* [10] have suggested that supernumerary teeth may be related to genetic factors, supported by the three cases documented in their study.[19,20]

According to Cawson[21]. The frequency of cysts dentigerous is he double in men in comparison with women, and are uncommon in children, occurring mostly between 20 and 50 years. Acosta [22] also found a higher prevalence in men (55.6%) and a more frequent distribution in the second and third decade of life. This case is particular to the occur in an 8-year-old child.

Conclusion

The presence of a mesiodens associated with a dentigerous cyst is unusual. This report documents a rare presentation of a mesiodens invested and shocked, No syndromic, in a monozygotic twin patient.

Mesiodens is a common dental anomaly that can occur alone or in association with syndromes. Periapical radiography is crucial in its diagnosis, generally being the first tool to detect this anomaly.

Differences in physical characteristics and disorders between monozygotic twins, despite sharing the same genetic code, can be attributed to factors such as genetic mutations and environmental influences.

The detection and intervention surgical early are fundamentals for avoid complications and ensure proper dental and functional development in the patient.

He cyst dentigerous presents a cavity good delimited and rounded, located in the crown of the part dental. Without embargo, in particular cases a keratocyst odontogenic either Ameloblastoma may surround the crown and present an image similar to that of a dentigerous cyst, being differentiated in the histopathological analysis.

Dentigerous cysts are usually benign and asymptomatic in the absence of complications, such as development of a tumor. Frequently, it is detect incidentally in Imaging studies to investigate the cause of the lack of eruption of a tooth, as in the present case.

In summary, mesiodens and dentigerous cysts have a good prognosis; however, early detection and timely surgical intervention are essential to prevent complications and ensure proper dental development and function.

Conflict of Interest

The authors No have conflict of interest with this report.

Contributions of the Authors

All the Authors contributed to the development of this manuscript.

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