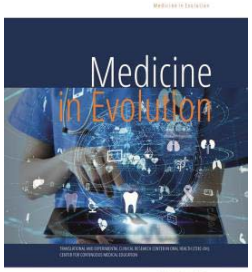
# Clinical management of inverted mesiodens – case report

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## Abstract

Mesiodens is a common developmental anomaly characterized by the presence of one or more supernumerary teeth in the maxillary midline region. However, inverted mesiodens, where the tooth crown points towards the nasal cavity, is a rare variation of this condition. This paper aims to present a case study of a 7 years old male patient with inverted mesiodens and aspects of treatment, successful management and aetiology of this unique dental anomaly.

**Keywords:** diagnostic methods, clinical features, mesiodens, supernumerary

## INTRODUCTION

Mesiodens is a type of dental anomaly where an extra tooth, called a supernumerary tooth, develops in the midline of the upper or lower jaw, usually between the two central incisors. It is the most common type of supernumerary tooth and is found in about 0.15% to 1.9% of the general population [1].

Mesiodens can be either fully formed or rudimentary, meaning it may not erupt or be fully developed. When it does erupt, it can cause a variety of dental problems, including crowding, misalignment, and malocclusion. In some cases, mesiodens may also cause damage to the adjacent teeth or affect the development of permanent teeth [1,2].

An inverted mesiodens, also known as an inverted impacted mesiodens, is a rare variation of a mesiodens where the tooth is upside down, with the crown facing downwards and the root facing upwards. This dental anomaly can occur in both the upper and lower jaw, but it is more commonly found in the upper jaw [2,3].

Diagnosis of mesiodens is typically done through a dental examination, X-rays, and other imaging tests. Treatment options may vary depending on the size, shape, and location of the tooth. In some cases, it may be recommended to extract the mesiodens to prevent further dental problems or to create space for the normal teeth to grow properly. In other cases, orthodontic treatment may be necessary to correct any misalignment or crowding caused by the mesiodens [4].

Inverted mesiodens can cause several dental problems, such as pain, swelling, infection, and damage to adjacent teeth or structures. In some cases, the inverted mesiodens can also cause obstruction of the nasal cavity or sinus [2,4].

### *Aim and objectives*

This paper aims to present the clinical-surgical approach of a case of inverted mesiodens present in a 7-year-old child patient with mixed dentition. This rare situation requires good preoperative planning due to the degree of difficulty of the surgical intervention but also from the point of view of the specific behavioral management.

## CASE REPORT

The 7-year-old patient P.N. presented in the Pediatric Dentistry discipline for a specialist consultation regarding the persistence of the temporary central incisor 5.1 and the presence of the permanent incisor 2.1 as well as multiple carious lesions (Fig.1).

Figure 1. Clinical view

The anamnesis was performed which did not present special events or pathological aspects, the patient having a good state of health, being followed by the clinical and

radiographic examination. Radiographic analysis such as orthopantomography (Fig.2) and CBCT (Fig.3) were performed and following their completion, the presence of a supernumerary mesiodens type tooth on the midline, with an inverted position obstructing the eruption of the permanent central incisor, was observed, necessitating its extraction.

Figure 2. Orthopntomography analysis

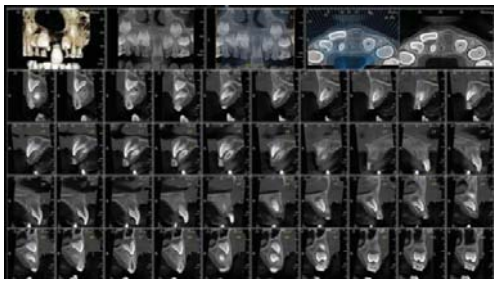

Figure 3. CBCT analysis

Parents were informed and explained about and the surgical procedure steps and the written informed consent was obtained. The inverted mesiodens removal was carried out under local anaesthesia with the use of topical 10% lidocaine and labial and palatal infiltration with 4% articaine and 1:100.000 epinephrine with a 30G needle. Using a primary anterior forceps, the decayed primary central and lateral incisors were extracted (Fig.4).

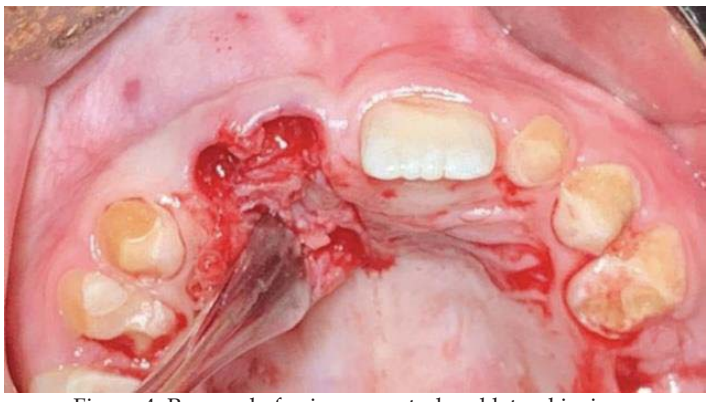

Figure 4. Removal of primary central and lateral incisors

With a #15C blade, an incision was given at the alveolar crest in the midline without a releasing incisión (Fig.5).

Figure 5. Visualization of the inverted mesiodens

The flap was slightly lifted to visualize the mesiodens and the tooth was luxated with an elevator, taking care not to damage the permanent teeth, and carefully extracted (Fig. 6).

Figure 6. Supernumeray tooth

The extraction site was gently curetted, irrigated with saline, and the wound closed with a simple 4-0 silk suture (Fig. 7). Home care instructions, including oral hygiene measures and diet counseling, were given to the parents.

Figure 7. Aspect after the extraction

## DISCUSSIONS

Mesiodens is a relatively rare dental anomaly, but its prevalence can vary widely depending on the population studied and the diagnostic criteria used [1,2].

In the general population, mesiodens is estimated to occur in about 0.15% to 1.9% of individuals. However, in certain high-risk populations, such as those with cleft lip and palate or other genetic disorders, the frequency of mesiodens can be much higher, up to 25% or more [2,3].

In addition, mesiodens appears to be more common in males than females, with a male-to-female ratio ranging from 2:1 to 4:1. The condition also tends to be more prevalent in people of Asian and African descent compared to those of European descent [2,3].

The exact etiology of mesiodens is not fully understood, but several factors have been proposed as potential contributors to the development of this dental anomaly. Some of the commonly suggested etiological factors of mesiodens include:

1. Genetic factors: Mesiodens has been reported to have a genetic component, with studies showing that there may be a higher prevalence of this anomaly in certain families. Some genetic syndromes have also been associated with an increased risk of developing mesiodens, such as cleidocranial dysplasia.
2. Environmental factors: Environmental factors such as maternal illnesses, exposure to certain chemicals or toxins, and infections during pregnancy have been suggested as possible causes of mesiodens.

3. Disturbances in dental development: Mesiodens can also occur due to disturbances in dental development during the formation of teeth. These disturbances can lead to the development of extra teeth, or the teeth may develop in abnormal positions.

4. Idiopathic causes: In some cases, the cause of mesiodens may be unknown, and it is classified as idiopathic [4,5,6].

Overall, the etiology of mesiodens is likely multifactorial, and the exact causes may vary among individuals. Understanding the potential etiological factors of mesiodens can help with the diagnosis, management, and prevention of this dental anomaly [7].

In a study published in the Journal of Oral and Maxillofacial Surgery, the authors reported that among 222 cases of mesiodens, only 3 cases (1.3%) were inverted mesiodens. Another study published in the Journal of Clinical and Diagnostic Research reported that among 181 cases of mesiodens, only 1 case (0.55%) was an inverted mesiodens [4,5,8].

Overall, inverted mesiodens appears to be a rare dental anomaly, and its occurrence may vary depending on the population studied and the diagnostic criteria used. Nonetheless, it is important to be aware of its potential occurrence and associated dental complications, especially in individuals who are at higher risk due to genetic or other underlying factors. Early detection and appropriate management of inverted mesiodens can help prevent complications and improve dental outcomes [4,5].

The diagnosis of an inverted mesiodens is usually made through a combination of clinical examination, dental radiographs, and other imaging techniques such as CT scans. The treatment of an inverted mesiodens typically involves surgical removal of the tooth, either through a traditional surgical approach or a minimally invasive technique such as endoscopic sinus surgery [1,2].

The extraction of a mesiodens, or supernumerary tooth, is typically recommended when it causes dental problems such as crowding, malocclusion, or damage to adjacent teeth. The extraction process may involve a simple surgical technique, where the tooth is loosened and removed from its socket using dental instruments such as forceps or elevators. In some cases, however, the tooth may be impacted or difficult to access, requiring a more complex surgical approach [9].

After the extraction, the dental professional may provide post-operative instructions such as biting down on gauze to control bleeding, applying ice packs to reduce swelling, and avoiding certain foods and activities that may interfere with healing. Pain medication and antibiotics may also be prescribed to manage pain and prevent infection [10,11].

It is important to follow the dental professional's post-operative instructions carefully to ensure proper healing and to prevent any complications such as infection or dry socket. In addition, regular follow-up visits may be necessary to monitor the healing process and to address any concerns or issues that may arise [12].

## CONCLUSIONS

Inverted mesiodens is a rare variation of the mesiodens anomaly, characterized by an inverted orientation of the tooth crown towards the nasal cavity. Understanding the etiology, clinical features, and appropriate treatment considerations is essential for the successful management of this unique dental anomaly. Although rare, inverted mesiodens should be considered in the differential diagnosis of patients presenting with nasal obstruction and other associated symptoms. Further research is warranted to explore the underlying causes of inverted mesiodens and optimize treatment strategies for improved patient outcomes.

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