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MESIODENTES AS A MECHANICAL OBSTACLE IN THE ERUPTION OF PERMANENT TEETH - CASE REPORT

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Abstract

The aim of this paper is to emphasize the importance of the early detection of supernumerary teeth / mesiodentes that can cause mechanical obstruction in the eruption of permanent teeth and lead to irregularities in the dentition.

We present a case of a ten-year-old child who was diagnosed with two mesiodentes and non-erupted permanent central incisors in the upper jaw. The absence of the central permanent incisors was clinically diagnosed and the presence of the mesiodentes was diagnosed with an X-ray. Mesiodentes were positioned below the permanent teeth and on the palatal side.

The mechanical obstruction for normal eruption of the permanent incisors was removed when the mesiodentes were extracted under local anesthesia. The child's condition was excellent and after seven days the sutures were removed. After two and a half months, one of the central incisors erupted.

Early detection of mesiodens is an important element for the normal eruption of permanent teeth and proper placement in the dental arch.

***Keywords*:** supernumerary teeth, mesiodens, upper jaw, suture.

Introduction:

Mesiodens or supernumerary tooth, is usually situated in the incisal part/anterior part where the two maxillas meet. It usually has a conical shape, but can also be found as a grain of rice, imitating the shape of a premolar, or it has another shape. Mesiodentes are most often positioned like the permanent teeth (vertical direction), but they can also be turned with the crown towards the nasal bottom or placed horizontally [1-7].

Inversion can also be found in supernumerary teeth, but is more common in mesiodentes[8-10]. The placement of the mesiodens with the crown towards the nasal bottom (inversion) is more common in incisors, but can also be found in canines, premolars and molars [3, 11-14].

Eruption of teeth placed like this is extremely rare, but cases of erupted incisors and premolars have been found in the literature [15,16].

The etiology of mesiodens is unclear. There are three theories about the possible mesiodens formation:

1. Theory of phylogenetic reduction - our extinct ancestors had three incisors in each jaw (a return to the past / atavism)

2. Dichotomous theory - the tooth germ is divided into two parts so that two teeth are formed and one of them is mesiodens.

3. Theory of hyperactive dental lamina (the most accepted theory supported by several authors). Mesiodentes can occur in more than one person in a generation, usually twins, therefore autosomal dominant inheritance may be present. Isolated cases may also occur in which there is no genetic or other link. Mesiodentes can also be found in some cases of Cleidocranial dysostosis, Down syndrome, Gardner syndrome, cleft lip and palate.

Hyperdontic teeth are usually diagnosed early, unlike mesiodentes that are usually diagnosed by advanced X-ray, with clinical examination (wide median diastema /orthodontic cases), or a delayed eruption of a permanent tooth while the deciduous tooth still persists. Mesiodentes can sometimes erupt, however this is less common.

Material and method

We present a case of two impacted mesiodentes in the upper jaw in a ten-year-old child, with erupted lateral incisors, and central incisors missing.

Due to the difficult eruption of the teeth, an X-ray was taken in order to diagnose the cause of this situation. The pictures show that there are two mesiodentes that are sitiated on the palatal side, below the permanent incisors, hence represent a mechanical obstacle in their emergence. A surgical procedure was suggested and afterwards made based on the anamnestic data, clinical examination and X-ray.

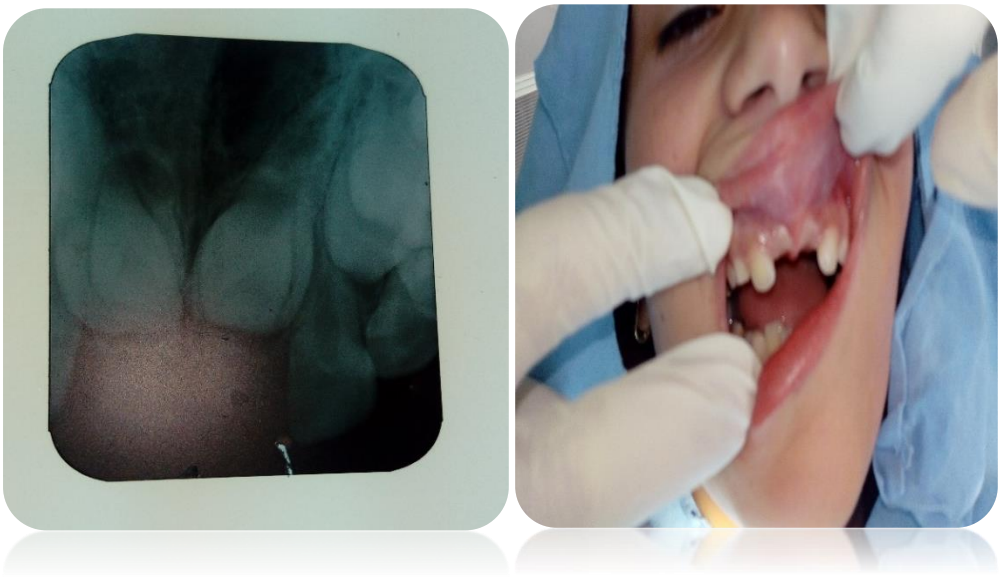
The surgical procedure was made under local anesthetic with an incision in the middle of the ridge and with raising a flap, the supernumerary teeth were extracted, in this case the two mesiodentes and their follicles.

At the end, sutures were placed. Recommendations were given on how to proceed in the coming days, and at the control examinations we noticed a neat wound without bleeding, swelling, infection and redness.

The intervention was performed at the University clinic for oral surgery at the Faculty of dentistry in Skopje.

Result with discussion:

Mesiodentes, like supernumerary teeth, are usually atypical in shape and are usually located between the central incisors in the upper jaw, making them a mechanical obstacle to the normal eruption of their substitutes. In our case they were situated on the palatal side of the maxilla below the permanent central incisors. They prevented the eruption of their substitutes. Lateral incisions are already placed in the dental arch (Figure 1 A and B).



A B

Fig.1 Two mesiodentes with palatal position. A) X-ray image B) intraoral examination

Mesiodentes may be visible on clinical examination, but are more often located inside the jaw, and in some cases can be located deep and high. They do not cause any problem to the patient. They are usually discovered quite by accident (this was not the case with our patient) and according to some authors the percentage of mesiodentes ranges from 0.15% -3.9% According to Russeli, 0.3% according to Kazanci 0.8% according to Mukhopadhsas or 1,83% according to Slavica Jankulovski et al [1].

Regarding the numerical representation, in 90% of the cases only one mesiodens is present and the remaining 10% belong to the cases where two mesiodentes occur [17].

Our case is with two mesiodentes which were an obstacle in the eruption of permanent teeth. Another problem was not noticed either by the patient or by us as therapists, although mesiodentes could be the cause of other complications.

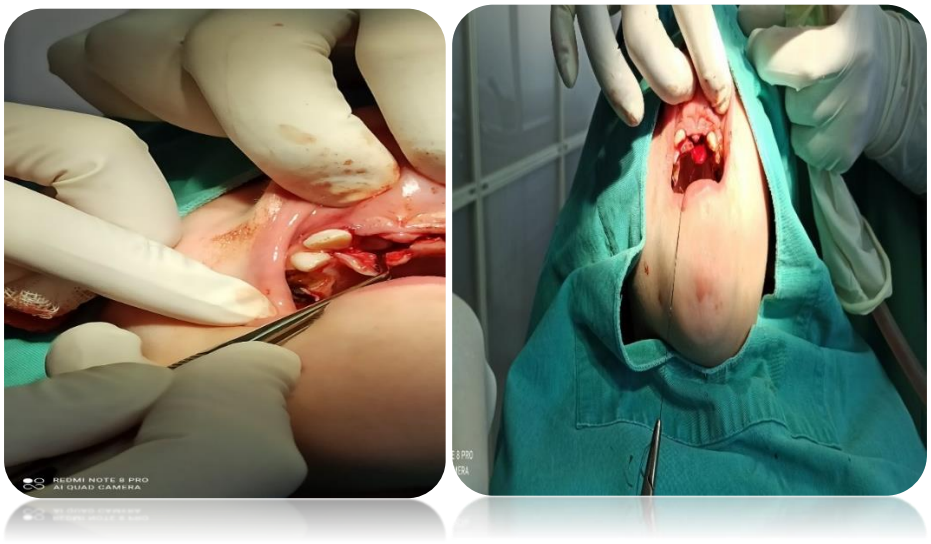
Examples of possible complications such as formation of a cyst which as it grows can damage adjacent structures (involve an adjacent tooth, unnatural communication between the oral cavity and the maxillary sinus or nasal septum), injure an adjacent non-erupted or erupted tooth, can cause orthodontic malformation, or can affect the aesthetic appearance of the patient [6-8.19-20].

Depending on the case, after diagnosing and consultation with an orthodontist and pediatric dentist, a decision is made either to remove the mesiodentes or to temporarily postpone the extraction.

In some rare cases the extraction is prolonged for a long time and very rarely these teeth are not removed / they remain in the jaw.

Surgical removal of the teeth is usually performed with mucoperiosteal incision made from the palatal side.

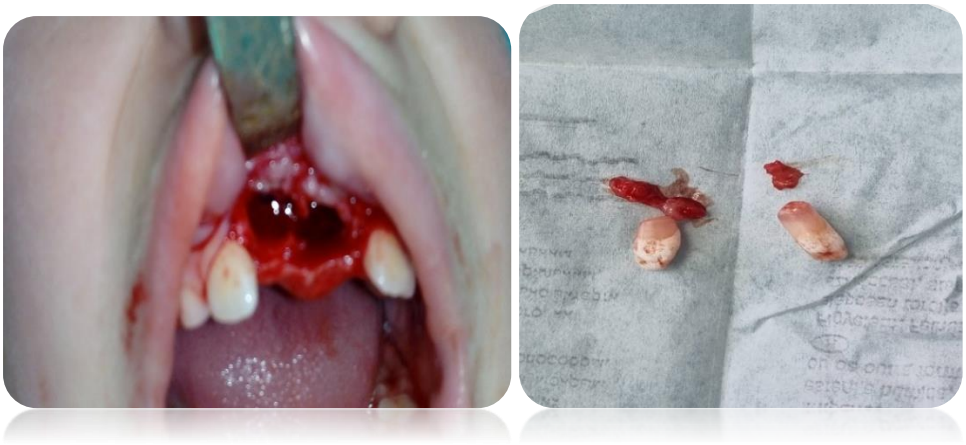
Our approach in this case was with an incision along the crest of the ridge and with rising a flap from the palatal side because of the palatal position of the mesiodentes.



A) B

Fig.2. Surgical procedure for removal of mesiodentes (A) the right mesiodens, B) an open mucoperiosteal flap)

Both mesiodentes were extracted with osteotomy. They were irregularly shaped / rhombic and the dental follicles were extruded at the same time (Fig.3).



A B

Fig.3. The two extracted mesiodentes A) Empty alveoli B) mesiodentes with their follicles

Sometimes, depending on the age of the child and the position of the mesiodens, complications may be caused during the intervention.

This surgical procedure can be difficult to perform since the patient is a child, so in some cases may be delayed. In the meantime, if the intervention is to be postponed, X-rays are taken / orthopantomographic or retroalveolar X-ray, and 3D image to observe the condition of the mesiodentes in relation to the jaw and teeth, which would usually detect any possibility of developing a cystic lesion or resorption of an adjacent tooth.

If the intervention is necessary, care must be taken of the surrounding structures to preserve bone mass as much as possible.

After four months, the condition in the mouth in our patient changed. The right central incisor erupted and the left is in the process of erupting Fig.4. Because the space is small, it is recommended that the child continues orthodontic therapy in order to maintain a proper eruption of the tooth.

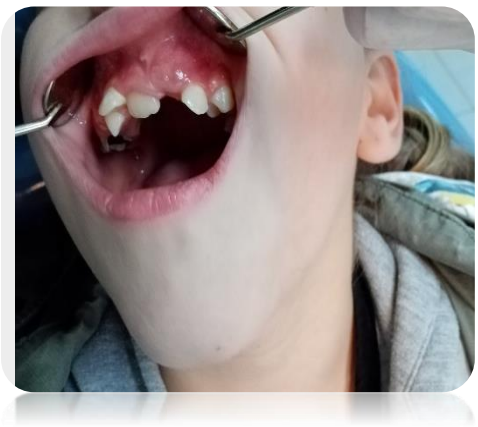


Figure 4. Erupting right central incisor

Conclusion

Early diagnosis and therapy of mesiodens is of great importance for the normal placement of the teeth in the dental arch, their functionality and aesthetics. The therapeutic procedure can be purely surgical, but in most cases it is orthodontic-surgical. In further treatment it is necessary to make an X-ray examination (orthopantomogram, small retroalveolar X-ray image and 3D image)

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