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Mesiodens and a supernumerary tooth as a cause of disorders in the eruption of teeth 21 and 22 – a case report

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Abstract:
The article presents a case of surgical treatment of an 11 y.o. boy, who was diagnosed with a mesiodens and a supernumerary impacted tooth at the same time.

Key words: mesiodens, disturbances in eruption, supernumerary impacted tooth

Hyperdontia, which stands for having supernumerary teeth, may occur both in patients with deciduous and permanent teeth. Normally children develop 20 teeth and adults, after their growth has finished, 32 permanent teeth. Any derogation from this rule may lead to maxillary and occlusal disorders. The aetiology of this disorder is still unknown, yet various theories have been presented based on epidemiological studies. Some authors underline that occurrence of supernumerary teeth is connected to the hyperactivity of the dental lamina (2, 10), and in such case hyperdontia is considered as dominant feature. Whereas when disorders of other organs coexist, it is considered recessive. Hyperdontia very often accompanies genetic disorders, such as Down, Gardner, Crouzon, Ehlers-Danlos, Apert or Marfan syndrome, and can also occur along with maxillofacial disorders such as cleft of the lip and the palate (9).

Supernumerary teeth are observed 5 times more often in the permanent dentition. Their occurrence is between 0,15 to 3,9 %, in 80% of cases it concerns maxilla, and half of this number is observed in the anterior part (1, 10).

The most common supernumerary tooth is the so-called mesiodens (10), with incidence of 0,15 to 1,9 % of population, and is observed twice as often in men than in women. Such a tooth is usually located between maxillary mesial incisors; less often it concerns the mandible. Mesiodens is often of conical shape although sometimes it might resemble an anatomically correct tooth (13). Usually it is located under the crown of the proper tooth, heading towards the peak of the alveolar process, from the palatal or vestibular side, and can be totally or partially impacted or erupted. Most frequently it is an autonomous disorder, however other supernumerary teeth might accompany it in one third of cases (1).

The presence of increased teeth number may be a cause of many complex orthodontic disorders and often requires combined surgical and orthodontic treatment.

The article describes a case of a boy with multiple dental disorders, located in the anterior part of the maxilla. The patient underwent surgical treatment prior to subsequent planned orthodontic treatment.

Case report.

The 11 y.o. boy was referred to the Department of Oral Surgery in Lodz, by his orthodontist, due to incorrect location of teeth 21 and 22, mesiodens and an impacted supernumerary tooth. The intra oral examination revealed the presence of the mesiodens, with a claw-like cuspid, located between the central incisors, a 1cm wide diastema between the teeth 11 and 21, tooth 21 dislocated out of the dental arch in the vestibular direction and tooth 22 dislocated towards the palate (fig. 1). The OPG confirmed the presence of the mesiodens and revealed the impacted supernumerary tooth, located close to the root of tooth 21.

Before planned surgery, the diagnostics were extended to performing a CT of the maxilla, for estimating the surgical access and planning the technique, taking into consideration the probable complications. The axial view of the CT showed palatally located impacted supernumerary tooth, distal from the root of tooth 21 and a mesiodens (fig. 2 and 3) in the 1/3 of the length of the said root (visible in the sagittal slice) (fig. 4). After presenting the legal guardian with the treatment plan and possible adverse implications of the surgery, and obtaining written consent, the surgery was performed, in local anaesthesia.

In infiltrative anesthesia with 2% lidocaine (2ml) the mesiodens was extracted (fig. 5). Subsequently the flap, omitting the incisive papilla, was incised and performed, the cortical bone was removed and impacted supernumerary tooth exposed (fig. 6), which was extracted by means of forceps (fig. 7). The removal was performed with great deal of care due to the proximity of teeth 21 and 22. The wound was sutured and the sutures were removed after 7 days. The postoperative course was uneventful and the patient referred to the subsequent orthodontic treatment.

Discussion.

Dental disorders are very common, whereas hyperdontia, even though rare, is second with regard to the prevalence of all disorders. Janas et alia. report that the main reason for occlusal anomalies in adults are above others supernumerary teeth, incorrect location of the germs, no space in the dental arch, usually caused by premature loss of primary teeth, short frena of upper, lower lip and the tongue, traumas, parafunctions and dysfunctions of the TMJ (2).

Presence of supernumerary teeth in anterior part of the maxilla causes disorders in eruption of the permanent teeth, in significant higher degree than in the lateral part. Only 25% are observed in the oral cavity and can be detected via intra oral examination. (5). In the case described by us, the erupted mesiodens was visible during the examination, and its image differed from the anatomical structure of the permanent mesial incisor, a feature which was overlooked by the GDP.

There is need to underline the fact, that any case of diastema in the anterior part of the maxilla, rotation or migration of teeth towards the vestibular or palatal side, should induce performing the radiological diagnostics in order to exclude the presence of dental disorders. No such diagnostics have been performed in the described case, even though anatomical and location disorders were visible.

For precise estimation of the number and location of supernumerary teeth against permanent dentition, and for correct planning of the surgical and orthodontic treatment, CBCT should be performed (3,10,11,14), which allows for detection of root resorptions, ankylosis of impacted teeth and precise evaluation of the disorders. In our view this additional examination is essential for surgical treatment of hyperdontia, as it allows for precise planning of the surgery and shows

detailed location of the impacted supernumerary tooth. When operating in the anterior part of the maxilla, special care should be taken to locate the fundus of the nasal cavity, nasopalatine canal or the external bundle bone of the alveolar process (10,11).

Treatment of supernumerary teeth, also impacted ones, depends on many factors and interdisciplinary cooperation between the surgeon and orthodontist. Especially swift intervention is required in cases of impacted permanent teeth, their significant dislocation, or presence of follicular cysts or root resorption (7). In our patient no such clinical symptoms were observed.

It should be stressed that many authors consider that sooner extractions of supernumerary teeth result in better effects of subsequent orthodontic treatment (8). Whereas Zadurska et alia propose the extraction of such mesiodens, which is located near the incisors, after the final development of their roots, to avoid the damaging of the neurovascular bundle (12).

Currently it is claimed that to minimise the need for later second surgical intervention, the best age for mesiodens removal is before the 6 years of age (6,7,8). Only in cases of impacted asymptomatic mesiodens, which does not affect the permanent dentition, it is recommended to leave it for observations and radiological control (7).

In described case, the surgical treatment was undertaken relatively late, which may result in prolonged orthodontic treatment.

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Fig. 1. Intraoral image of the patient.

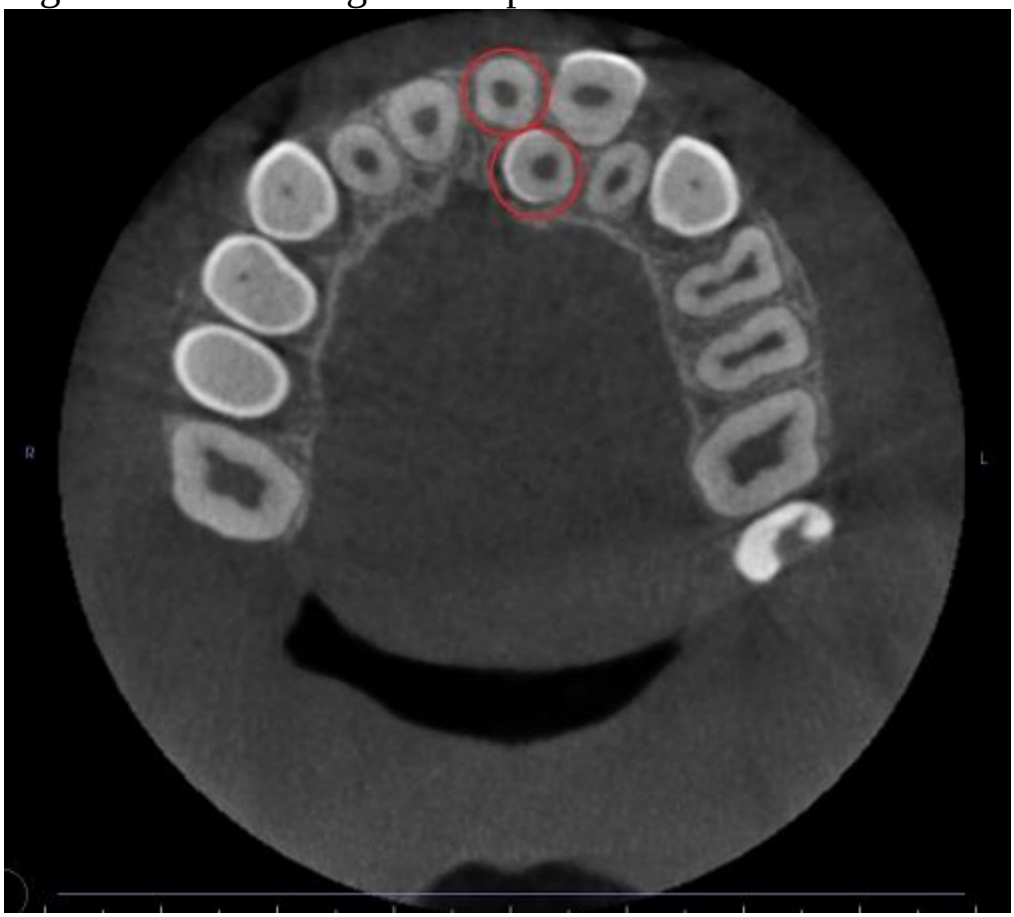

Fig. 2. Axial slice of the CT with visible mesiodens and supernumerary tooth

Fig. 3. Frontal slice with visible mesiodens.

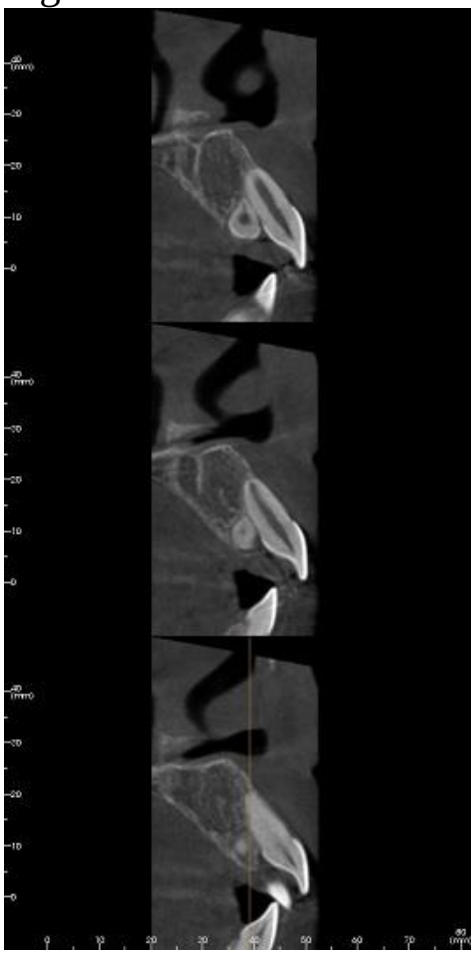

Fig. 4. Saggital slice of th CBCT showing the location of the supernumerary tooth towards the tooth 21.

Fig. 5. Removed mesiodens

Fig. 6 Intraoperative image showing the exposed impacted supernumerary tooth

Fig. 7 Impacted supernumerary tooth.