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TOTALLY REIMPACTED SECOND PRIMARY MOLAR IN MAXILLA IN A 7-YEAR-OLD BOY

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Abstract

The article describes a case of a 7-year-old boy with a totally reimpacted tooth 65 and the treatment schedule.

Key words: reimpacted tooth, teeth eruption, reimpaction

Introduction

Reimpaction is a phenomenon of gradual distancing from the occlusal plane and secondary dumping into the alveolar process of the maxilla or alveolar part of the mandible of partially or totally erupted tooth. The permanent symptom of reimpaction is the position of such tooth, called the infraposition or infraocclusion (1). The frequency of this anomaly in population reported by most polish and foreign authors is around 7,5% with male predilection, which corresponds with our longtime observations (2, 3, 4). However, the occasional differences between the authors are worth mentioning. In 2013 Popowski and alia (5), described the occurrence if this discrepancy as 0,07-1%, whereas Sobolewska-Siemieniuk and alia (6) describe the reimpaction as more frequent in girls.

First and second primary mandibular and maxillary molars are most commonly reimpacted, with different frequency (7, 8). Furthermore, in 20% of the patients there is no secondary tooth germ present, which should be a replacement for the reimpacted tooth. Reimpaction aetiology is not entirely known. There is a couple of theories regarding its pathogenesis: mechanic theory, bone inertia, sudden trauma, disturbances in the function of endocrine glands and ankylosis theory.

It should be underlined that the method of choice in case of a reimpacted primary tooth, is its extraction, which prevents serious complications. The extraction of such a tooth is often very complicated and should be performed by a skilled surgeon.

Case report

The 7 year-old patient, with no known medical history, was referred to the Oral Surgery Department of the Medical University of Lodz by his GDP, for a consultation of a reimpacted left second primary molar 65. The interview of child's mother resulted in finding, that 2 weeks before the patient reported pain in the region of tooth 65 and the buccal left area. The GDP ordered performing an OPG and referred the patient to our Department.

Clinical examination revealed no inflammation, the oral mucosa was pink, shiny, smooth and with no evident pathological changes. There was no bone distension of the examined area, but the tooth 65 was almost completely reimpacted, however the contact with oral cavity remained only through one of the cuspids. Unfortunately, the cause of such late referral of the patient to our Department caused the mesial inclination of the first secondary molar of the left side.

The crown of the tooth was located on the level of the 26 tooth' cervix, and three divergent roots covered the germ of tooth 25. Patient's mother negated the occurrence of any disturbances in teeth eruption in the family. Due to adverse location of the tooth and inclination of the tooth 26, which prevented from inclusion of the combined surgical and orthodontic treatment, the decision has been made to extract the tooth 65.

The legal guardian has been presented with the treatment plan, and after obtaining written consent the surgery has been scheduled. After surgical and anesthesiology consultation and because of the size and severity of the surgery, the patient was qualified for the surgery in general anaesthesia, as a part of the 1-day surgery procedures.

In general anesthesia, the flap has been cut and prepared, the cortical lamella has been removed with a bur, which allowed to reach the crown and buccal roots of the tooth 65, which was removed using the Meissner forceps in such a way, as to not damage the germ of tooth 25. The wound was rinsed with a 0,02% chlorhexidine solution and sutured. The patient was provided with an extra oral cold compress and after few hours discharged home under mother's guidance.

The patient showed up for the follow-up visit the next day, during which a slight oedema was observed. No pain was reported and the healing of the wound was uneventful. After 5 weeks from the surgery, the boy was referred for further orthodontic treatment.

Discussion

The mechanism of reimpaction considers few theories, such as: - mechanic, according to which the primary tooth in the middle of eruption does not achieve the occlusal plane due to the disto-mesial pressure of adjacent teeth which in turn causes their inclination towards the reimpacted tooth, and that causes the eruption to cease; - bone inertia, where the bone is becoming unable to tissue changes in a process of physiological teeth eruption and causes to cease the growth of alveolar process and reimpaction of the tooth in it; -ankylosis, when there is a fusion of bone and cement between the wall of the alveolus and the root (7).

If we consider our previous reports (3, 4) regarding the reimpaction, we are of the opinion that the most probable should be the last of above mentioned theories, which is strictly related to the lack of periodontal space of the reimpacted tooth visible on the OPG and the occurrence of the ankylosis between the roots of reimpacted tooth and the surrounding tissue of the alveolar process of the maxilla or alveolar part of the mandible.

The proof that speaks for the superiority of the ankylosis theory is the results of Raghoebar and alia (9), who showed pathological resorption of the root tissues, dysplastic tissue change with replacing the damaged or destroyed tissue with less differentiated tissue, which in turn causes ankylosis (1).

As a very important phenomenon should be considered the fact that the primary teeth reimpaction can undergo self regulation, because the ankylosis is a result of barren necrosis of the periodontal tissues, which can be limited to one point and undergo secondary lysis, described as dereimpaction (10). There are very occasional cases, achieved by adequate orthodontic treatment.

The reimpacted tooth is diagnosed when its occlusal surface is at least 1 mm below the occlusal plane. But the classification based on the depth of the reimpaction in millimetres is impractical and hard to apply in clinical conditions. The classification proposed by Pytlik seems much more useful (11), who identifies the partial and total reimpaction. The partial reimpaction is divided into 2 stages: A1 – when the tooth is reimpacted less than up the half of the height of adjacent tooth crown, and A2 – when the occlusal surface of the reimpacted tooth is above the above-mentioned level. The total reimpaction is observed, when crown of the impacted tooth is covered completely with the mucosa (B stage).

To diagnose the stages A1 and A2, intra oral clinical examination is sufficient, whereas in case of a B stage, and also to asses the possible consequences, there is a need for an OPG, which can show the characteristics of the anatomy of reimpacted tooth. The authors (4, 6) indicate that in the pulp chamber of the reimpacted tooth, one can observe calcium precipitation, the angle between the roots is obtuse, and the space of the periodontium is partially or totally obliterated. The resorption of the reimpacted tooth' roots is asymmetrical and can cause the horizontal separation of its crown from the roots. Reimpaction of premolar teeth is associated with many complications. The lengthening of the opposite tooth and inclination of the adjacent teeth is observed (12). The incidence of the abscess or fistula as a result of tooth decay, and the pressure on the alveolar inferior nerve is often observed (13), which corresponds with our case report. The knowledge of the clinical and radiological image of reimpaction allows for early detection, which in turn prevents subsequent complications.

Conclusion

The treatment of patients with reimpaction requires precise diagnostics, the surgical and orthodontic cooperation, and as a consequence an individual planning and assessment of the case, which is dependent on the age of the patient, the stage of reimpaction, stage of the root resorption and also the presence and location of the germ. It has to be indicated that still, the method of choice is extraction of the reimpacted tooth.

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Fig. 1. Partially reimpacted tooth 65.

Fig. 2. Cut and prepared mucoperiosteal flap.

Fig. 3. Buccal roots of the tooth delivered with the use of a bur.

Fig. 4. Extraction of the reimpacted tooth using the Meissner forceps.

Fig.5. Extracted tooth.

Fig.6. Sutured wound.

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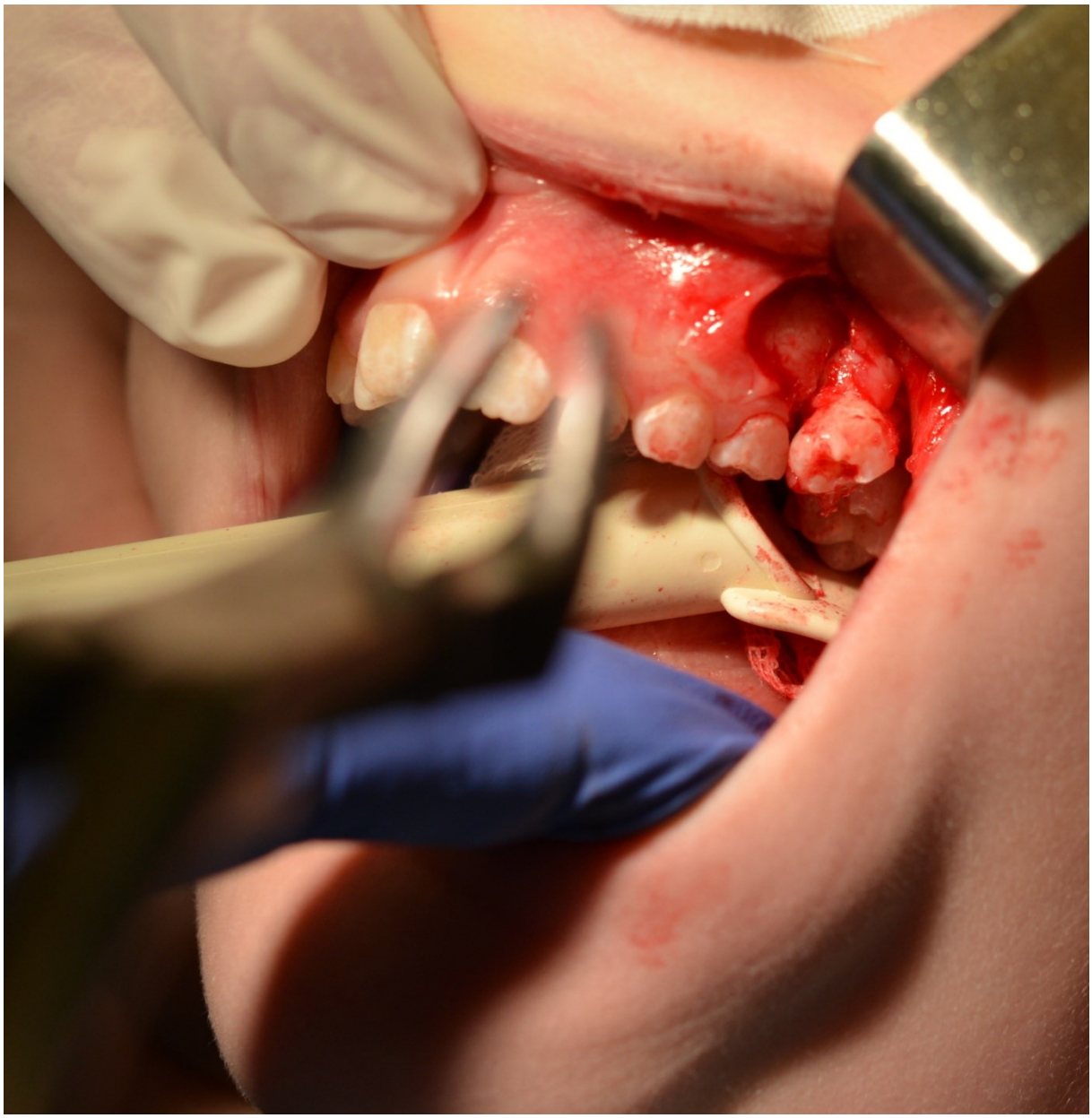
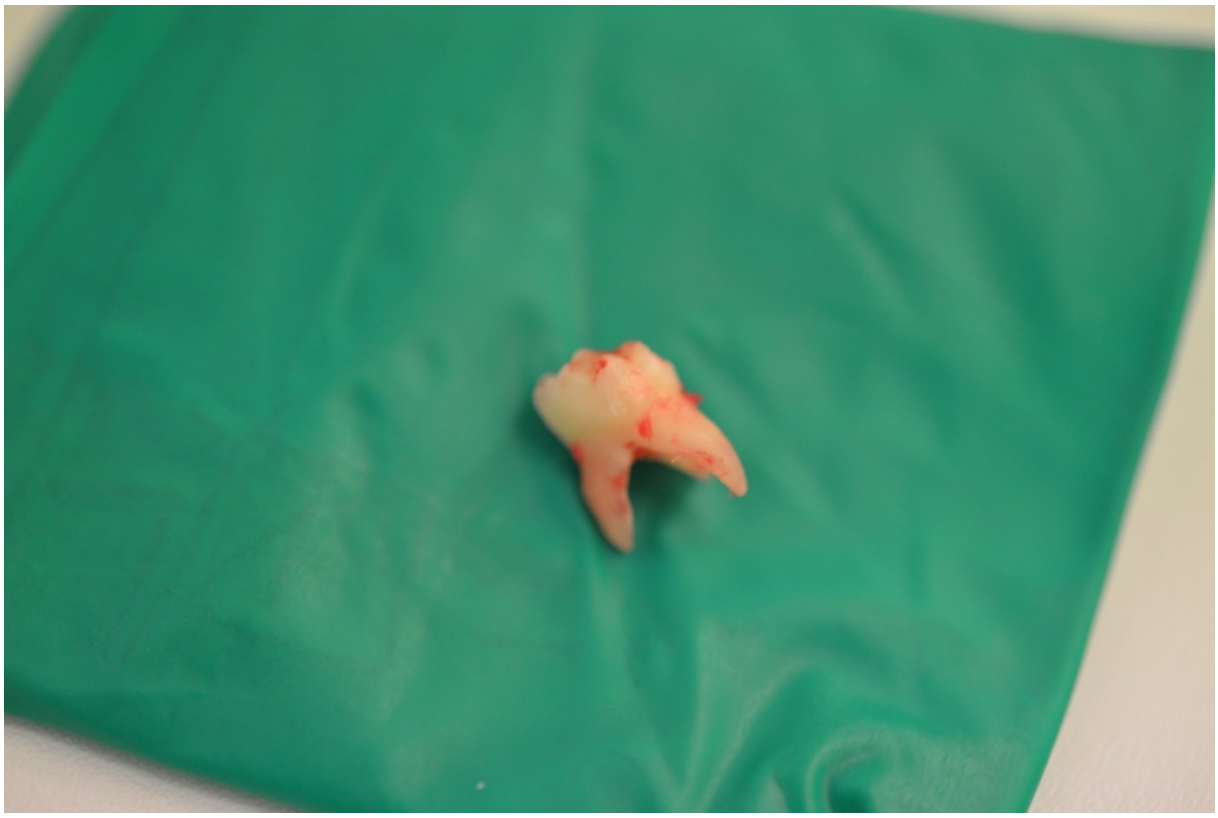


Fig. 4. Extraction of the reimpacted tooth using the Meissner forceps



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