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Development of odontoma-like malformation in the permanent dentition caused by intrusion of primary incisor – a case report

CASE REPORT

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Abstract – A case is presented of a 10-year-old girl, referred for consultation for failure of the maxillary central incisor to erupt. At 18 months, the patient underwent intrusion of the right central primary incisor, which re-erupted several months later. Radiographic examination revealed a complex odontoma-like malformation located next to the floor of the nose, away from the permanent incisors. Clinical examination revealed space loss of the corresponding permanent incisor and severe hypoplasia of the permanent right lateral incisor. Because of its deep location, it was decided not to remove the odontoma, but to recommend yearly radiographic follow up to rule out the development of a dentigerous cyst. This case describes a very rare complication of intrusion of primary incisors and emphasizes the importance of follow up until eruption of the corresponding permanent teeth.

Traumatic injuries to the primary incisor during the developmental stages of the corresponding permanent tooth interfere with its future growth, calcification and/or maturation in a prevalence of 12–69% (1, 2). The main reason for these disturbances is the close approximation of the apices of primary teeth and their developing permanent successor buds. The extent of the disturbances increases when the corresponding permanent tooth bud is at its early developmental stages, and after severe traumatic injury, usually intrusion or avulsion. One serious disturbance is an odontoma-like malformation of the permanent tooth. Although mentioned frequently in the dental literature as a sequel of traumatic injury to primary teeth, only a few cases have been reported (3, 4). This disturbance is rare, confined primarily to maxillary incisors, when the time of injury occurs between ages <1 and 3 years, during the morphogenetic stages of the dental follicle, and results mainly from intrusive luxation or avulsion (3).

Histological and radiographic analyses show a conglomerate of hard tissue, with a complex odontoma or separate tooth element morphology. The traumatic origin of these malformations is further supported by the similar complication reported after traumatic extractions of primary canines (5).

Case report

A 10-year and 5- month-old girl was referred to the Department of Pediatric Dentistry at Tel-Aviv University because her maxillary central incisor failed to erupt. Medical history showed no specific problems. At 18 months, the patient had fallen on her face, and as a result, her primary maxillary right central incisor intruded. There was no regular follow up. According to her mother, the intruded primary incisor re-erupted several months later.

Intra-oral clinical examination revealed poor oral hygiene, a class II malocclusion with crowding, and an anterior open bite because of thumb sucking until the age of 6 years. The permanent right central incisor was missing, and its space was partially lost. The permanent right lateral incisor showed a hypoplastic lesion in the middle third of its crown (Figs 1 and 2). The permanent left central incisor had erupted without complication.

A periapical radiograph of the permanent maxillary incisors revealed the presence of an opaque calcified mass resembling a complex odontoma malformation located next to the floor of the nose (Fig. 3). Panoramic and cephalometric radiographs confirmed that the location of the permanent right central incisor did not interfere with the alignment of the adjacent teeth (Fig. 4). The final diagnosis was an odontoma-like malformation caused by trauma inflicted to the primary dentition.

After consultations with the Departments of Orthodontics and Oral Surgery, it was decided that the patient would receive orthodontic treatment without surgically removing the odontoma. A conservative and preventive treatment with esthetic restoration of the permanent right lateral incisor was carried out.

A yearly follow up was recommended to ensure early diagnosis in the event of complications.

Fig. 1. Missing permanent right central incisor; hypoplasia in the center of maxillary right lateral incisor.

Fig. 2. Occlusal view, space loss.

Fig. 3. Periapical radiograph of permanent maxillary incisors showing an odontoma-like malformation.

Fig. 4. Panoramic view of the patient at 10 years and 2 months. Permanent right central incisor positioned high in the vestibule.

Discussion

This report describes a rare complication resulting from intrusion of a primary incisor at a very young age (18 months), i.e. development of an odontoma-like malformation of the corresponding permanent tooth. Odontomas are pseudo-tumoral lesions composed of both epithelial and mesenchymal cells, which appear histologically normal, with a deficit in structural arrangement. Odontomas have been referred to as hamartomas and not as true neoplasms (6), and are rarely associated with pathologic development of cysts, such as a calcifying odontogenic cyst (7) or a dentigerous cyst (8).

Surgical removal of the odontoma as soon as possible is the optimal treatment. However, the development of an odontoma, as a result of traumatic injury to primary dentition, usually occurs at a very young age when the maxillary bone height is small. As odontomas may not erupt concomitantly with bone growth and adjacent teeth development, the location could be high in the maxillary bone, thus significantly complicating surgery.

In the present case, the odontoma was deep in the maxillary bone, without any eruption disturbance of the adjacent teeth. Therefore, it was decided not to remove the odontoma, but to follow up yearly with radiographs to rule out any pathologic development emerging from this odontoma. This treatment does not expose patients to extensive surgery under general anesthesia. However, there are some drawbacks, such as yearly exposure to radiation. The length and frequency necessary for follow up remain unclear. Furthermore, the patient may not comply with the follow-up recommendation, thus being at substantial risk for late diagnosis of pathologic development. In the present case, both the patient and parents were informed of the advantages and disadvantages of each treatment option, and an informed consent was obtained.

Nevertheless, this sequel has a further implication on the recommended length of follow up after serious traumatic injury to primary teeth. In the present case, it could be justified to recommend follow up until evidence of normal development and eruption of the corresponding permanent tooth is observed. This will ensure early surgical intervention in the case of odontoma development with minimal complications.

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