Case Report

Severe sequelae of acute dental trauma in the primary dentition – a case report

Lenzi AR, Medeiros PJ. Severe sequelae of acute dental trauma in the primary dentition – a case report. © Blackwell Munksgaard, 2006.

Abstract – The incidence of traumatic injuries to primary teeth is high. Previous studies report frequencies ranging from 4% to 33% of all children. The damage limitation and the prevention of sequelae are goals that shall direct the treatment for dental trauma. Inappropriate approachs to dental trauma can cause more damage than the trauma itself. This article describes the diagnosis, management and follow-up of a 5-year-old boy who presented with uncommon sequelae of an inappropriate approach following a severe luxation of the primary maxillary right central incisors 2 years ago.

The prevalence of traumatic injuries to the primary dentition has differed from study to study and country to country. Studies report frequencies ranging from 4% to 33% of all children (1). Investigations in Brazilian patients aged 0–6 years, concluded that the deciduous dentition is mostly affected by luxations and there was greater involvement of boys (51.8–62%), and of the maxillary central incisors (76.4–86%). Falls were more often the etiology for dental injuries (58–78.0%). The patients aged 1–3 years are the mostly affected (2, 3).

The main objectives of diagnosis and treatment of traumatic injuries affecting children with primary dentition are pain management and prevention of possible damage to the developing tooth germ (4). The treatment strategy after the traumatic injuries to the primary dentition is dictated by concern for the safety of the permanent dentition (1).

Studies reveal, in general, with regard to all primary tooth luxation injuries, that always affect the permanent tooth (1-6). This case report presents a 5-year-old boy that suffered a luxation injury in his primary maxillary right central incisor 2 years ago.

Through the clinical history the parents reported the treatment this patient underwent because of the trauma. The clinical (Fig. 1) and radiographic

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(Figs 2 and 3) examination revealed an uncommon sequelae.

Case report

In March 2001, a 5-year-old boy, with no health problems, was referred to our office presenting swelling associated with the right maxillary primary central incisor. The history brought by the parents reported that at the age of 3 years the patient fell while playing at home, resulting in dental trauma on the primary dentition. The parents reported that on this episode there was gingival bleeding and displacement of the right maxillary primary central incisor. The child was taken to an emergency service where the primary tooth was repositioned and a splint applied for a period of 2 months approximately. No follow-up was carried out after this episode until our evaluation.

Clinical examination revealed swelling associated with tooth no. 51 at the buccal site, color change, gingival retraction and permanent displacement on the same tooth (Fig. 1).

Radiographic examination (Fig. 2) showed radiolucency image compatible with a radicular cyst originated from the element no. 51 or dentigerous cyst related to the tooth no. 11 (7). The developing



Fig. 1. A 5-year-old boy fell 2 years ago. Intraoral photograph demonstrating: color change, gingival retraction and permanent displacement on the tooth no. 51.



Fig. 2. Radiographic examination showed the developing tooth in the center of the radiolucency with a great displacement. It was also observed the arrest of root resorption on the element no. 51.



Fig. 3. Radiographic examination showed the developing tooth with significant displacement.



Fig. 4. A week after surgical.



Fig. 5. Eight month after surgical.

tooth is shown in the center of the radiolucency with a great displacement (Figs 2 and 3). A disturbed physiological resorption was also observed on element 51 (arrest of root resorption).

From the clinical and radiographic exams, it was decided that surgical treatment with the extraction of the element 51 and marsupialization (8) procedure of the cyst should be undertaken.

Surgical procedure

The patient underwent a marsupialization type procedure under local anesthesia without sedation. A circular incision of 6 mm diameter was made on the buccal mucosa of the central incisor region. A mucoperiosteal flap was reflected and the thin buccal plate was removed with a number 6 round bur. The incisal edge of the tooth was visualized



Fig. 6. Follow-up 2 years after surgical. The tooth no. 11 have erupted. Pulpal healing is evident.



Fig. 7. Follow-up 2 years after surgical. The tooth no. 11 have erupted. Clinical appearance showing enamel hypoplasia.

after the removal of the pericoronal sac. The surgical site was covered with a periodontal dressing for 10 days. The tooth crown remained opened and completed its eruption after the surgical procedure without orthodontic traction (Figs 4, 5, 6 and 7).

Discussion

Injury to a young child's teeth is traumatic in the physical and emotional sense. The dentist must take time to examine and analyze carefully the damage itself and the possibilities of sequelae to the health of the child and to the germ of the permanent tooth. All displaced primary teeth must have adequate follow-up to monitor the development of possible pathological changes (1).

The absence of follow-up during these 2 years after the trauma drew attention during the history given by the parents. The close relationship between the apices of primary teeth and the developing permanent successors explains why injuries to the primary teeth are easily transmitted to the permanent dentition (5).

Considering the consequences of trauma to the primary dentition, Borum and Andreasen (9) found the following pathologic findings: color changes, pulp necrosis, pulp canal obliteration, gingival retraction, permanent displacement, surface resorption, inflammatory resorption, ankylosis and disturbed physiological resorption.

As a consequence of the trauma on the primary teeth these dental pathologic alterations have been reported in the permanent teeth: white or yellowbrown discoloration of enamel, white or yellowbrown discoloration of enamel with circular enamel hypoplasia, crown dilaceration, root duplication, vestibular root angulation, lateral root angulation or dilaceration, partial or complete arrest of root formation, sequestration of permanent tooth germs and disturbance in eruption (5).

The surgical approach utilized is very simple and effective allowing the procedure to be done under local anesthesia. It is the attending dentist's obligation to minimize the damage and prevent sequelaes. When inappropriate approachs for acute dental trauma are used, it can cause more damage than the trauma itself (10).

The formation of multidisciplinary staff capable of making accurate diagnosis and proper treatment with a long-term follow-up is essential to decrease the suffering of the patients bearing of dental trauma and improve prognosis.

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