ODONTOMA-LIKE MALFORMATION IN PERMANENT DENTITION DUE TO SEVERE TRAUMA IN DECIDUOUS DENTITION – CASE REPORT

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ABSTRACT

This report describes a case of a 14-year-old girl showing a late eruption of the central and upper right central incisor. The intrusion of superior front incisors occurred when the patient was ten months old. Radiographic examination revealed the presence of an odontoma-like malformation on element 12. The objective of this report is to describe the diagnostic procedures, the etiology, the clinical implications and the multidisciplinary treatment of the disturbances, involving professionals from different dentistry areas. The sooner the patient is attended to after the injury the bigger are the chances to treat or prevent the sequelae.

Keywords: odontogenesis, tooth injuries, dentition, primary.
INTRODUCTION

The developmental disturbances of the permanent teeth caused by trauma in their predecessors have a prevalence that ranges from 12% to 69% [1, 2, 4]. A relevant factor in this high prevalence is the close anatomical relationship between the apices of the primary teeth and their developing permanent successors [1, 2, 8, 15]. The distance between the apex of the primary central incisor and the incisal edge of the permanent central incisor ranges from 2.97 mm at age 3 to 1.97 mm at age 6 [13].

The sequelae severity depends on the age of the child at the time of injury, the grade of root resorption of the traumatized deciduous tooth, the type and extension of the injury and the development stage of the successor at the time of injury [1, 5]. Independently of the developmental stage of the successor, the types of traumatic injuries which affect them the most are the intrusion and the avulsion of deciduous tooth [4, 5, 15].

The more frequent type of sequelae in the permanent teeth caused by the trauma of the antecessor is the hypoplasia of the enamel, which corresponds to approximately 12% of the disturbances [1, 2, 6, 9]. The dilacerations of the crown and root, as well as the disturbances in the eruption are other types of sequelae. With lower frequency one can find odontoma-like malformation, root duplication, partial or complete arrest of root formation and sequestration of the permanent tooth germ [2, 8, 14].

The odontoma-like malformation is a rare sequelae which can occur as a consequence of a severe injury in a deciduous tooth, afflicting the successor germ in the initial stages of its mineralization, i.e., during Nolla's stages 1-3 [12]. The child's age at the time of trauma varies from 0 to 3, being the superior incisors the most afflicted teeth. The avulsion and intrusive luxation are the trauma types that cause the bigger rate of this type of sequelae [1, 3, 6, 12, 16].

The cleavage of the dental germ results in the development of separate elements of the tooth, featuring a structure similar to odontoma [8]. Radiographic examination revealed the presence of an opaque calcified mass resembling a dental germ [15]. The occlusal radiograph is the one which allows a better visualization of this injury [7].

Histologically, this malformation shows the conglomeration of hard tissue, its morphology composed by a complex odontoma however similar structures of a composed odontoma have already been identified with small teeth containing dentin and enamel [1, 14, 15].

The treatment of this type of developmental disturbance is surgical or this procedure may be postponed, depending on the extension of the odontoma-like malformation [8, 16]. Often, in small injuries, one can opt for periodical visits with the intent of preserving the necessary bone quantity for rehabilitation, leave the intra-bone malformation, keep a clinical and radiographic follow-up through until the patient is old enough to have an integrate bone implant done. However in more severe cases, the injury must be immediately removed and later a prosthesis or implant must be installed to restore the lost tooth. This involves a multidisciplinary treatment [1, 3, 11, 13].

CASE REPORT

The 14-year-old girl came to the Dental Traumatism Clinic of the Pediatric Dentistry Clinic of the State University of Rio de Janeiro (UERJ), Rio de Janeiro, Brazil, with the main complaint of a delay in the right superior incisor eruption.

While relating the history of the injury, the mother reported that the patient has fallen from the baby stroller at the age of 10 months, hitting the mouth on the sidewalk, causing the total intrusion of the predecessor incisors. After a few months, a total re-eruption of the incisors took place showing a dark coloration.

The delay in the eruption of elements 11 and 12 and enamel hypoplasia on element 21 was discovered during the clinical examination (Fig. 1).

During the radiographic examination, element 12 with a severe malformation similar to a composed odontoma was noticed (Fig. 2). The occlusal radiograph showed a periapical radiolucency area of the elements 11 and 21 and confirmed the odontoma-like malformation of element 12 (Fig. 3).

The patient has been initially directed to an endodontic clinic where dental pulp vitality tests have been carried out as well as endodontic procedures of element 21 (Fig. 4).

Following which, an extraction of element 12 was performed and surgical exposition of element 11 (Figs. 5 and 6).

After new tests of pulp vitality of element 11, a clinical crown increase, with resin composite, was performed. Later the patient was directed to have an orthodontic treatment for correction (Figs. 7 and 8).
DISCUSSION

In recent years, the incidence of dental trauma has increased and the knowledge about these injuries on deciduous dentition has been getting increased attention by the worldwide scientific community, due to specially its potential in generating sequelae of variable gravity on successor teeth in their development.

The straight proximity between deciduous and permanent dentition represents a big risk in the event of a trauma, as the strength of the acute impact on the deciduous tooth can easily be transmitted to the dental germ in development [2, 8, 13, 15].
The type of trauma that causes more sequelae on the permanent teeth is the intrusive luxation of a deciduous tooth, be it partial or total, whereas the superior incisors are the more affected teeth by trauma [4, 5, 6, 9, 15, 16]. The accidents that occur with children at home, such as falling from strollers and falling against hard surfaces are the causes most related in the dental trauma clinics [2, 9, 15]. With children, regular follow-up appointments, through clinical exams and radiography and the interventions at the right moment may minimize or even avoid harm to the developing tooth.

The sequelae in the permanent dentition resulting from trauma in their predecessors sometimes need a clinical approach of a multidisciplinary team [1, 3, 11]. The financial cost and the complexity of these interventions can be minimized through a control of protocols that allow an early diagnosis and the adoption of suitable clinical procedures as soon as possible.

In the clinical case presented herein, the mother has related the fall of the child at the age of 10 months which caused the intrusion of the superior, damaging element 12 in its initial stage of formation. The period between 0 and 3 years of age corresponds to the development and mineralization of the crown (Nolla’s stage 4, 2/3 of the formed crown) [10, 12]. The odontoma-like malformation is a rare sequel but can happen when the trauma afflicts the child who is in its first year.

According to Chaves [7] the younger the child is at the time of injury, i.e. between 1 and 4, the more severe are the developmental disturbances involving the crown of the successor, corresponding to Nolla’s stages 1-5 [12]. The sequelae in the root formation occurs more commonly when the trauma afflicts children more than 4 years old, at a time when the crown of the successor is in its final stage of formation and the root initiating the developing process, i.e., starting the dental development Nolla’s stage 6 [10, 12].

The late treatment of a patient who had a trauma in the deciduous dentition will normally demand complex multidisciplinary interventions. In the case related, not only the odontoma-like malformation with a root dilacerations on element 12 occurred, but the 11 presented a retarded eruption and element 21 an apical injury. The treatment 13 years after the trauma demanded the following procedures: surgical, endodontic procedure, esthetic and orthodontics with the need of professionals from different areas in dentistry resulting in a lengthy treatment. With the loss of element 12 the patient is still under orthodontic treatment in order to recover the space and the elaboration of an implant.

The traumatic injuries on the deciduous teeth should be treated, not only because they affect the esthetics and the chewing but also because of the possibility of affecting the germ of the successor in development.

The consciousness of the patient by the professional on the importance of the treatment and the periodic follow-up examinations are fundamental for the maintenance of her health in general. The sooner the patient is attended to after the trauma, bigger will be the chances to treat or prevent the sequelae.

REFERENCES


