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Consequences and treatment after multiple avulsions of deciduous teeth – a case report

CASE REPORT

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Abstract – The prevalence of traumatisms with avulsion of deciduous teeth varies from 7 to 13%, usually involving one tooth only. In this case report, a trauma with multiple losses of deciduous teeth and laceration of soft tissue is described as a consequence of a horse backward kick. After suture of extra-oral tissue wounds and application of anti-tetanic vaccine, the patient was referred to the emergency ambulatory of Sacred Heart University. Treatment procedures included radiographic analysis, removal of bone fragments and of a residual root of the tooth involved, remodeling and suture of intra-oral tissues. The patient was observed periodically and after full recovery, a prosthetic appliance was installed for functional and esthetic rehabilitation.

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There are not many reports about extensive traumatisms involving deciduous teeth. The greatest occurrence of dental trauma is observed at 10–24 months, when the child usually learns to walk and is subjected to fall onto hard surfaces (1, 2), and around 7–8 years because of sports practicing (3).

Upper anterior incisors are the most affected teeth (95.21%). Dental avulsion is more likely to happen in children 8 months–2 years old whereas dental fracture with dislocation is more frequently seen in children 2–5 years of age. Soft tissue wounds may occur concomitantly in the gingiva, lips and oral mucosa (4). The mandible is rarely affected (5).

The prevalence of avulsion after a traumatic lesion is not frequent, varying from 7 to 13% in the primary dentition and from 0.5 to 16% in the permanent dentition. It generally involves one tooth only, with very few cases of multiple tooth losses. Fracture of alveolar walls and lacerations of the lips may be associated (5).

The avulsed deciduous tooth should not be replanted because of its proximity to the permanent tooth germ; otherwise it can cause significant alterations in the development of the new tooth (5, 6). Emergency treatment consists in radiographic analysis of the area, asepsis of the involved tissues, removal of fragments and suture whenever necessary (1, 5). Early loss of deciduous teeth may cause alterations in the permanent dentition also because of masticatory, functional and esthetic functions (1).

Indications for the different types of space maintainers must take into consideration the tooth lost, stage of development of the dentition, age of the patient, characteristics of the dental arch, presence of habits and anomalies of the oral musculature (7).

This case report describes the treatment of an extensive trauma involving deciduous teeth using functional and esthetic rehabilitation procedures.

Case report

A 6-year-old boy arrived at the emergency ambulatory of the Dental School of Sacred Heart University, on September 22, 2004, after suffering a traumatism caused by a horse backward kick on the same day, affecting the lower left part of the face. He related just having been seen at the Hospital Santa Casa de Misericórdia de Bariri where he received anti-tetanic vaccine and suture of skin wounds (Fig. 1), and was further referred to dental treatment. The child presented good general health.

Intra-oral examination demonstrated a large area of bone exposed on the left-hand side of the maxilla, absence of alveolar mucosa in the buccal aspect (Fig. 2) and tissue laceration in the area of the mental foramen of the same side.

Fig. 1. General aspect: the suture of skin wounds.

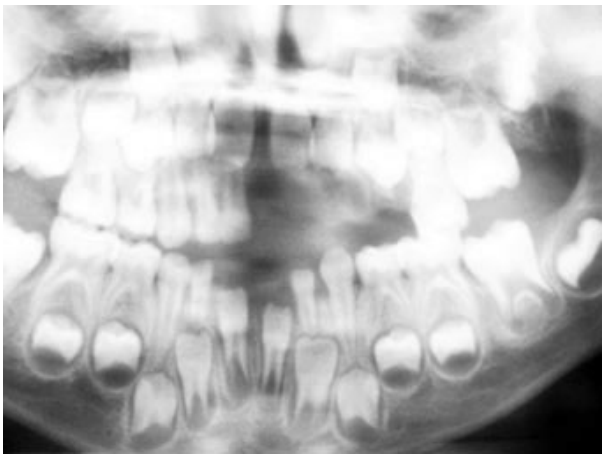

Fig. 3. Radiographic examination: the avulsion of teeth 61–64, a residual root in the area of tooth 64 and bone fragments in the maxilla.

Fig. 2. Intra-oral examination: a large area of bone exposed on the left-hand side of the maxilla and absence of alveolar mucosa in the buccal aspect.

Fig. 4. Removal of fragments of the alveolar bone and the residual root of tooth 64, followed by remodeling of the upper alveolar ridge.

Radiographic examination

A panoramic radiograph was realized and revealed avulsion of teeth 61–64, a residual root in the area of tooth 64 and bone fragments in the maxilla (Fig. 3).

Treatment

After asepsis and local infiltrative anesthesia, fragments of the alveolar bone and the residual root of tooth 64 were removed, followed by remodeling of the upper alveolar ridge (Fig. 4). As an extensive area of the alveolar mucosa had been lost, the oral mucosa (cheek) was divulsionated and sutured to the remaining tissue in an attempt to cover the exposed bone. The patient was asked to take analgesics (Dipirona, 15 drops every 6 h for 2 days if necessary) and antibiotics (amoxicillin, 250 mg, 5 ml every 8 h for 7 days). The patient was evaluated after a week, when the internal sutures were removed, showing satisfactory postoperative healing.

Clinical and radiographic controls were realized after 30 (Fig. 5a,b), 45 and 60 days, when remodeling of the alveolar ridge and healing of skin wounds were observed. The patient received orientation for dental hygiene and dental prophylaxis at each recall visit.

A removable orthodontic appliance was installed 7 months later with patient's full collaboration (Fig. 6a–c). Even though the patient presented a cross bite, no orthodontic forces were used because of the recent trauma. Recommendations regarding placement and removal of the orthodontic appliances as well as hygiene procedures for the appliance were given to the patient and parents. During the following recall visits,

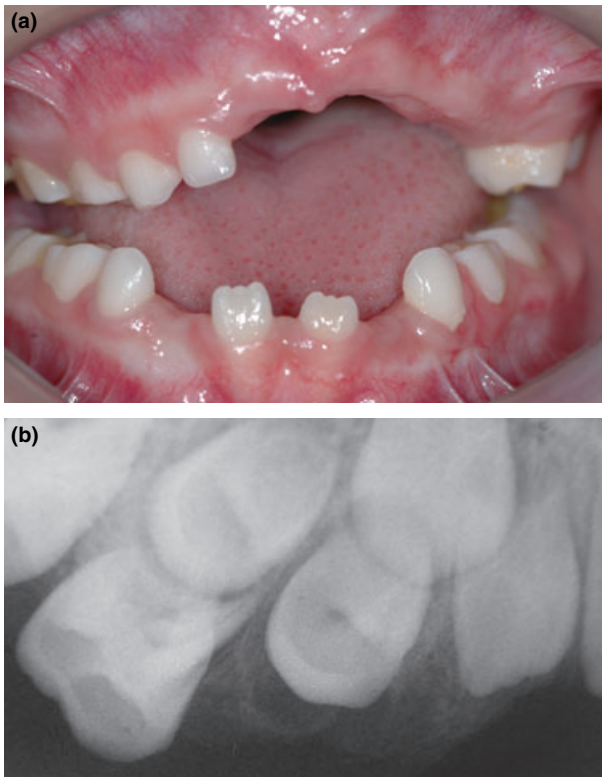

Fig. 5. (a,b) Clinical and radiographic controls realized after 30 days.

the patient seemed happy, well adapted to the use of the appliance, with no complaints or problems regarding speech or mastication.

The patient was asked to return periodically for clinical and radiographic evaluation, in order to make any necessary adaptations in case of eruption of permanent teeth, and also observe chronology of eruption and tooth structures.

Discussion

Pediatric treatment requires emotional preparation of the child (8). Sometimes, however, in cases of extensive trauma, there is a need for immediate interventions to recover the child's physical and emotional integrity.

This case report involved an extended lesion of skin, oral mucosa, teeth and bone. These lesions are not commonly seen in dental practice; most cases of dental avulsion affect a single tooth only (1, 3).

The left hemi-maxilla was severely damaged as a result of the loss of four deciduous teeth and fracture of the alveolar bone, laceration and loss of part of the oral mucosa. Fortunately, the anatomy of the area fully recovered after 6 months.

The patient's panoramic radiographs revealed bone fracture, alveolus of avulsed teeth, the fractured root of the upper left first molar and more importantly, the fully preserved permanent tooth germs. Nevertheless, radiographic control of the area and follow-up of the eruption of permanent teeth are mandatory, if there is still a risk

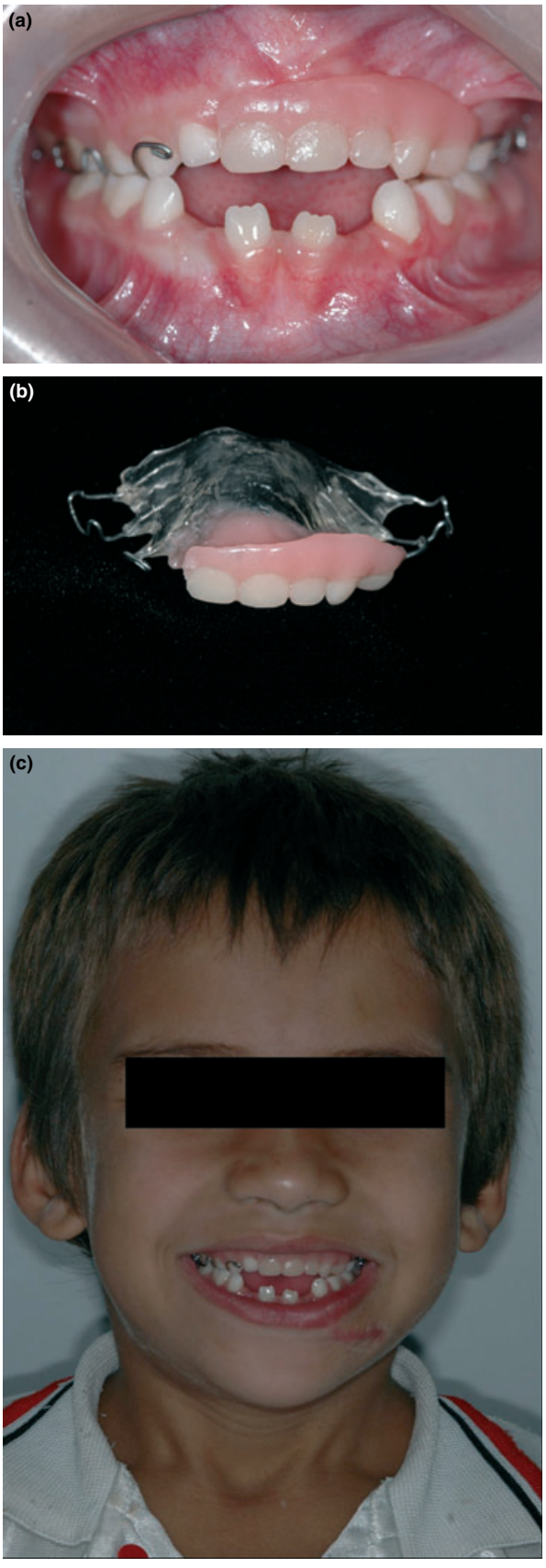

Fig. 6. (a–c) Installation of the removable orthodontic appliance.

for alterations associated with dental trauma (6, 9). At the time of the incident, the patient had already lost his deciduous lower central incisors.

The indication of a removable prosthetic appliance with functional and esthetic purposes as soon as the area had been repaired avoided installation of deleterious speaking and masticatory habits (1, 6).

Finally, the child was physically and socially rehabilitated, with technical and psychological attitudes appropriate to his age.

Conclusion

Psychological knowledge and ability of the professional are put to test when handling emergency procedures of extended traumatic lesions in children. The dentist must dominate the situation so that the child feels safe and protected, and collaborates with treatment.

The consequences after early loss of deciduous teeth are many and the indication of a prosthetic appliance may be an alternative for an effective rehabilitation. Besides reestablishing esthetics, it also avoids the occurrence of phonetic and masticatory alterations. Nevertheless, the child must be prepared psychologically to accept and collaborate with the treatment proposed in order to be socially reintegrated.

References

1. Corrêa MSNP, Wanderley MT. Sucesso no atendimento odontopediátrico: aspectos psicológicos. Santos: São Paulo; 2002. p. 461–73.
2. Yared FNFG. Estudo de traumatismos em incisivos decíduos de crianças brasileiras de Bauru, Estado de São Paulo (prevalência, causas e seqüelas) [Tese de Mestrado]. Bauru: Faculdade de Odontologia de Bauru; 1983.
3. Sabás M, Alonso C, Pascual DM, Castillo MA, Weisstaub G. Frecuencia de traumatismos dentarios en pediatria. Rev Asoc Odontol Argent 2000;88:611–4.
4. Gutiérrez CA. Salazar Traumatismos en dientes antero-superiores e inferiores. Prevalência en preescolares y sus consecuencias em dentición primaria. Acta Odontológica Venezolana 1999;37:134–45.
5. Andreasen JO, Andreasen FM. Textbook and color atlas of traumatic injuries to the teeth, 3rd edn. Copenhagen: Mosby; 1994.
6. de Walter LRF, Ferelle A, Issao M. Odontologia para o bebê. São Paulo: Artes Médicas; 1999. p. 153–81.
7. Korytnicki D, Naspitz N, Faltin K Jr. Conseqüências e tratamento das perdas precoces de dentes decíduos. Rev Assoc Paul Cir Dent 1994;48:1323–9.
8. Flores MT. Traumatic injuries in the primary dentition. Dent Traumatol 2002;18:287–98.
9. Meira R, Barcelos R, Primo LG. Respostas do complexo dentino-pulpar aos traumatismos em dentes decíduos. J Bras Odontopediatr Odontol Bebê 2003;6:50–5.