Alveolar Fracture Caused by Tooth Extraction at Home

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Injuries to the teeth and surrounding structures are relatively common. Although traumatic injuries caused by falls or activities related to sports are widely discussed, the same cannot be said regarding accidents arising from non-professional extraction of primary teeth. The present study reports a 6-year-old male child who underwent mandibular alveolar bone fracture during non-professional extraction of his central lower left incisor at home, performed by his 30-year-old aunt. The root of the tooth was with an irregular physiological resorption, which acted as a lever component for the mechanical force applied, leading to bone fracture. Although not common, the possibility that dental roots with irregular resorption can act as a possible risk factor for accidents if the parents or guardians of children during the period of transitional dentition try to perform intentional extraction of primary teeth should be highlighted. Parents should always consult a professional, preferably a pediatric dentist, for monitoring this period of transitional dentition.

Key words: tooth exfoliation, fractures, bone.

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INTRODUCTION

After the formation of primary teeth, the physiological root resorption initiates, which is a physiological event for primary teeth[1]. In normal situations, the roots of these teeth undergo gradual resorption concurrently with the eruption of successors permanent teeth[2].

The exfoliation of primary teeth is a physiologic phenomenon[3]. However, the root resorption process is not always gradual and can be irregular, which could cause possible damage to adjacent structures as cases of traumatic teeth avulsion.

Traumatic dental injuries (TDI) are traumas caused with variables extent and severity[4] and can disrupt the normal social development of the children and cause a great impact on quality of life due to their cumulative effect[5]. TDI are also considered one of the most important issues in Dentistry[6].

The present study reports a case of alveolar fracturing during non-professional extraction of a primary tooth with irregular root resorption at home.

Case Report

A 6 year old male patient, attended in an emergency care service of Manaus (Amazonas, Brazil), with dislocation of tooth 71, accompanied by alveolar bone fracture. During the interview, it was discovered that the patient's aunt, 30-year-old, when attempted to manually remove the tooth that had mobility due to the occurrence of the root resorption process in the active phase, not only provoked dental dislocation, but also the fracture of the alveolar bone, causing the TDI. The medical and family history of the patient did not contribute to the case.

After the signature of the child's guardians of the free and informed consent, there was a clinical examination, which confirmed the tooth displayed excessive mobility, complete fracture of buccal

bone plate, painful symptoms, bleeding and gingival laceration (Figure 1). After local anesthesia, the tooth was then removed, the lesion was clinically and radiographically evaluated (Figure 2) and the soft tissue was sutured (Figure 3).

Macroscopically, the primary tooth presented an irregular root resorption process, with the resorption only on the lingual portion of the root. The irregular root resorption directed the force applied to the alveolar bone, causing TDI, because the remaining root was able to cause a strong bone grip.

Follow up after one week showed the area in a satisfactory repair process, with a normal clinical appearance, no bleeding, no painful symptoms (Figure 4), despite the bone loss that occurred at the time of non-professional tooth extraction.

Figure 1: Initial clinical aspect of the alveolar fracture associated with non-professional tooth extraction at home. Note the presence of irregular root resorption.

Figure 2: Radiographic aspect of the immediate postoperative period.

DISCUSSION

Alveolar fractures are characterized by mobility of the bone block containing the tooth, with occlusal interference commonly observed[7]. In this case, the TDI was characterized by alveolar fracturing due to excessive manual force applied for tooth extraction, associated with irregular root resorption. Many parents and children manually force the primary teeth for removal and such practice should not be encouraged, because if part of the root is strongly attached to the alveolar bone, the action may result in an alveolar fracture, as in the case described.

Figure 3: Suture of the area, showing the gingival laceration.

Figure 4: Clinical appearance one week after surgery.

In the reported situation, the root resorption of the primary tooth was already in clear progression, but irregularly. The resorptive activity concentrated on the lingual portion of the root, whereas the buccal vestibule was preserved, and this type of resorption is a risk factor for a TDI, in an intentional manual dislocation situation.

TDI is one of the most serious public health problems[4,8-11] that affect children and adolescents, due to the high prevalence rates, the psychosocial impact and treatment costs[12]. The TDI can cause injuries to the soft tissues and bone, crown fractures, root fractures or crown-root fractures[13]. There was no dental fracture in the patient in question, but there was bone and soft tissue involvement.

Aged between 6-12 years, children are in mixed dentition, as in this case, in which they and their families have the habit of manually dislocating the primary teeth to accelerate the exfoliation[14].

Lateral luxation is the term used to describe the tooth displacement in a different direction, axially[15], and this luxation may lead to alveolar bone fracturing. When the bone is fractured, there is movement of the unit in the displaced segment[16], just as in the case described: the fractured buccal alveolar portion was removed adhered with the primary tooth.

Several studies correlate TDI in schoolchildren with accidents and sports activities[5,8,10,17,18]; however, in this case we found that the irregular root resorption of primary teeth can act as a possible factor related to trauma.

Although the orientation of TDI guides[7,19] is broad in relation to clinical, radiographic and therapeutic, the present case report emphasizes that the dentist should also be aware of ways to prevent damage to dental and support structures in order to guide their patients, parents and caregivers.

Prevention is a very important factor in respect to TDI[5,8,9,14,17]. Parents and children should be instructed not to manipulate the primary teeth with excessive force to remove them. Moreover, regular dental visits are essential to monitor the period of transitional dentition.

CONCLUSION

In the case of irregular physiological root resorption, should not be forcibly manipulate the primary teeth for removal, because it can cause alveolar bone fracturing. Monitoring of children in transition between primary and mixed dentition by a professional is essential, preferably by a pediatric dentist.

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