

*LUXATED AND INTRUDED PRIMARY INCISORS: A CASE REPORT WITH SPONTANEOUS HEALING

Luksasyon ve İntrüzyona Uğramış Süt Kesici Dişleri: Kendiliğinden İyileşen bir Olgu Sunumu

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Abstract

Luxation injuries to the incisors occur with a high frequency in the primary dentition. In many cases, intrusion of teeth may complicate the situation and the management of intrusion injuries depends on the severity and direction of the intrusion, as well as the relationship between the intruded incisor and developing permanent tooth germ.

This case report documents the favorable prognosis of palatally-luxated and intruded maxillary primary left central and lateral incisors in a 3 year-old patient.

Complete re-eruption and re-alignment was observed without any intervention after a 10-month follow-up period.

Key Words: Primary Incisor, Trauma, Intrusion, Luxation

Özet

Süt dişlenme döneminde, kesici dişleri ilgilendiren lüksasyon yaralanmaları çok sık meydana gelmektedir. Bir çok olguda dişlerin intrüzyonu, durumu daha da karmaşık hale getirebilmekte ve intrüzyon yaralanmalarının tedavisi intrüzyonun yönü ve şiddetine olduğu kadar intrüze olmuş kesici diş ile gelişmekte olan daimi diş jermine ilişkin olarak değişmektedir.

Bu olgu sunumu 3 yaşındaki bir hastanın palatinal yönde lüksasyona uğramış ve intrüze olmuş maksillar süt sol santral ve lateral kesici dişlerinin olumlu prognozunu bildirmektedir.

10 aylık takip periyodu sonrasında herhangi bir müdahaleye gerek olmaksızın tamamen tekrar erüpsiyonu ve hizalanması gözlenmiştir.

Anahtar Kelimeler: Süt Dişi, Travma, İntrüzyon, Luksasyon

Introduction

One-third of children suffer traumatic injuries to the mouth at the stage of primary dentition (1). It has been stated that these injuries occur mainly in toddler stage, when the child starts crawling, walking and exploring the surrounding environment. Among traumatic injuries to the teeth, lateral luxation of primary incisors is quite common (2, 3) and their occurrence can be attributed to the presence of large bone marrow spaces, which are characteristic of growing skeletal tissues that result in elasticity of the alveolar bone

surrounding the primary teeth (2).

With respect to the occurrence of lateral luxation in the primary dentition, Cunha et al. (4) analyzed 399 injured teeth, with lateral luxation corresponding to 1.3% of all cases. Borum & Andreasen (5) observed this type of injury in 34.1% of 545 deciduous teeth. Schatz & Joho (6) , in a sample of 252 injured deciduous teeth, reported that lateral luxation corresponded to 10.3% of all traumas. The most commonly affected teeth are maxillary incisors, with the central incisors being involved most frequently (2).

Treatment recommendations for laterally-luxated primary incisors include (7): 1.repositioning and fixation of the injured tooth, 2.extraction, or 3.clinical and radiographic follow-up; if occlusal interference is not an issue. In many cases, intrusion may accompany the lateral luxation and management of an intruded primary incisor depends on the direction and severity of the intrusion and the presence of alveolar bone fracture (8).

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To render the appropriate treatment, it is essential to evaluate the relationship between the intruded incisor and the developing tooth germ, and thus, minimize the possibility of developmental disturbances to the succeeding tooth.

The present case documents the favorable prognosis of palatally displaced and intruded primary incisors.

Case Report

A 3-year-old girl was referred to the clinic one day after a falling accident at home. Her medical history was non-contributory. She was in good condition and reported no history of pain. Clinical examination showed that the maxillary left central and lateral incisors were palatally displaced without interfering the occlusion and that the teeth had partially intruded to the alveolar bone (Figure 1).

The periapical radiographs showed that the apices of both teeth were not interfering with the permanent tooth buds (Figure 1).

To a lesser extent, the maxillary right central incisor was also intruded, but there was no lateral displacement of the crown (Figure 1). None of the teeth had pain on palpation, and apparently, the surrounding perioral tissues were free from any sign of trauma. Small enamel fractures were present on the incisal edges of both primary central incisors. Based on the patient's history and on the clinical and radiographic findings, the treatment plan included temporary sealing of enamel fractures of the maxillary central incisors and waiting for the re-eruption of maxillary right central and lateral incisors.

Temporary restorations were made with a self etch adhesive system Clearfil SE Bond (Kuraray, Japan) and Dyract AP (Dentsply DeTrey, Germany). Antibiotics and anti-inflammatory medication (50mg/kg amoxicillin, 20mg/kg ibuprofen) was prescribed and the family was instructed to maintain a soft diet and good oral hygiene. The patient was scheduled for regular controls.

The first recall appointment was made 2 weeks after trauma and the teeth were completely asymptomatic. Re-eruption of maxillary central incisors and left lateral incisor was observed three months later (Figure 2). At this stage, re-eruption of the slightly-intruded maxillary right central incisor had also taken

place (Figure 2). Despite partial re-eruption of the maxillary left lateral incisor, the tooth was in cross-bite. Because the tooth did not interfere with the occlusion, no intervention was made, and the patient was scheduled for a further appointment.

At 10 month post-trauma, self-correction of the crossbite was evident (Figure 3). The traumatized teeth did not demonstrate any clinical and radiographic signs of enflamation or pulp necrosis.

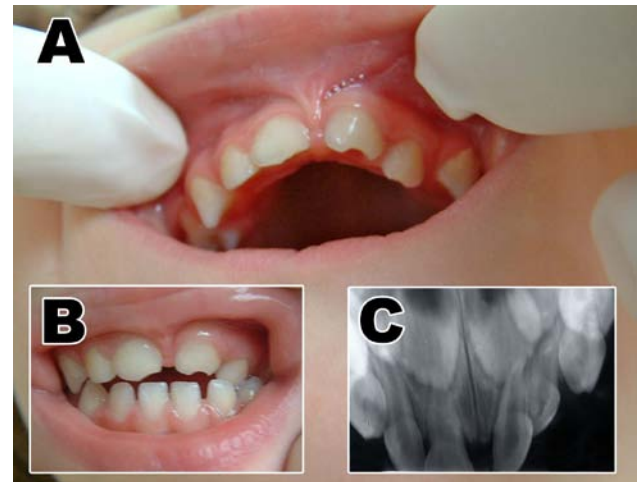


Figure 1. Palatal (A) and facial (B) view of teeth, revealing extent of trauma. C. Radiograph of the traumatized teeth.



Figure 2. Clinical and radiographic (small picture) appearance of the traumatized teeth three months after trauma. Arrows indicate temporary restorations for the sealing of small enamel fractures.



Figure 3.Evidence of clinical and radiographic (small picture) healing at 10 months post-trauma. The intrusions and lateral luxations have self-corrected. Note that temporary restoration on tooth 61 has been lost.

Discussion

Because the premature loss of primary teeth may lead to an unfavorable orofacial development, it is important to maintain the injured primary teeth in function. Although luxations are considered to be complicated injuries to primary teeth, most luxation injuries generally heal without any treatment (9). In an observational study, it was found that of 52 teeth that were left for spontaneous repositioning, almost 60% did not disclose any complication. In contrary, repositioning of lateral luxation was associated with an increased risk of developing pulp necrosis (10). Thus, it is recommended to have non-invasive criteria when treating a small child with luxation and only intervene to alleviate pain or when there is a risk of damage to the permanent tooth germ (9). Also of importance for facilitation of self-healing is to have the parents follow the preventive programs (hygiene, soft diet, etc.) strictly at home (9).

The first treatment choice of intruded primary teeth should be to wait for re-eruption, unless the invasion of the developing permanent tooth follicle is evident (5, 10). Thus, in the present case, follow-up was the treatment of choice. In a follow-up of 88 intruded primary teeth, 72 were reported to erupt spontaneously, four were extracted after 14 days due to infection and four did not erupt and were extracted after 12–18 months (2). When the amount of intrusion is less than half of the

crown's length and there is no evidence of alveolar fracture, it is possible to wait for the re-eruption (11). However, if half or more of the crown is intruded, extraction should be performed immediately. In a follow-up study of 123 intruded primary incisors, total re-eruption was observed in 84% of completely intruded teeth (12). In the same study 92% of teeth with partial intrusion were able to re-erupt, showing that the degree of intrusion did not have influence on the tooth's ability to re-erupt (12).

Depending on the vestibular curvature of the root of the primary teeth and the direction of the impact, the apices of traumatized teeth are usually displaced toward the vestibular direction. This finding is extremely important to confirm whether or not the germ of the successor tooth has been affected. Radiographically, if the apex is displaced toward or through the labial bone plate, the apical tip can be seen and the tooth appears to be shorter than its contralateral. Contrary, when the apex is displaced towards the permanent tooth germ, the apical tip can not be seen and the tooth appears to be elongated (13). In the present case radiographic evaluation revealed that the incisors were not intruded towards permanent teeth germs.

The outcome of intrusion injuries to the primary intruded incisor may include coronal discoloration, obliteration of the pulp canal, pulpal necrosis, pathologic root resorption, and lack of re-eruption due to ankylosis. A recent study reported that total re-eruption occurred in 42.5% of intruded teeth, while partial re-eruption was observed in 47% of the cases investigated and that 10.5% of intruded teeth did not erupt again (13). In the same study, 22% of the intruded teeth suffered necrosis and 33% showed external or internal root resorption. In the present case, none of the reported complications had occurred.

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