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Developmental disturbance of maxillary lateral incisor after trauma

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Abstract – Traumatic injury to a primary tooth has a potential to damage the underlying permanent tooth germ. It may lead to developmental disturbance of permanent dentition. The impaction of the permanent maxillary central incisor because of the root dilaceration in children is rare. The purpose of this paper is to report a developmental disturbance of a permanent right maxillary lateral incisor in a 12-year-old girl with a history of trauma at an early age.

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Key words: developmental disturbances; primary teeth; trauma

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Traumatic injury to a primary tooth has a potential to damage the underlying permanent tooth germ. It may lead to developmental disturbance of permanent dentition (1–3). The extent of the malformation depends on the developmental stage of the permanent tooth and intensity of the trauma. Enamel hypoplasia, crown dilaceration, root malformation and odontoma-like teeth may be seen as a result of such trauma (1, 4). Impaction of the permanent maxillary central incisor because of the root dilaceration after trauma is rare (5).

The purpose of this paper is to report a developmental disturbance of a permanent right maxillary lateral incisor in a 12-year-old girl with a history of trauma at an early age (5 years).

Case report

A 12-year-old girl was referred to our clinic for unerupted permanent right maxillary lateral incisors. The family and medical histories were unremarkable. The patient had a history of trauma about 7 years ago. Extraoral examination was noncontributory.

Intraoral examination revealed that all permanent teeth were present and normal in the mouth, except for the right maxillary lateral incisor. There was an impacted tooth, which partly erupted into the oral cavity in palatal position in this space (Fig. 1). It may have been an intruded primary right maxillary lateral incisor. All soft tissues were normal in appearance. Panoramic and occlusal radiographs showed that there was also another impacted tooth with dilacerated root in this space (Fig. 2a,b). After local anesthesia had been induced, the mucoperiosteal flap was raised. The teeth were removed (Fig. 3). One of the extracted teeth was an intruded primary right maxillary lateral incisor and the other was an impacted permanent right maxillary lateral incisor with root dilaceration and rough enamel surface. At postoperative follow-up 1 week later, the operation site healed uneventfully.

Discussion

It is known that the topographic association of the apices of the primary teeth to the permanent tooth germs explains the potential for possible developmental disturbances of the permanent teeth after injuries to their predecessors (1, 6). Although the maxillary permanent lateral incisors are located behind the central incisors, they are somewhat protected against labial traumatic forces, intrusion of primary right maxillary lateral incisors may directly damage the underlying permanent tooth germs (1). It has been reported that there is a correlation between the frequency

Fig. 1. Intraoral view showing an impacted tooth which partly erupted into the oral cavity in palatal position.

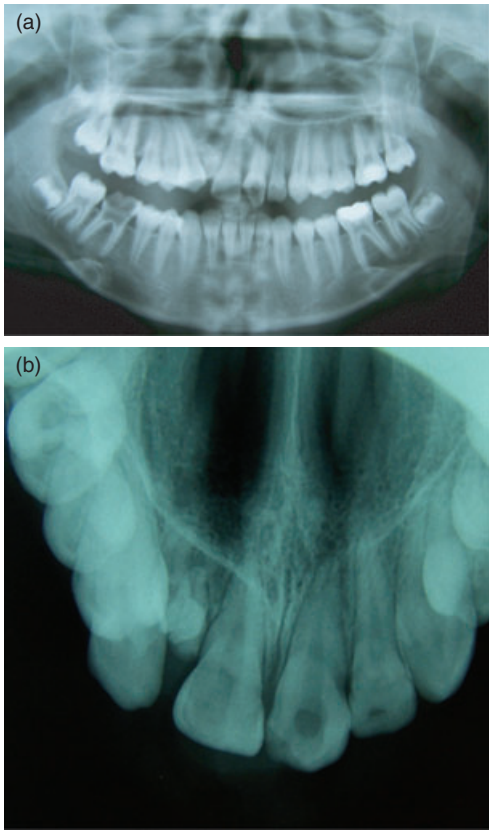

Fig. 2. (a, b) Radiographic appearances of the teeth.

of developmental disturbances of permanent teeth and the intensity of the trauma to the primary teeth (1, 2, 4). In our case, intrusion of the primary right maxillary lateral incisor due to a severe injury might lead to root dilaceration and rough enamel surface in the permanent right maxillary lateral incisor.

Fig. 3. The teeth after removal.

The types of developmental disturbances may be correlated with the time at which the primary teeth sustained the injury. Crown dilaceration occurred in cases with trauma at an age between 1.5 and 3.5 years, and root malformation between 4 and 5 years of age (1). In our case, the patient had a history of trauma at the age of 5 years.

Although impaction of the permanent maxillary incisor is rare, trauma to the primary maxillary anterior teeth may cause such an anomaly, probably due to the root dilaceration (2, 5). In the present case, because the dilaceration was so pronounced, the permanent right maxillary lateral incisor could not erupt into the oral cavity.

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