

# Speedy management of ectopically erupted central incisor with micro-osteoperforation – A case report

Dr. Rekha Sharma<sup>1</sup>, Dr. Sachin Parashar<sup>2</sup>, Dr. Shakti<sup>3</sup>

<sup>1</sup> Professor and Head, Department of Orthodontics and Dentofacial Orthopaedics, Post Graduate Institute of Dental Sciences, Rohtak

<sup>2</sup> Consultant Orthodontics, Ex Resident Department of Orthodontics and Dentofacial Orthopaedics, Post Graduate Institute of Dental Sciences, Rohtak

<sup>3</sup> Post Graduate Student, Department of Orthodontics and Dentofacial Orthopaedics, Post Graduate Institute of Dental Sciences, Rohtak

---

## ABSTRACT

**Impaction of maxillary permanent central incisor is not a frequently reported case in dental practice, but its treatment is challenging because of its importance to facial esthetics. Early detection of such teeth is most important if complications are to be avoided. We report a case of a 15-year-old female with an ectopically erupted central incisor tooth in the maxillary anterior region.**

---

## INTRODUCTION

According to the literature, 15%–30% of children suffer traumatic injuries to primary teeth.<sup>3-5</sup> In contrast to the hard-tissue injuries that are more commonly seen in permanent dentition, luxation injuries predominate in the primary dentition.<sup>6,7</sup> Developmental disturbances of the successor permanent tooth can occur as a result of the close proximity of the developing permanent tooth germ to the primary root apex.<sup>6</sup> With an overall prevalence of 41%,<sup>11</sup> these developmental disturbances include white or yellow brown enamel discoloration with or without enamel hypoplasia, crown–root dilaceration, odontoma, root duplication or angulation, arrest of root development, germ sequestration and eruption disturbances.<sup>12-14</sup>

Ectopic eruption of a permanent incisor may result from traumatic injury to its predecessor.<sup>15</sup> The condition is caused by the physical displacement of the permanent germ, the lack of eruption guidance by the prematurely lost primary incisor or both.<sup>15</sup> In this case report, we describe the management of a permanent central incisor that was erupted ectopically because of prior trauma of the corresponding primary tooth.

## CASE REPORT

A healthy 15-year-old girl was referred to the department of orthodontics and dentofacial orthopaedics with the chief complaint of ectopic eruption of the maxillary left central incisor. Reportedly, at 4 or 5 years of age she had experienced a fall, There was no significant medical history. Trauma had caused displacement of the tooth forcing the incisor to erupt toward the palate.

Clinical examination revealed orthognathic facial profile and presence of good facial balance in all proportions. An intraoral examination revealed the presence of all permanent teeth with the left upper central incisor erupted in palate away from the arch. Panoramic (orthopantomogram or OPG), periapical radiographs were taken to establish a good idea about the position and morphology of unerupted left permanent central incisor in maxilla (figure 1 & 2). Crown was tipped palatally and apex in the normal position gives favorable prognosis. Major concern with such teeth is the position of gingival crevice, therefore light forces will be installed.

After taking all records, case was analysed and fixed orthodontic therapy was planned with micro-osteoperforation to accelerated the tooth movement. After initial leveling space regaining and alignment of upper arch, 19x25” ss arch wire was fabricated with stop loops to maintain the space for ectopically erupted central incisor. Banding with two buttons welded on buccal and lingual aspect of left central incisor was done (figure3). Buttons are the cross tied to the main arch

wire with the help of elastic thread (fig.4). Micro-osteoperforation was done with the help of implant screw on labial aspect of the space created for left central incisor(fig.5) Within 3 week period left central incisor comes to its desired position (fig.6).



**Fig.1**



**Fig.2**



**Fig. 3**



**Fig.4**



**Fig. 5**



**Fig. 6**

## DISCUSSION

Intrusion injuries to primary teeth present the highest risk of damage to permanent tooth germs.<sup>16</sup> Many factors influence the sequelae of intrusion injuries: age, direction and severity of intrusion and type of treatment.<sup>17</sup> Intrusive-type injuries to primary incisors most commonly take place between 1 and 3 years of age.<sup>5,6</sup> several reports have shown that the younger the child at the time of the intrusion injury, the more severe the induced sequelae to the successor tooth.<sup>11,18</sup> Despite the occurrence of severe ectopic eruption in the present case, developmental disturbances such as discoloration, hypoplasia, crown or root dilaceration or root angulation were not observed in the affected permanent incisor. Because the trauma had occurred at a relatively later age, the effect on the permanent successor tooth may have been limited to alteration of the eruption pathway.

Considering the position of the ectopically erupted incisor and the insufficient arch length, it seemed difficult to bring the maxillary central incisor into the dental arch. However, regaining sufficient space and ensuring sufficient traction in the right direction and the advantage of micro-osteoperforation allowed us to move the ectopically erupted tooth quickly into the correct position.

Eventually, functional and esthetic problems were solved when the central incisor was positioned in the arch. When abnormally positioned ectopically erupted incisors are moved into the arch, discrepancies are often observed between the gingival levels of the affected and neighbouring teeth. Clinical experience has shown that light forces are more effective than strong ones in moving ectopically erupted teeth and achieving a good gingival position.<sup>21</sup> Following fixed orthodontic therapy, the gingival of the central incisor was brought close to the level of that of the adjacent central incisor, thus a minor gingival recon touring was required.

## REFERENCES

- [1]. Andreasen JO. Etiology and pathogenesis of traumatic dental injuries. A clinical study of 1,298 cases. *Scand J Dent Res* 1970; 78(4):329–42.
- [2]. Harrington MS, Eberhart AB, Knapp JF. Dentofacial trauma in children. *ASDC J Dent Child* 1988; 55(5):334–8.
- [3]. Flores MT. Traumatic injuries in the primary dentition. *Dent Traumatol* 2002; 18(6):287–98.
- [4]. García-Godoy F, Morbán-Lauser F, Corominas LR, Franjul RA, Noyola M. Traumatic dental injuries in preschool children from Santo Domingo. *Community Dent Oral Epidemiol* 1983; 11(2):127–30.
- [5]. Skaare AB, Jacobsen I. Primary tooth injuries in Norwegian children (1–8 years). *Dent Traumatol* 2005; 21(6):315–9.
- [6]. Andreasen JO. Injuries to the developing teeth. In: Andreasen JO, Andreasen FM, editors. Textbook and color atlas of traumatic injuries to the teeth. Copenhagen: Munksgaard; 1994. p. 457–94.
- [7]. Altay N, Güngör HC. A retrospective study of dento-alveolar injuries of children in Ankara, Turkey. *Dent Traumatol* 2001; 17(5):201–4.
- [8]. Garcia-Godoy F, Garcia-Godoy F, Garcia-Godoy FM. Primary teeth traumatic injuries at a private pediatric dental center. *Endod Dent Traumatol* 1987; 3(3):126–9.
- [9]. Sennhenn-Kirchner S, Jacobs HG. Traumatic injuries to the primary dentition and effects on the permanent successors — a clinical follow-up study. *Dent Traumatol* 2006; 22(5):237–41.
- [10]. Rodriguez JG. Traumatic anterior dental injuries in Cuban preschool children. *Dent Traumatol* 2007; 23(4):241–2.
- [11]. Andreasen JO, Ravn JJ. The effect of traumatic injuries to primary teeth on their permanent successors. II. A clinical and radiographic follow-up study of 213 teeth. *Scand J Dent Res* 1971; 79(4):284–94.
- [12]. Turgut MD, Tekçiçek M, Canoglu H. An unusual developmental disturbance of an unerupted permanent incisor due to trauma to its predecessor — a case report. *Dent Traumatol* 2006; 22(5):283–6.
- [13]. Lenzi AR, Medeiros PJ. Severe sequelae of acute dental trauma in the primary dentition — a case report. *Dent Traumatol* 2006; 22(6):334–6.
- [14]. Kuvvetli SS, Seymen F, Gencay K. Management of an unerupted dilacerated maxillary central incisor: a case report. *Dent Traumatol* 2007; 23(4):257–61.
- [15]. Brin I, Ben-Bassat Y, Zilberman Y, Fuks A. Effect of trauma to the primary incisors on the alignment of their permanent successors in Israel. *Community Dent Oral Epidemiol* 1988; 16(2):104–8.
- [16]. von Arx T. Developmental disturbances of permanent teeth following trauma to the primary dentition. *Aust Dent J* 1993; 38(1):1–10.
- [17]. Diab M, el Badrawy HE. Intrusion injuries of primary incisors. Part III: Effects on the permanent successors. *Quintessence Int* 2000; 31(6):377–84.
- [18]. Ravn JJ. Developmental disturbances in permanent teeth after intrusion of their primary predecessors. *Scand J Dent Res* 1976; 84(3):137–41.

- [19]. Kramer PF, Zembruski C, Ferreira SH, Feldens CA. Traumatic dental injuries in Brazilian preschool children. *Dent Traumatol* 2003; 19(6):299–303.
- [20]. Bassiouny MA, Giannini P, Deem L. Permanent incisors traumatized through predecessors: sequelae and possible management. *J Clin Pediatr Dent* 2003; 27(3):223–8.
- [21]. Cozza P, Mucedero M, Ballanti F, De Toffol L. A case of an unerupted maxillary central incisor for indirect trauma localized horizontally on the anterior nasal spine. *J Clin Pediatr Dent* 2005; 29(3):201–3.