

Orthodontic Management of Ectopically Erupting Maxillary Incisors –A Rare Case Report

Chinju Jacob, Anupamkumar T.V, Kannan Vadakkepurayil

Department Of Pedodontics, Government Dental College, Calicut-673008, Kerala

Corresponding author: Chinju Jacob

Abstract: Central maxillary incisors belong to the social six and abnormalities in these teeth are crucial in the aesthetic appearance of a person. Bilateral ectopic eruption of maxillary central incisors is unusual and so far not reported in literature. We describe the orthodontic approach in the management of the ectopic eruption of the permanent maxillary central incisors in an eight year old male patient.

Keywords: ectopic eruption, maxillary incisors, management, bilateral, retained teeth

Date of Submission: 14-04-2018

Date of acceptance: 30 -04-2018

I. Introduction

The maxillary incisors and canines are the most pronounced teeth in a person's mouth during speech and smile. They together are referred to as social six. Their position and morphology greatly influence a person's aesthetics. A positional deviation in normal eruption of incisors is of great concern in pediatric patients. This may indicate a local or systemic condition, affect esthetics and hence influence psychological development [1]. Several factors are reported causing eruption of a tooth away from its functional position such as retention of primary tooth. A primary tooth may be retained beyond its exfoliation time [2]. The cause for retention of a tooth can be absence of successor, impaction or intrabony migration of successor or presence of pathology like cyst, odontome and tumor [2, 3, and 4]. Deviation in normal pathway of eruption of permanent successor is called ectopic eruption. Nikifarouk defines ectopic eruption as a condition in which permanent teeth, because of deficiency of growth in jaw, assume a path of eruption that intercepts primary tooth, causes its premature loss and causes a consequent malposition of permanent tooth [5].

Early diagnosis of ectopic eruptions and their management are necessary to prevent later complications. The management options include:

1. Observation for spontaneous correction after removal of etiologic agent [6].
2. Orthodontic intervention in cases where spontaneous correction is not possible [6].

Here, we report a rare case of ectopic eruption of maxillary central incisors due to retained primary incisors bilaterally and its management in a mixed dentition period.

CASE REPORT

An 8 year old male patient with chief complaint of irregularly erupting upper front teeth reported to the department of pedodontics. No significant past medical or dental history were noted. On intraoral examination, bilaterally retained primary central incisors and ectopically erupting maxillary permanent central incisors were noted. Permanent central incisors were found to be erupting distal to retained teeth in the region of lateral incisors. The deciduous lateral incisors were missing. The child had a class1 molar relation with anterior open bite due to tongue thrusting habit and a peg shaped tooth in relation to 31.



Plate 1. Bilateral ectopic eruption of maxillary central incisors and retained deciduous primary incisors. 1-labial view, 2-occlusal view.

Radiographic examination

OPG showed retained 51, 61 with intact roots. Permanent maxillary central incisors were seen to erupt in the place of deciduous lateral incisors. The normal eruption of permanent laterals was found to be blocked.



Fig 1. Preoperative OPG of patient showing ectopically erupting 11,21 and retained 51,61.

TREATMENT

The treatment plan was made. The retained primary incisors were extracted. Fixed orthodontic treatment using a 2x2 appliance was planned since self correction of malocclusion was not possible and position of permanent centrals hindered eruption of permanent laterals.

Molar bands with buccal tubes were cemented on 16 and 26. Straight wire brackets were bonded on 11, 21. 0.014 NiTi was engaged on upper arch followed by 0.016, 0.018 NiTi and 0.018 SS wire. Elastic chain was engaged from 11 to 21 for their mesial movement.



Plate 2. Treatment phase of ectopically erupted maxillary incisors. 1. Extraction of retained 5.1, 6.1 and bonding of 11, 21 with straight wire brackets, 2. E-chain engaged between 11 and 21, 3. 0.014 NiTi wire engaged on upper arch.

The appliance was debonded after alignment of 11 and 21 which took a duration of 8 weeks. A fixed palatal retainer was bonded to prevent relapse. The position remained stable after 12 months of follow up.



Plate 3. Post operative intraoral view. 1. Labial 2. Occlusal view showing fixed lingual retainer.



Fig. 2. Post operative IOPA radiograph.

II. Discussion

Tooth eruption refers to movement of a tooth from its developmental position to functional position in dental arch. Eruption is a complex phenomenon in which multiple factors are involved. Normal eruption may be altered by genetic, molecular, cellular, or tissue causes. Ectopic eruption refers to eruption of tooth in an abnormal position [7]. Ectopic eruption is prevalent in almost 5.6 % of general population and majority of cases reported showed the involvement of permanent central incisors. The incisors are reported to erupt ectopically or seen as impacted due to supernumerary tooth in about 2 % of population [1,6]. Ectopic eruption frequently occurs in girls [6]; however, Huber et al. could not find any influence of sex on the frequency of incidence of ectopic eruptions [1]. In the maxillary incisors, ectopic eruption is usually reported as unilateral [1]. In the present paper we report a case of bilateral ectopic eruption of maxillary central incisors.

The local factors which may lead to ectopic eruption are: 1. Retained primary teeth. 2. Supernumerary teeth or odontomes, 3. Trauma to primary teeth, 4. Developmental disturbance like left palate and 5. Tooth size-arch length discrepancy [6].

In the present case, the ectopic eruption of the incisors was due to retained primary incisors. The parents gave a history of trauma which might have been the cause for persistence of primary teeth. Eli et al., and Valeria et al., reported cases of over retained upper primary incisor due to trauma and its management [8,9].

Barberia et al., reported spontaneous correction of ectopically erupted tooth after removal of etiological agent [7]. Huber et al., suggested extraction of corresponding primary incisor and allow for natural guidance of ectopically erupted teeth in cases where deviation is minimal. Wherever ectopic incisors needed assistance to be aligned in normal position, they used a 2×4 appliance to correct the malocclusion. Extraction of the tooth need to be considered as a last option, if ectopically erupted incisor teeth fails to get aligned [1].

Suresh et al., reported 2 cases of retained primary incisors and ectopically erupting central incisors unilaterally. A self correction within 3 months after removal of etiological agent was seen in the above cases. They also reported a case of ectopically erupting central incisor due to interfering mesiodens. Self correction was not achieved in this case. The authors employed a 2×2 beggs appliance for alignment of ectopically erupting tooth after removal of mesiodens [6]. Nagaveni et al., also reported a case of ectopically erupting maxillary central incisor due to mesiodens. The mesiodens was extracted and teeth were aligned using fixed orthodontic treatment. A removable appliance was given during retention period [10]. Ebru et al., reported a case of ectopically erupting maxillary central incisor due to intrusive injury to predecessor tooth. In this case, a combination of fixed and removable orthodontic appliance was used for alignment of the tooth [11].

The need for treatment in the present case was for esthetic and psychological benefits than functional causes. In this case, self correction was not possible and the ectopically erupted central incisors hindered eruption pathway of lateral incisors. Ectopic eruption of central incisors resulted in lack of space for the permanent lateral incisors and caused resorption of the roots of primary maxillary canines. Therefore, intervention of malocclusion was necessary. A fixed orthodontic treatment with 2x2 appliance was planned since bodily movement of incisors was desired similar to a case report by Suresh et al., [6]. The end results were more effectively achieved with fixed orthodontic treatment. Remarkable improvement in child's appearance was obtained. However the chances of relapse cannot be ignored. Permanent retention was recommended. A fixed lingual retainer was given as it was the best choice.

III. Conclusion

The normal eruption of maxillary anterior teeth is central to craniofacial development, facial esthetics and phonetics. Deviations in eruption of the incisors are a frequent clinical presentation. Early detection and treatment of disorders during tooth eruption prevents complicated malocclusions, restores esthetics and increases the self esteem of pediatric patients. Detection and early treatment of a rare case of ectopic eruption of maxillary central incisors bilaterally by us restored the facial esthetics in an eight year patient.

Acknowledgements

The authors are grateful to the Principal, Government Dental College, Calicut for facilities and encouragement. The corporation of the patient and his parents in this study is acknowledged.

References

- [1] Huber KL, Suri L, Taneja P. Eruption disturbances of the maxillary incisors: a literature review. *J Clin Pediatr Dent* 2008; 32:221-230.
- [2] Ali Murat Aktan, İsa Kara, İsmail Şener. An evaluation of factors associated with persistent primary teeth. *The European Journal of Orthodontics* 2012; 34: 208–212.
- [3] Robinson S, Chan MF. New teeth from old: treatment options for retained primary teeth. *British Dental Journal* 2009; 207: 315–320.
- [4] Joshi MR. Transmigrant mandibular canines: a record of 28 cases and a retrospective review of the literature. *Angle Orthodontist* 2001; 71: 12–22.
- [5] Nikiforuk G. Ectopic eruption: Discussion and clinical report. *J Ont Dent Assoc* 1948; 25:243-246
- [6] Suresh KS, Uma HL, Nagarathna J, Kumar P. Management of Ectopically Erupting Maxillary Incisors: A Case Series. *Int J Clin Pediatr Dent* 2015; 8:227-233.
- [7] Barberia-Leache Elena, María Cruz Suarez-Clúa, Dolores Saavedra-Ontiveros. Ectopic Eruption of the Maxillary First Permanent Molar: Characteristics and Occurrence in Growing Children. *The Angle Orthodontist* 2005; 75: 610-615.
- [8] Eli Tal, Ari Kupietzky. Orthodontic alignment of permanent incisors following previous trauma of a primary tooth. *American Academy of Pediatric Dentistry* 2000; 22:1
- [9] Valeria Paoloni, Chiara Pavoni, Manuela Mucedero. Post-traumatic impaction of maxillary incisors: diagnosis and treatment. *Annali di Stomatologia* 2013; 4: 174-183.
- [10] Nagaveni NB, Poornima P, Valsan A, Mathew MG. Management of Mesiodens and ectopically Erupted Central Incisor. *CODS J Dent* 2016; 8:49-53.
- [11] Ebru Canoglu, Cenk Ahmet Akcan, Erdiñç Baharoglu H, Cem Gungor, Zafer C. Cehreli. Unusual Ectopic Eruption of a Permanent Central Incisor Following an Intrusion Injury to the Primary Tooth. *JCDA* 2008; 74:723-726.

Chinju Jacob "Orthodontic Management of Ectopically Erupting Maxillary Incisors –A Rare Case Report." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 17, no. 4, 2018, pp 76-79.