

Precocious secondary dentition: A case report

Sunil Kumar¹, Ruchi Juneja², Shweta Sharma³

From ¹Senior Resident, Department of Pediatrics, ²Assistant Professor, Department of Dentistry, Kalpana Chawla Government Medical College, Karnal, Haryana, ³Associate Professor, Department of Conservative Dentistry and Endodontics, Kothiwal Dental College and Research Center, Moradabad, Uttar Pradesh, India

Correspondence to: Dr. Sunil Kumar, H. No. 1420, Sector 9, Karnal, Haryana, India. E-mail: drsunilx@yahoo.com

Received - 27 July 2019

Initial Review - 12 August 2019

Accepted - 03 September 2019

ABSTRACT

Chronology of human dentition possesses high variations and deviation from normal eruption timing. However, a significant deviation from routine observations might indicate a need to evaluate patient's general health and development. This is because tooth eruption is influenced by multiple factors such as genetics, gender, socioeconomic status, craniofacial morphology, systemic diseases, and various syndromes. Presented here is an extremely rare case of early eruption of permanent canines and premolars in an 8-year-old male child. Although the number of such cases is very limited, the clinician should possess adequate knowledge and should be vigilant to identify such cases.

Key words: *Early eruption, Permanent canines, Root end closure*

Tooth eruption is defined as the gradual tooth movement from its development site in the alveolar bone into the functional occlusal position in the oral cavity [1]. Precocious/advanced dentition or early eruption of permanent teeth has been reported to occur as a result of local factors such as trauma and in systemic conditions such as diabetes, hypothyroidism, congenital adrenal hyperplasia, precocious puberty, hemifacial hypertrophy, Sturge-Weber syndrome, chondroectodermal dysplasia, osteogenesis imperfecta, Soto syndrome, and Turner syndrome [1-3]. The normal eruption time of maxillary permanent canine is 9–10 years and their root closure occur at 13–14 years [4]. In this article, a very rare case of early eruption of permanent canines and premolars in an 8-year-old male patient is discussed.

CASE REPORT

An 8-year-old boy visited the Department of Pediatrics with the chief complaint of mal-aligned teeth. He was moderately built and nourished and did not present history of any systemic disease. There was no history of extraction of any of the teeth. Following set of dentition was present in the oral cavity:

Eruption of both maxillary and mandibular permanent canines and premolars at an age of 8 years was a finding significantly deviating from the norms (Figures 1-4 and Table 1). Hence, a diagnosis of “accelerated tooth eruption” was made and a panoramic radiograph was advised to confirm the clinical diagnosis. Orthopantograph (Figure 5) showed erupted maxillary and mandibular bilateral permanent canines and first and second premolars. Another important finding was that root length of canines and premolars was almost complete, though with an open

apex, indicating a deviation from the normal chronological process. All the 4 second molars (both maxillary and mandibular) were also about to erupt, which usually erupt at the age of 12–13 years.

Retrospective interrogation from the parents revealed premature eruption of mandibular and maxillary canines (at 6 and 7 years, respectively), mandibular 1st and 2nd premolar (at 7 and 7.5 years) (Table 2) and maxillary 1st and 2nd premolars (at 7 and 7.5 years). Family history was found non-contributory, with no history of advanced dentition or any other relevant illness in parents and other family members. Systemic evaluation, including examination and investigations, did not reveal any systemic disease like hyperthyroidism, which is usually found to be associated with early eruption of permanent teeth.

The child did not have any features of syndromes such as Sturge-Weber syndrome, chondroectodermal dysplasia, osteogenesis imperfecta, Soto syndrome, or Turner syndrome which is associated with advanced dentition. His thyroid levels, blood sugar, phosphate, and other electrolyte levels, and renal functions tests (urea and creatinine) were within normal limits, thus ruling out systemic diseases commonly associated with advanced dentition. No etiologic cause for this extreme advancement in dental development was evident. Marked generalized early maturation and eruption of the dentition in the boy appeared to be an idiopathic phenomenon. Further recall visits were planned without any active dental intervention.

DISCUSSION

Systemic and local factors can modify the eruption time of teeth [5,6]. Generalized eruption time changes could be due



Figure 1: Occlusal view: Maxillary arch

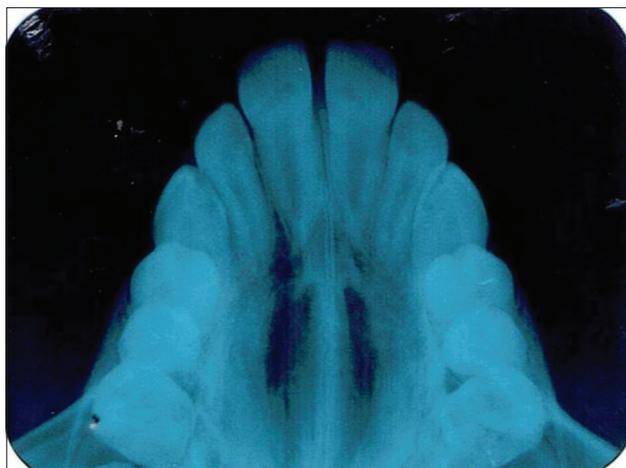


Figure 2: Occlusal radiograph maxillary arch



Figure 3: Occlusal view mandibular arch

to some systemic endocrine diseases such as hyperthyroidism, hypophosphatasia, precocious puberty, and hematological disorders such as acute lymphoblastic leukemia, cyclic neutropenia, and histiocytosis-X. Dental problems such as early-onset periodontitis and syndromes such as Soto syndrome and Proteus syndromes are also associated with advanced dentition [5-9]. Localized causes might include early extraction of deciduous teeth [7]. In the present case, all these conditions

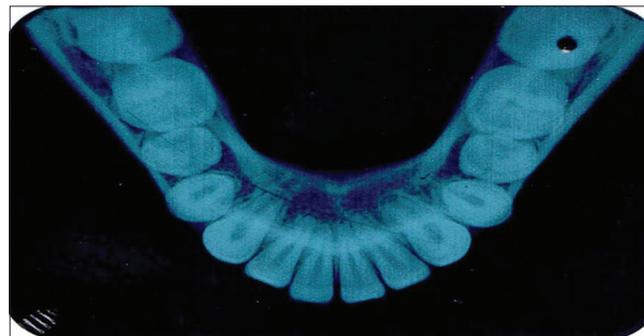


Figure 4: Occlusal radiograph mandibular arch



Figure 5: Orthopantomograph of the case

Table 1: Dentition of the patient

654321	123456
654321	123456

Table 2: Eruption time of the case's teeth in comparison with the normal eruption timings [4]

Teeth	Case (year)	Normal (year)
Mandibular canines	6	9–10
Maxillary canines	7	11–12
Mandibular 1 st premolar	7	10–12
Maxillary 1 st premolar	7	10–11
Mandibular 2 nd premolar	7.5	11–12
Maxillary 2 nd premolar	7.5	10–12
2 nd molars	Near eruption at 8	11–13

were ruled out. In the present case, no conclusive history regarding premature extraction or exfoliation of the deciduous teeth could be elicited.

Camm and Schuler noted early eruption of premolar in 5–6 years old following loss of primary molars [10]. In those cases, erupted premolars showed mobility since the root was not properly formed. However, in the present case, there was no mobility since eruption had occurred after sufficient root development. Eruption of a permanent mandibular canine in a 5 year old boy was reported by Turnbull and Lai [6]. They reported that two-third of the root completion in the erupted tooth suggesting recently erupted tooth. In the present case, more than two-third root had been formed and the roots of canines were near closure.

A case of early eruption of permanent teeth in the lower arch at the age of 5 years due to local factors was described by Singer *et al.* in 2001 [2]. Another case of early eruption of permanent canines in a 7-year-old female was reported by Madhu [11]. As the erupted permanent canines and premolars were of normal morphology, it was decided to periodically observe them with no active treatment in the present case.

CONCLUSION

Permanent teeth eruption is a complex process that can be influenced by a number of general factors such as genetics, nutrition, preterm built, socioeconomic factors, body weight and height, craniofacial morphology, hormonal factors, and various systemic diseases. No etiologic cause for the early development and eruption of dentition was evident in this case. Marked generalized early maturation and eruption of dentition of this boy appears to be an idiopathic phenomenon.

REFERENCES

1. Lal S, Cheng B, Kaplan S, Softness B, Greenberg E, Goland RS, *et al.* Accelerated tooth eruption in children with diabetes mellitus. *Pediatrics* 2008;121:e1139-43.
2. Singer S, Pinhas-Hamiel O, Botzer E. Accelerated dental development as a presenting symptom of 21-hydroxylase deficient non-classic congenital adrenal hyperplasia. *Clin Pediatr* 2001;40:621-3.
3. Chandna S, Bathla M. Oral manifestations of thyroid disorders and its management. *Indian J Endocrinol Metab* 2011;15:S113-6.
4. Logan WH, Kronfeld R. Development of the human jaws and surrounding structures from birth to age 15. *J Am Dent Assoc* 1933;20:379.
5. McDonald RE, Avery DR, Dean JA. *Dentistry for the Child and Adolescent*. 8th ed. St. Louis: Mosby; 2004. p. 176-82.
6. Turnbull NR, Lai NN. Eruption of a permanent mandibular canine in a 5-year-old boy. *Int J Paediatr Dent* 2003;13:117-20.
7. Posen AL. The effect of premature loss of deciduous molars on premolar eruption. *Angle Orthod* 1965;35:249-52.
8. Van der Linden FP. *Result of Premature Loss of Deciduous Teeth. Development of Dentition*. Illinois: Quintessence Publishing Co Inc.; 1983. p. 129-54.
9. Almonaitiene R, Balciuniene I, Tutkuvienė J. Factors influencing permanent teeth eruption. Part one general factors. *Stomatologija* 2010;12:67-72.
10. Camm JH, Schuler JL. Premature eruption of the premolars. *ASDC J Dent Child* 1990;57:128-33.
11. Madhu S. Early eruption of permanent canines. *Indian J Dent Res* 2012;23:428-30.

Funding: None; Conflict of Interest: None Stated.

How to cite this article: Kumar S, Juneja R, Sharma S. Precocious secondary dentition: A case report. *Indian J Child Health*. 2019; 6(9):516-518.

Doi: 10.32677/IJCH.2019.v06.i09.012