

Morphological Variations in Mesiodens: A Clinico-Radiographic Observation

Dr. Sagar Adhikari,¹ Dr. Jyotsna Rimal,² Dr. Iccha Kumar Maharjan,³

Dr. Pragya Regmee,⁴ Dr. Abhinaya Luitel⁵

¹⁻⁵Department of Oral Medicine and Radiology, B.P. Koirala Institute of Health Sciences, Dharan, Nepal

Correspondence:

Dr. Sagar Adhikari. Email: sagaradh@gmail.com

ABSTRACT

Mesiodens is a supernumerary tooth present in the maxillary anterior region between two central incisors. It may occur either as single or multiple and is commonly associated with disturbances in the eruption of maxillary incisors. The main objective of this case series was to assess the manifold morphology of mesiodens through clinical and radiographic evaluation of 47 patients. The various morphological forms observed in this cases series were conical, supplemental, and tuberculate forms. Thorough clinical and radiographic examination should be done for early detection and evaluation of these entities to prevent further complications.

Keywords: Mesiodens; morphology; supernumerary; tooth.

INTRODUCTION

Mesiodens is the most common type of supernumerary tooth with a prevalence of 0.15 % to 7.8 %. It is two times more common in males than females.¹ Clinical examination aided with routine periapical and panoramic radiographs help in establishing a diagnosis.² Mesiodens may be asymptomatic or at times associated with failure of eruption, displacement, crowding, nasal teeth, and dentigerous cysts.³ It may resemble normal tooth or have tuberculate, conical, and odontome shapes. It can occur single in number or multiple called as mesiodentes.⁴

CASE REPORT

This clinical observation includes 47 non-syndromic patients with mesiodens who presented to Department of Oral Medicine and Radiology, College of Dental Surgery, B. P. Koirala Institute of Health Sciences, Dharan, Nepal. Clinical examination was followed by Intra Oral Periapical Radiographs (IOPA-Rs) for the detection and

evaluation of mesiodens. Patients with clinically visible mesiodens, delayed eruption of incisors, bulge in labial or buccal alveolar bone in the maxillary incisors' region, midline diastema or malaligned maxillary incisors were advised for IOPA-R. There were 31 males and 16 females, all below 14 years of age. Of these 21 (44.6%) belonged to Mongolian population while rest were distributed among other ethnic groups.

Of the total 47 patients, eight had paired mesiodens, the total number of mesiodens studied being 55. Five patients had inverted mesiodens.

The variations of mesiodens depending upon the morphology are depicted in Figure 1. The most common type was conical comprising 78.18% of the total cases (Figure 2) followed by the supplemental form, 16.36% that is mesiodens resembling the incisor teeth (Figure 3). The least common type was the tuberculate form with total 5.45% of cases (Figure 4). All the patients were advised for the extraction of the supernumerary tooth.

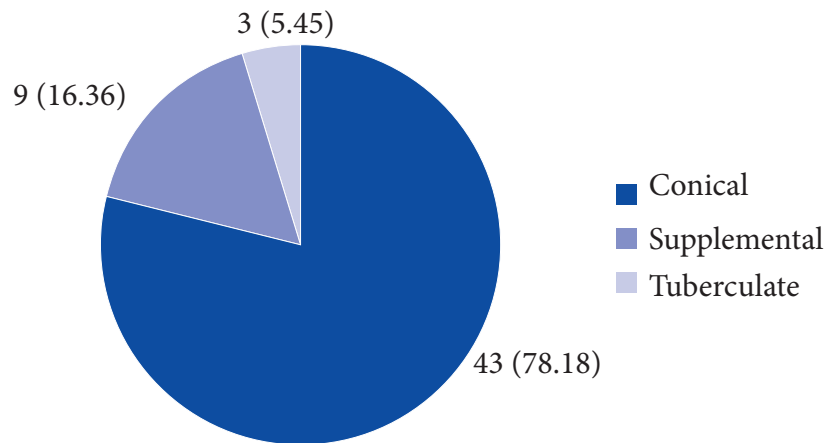


Figure 1: Distribution of morphological variation of mesiodens, n (%).



Figure 2: Conical mesiodens (clinical and radiographic pictures).

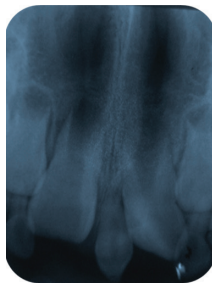


Figure 3: Supplemental mesiodens (clinical and radiographic pictures).



Figure 4: Tuberculate mesiodens (clinical and radiographic pictures).



Figure 5: Paired mesiodens, tuberculate, and rotated supplemental form (clinical and radiographic pictures)

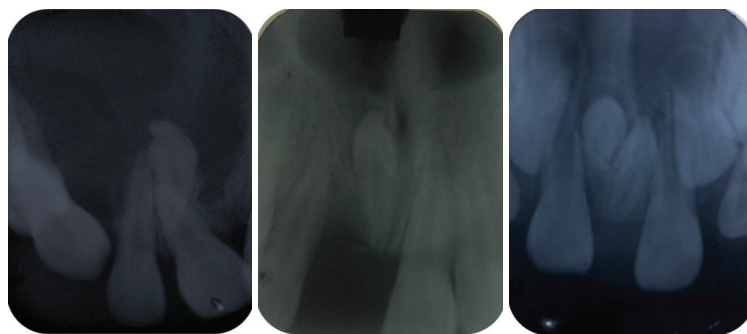
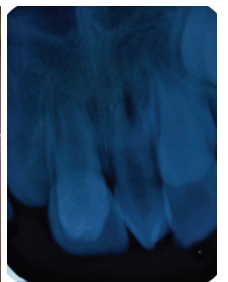


Figure 6: (a,b) Inverted mesiodens (c) Paired inverted mesiodens.

DISCUSSION

Mesiodens comprises of 80 % of all supernumerary teeth series. It may show a normal eruption or appear in horizontal series. It can also be inverted or impacted.⁵ Several theories have been proposed regarding the aetiology of mesiodens but the exact

cause is still unknown. Genetic and environmental factors including consanguineous marriages and atavism have been held responsible by some of the studies while others have pointed out tooth bud dichotomy, hyperactivity of the dental lamina, proliferation of odontogenic cell rests and palatal off shoot to be the possible causes.⁴⁻⁶

Mesiodens may have different shapes, ranging from simple conical to complicated tuberculate morphologies or may resemble a normal incisor.^{5,7} The most common morphological form of mesiodens in our clinical observation was the conical form which was similar to that reported by Gunduz et al. (2008) and Kim et al. (2003).^{7,8} In our observation, mesiodens was more common in male patients. Similar findings have been reported by Gunduz et al. (2008) and Mukhopadhyay (2011).^{5,7}

Gunduz et al. (2008) and Tyrologou et al. (2005) reported the prevalence of inverted mesiodens as 37.6% and 51.3% of the total cases respectively.^{7,9} However, in this observation, only 9.1% of all mesiodens were oriented in the inverted position. The frequency of inverted mesiodens was very low compared to the one reported in earlier studies.

Mesiodens may give rise to a variety of complications. Adjacent teeth may show delayed or ectopic eruption and displacement, crowding or radicular resorption. Malalignment of incisors may be seen. Midline diastema, impaction, dilacerations, possible development of dentigerous cyst, migration into nasal cavity or maxillary sinus and oroantral or oronasal fistula have also been reported.^{5,6,10} General dental practitioners may encounter supernumerary teeth as an incidental finding on a radiograph while looking for the cause of an impacted or malaligned central incisor.³ Early diagnosis of a mesiodens is important not only to prevent the complications,

but also to provide treatment with minimum intervention as possible. As in most cases, if mesiodens is associated with a complication or potential complication, it is advisable to remove them especially when diagnosed during or prior to mixed dentition period. Likewise, it is important to note that irrespective of their morphology, all forms of mesiodens require extraction as they hinder the growth and development of dentoalveolar structures. Routine clinico-radiographic evaluation is highly recommended for timely detection of it which results in wise decision making to prevent future complications. Studies involving higher sample size with three-dimensional imaging modalities like Cone Beam Computed Tomography (CBCT) will help us know the distribution, pattern of presentation, exact number, morphology, size, location, and position of mesiodens together with its relation to adjacent teeth and approximation with anatomic structures.

ACKNOWLEDGEMENT

We express our deepest appreciation to the patients at the Department of Oral Medicine and Radiology, College of Dental Surgery, B.P. Koirala Institute of Health Sciences, Dharan for their participation in making this case series a successful completion.

Conflict of Interest: None.

JNDA

REFERENCES

1. Lara TS, Lancia M, Silva Filho OG, Garib DG, Ozawa TO. Prevalence of mesiodens in orthodontic patients with deciduous and mixed dentition and its association with other dental anomalies. *Dental Press J Orthod.* 2013;18(6):93-9.
2. Miranda E, Mendes LD, Martins M, Penido O, Penido SR. Inverted mesiodens: case report. *Rev Gaucha Odontol.* 2016;64(1):83-6.
3. Sharma S, Gupta K, Jindal R. Clinical and surgical considerations for impacted mesiodens in young children: An update. *Indian J Oral Sci.* 2012;3(2):94-8.
4. Viswanathan R, Pai S. Bilateral impacted inverted mesiodentes in the palatal vault: A rare case report. *Pediatr Dent J.* 2015;25(1):26-8.
5. Mukhopadhyay S. Mesiodens: A clinical and radiographic study in children. *J Indian Soc Pedod Prev Dent.* 2011;29(1):34-8.
6. Jose A, Babaji P, Shashibushan K. Mesiodens: A Case Report and Literature Review. *Inter Ped Dent Open Acc J.* 2008;1(3):46-8.
7. Gündüz K, Celenk P, Zengin Z, Sümer P. Mesiodens: a radiographic study in children. *J Oral Sci.* 2008;50(3):287-91.
8. Kim SG, Lee SH. Mesiodens: A clinical and radiographic study. *J Dent Child.* 2003;70(1):58-60.
9. Tyrologou S, Koch G, Kuroi J. Location, complications and treatment of mesiodentes - A retrospective study in children. *Swed Dent J.* 2005;29(1):1-9.
10. Hasan S, Ahmed S, Reddy LB. Dentigerous cyst in association with impacted inverted mesiodens: Report of a rare case with a brief review of literature. *Int J Appl Basic Med Res.* 2014;4(3):61-5.