



## Three lobed (multi-lobed) Incisoriform Mesiodens with type 1 talon cusp - Report of an Unique Dental Anomaly

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### Abstract

Mesiodens is the most common type of anomalous supernumerary teeth that usually occur in anterior maxilla, between the two central incisors. Mesiodens may lead to complications in eruption, alignment and patients’ appearance, and with their varied clinical presentations may raise concerns among parents, patients and dentists. Literature shows different types of mesiodens reported by various authors. In this paper, author has identified a new form of mesiodens occurring in Indian male patient which is not reported or mentioned in the dental anomalies literature till date and suggested a new nomenclature for this different form. Therefore, purpose of the present article is an effort to discuss such a rare case of “multi-lobed incisoriform mesiodens” in association with Talon’s cusp which is not reported in the dental literature.

**Keywords:** Incisoriform mesiodens; multi-lobed mesiodens; Maxillary arch; Supernumerary teeth; Talon’s cusp.

## INTRODUCTION

The most frequently occurring supernumerary tooth seen in the anterior maxilla, located between the maxillary central incisors, is referred to as Mesiodens.[1] The occurrence of mesiodens ranges from 0.15 to 1% of the population, and shows a slight male sex predilection with a ratio of 2:1. [1,2] According to its shape, Primosh [3] classified supernumerary teeth into supplemental and rudimentary. Supplemental or eumorphic refers to supernumerary teeth of normal size and shape, which may also be termed incisor form. Rudimentary or dysmorphic defines teeth of abnormal shape and smaller size, including conical, tuberculate and molariform types.[3] According to Koch et al [4], mesiodens may be classified as 56% conical, 12% tuberculate, 11% supplemental, and 12% other configurations [4.] There is plenteous literature on the occurrence and prevalence of the different types of mesiodens. [1-4]

Another rather less common dental anomaly is the Talon’s cusp (Dens evaginatus). It is a structure resembling an Eagle’s claw, projecting lingually from the cingulum area of mainly maxillary incisors. It is composed of normal enamel and dentin and contains a horn of pulp tissue with or without a deep developmental groove where the cusp blends with the descending lingual tooth surface.[5]

Herewith, is a report of a rare and unusual case of a ‘multi-lobed incisoriform mesiodens’ with a prominent lingual talon in an 8-year-old male Indian child impeding the eruption of permanent incisors.

## CASE REPORT

The patient, an 8-year-old Asian male, reported to a private dental clinic with a chief complaint of unusual appearing upper front tooth with lack of eruption of permanent teeth. The main concern of the parents was that since the tooth was projecting in front and was unsightly, the child was being ridiculed at school which seriously affected his

confidence. The patient's medical and dental history was unremarkable. Family history of presence of additional teeth was non-significant. There were no signs of any syndromes and no history of orofacial trauma.

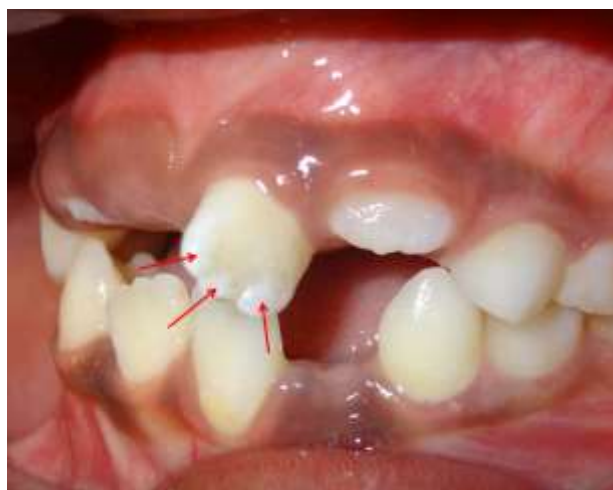
On intraoral examination, a labially inclined, distally rotated tooth with unusual morphology was noted in place of maxillary left central incisor (Fig 1). Labially, it almost resembled a newly erupted permanent maxillary central incisor tooth with flat surface and had 3 lobes separated by developmental grooves (Fig 2). Palatally, the tooth had a prominent talon's cusp extending from cingulum to the two-third portion of the lingual surface (Type 1) and rested on the mandibular left central incisor on occluding (Fig 3). Clinically permanent maxillary both right and left central incisors were still not erupted. As the tooth appeared permanent counterpart it was difficult in identifying whether it is a permanent tooth or a supernumerary supplemental tooth (mesiodens). The mandibular central incisors and maxillary lateral incisors were seen to be in various stages of eruption. Radiographic examination revealed the presence of unerupted permanent both right and left central incisors with incomplete root formation. An extra/supernumerary tooth, with incompletely formed root, and a talon's cusp that appeared as a V-shaped radiopacity superimposed over the normal crown, was present labial to left central incisor hindering its eruption (Fig 4). Therefore, on radiographic examination presence of permanent left central incisor was confirmed.

Based on both clinical and radiographic findings and literature search, the supernumerary tooth was diagnosed as "multi-lobed incisoriform mesiodens" with a palatal Talon's cusp, causing a delay in the eruption of permanent central incisors. The new name of 'multi-lobed Incisoriform mesiodens' was given for this different case, as the tooth appeared similar to permanent central incisor in morphology and was placed or erupted in the place of permanent central incisor. The treatment objective of timely intervention by extraction of mesiodens and adequate follow-up to monitor the eruption of permanent maxillary central incisors was planned. The mesiodens tooth was extracted and patient was kept under observation for the eruption of permanent left central incisor. The details of the present case are elaborated in Table 1.

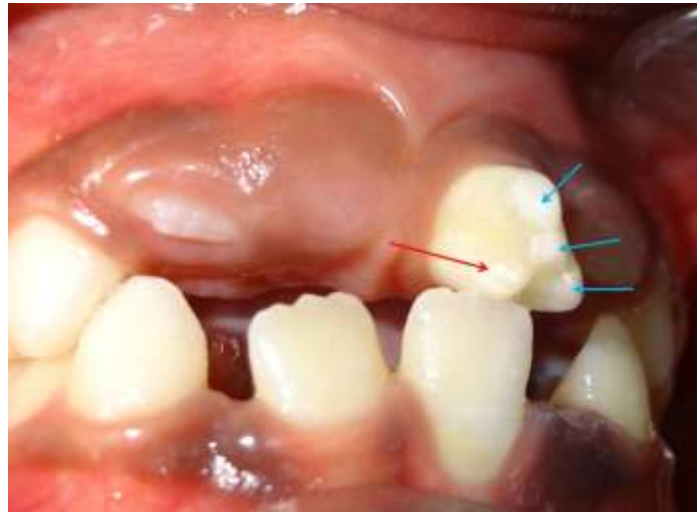
**Table 1: Details of the presented case**

Patient Age/Gender	Chief Complaint	Clinical Features	Radiographic Features	Treatment Provided
8 years Male	Unusual appearance of upper front tooth	Presence of supplemental mesiodens (Incisoriform) with three multiple lobes separated by developmental grooves. Presence of prominent talon cusp extending from cingulum to the two third of the lingual surface (Type I talon)	Mesiodens with multiple lobes and lingual talon cusp superimposing the crown portion and incomplete root formation. Erupting permanent maxillary both central incisors with incomplete root formation was also evident.	Extraction of the mesiodens. Periodic follow-up till eruption of permanent maxillary central incisors.

**Figure 1:** Intraoral photograph showing mesiodens in the place of maxillary permanent left central incisor. Supplemental mesiodens (Incisoriform) with three lobes (red arrows) well demarcated by developmental grooves can be seen.



**Figure 2:** Incisoriform mesiodens with multiple lobes (blue arrows) and type I lingual talon cusp (red arrow) interfering with occlusion.



**Figure 3:** Occlusal view of ‘Multi-lobed Incisoriform mesiodens’ with prominent type I lingual talon cusp (black arrow)



**Figure 4:** Intraoral periapical radiograph showing erupted multi-lobed mesiodens in association with type I lingual talon cusp and incomplete root formation. Presence of erupting left and right permanent central incisors can be seen.



## DISCUSSION

Supernumerary teeth most commonly affect the pre-maxilla, the most esthetically important zone leading to low self-esteem and embarrassment in children and for parents. Males are affected approximately twice as often as females, like in the present case. The etiology of occurrence is not accurately known; however, the tendencies are reported as familial. Other possible hypotheses are hyperactivity of dental lamina, dichotomy, spontaneous gene mutation, or environmental factors [6,7]. Developmentally anterior teeth form from four lobes, three labially and one lingually represented by the cingulum. Hence it has been proposed that, a lack of fusion of the lobes during development may result in an unusual morphology of mesiodens [8]. In the particular case, the three labial lobes are clearly demarcated due to incomplete fusion, and since they lie in the same plane in the place of permanent central incisor, the mesiodens was classified as 'multi-lobed incisoriform'. This is a new addition to the existing forms of mesiodens reported so far in the dental anomalies' literature by various authors. Therefore, through this case presentation author would like to introduce a new form of mesiodens with new nomenclature which will help other researchers and authors to explore more anomalies. Understanding an occurrence of dental anomalies will help researcher to frame standard protocols and suggestions in the diagnosis, classification and management of such dental variations. The other forms of mesiodens like molariform, conical, supplemental, rudimentary and multi-lobed mesiodens have been reported [2,7]. But "multi-lobed incisoriform" mesiodens is not mentioned in the literature. The lingual lobe here is developed into a talon, attributing to the unusual morphology of the mesiodens.

Mesiodens may lead to complications to the adjacent teeth like displacement, malocclusion, diastema, resorption of roots and even failure of eruption [9]. Dentigerous cyst formation with respect to retained supernumerary tooth has also been recorded [10]. In this case, mesiodens acted as a hard tissue barrier for the eruption of permanent incisors. Hence, it was decided to relieve the obstruction by extraction of the mesiodens [11]. However, there were reported instances which show a further delay in eruption of the affected tooth. It should be then suspected that, the delay may be attributed to a soft tissue barrier which is not visible on a radiograph. Soft tissue barriers like mucosal or scar tissue barrier should be treated with an uncovering procedure that includes surgical exposure of an un-erupted tooth [12]. Following which, the tooth usually erupts eventually into normal occlusion.

Talon cusp was first described by Mitchell in 1892. This anomalous structure arises from cement-enamel junction (CEJ) extending towards the incisal edge of the teeth. Classification of Talon's cusp was given by Hattab et al., based on the degree of cusp formation and extension, into 3 types. Type 1 (talon) includes a morphologically well-delineated additional cusp projecting from the palatal surface to at least half the distance between CEJ and incisal edge. Type 2 (semitalon) includes an additional cusp ( $\leq 1$  mm) that may blend with the palatal surface or stand away from the rest of crown, extending less than halfway between CEJ and incisal edge. Type 3 (trace talon) is an enlarged cingulum that may have a conical, bifid, or tubercle-like appearance [13]. Occurrence of talon cusp on supernumerary teeth is rather rare and there are only a few reported cases [14-17]. Nagaveni NB et al reported a case of multi-lobed mesiodens with a palatal talon cusp [18]. The multi-lobed mesiodens presented in this paper was conical in shape in contrast to the present case which exhibited incisor form. Presentation of facial talon on mesiodens has been published by a few authors [2, 19, 20]. Reported here is a case of rare occurrence of 'multi-lobed incisoriform mesiodens' along with Type 1 palatal talon. The same author also presented impacted and inverted mesiodens in ethnic Indian population [21].

Supernumerary teeth may have significant impact on the eruption and position of the permanent central incisors and possibility of future malocclusion. Hence, intervention at the right time minimally and sequentially will avoid future complex treatment and benefit the child's psychosocial development.

## CONCLUSION

Dental practitioners should possess adequate knowledge on clinical presentations and treatment options for early diagnosis and appropriate management of Mesiodens. Thus, they can efficiently minimize the potential complications caused by supernumerary teeth.

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