

## Facial talon cusp in a mesiodens: A rare occurrence

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### ABSTRACT

Supernumerary teeth are the ones which are extra in comparison to the normal dentition. The most common type of supernumerary, which is reported is mesiodens which is seen between maxillary central incisors. The supernumerary teeth may be associated with a syndrome or can be seen in nonsyndromic cases too. Talon cusp also known as Eagle's Talon is an accessory cusp like structure or an extra cusp on an anterior tooth, which is usually present in the palatal aspect of teeth. The association of mesiodens with a talon cusp is a rare occurrence itself. Here, we report a case of a facial talon cusp in a mesiodens in an 8-year-old male child, which is quite rare.

### Key words

Facial, mesiodens, talon cusp

### INTRODUCTION

Supernumerary teeth are the extra teeth present apart from the normal dentition. The most common supernumerary tooth to be reported is mesiodens present between the maxillary central incisors.<sup>[1]</sup> The term mesiodens refers to supernumerary tooth present in the midline of maxilla between the two central incisors.<sup>[2]</sup> The mesiodens may erupt normally, stay impacted, appear inverted or take a horizontal position. The term mesiodens was coined by Balk<sup>[3]</sup> in 1917 to denote a supernumerary tooth located mesial to both central incisor appearing as peg-shaped crown in normal or inverted position. Asymptomatic unerupted mesiodens may be discovered during the radiological examination of the premaxillary area.<sup>[4]</sup> Single supernumerary teeth accounts for 76–86%, in pair accounts for 12–23%, and <1% cases with three or more extra teeth.<sup>[5]</sup> Some syndromes such as Gardiner's syndrome, cleidocranial dysostosis, cleft lip, and palate may show mesiodens, but mesiodens may also be seen in nonsyndromic cases too.<sup>[5]</sup> Both dentitions may be affected, but a higher incidence of this anomaly is noted in permanent dentition.<sup>[6]</sup> The talon cusp, an anomalous

structure resembling an Eagle's claw, projects lingually from the cingulum areas of a maxillary or mandibular permanent incisor. This cusp blends smoothly with the tooth except that there is a deep developmental groove where the cusp blends with the sloping lingual tooth surface. It is composed of normal enamel and dentin and contains a horn of pulp tissue. It is more frequent in permanent than in primary dentition.<sup>[7]</sup>

Fortunately, this anomaly is quite uncommon among the general population. However, it has been reported that it appears to be more prevalent in persons with the Rubinstein–Taybi syndrome, Mohr syndrome, Sturge–Weber syndrome and incontinentia pigmenti. The occurrence of talon cusp in the supernumerary tooth is an extremely rare phenomenon with only countable number of case reports till now and its occurrence on facial aspect is still infrequent.<sup>[8]</sup> Here, we report an unusual and rare case of a facial talon cusp in a mesiodens in an 8-year-old male child.

### CASE REPORT

An 8-year-old male patient presented to the outpatient department with a complaint of unusual looking tooth in the upper anterior region of the jaw. The patient did not complain of any pain in any of the tooth. The child was the first child and was nonsyndromic. Family history was noncontributory. No abnormalities were found on extra-oral examination. On intraoral examination, completely erupted tooth was noticed between two central incisors which seemed to be a supernumerary

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10.4103/2278-9626.163340

tooth [Figure 1]. Patient was in a mixed stage of the dentition with a palatally erupting lateral incisor on the left side and an unerupted lateral incisor on the right side. On examination of mesiodens, it had two lobes with a developmental groove running between the two lobes. On further examination on a study model, it was found that mesiodens had a facial talon cusp, giving inverted "T" shape [Figures 2 and 3] as talon was located on the facial aspect. Since the patient was in mixed dentition stage, extraction of mesiodens was advised for better alignment of the permanent anteriors. Unfortunately, the patient did not turn up and we could not meet the treatment plan as advised.

## DISCUSSION

Mesiodens is the most common supernumerary tooth in the palatal midline between the two maxillary central incisors. The prevalence of mesiodens varied from 0.15% to 1.9% in different reported cases with a higher prevalence to be found in the permanent than in the primary dentition.<sup>[5]</sup> Mesiodens is a clinically significant anomaly which is associated with various complications such as failure of eruption, midline diastema, displacement of incisors, root resorption of adjacent teeth, and cyst formation.<sup>[9]</sup> In our case, the unesthetic appearance was the only complaint by the patient. The size, shape, location, and the structure of the accessory cusp show wide variation. Hattab and Hazza'a classified talon cusp into three types. They are type 1 or major talon, type 2 or minor talon, and type 3 or trace talon.<sup>[8]</sup> Major talon is a morphologically well-defined additional cusp extending at least half the distance from the cemento-enamel junction (CEJ) to the incisal edge of the tooth, whereas minor talon extends more than one-fourth, but less than half the distance from the CEJ to the incisal edge. Trace talon is a prominent cingulum occupying less than one-fourth the distances from the CEJ to the incisal edge of the tooth. In the present case, the talon cusp was of type 1 or major talon. Complications associated with talon cusps are interference with occlusion, cusp fracture, pulp exposure, open bite, periodontal problems due to excessive occlusal force, poor esthetics, and caries at the developmental grooves.<sup>[10]</sup> Early diagnosis of talon cusp is important, and a definitive treatment such as sealing of developmental grooves, and grinding of accessory cusps in multiple appointments are required. The etiology of both mesiodens and talon cusp are not clearly understood. Various theories such as dichotomy of tooth bud, genetic factors, atavism, and hyperactivity of dental lamina have been proposed for supernumerary tooth formation.<sup>[2]</sup> Talon cusps may develop as a result of an outward folding of inner enamel epithelial cells and a transient focal hyperplasia of mesenchymal dental papilla.<sup>[10]</sup> Occurrence of talon cusp on supernumeraries is extremely rare [Tables 1 and 2]. Reports describing treatments of talon cusp on supernumerary teeth are

few because the condition is not usual.<sup>[40,46]</sup> Most of the cases have reported extraction of these teeth, and some also stated the patients not reporting for treatment.<sup>[47,48]</sup> In our case too, the patient did not turn up for further treatment.



Figure 1: Clinical view of facial talon cusp



Figure 2: Maxillary cast showing talon cusp



Figure 3: Model showing facial talon cusp

**Table 1: Deciduous teeth**

Authors	Year	Place	Sex	Affected tooth	Reported type	Associated anomalies	Treatment done
Jeevarathan <i>et al.</i> <sup>[11]</sup>	2005	India	Female	52 - facial and lingual talon	Clinical	Bilateral cleft lip	Fluoride varnish application
Batra <i>et al.</i> <sup>[12]</sup>	2006	Sweden	Female	62 - facial talon	Clinical	Cleft lip and palate	-
Siraci <i>et al.</i> <sup>[13]</sup>	2006	Turkey	Male	Supernumerary primary tooth with facial and palatal talon	Clinical	Cleft lip and palate	Extraction
Topaloglu <i>et al.</i> <sup>[14]</sup>	2008	Turkey	Male	Supernumerary primary tooth with facial and palatal talon	Clinical	-	Extraction
Pomeroy <sup>[16]</sup>	2009	Argentina	-	61 - facial talon	Archaeological	-	-
Present case	2015	India	-	Talon cusp facial in mesiodens	Clinical	-	Patient didn't turn up

**Table 2: Permanent teeth**

Authors	Year	Place	Sex	Affected tooth	Reported type	Associated anomalies	Treatment done
Schulze <sup>[17]</sup>	1987	Germany	-	41 - facial talon	-	-	-
Tsutsumi and Oguchi <sup>[18]</sup>	1991	Japan	Female	21 - facial talon	Clinical	Incontinencia pigmenti achromians	-
Jowharji <i>et al.</i> <sup>[15]</sup>	1992	Chicago	Female	11 - facial talon	Clinical	-	-
Mcnamara <i>et al.</i> <sup>[19]</sup>	1997	Ireland	Male	31 - facial talon	Clinical	-	Extraction and orthodontic correction
Mcnamara <i>et al.</i> <sup>[19]</sup>	1997	Ireland	Female	13 - facial talon	Clinical	-	-
Abbot <sup>[20]</sup>	1998	Australia	Female	21 - facial and palatal talon	Clinical	-	Cuspal reduction with endodontic treatment and orthodontic correction
Turner <sup>[21]</sup>	1998	America	Female	22 - facial talon	Archaeological	-	-
de Sousa <i>et al.</i> <sup>[22]</sup>	1999	Brazil	Female	11 - facial talon	Clinical	21, with only lingual talon cusp and 12, dens invaginatus	Root canal treatment with esthetic restoration for 11 and sealant application for 12
McKaig and Shaw <sup>[23]</sup>	2001	Birmingham	Female	11 - facial and palatal talon	-	-	-
Lee <i>et al.</i> <sup>[24]</sup>	2003	America	Female	Supernumerary permanent maxillary incisor	Clinical	-	-
Lee <i>et al.</i> <sup>[24]</sup>	2003	America	Male	31, 41 - facial talon	Clinical	-	-
Patil <i>et al.</i> <sup>[25]</sup>	2004	India	Female	21 - facial talon	Clinical	-	-
Dunn <sup>[26]</sup>	2004	America	Female	12 - facial and lingual talon cusp	Clinical	22, only lingual talon cusp	-
Shashikiran <i>et al.</i> <sup>[27]</sup>	2005	India	Female	21 - facial and lingual trace talon	Clinical	-	-
Oredugba <sup>[28]</sup>	2005	Nigeria	Male	31 - facial talon	Clinical	-	Minimal reduction of talon cusp and APF gel application
Llena-Puy and Forner-Navarro <sup>[29]</sup>	2005	Valencia	Male	32 - facial talon	Clinical	-	-
Glavina and Skrinjaric <sup>[30]</sup>	2005	Croatia	Male	21 - facial talon	Clinical	-	Gradual grinding of 21, fluoride varnish application and composite restoration
Sumer and Zengin <sup>[31]</sup>	2005	Turkey	Female	11 - facial and palatal talon	Clinical	-	-
Cubukcu <i>et al.</i> <sup>[32]</sup>	2006	Turkey	Female	11 - gemination with labial and palatal talon and abnormal root shape	Clinical	-	Extraction of 11 with orthodontic correction and prosthetic rehabilitation
Ma <sup>[33]</sup>	2006	Malaysia	Male	12 - facial talon	Clinical	-	-
Mayes <sup>[34]</sup>	2007	America	-	11 - facial talon	Archaeological	-	-
Mayes <sup>[34]</sup>	2007	America	-	21 - facial talon	Archaeological	-	-
Ekambaram <i>et al.</i> <sup>[35]</sup>	2008	China	Female	41, 42 - fused with labial and lingual talon	Clinical	-	-
Hegde <i>et al.</i> <sup>[36]</sup>	2010	India	Female	11, 21 - facial talon	Clinical	-	-
Stojanowski and Johnson <sup>[37]</sup>	2011	Niger	Male	43 - facial talon	Archaeological	-	-

Contd...

Table 2: Contd...

Authors	Year	Place	Sex	Affected tooth	Reported type	Associated anomalies	Treatment done
Kulkarni <i>et al.</i> <sup>[38]</sup>	2012	India	Male	21 - facial talon	Clinical	-	Selective grinding of 21, fluoride varnish application allowed by composite veneer placement
Hegde <i>et al.</i> <sup>[39]</sup>	2012	India	Female	11 - facial talon	Clinical	-	-
Nuvvula <i>et al.</i> <sup>[40]</sup>	2014	India	Male	42 - facial talon	Clinical	-	Gradual reduction of 41 followed by fluoride application
Thakur <i>et al.</i> <sup>[41]</sup>	2013	India	Female	11 - facial talon	Clinical	-	Cusp reduction of 11 with fluoride application followed by composite restoration
Busnur <i>et al.</i> <sup>[42]</sup>	2013	India	Female	Maxillary permanent central incisor	Clinical	-	Extraction
Chinni <i>et al.</i> <sup>[43]</sup>	2012	India	Male	11, 21 - facial talon	Clinical	-	-
Yazicioglu and Ulukapı <sup>[44]</sup>	2014	-	Female	11 - facial talon	Clinical	-	-
Nuvvula <i>et al.</i> <sup>[45]</sup>		India	Male	31 - facial talon Mandibular	Clinical	-	Facial reduction followed by fluoride varnish application

APF: Acidulated phosphate fluoride

## CONCLUSION

As the occurrence of both these anomalies together is very rare, we have to diagnose the cases correctly and intervene timely so that major complications do not occur. It is always advisable to start with conservative treatment modality giving the tooth sufficient time to recover and respond by reparative dentin formation, so that pulp vitality can be maintained and invasive intervention can be avoided if at all possible. This case is very rare as can be seen from the tables which have been provided so identification and management plays a major role here.

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**How to cite this article:** Acharya S. Facial talon cusp in a mesiodens: A rare occurrence. *Eur J Gen Dent* 2015;4:145-9.  
**Source of Support:** Nil, **Conflict of Interest:** None declared.