

# Facial talon cusp on permanent maxillary canine: A rare dental anomaly

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## ABSTRACT

Talon cusp is a rare form of developmental anomaly characterized by cusp like projections, usually presenting on palatal and lingual surface of the anterior teeth. Maxillary lateral incisor is most often affected followed by maxillary central incisor. This developmental anomaly is rare on the facial surfaces and very few cases have been reported. When it occurs, the effects are mainly aesthetic and functional and so early detection and treatment is essential in its management to avoid complications. An unusual case of talon cusp on the facial aspect of maxillary canine is reported. The chief complaint of the patient was impaired aesthetics. Aesthetic correction was There is only one reported case of facial talon cusp on maxillary canine till date. This case reports a very rare form of such anomaly along with management.

## Key words

Canine, facial talon cusp, maxillary

## INTRODUCTION

Talon cusp has been defined as a supernumerary accessory talon-shaped cusp projecting from the lingual or facial surface of the crown of a tooth and extending for at least half the distance from the cemento enamel junction to the incisal edge.<sup>[1]</sup>

Hattab *et al.*, classified talon cusps according to their extent from the cemento enamel junction towards the incisal edge from the most extreme to the slightest form into three types.<sup>[2]</sup> However, Mayes in 2007 categorized facial talon cusps into three stages, starting from the slightest to most extreme forms as follows:

Stage 1: The slightest form, consisting of slightly raised triangle on the labial surface of an incisor extending the length of the crown, but not reaching the cemento enamel junction or the incisal edge;

Stage 2: The moderate form, consisting of a raised triangle on the labial surface of an incisor that extends the length of the crown, does not reach the cemento enamel junction, but does reach the incisal edge, and can be observed clearly and palpated easily at this stage; and

Stage 3: The most extreme form, consisting of a free-form cusp, extending from the cemento enamel junction to the incisal edge on the labial surface of an incisor. Talon cusp is an uncommon odontogenic anomaly.<sup>[3]</sup>

The reported prevalence is 0.6% in Mexicans, 7.7% in a northern Indian, 2.5% in a Hungarian, 5.2% in Malaysian, and 2.4% in Jordanian population.<sup>[4]</sup> It has predilection for the maxillary over the mandibular teeth, and males are found to be more commonly affected than females. Talon cusp usually occurs on the lingual surfaces of teeth. The maxillary lateral incisors are most often affected (67%), followed by the central incisors in 24%, and canines in 9%.<sup>[5]</sup>

The purpose of this article is to document a case of labial talon cusp on the permanent maxillary canine as a very rare dental anomaly. The treatment procedure by sequential grinding and composite build-up of tooth crown is also described.

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## CASE REPORT

A 12-year-old female child accompanied with her parents reported to the Department of Pediatric and Preventive Dentistry with chief complaint of an abnormal shape of the upper anterior right corner tooth.

Intraoral examination revealed well-defined accessory cusp on the labial surface of permanent maxillary right canine. The accessory cusp was raised triangular in shape and extended from the gingival margin to the incisal edge (stage 3). It was located in the middle of the crown and completely attached to it [Figures 1 and 2].

No carious lesions, deep periodontal pockets, and spontaneous or percussion pain were associated with the affected tooth. All other teeth did not show any developmental abnormalities. The parents had no knowledge of similar anomalies in either of the dentitions of any other family members. Intraoral and extraoral examinations of the patient did not reveal any abnormalities of soft and hard tissues.

An intraoral periapical radiograph revealed a V-shaped radiopaque structure superimposed on the crown of 13 [Figure 3].

Their main complaint was abnormal tooth shape and impaired aesthetics. Hence, therapeutic procedure included gradual grinding of the talon cusp with a fine diamond burr and final aesthetic correction with composite material [Figure 4]. After each grinding session, fluoride varnish (Fluoritop varnish) was applied to protect the exposed dentine and pulp tissue. Patient was satisfied with the result and did not complain of sensitivity or pain.

## DISCUSSION

The exact etiology is not known. It is thought to arise during the morphodifferentiation stage of tooth development, as a result of outfolding of the enamel organ or hyperproductivity of the dental lamina.<sup>[2]</sup> There is also a suggestion of a strong genetic influence in its formation as evidenced by its occurrence in close family members.<sup>[6]</sup> Talon cusp may occur in isolation



Figure 1: Intraoral view showing facial talon cusp on 13



Figure 2: Occlusal view of the affected tooth (mirror image)



Figure 3: Periapical radiograph showing talon cusp as a V-shaped radiopaque structure superimposed on the image of the affected tooth crown



Figure 4: Intraoral view after aesthetic correction of 13

or with other dental anomalies such as mesiodens, odontome, unerupted or impacted teeth, peg-shaped maxillary incisor, dens invaginatus, cleft lip and distorted nasal alae, bilateral gemination, fusion, supernumerary teeth, and enamel clefts.<sup>[6]</sup> It has also been associated with some systemic conditions such as Mohr syndrome (oro-facial-digital II), Sturge-Weber syndrome (encephalotrigeminal angiomatosis), Rubinstein-Taybi syndrome, incontinentia pigmenti achromians and Ellis-van Creveld syndrome.<sup>[7]</sup>

Talon cusp usually occurs on the palatal or lingual surfaces of the anterior teeth with very few cases reported on the facial tooth surfaces. Table 1 summarizes the

facial talon cusps on permanent teeth reported in the literature. In contrast to the palatal talon cusp, the facial talon cusp shows higher prevalence in females.<sup>[26]</sup> There are only 21 clinical cases reported in the literature, out of which there is only one reported case of facial talon cusp on the permanent maxillary canine by McNamara *et al.*, in 1997.<sup>[10]</sup> Among these one is that of the oldest of all talon cusps mentioned in the literature.<sup>[25]</sup> This archeological report belonged to the age of “ca. 9500 BP” in the republic of Niger and was about a facial talon cusp on the mandibular canine of an adult male. Therefore, the case described in the present study represents a very rare form of labial talon cusp on permanent maxillary canine.

**Table 1: Reported cases of permanent teeth with facial talon cusps**

Authors	Year	Sex	Affected tooth (FDI notation)	Reported type
Schulze <sup>[8]</sup>	1987	-	41	Clinical
Tsuzumi and Oguchi <sup>[9]</sup>	1991	F	21	Clinical
Jowharji <i>et al.</i> <sup>[11]</sup>	1992	F	11	Clinical
McNamara <i>et al.</i> <sup>[10]</sup>	1997	M	31	Clinical
Abbott <sup>[11]</sup>	1997	F	13	Clinical
Turner CG. <sup>[12]</sup>	1998	F	21	Clinical
De Sousa <i>et al.</i> <sup>[13]</sup>	1998	F	22	Archeological
McKaig and Shaw <sup>[14]</sup>	1999	F	11	Clinical
Lee <i>et al.</i> <sup>[15]</sup>	2001	F	11	Clinical
	2003	F	Supernumerary permanent maxillary incisor	Clinical
			31,41	
			31	
	2003	F	31,41	Clinical
	2003	F	31	Clinical
	2003	M	31,41	Clinical
	2003	M	31,41	Clinical
Patil <i>et al.</i> <sup>[16]</sup>	2003	M	21	Archeological
Dunn WJ. <sup>[17]</sup>	2003	M	12	Archeological
Shashikiran <i>et al.</i> <sup>[18]</sup>	2004	F	21	Clinical
Oredugba FA. <sup>[6]</sup>	2004	F		Clinical
Llena-Puy and Forner-Navarro <sup>[19]</sup>	2005	F	31	Clinical
Glavina <i>et al.</i> <sup>[5]</sup>			32	
Glavina <i>et al.</i> <sup>[5]</sup>	2005	M		Clinical
Sumer and Zengin <sup>[20]</sup>	2005	M	21	Clinical
Cubukcu <i>et al.</i> <sup>[21]</sup>			12	Clinical
Ma MS. <sup>[22]</sup>	2005	M	11	Clinical
Mayes AT. <sup>[3]</sup>	2005	M	11	Clinical
Mayes AT. <sup>[3]</sup>	2005	F		Clinical
Ekambaram <i>et al.</i> <sup>[23]</sup>	2006	F	12	Clinical
Hegde <i>et al.</i> <sup>[24]</sup>			11	
Stojanowski and Johnson <sup>[25]</sup>	2006	M	21	Clinical
Kulkarni <i>et al.</i> <sup>[26]</sup>	2007	-	41,42	Archeological
Chinni <i>et al.</i> <sup>[27]</sup>	2007	-		Archeological
	2008	F	11,21	Clinical
			43	
	2010	F		Clinical
	2010	M	21	Archeological
	2012	M	11,21	Clinical
	2012	M		Clinical

FDI – Federation Dentaire Internationale; F – Female; M – Male

There was no data on affected family members or consanguinity of the patients' parents. Other dental anomalies were not observed in patient. The patient was without any other developmental abnormalities. There were no signs or symptoms of any genetic syndromes. For these reasons the findings of labial talon cusp in this case should be considered as an isolated developmental abnormality.

The main clinical problems associated with talon cusp were altered aesthetic, occlusal interface, displacement of teeth, plaque retention in lateral cuspal grooves, and potential risk of caries and periodontal disease.<sup>[5]</sup>

The treatment approaches include either gradual reduction of the cusp followed by composite build up and preventive sealing of the grooves along the cusp or cuspal reduction with endodontic treatment.

In the present case, gradual reduction of cusp was done followed by fluoride varnish application to avoid pulp exposure. After grinding, a light cure composite was done to achieve appropriate aesthetic outcome.

## CONCLUSION

This case represents a very rare form talon cusp on the facial surface of permanent maxillary canine.

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