Mandibular Incisor with Facial Talon Cusp: A Rare Case Report

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Abstract

Talon cusp is a comparatively rare developmental dental anomaly speculated to arise as a result of evagination on the surface of a tooth crown before calcification has occurred.Any tooth may have a talon cusp but mostly it involves the maxillary lateral incisors. The anomaly has been reported to be rare especially when it is found to be present on mandibular teeth. Facial mandibular talon cusp is rarer than lingual type in permanent dentition This article reports a case of mandibular facial talon cusp which makes it a rare entity.

Keywords: facial, mandibular, talon cusp, dens evaginatus

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 [1]. It consists of uncertain amount of pulp tissue, dentine and enamel. [2, 3] Hyperactivity of the enamel organ during morpho-differentiation has been attributed to its formation. It was first described by Mitchell in 1892 [4].

It was thereafter named a Talon cusp by Mellor and Ripa [5] due to its resemblance to an eagle's talon. Henceforth, this odontogenic anomaly has been given some names, such as, prominent accessory cusp-like structure [6], exaggerated cingula [7] additional cusp [8], cusp-like hyperplasia [9], accessory cusp [1], supernumerary cusp and anterior dens evaginatus [10].

Talon cusps develop most frequently on the permanent incisors, with more than 90% of them in maxilla and mainly on permanent maxillary lateral(55%) or central incisors (33%) and less commonly on mandibular incisors (6%) and maxillary canine (4%).[10] The prevalence of talon cusp ranges from 0.06% to 10%,[11-16]with male predilection.[8,10,17] Higher incidence was recorded in Chinese and Arab populations than Caucasians and Negroes.[8,10]It has been suggested that talon cusps are more commonly found in Asian than in Caucasian populations.[17].

Hat tab et al. classified talon cusp into three types according to degree of the cusp formation and extension.[18]

Type1: Talon – refers to a morphologically well-delineated additional cusp that prominently projects from the palatal (or facial) surface of a primary or permanent anterior tooth and extends at least half the distance from the cemento-enamel junction to the incisal edge.

Type 2: Semi talon – refers to an additional cusp of a millimeter or more extending less than half the distance from the cemento-enamel junction to the incisal edge. It may blend with the palatal surface or stand away from the rest of the crown.

Type 3: Trace talon – an enlarged or prominent cingula and their variations, i.e. conical, bifid or tubercle-like.

Reported cases of facial mandibular talon cusps

Author	Year	Gender	Tooth	Surface
Schulze [19]	1987	-	41	Facial
McNamara [20]	1997	M	31	Facial
Lee et al [21]	2003	F F M M M M M	31,41 31 31,41 31,41 31 31,41 31,41	Facial Facial Facial Facial Facial Facial Facial
Llena-Puy and Forner-Navarro [22]	2005	M	32	Facial
Oredugba[23]	2005	M	31	Facial
Ekambaram et al [24]	2008	M	41,42 (Fusion)	Facial and Lingual
Stojanowski and Johnson [25]	2011	M	43	Facial
Rao et al[26]	2011	M	31	Facial
Nuvvula [27]	2014	M	42	Facial
Sachdeva et al [28]	2014	M	31	Facial
R V Prabhu et al [29]	2014	M	31	Facial
Cho [30]	2014	F F F F	31,41 31/32 (Double tooth) 31/32 (Double tooth and dens evaginatusirt 44) 31/32 (Double tooth)	Facial Facial & Lingual Facial & Lingual Facial
Tiku et al [31]	2017	M	41	Facial

Reports of a mandibular talon cusp are rare in the literature and facial talon cusp is even rarer. To the best of our knowledge, only 22 cases of facial talon cusp have been reported out of which 3 cases are of both facial and lingual Talon cusp in mandibular incisor and 1 case of facial cusp is present in mandibular canine. [24, 30].We report the another instance of a small facial talon cusp in the mandibular central incisor which was asymptomatic.

Case Report

A 8-year-old boy reported to Department of paedodontics and preventive dentistry, for a routine dental checkup. The patient's medical history and family history was non-contributory. General examination did not reveal any abnormality. On intraoral examination, one conical cusp like structure was present on the facial surface of the mandibular right central incisor, which extended less than halfway from cervical to incisal edge of the tooth [Figure 1]. The tooth appeared triangle shaped when viewed incisally [Figure 2]. The gingiva around the tooth was healthy and the talon was 4mm in length cervico-incisally, 3.5 mm mesiodistally, and 1-2 mm anterio-posteriorly at its prominence. There was no soft tissue irritation to lip as the margins were smooth. The cusp merged smoothly with the labial surface of the tooth with no deep developmental groove at this junction. The vitality test did not show any abnormality.On radiographic examination, periodicals radiograph revealed an inverted V-shaped radiopaque structure on the mandibular right central incisor [Figure 3]. The extent of pulp tissue into the cusp could not be determined on the periapical radiograph. A diagnosis of type 3 talon cusp was made, according to Hattab's classification. As the talon cusp did not cause any problem, the patient was not willing for any contouring of the crown of the tooth with facial talon cusp. The patient was advised periodic follow-up. Caries irt 74 and 85 was the other dental findings which were restored with GIC.

Figure 1: Facial View

Figure 2: Incisal View

Figure 3: Iopar In Relation To 41

Discussion

The etiology of talon cusp is not well understood, butis proposed to be a combination of genetic and environmental factors.[18,32] Disturbances during morph differentiation, suchas altered endocrine function, might affect the shape and sizeof tooth without impairing the function of ameloblasts and odontoblasts.[33] Talon cusp may be associated with genetic factors and it has been reported in twins,[34] siblings[33,35,36] andalso children of consanguineous marriages.[18] It has also been reported in a family with father and child exhibiting in permanent and primary dentitions, respectively.[8]

Management will depend on individual presentation and complications. Small talon cusps are asymptomatic and need no treatment [37, 38]. Since in our case it was an asymptomatic small Talon cusp, no treatment was done and only periodic followup was advised. Where there are deep developmental grooves, simple prophylactic measures such as fissure sealing with composite resin restoration can be carried out [5,39,40-42]. An essential step, especially in case of occlusal interference, is to reduce the bulk of the cusp gradually and periodically and application of topical fluoride such as Duraphat ® or Acidulated Phosphate Fluoride (APF) gel to reduce sensitivity and stimulate reparative dentine formation for pulp protection [43], or outright total reduction of the cusp and calcium hydroxide pulpotomy [44]. It may also become necessary sometimes, to fully reduce the cusp, extirpate the pulp and carry out root canal therapy [45]. Orthodontic correction may become necessary when there is tooth displacement or misalignment of affected or opposing teeth [46, 47].

Radio graphically, major and minor talon appear typically as inverted “V”-shaped radio-opaque structure superimposing over the normal image of the tooth, whereas tubercle-like and trace talon may or may not be detected in radiograph. Talon cusp may appear as an isolated anomaly, or present with various other dental anomalies such as double tooth, fusion, dens supernumerary teeth, peg-shaped lateral incisors, Carabelli cusp, complex odontome, shovel-shaped incisors, and agenesis or impacted canine.[6]Talon cusp has also been reported in association with syndromes,[23] such as Mohr syndrome (Or facial digital II), In continent apigmentii A chromians, Ellis vancreveld syndrome, Struge Weber syndrome (Encephalon-trigeminal angiomatosis), Rubinstein Taybi syndrome,[23,48] and Alagille’s syndrome.[49]. Our case was neither associated with any dental anomaly nor with any syndrome.

Conclusion

The management and treatment depend upon size, complications and patient’s compliance. Role of pediatric dentist is of utmost importance in early diagnosis to minimize or prevent complications if associated with it.

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