



FACIAL TALON CUSP; A RARE PRESENTATION IN A 23 YEAR OLD MALE: A CASE REPORT

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ABSTRACT

Talon cusp is a dental anomaly that occurs as an accessory cusp like structure, from the cingulum of maxillary and mandibular anterior teeth. Lingual location is usually considered pathognomic. This cusp resembles an eagle's claw. Talon cusp is usually asymptomatic, and often diagnosed as an incidental finding on routine dental examination. Presence of this anomalous cusp on the facial surface of an anterior tooth is a rare finding and very few cases have been reported in the literature. In most instances, such cusps are associated with clinical problems such as poor esthetics and caries susceptibility. Management of such cases requires a comprehensive knowledge of the clinical entity as well as the problems associated with it. This case report presents a facial talon cusp on the maxillary left central incisor of a 23 year old male.

INTRODUCTION

Talon cusp is a morphologically well delineated accessory cusp. It is an anomalous structure projecting from the cingulum area or the cemento enamel junction, and extending to at least half the distance to the incisal edge of the maxillary or the mandibular anterior teeth in both the primary and permanent dentitions usually occurring on palatal/lingual surfaces of tooth. It may be unilateral or bilateral, with a predilection for maxilla over mandible, and more common in the permanent dentition. This anomalous structure is composed of normal enamel and dentin and either has varying extensions of pulp tissue into it or is devoid of a pulp horn. In its typical shape, the anomaly resembles an eagle's talon, but it could also present as pyramidal, conical or teat-like[1]. Development of tooth is a complex process, being divided into 6 morphologic stages and 5 physiologic processes. Any aberration in these stages/processes can result in unique manifestations. Disturbances during morphodifferentiation can result in anomalies like talon cusps, mulberry molars and peg laterals. It is composed of normal enamel and dentin, and containing varying extension of pulpal tissue. It is named so, as its shape resembles an eagle's talon. The

first description of this "accessory cusp" dental anomaly was based on the cingulate incisor side of a central incisor. Nearly a century later, the nomenclature was changed to "talon cusp" (talon refers to claw) because the anomaly presented with morphological characteristics similar to an eagle talon. It was first recognized by Mitchell [2] in 1892, and described as a prominent accessory cusp like structure on the lingual surface of a maxillary central incisor. Schulze [3] referred to the anomaly as a very high accessory cusp, which may connect with the incisal edge to produce a 'T' shaped, or if more cervical, a 'Y' shaped crown contour. Various other terms have been used to describe this trait, including dens evaginatus, supernumerary cusp, horn, hyperplastic cingulum, evaginated odontome, cusped cingulum, accessory cusp and supernumerary lingual tubercle. Stojanowski et al. [4] in 2010 mentioned about the oldest of all talon cusps mentioned in the literature. This archaeological report belonged to the age of "ca. 9500 bp" in the republic of Niger and was about a facial talon cusp on the permanent mandibular canine of an adult male. Talon cusp also called as dens evaginatus of anterior tooth, shows increased



predilection for males, maxilla, and permanent dentition (75%). The maxillary lateral incisors are the most commonly affected (67%) followed by the central incisors (24%) and canines (9%). This cusp is normally presented in the palatal or occlusal surfaces of the teeth. Only few cases of talon cusps in facial surfaces of teeth were reported in the literature. Prevalence of talon cusp ranges from less than 1% to 8% of the Indian population [5]. About 7.7% Northern Indian population shows talons cusp and 19.35% in South Indian population [6]. Talons cusp shows a higher frequency in males than females according to Davis and Brook [2]. The talon cusp was more prevalent in males (67.3%) than females (32.7%). The ratio of male to female was 2:1 similar with the results as in the literature [7]. Hattab et al. [6] classified talon cusps according to their extent from the cemento-enamel junction towards the incisal edge, into 3 types: Type 1 - Talon, Type 2 - Semi talon and Type 3 - Trace talon. This classification grades the anomalous cusp from the most extreme to the slightest form. However, Mayes [7] in 2007 categorized facial talon cusps into 3 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; 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 cusps occur with a frequency of 0.04 – 10% and permanent dentition has been involved 3 times more often than the primary dentition [8]. It has predilection for the maxillary over the mandibular teeth, and males are found to be more commonly affected than females [9]. Normally, talon cusp is seen on the palatal or lingual surfaces of the maxillary or mandibular anterior teeth, and very few cases have been reported about the talon cusps found on the facial tooth surfaces. This paper reports a case of a facial talon cusp on the permanent maxillary left central incisor in a 23 year old male.

Case report

A 23 year old boy reported to the Department of Oral Medicine, Radiology & Diagnosis, Institute of Dental Education & Advance Studies, Gwalior, Madhya Pradesh with a chief complaint of an abnormally appearing upper front tooth.



Courtesy: Department of Oral Medicine, Radiology & Diagnosis, Institute of Dental Education & Advance Studies, Gwalior, Madhya Pradesh

His medical and family history was non-contributory. There was no history of trauma. There were no signs of any syndrome. Intraoral examination revealed the presence of an accessory cusp on the facial aspect of the permanent maxillary left central incisor, extending from cemento-enamel junction upto half of the incisal edge (**Figure 1**). An intra-oral periapical (IOPA) radiograph revealed a 'V' shaped radio-opaque structure superimposed on the image of the maxillary left central incisor. Patient's esthetics was compromised due to the presence of facial talon cusp. Hence, it was decided to carry out selective cuspal grinding, followed by composite veneer placement. But patient did not undergo treatment.

DISCUSSION

Talon cusp has been reported as a very rare dental anomaly with multifactorial etiology including both genetic and environmental factors. Various theories were proposed; however most accepted one suggests that talon cusp might occur as a result of an outward folding of inner enamel epithelial cells and a transient focal hyperplasia of mesenchymal dental papilla. Any tooth may have an evagination but most of the cases involve the maxillary lateral incisor followed by central incisor, premolars, canines and molars with some instances of bilateral involvement and has been reported to be rare in the mandible. It is clinically difficult to establish an accurate diagnosis without radiographic examination. The suspicion arises from atypical morphology of the tooth crown or eruption difficulties of the suspected tooth. Data on the prevalence of talon cusp, criteria for categorization, association with other dental abnormality and management are insufficient. [10]. Oredugba reported that talon cusp presents as altered enamel and dentin composition with a variable amount of pulp tissues [11]. It is difficult to establish pulp involvement due to the overlap of the talon, tooth crown, and main pulp chamber in the radiographic image. Although some authors have found pulp communication to the talon cusp, others have reported no evidence of pulp extension on the cusp. However, it has been suggested that cases of large jaw cusps, especially



those that fully protrude out of the tooth crown, are more likely to contain pulp tissue [12]. Davis and Brook [2] stated that knowledge of this anomaly is important for an accurate diagnosis of the cusp talon and to avoid unnecessary surgical procedures, such as tooth extractions.

Although talon cusp has not been reported as an integral part of any specific syndrome/anomaly, it appears to be more prevalent in patients with Sturge-Weber syndrome, Rubinstein-Taybi syndrome, Mohr syndrome, Ellis-van Creveld syndrome, Berardinelli-Seip syndrome, incontinentia pigmenti achromians or patients with cleft lip and palate [13]. Such an association was not seen in the presented case. Talon cusp usually occurs on the palatal or lingual surfaces of the anterior teeth, with very few cases reported on the facial tooth surface. In contrast to the palatal talon cusp, the facial talon cusp shows higher prevalence in females. But the present case was reported in male. There were 21 clinical cases reported, having exclusive facial talon cusps, out of which 19 were in the permanent dentition and 2 in the primary dentition. Our case was of permanent dentition. Only few cases of facial talon cusps reported in the literature received complete treatment. Case reported by McNamara *et al.* [14] received extraction of permanent mandibular left central incisor, followed by orthodontic treatment. Another case reported by de Sousa *et al.* [15] was treated by root canal therapy and esthetic restoration for the permanent maxillary right central incisor. Two cases reported by Glavina *et al.* [16] received conservative management for facial talon cusp on permanent maxillary left central incisors, by gradual cuspal grinding and composite restorations. Radiographically, it may appear typically as a V-shaped radiopaque structure, as in true talon or semitalon, or be tubercle-like, as in trace talon, originating from the cervical third of the root. The radiopaque V-shaped structure is superimposed over the normal image of the crown of the tooth. This appearance varies with the shape and size of the cusp, and the angle at which the radiograph is taken.

Complications

The talon cusp results in complications related to four basic categories: diagnosis, function, aesthetics, and pathology. If the talon cusp is not diagnosed correctly and is confused with other pathologies, such as odontoma or supernumerary tooth, this may result in unnecessary surgery. Functionally, depending on the size of the talon, it can result in occlusal interference, attrition, cusp fracture, and accidental dental injury with possible pulp exposure, soft tissue injuries (such as to the tongue during speech or chewing), speech problems and tooth mobility due to premature contacts, and pain in the temporomandibular joints. Depending on the size of the leaflet and its location in the dental arch, the talon can be observed when a patient smiles or speaks, creating aesthetic complications. Because the deep grooves that connect the jaw to the tooth can retain plaque and food debris because cleaning is difficult,

caries, subsequent periapical pathologies, and perhaps periodontal disease can subsequently develop [17].

Management of talons cusp varies from simple preventive measures to an extensive protocol depending on many situations such as: Size of the cusp, presence or absence of pulp horn, the degree of occlusal interferences and the extents of the aesthetic problem if present. Small talon cusps are usually asymptomatic, necessitating no treatment. However, large prominent talon cusps necessitate definitive treatment. Some authors recommended gradual grinding of talon cusps over many weeks to allow deposition of reparative dentin for pulpal protection, and then the application of a desensitizing agent to avoid possible dentinal sensitivity and pulpal exposure. Management will depend on individual presentation and complications. Aesthetics may be a major concern if talon occurs on facial aspect. Occlusal interference and tooth displacement have also been reported. Caries susceptibility due to abnormal groove morphology has been observed in few other cases. Irritation and interference to tongue and buccal mucosa when occurring on the lingual and buccal side, respectively, have been reported [18]. Where there are deep developmental grooves, simple procedure such as pit and fissure sealants can be considered. In the case of occlusal interference reduction of bulk of the cusp and fluoride application can be carried out gradually over a period of 6-8 weeks. In the case of a fully matured tooth root canal therapy is advisable where as in immature teeth calcium hydroxide pulpotomy is the treatment of choice. Orthodontic correction may become necessary when there is tooth displacement or malalignment of affected or opposing teeth. [19].

CONCLUSION

This type of anomaly may cause occlusal and aesthetic impairments and facilitate the development of caries in the area of the developmental grooves. Therefore, it is necessary that dental professionals recognize all types of this anomaly so as not to confuse it with other morphological changes, thereby avoiding unnecessary surgical procedures. A correct diagnosis is necessary to prevent decay, malocclusion, and aesthetic issues, thus improving the oral health and quality of life of the patient.

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CONFLICT OF INTEREST:

The authors declare that they have no conflict of interest.

STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.



REFERENCES

1. Pomeroy E. (2009). Labial talon cusps: A South American archaeological case in the deciduous dentition and review of a rare trait. *Br Dent J*, 206, 277–82.
2. Sumer AP, Zengin AZ. (2005). An unusual presentation of talon cusp: a case report. *Br Dent J*, 199, 429–30.
3. Llana-Puy MC, Forner-Navarro L. (2005). An unusual morphological anomaly in an incisor crown. Anterior dens invaginatus. *Med Oral Patol Oral Cir Bucal*, 10, 13–6.
4. Stojanowski CM, Johnson KM. (2011). Labial canine talon cusp from the Early Holocene site of Gobero, central Sahara Desert, Niger. *Int J Osteoarchaeol*, 21, 391–406.
5. Siraci E, Gungor H Cem, Taner B, Cehreli ZC. (2006). Buccal and palatal talon cusps with pulp extensions on a supernumerary primary tooth. *Dentomaxillofac Radiol*, 35, 469–72.
6. Hattab FN, Yassin OM, Al-Nimrin KS. (1996). Talon cusp in permanent dentition associated with other dental anomalies: review of literature and report of seven cases. *J Dent Child*, 63, 368–76.
7. Mayes AT. (2007). Labial talon cusp: A case study of pre-European-contact American Indians. *J Am Dent Assoc.*, 138, 515–8.
8. Tulunoglu Ö, Cankala D, Özdemir RC. (2007). Talon's cusp: Report of four unusual cases. *J Indian Soc Pedod Prev Dent*, 25, 52–5.
9. Shashikiran ND, Babaji P, Reddy VV. (2005). Double facial and lingual trace talon cusps: A case report. *J Indian Soc Pedod Prev Dent*, 23, 89–91.
10. Turner CG. (1998). Another talon cusp: What does it mean? *Dent Anthropol*, 12, 10–2.
11. Oredugba FA. (2005). Mandibular facial talon cusp: case report. *BMC Oral Health*, 5, 9.
12. Jeevarathan J, Deepti A, Muthu MS, Sivakumar N, Soujanya K. (2005). Labial and lingual talon cusps of a primary lateral incisor: A case report. *Pediatr Dent*, 27, 303–6.
13. Batra P, Enocson L, Hagberg C. (2006). Facial talon cusp in primary maxillary lateral incisor: A report of two unusual cases. *Acta Odontol Scand*, 64, 74–8.
14. McNamara T, Haeussler AM, Keane J. (1997). Facial talon cusp. *Int J Pediatr Dent*, 7, 259–62.
15. de Sousa SM, Tavano SM, Bramante CM. (1999). Unusual case of bilateral talon cusp associated with dens invaginatus. *Int Endod J*, 32, 494–8.
16. Topaloğlu Ak A, Eden E, Ertuğrul F, Sütekin E. (2008). Supernumerary primary tooth with facial and palatal talon cusps: A case report. *J Dent Child*, 75, 309–12.
17. Mckaig SJ, Shaw L. (2001). Dens evaginatus on the labial surface of a central incisor; a case report. *Dent Update*, 28, 210–2.
18. Jowharji N, Noonan RG, Tylka JA. (1992). An unusual case of dental anomaly. A “facial” talon cusp. *J Dent Child*, 59, 156–8.
19. Abbott PV. (1998). Labial and palatal “talon cusps” on the same tooth: A case report. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*, 85, 726–30.

