TALON CUSP ON PERMANENT MAXILLARY CANINE: A RARE CASE REPORT

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Abstract

Developmental anomalies affecting number, size, shape, structure, and location of teeth are varied. One such rare anomaly affecting the shape of anterior teeth is talon cusp. It is an accessory cusp-like projection found on lingual or labial surfaces of the upper or lower incisors, unilaterally or bilaterally in both dentitions. It is composed of normal enamel and dentine, with or without pulp. It is thought to develop as a result of evagination on the surface of a tooth during morphodifferentiation stage. Reported incidence is 0.04-10%, with higher prevalence in males. It is more common in permanent dentition with a predilection for maxillary lateral incisors (55%), followed by central incisors (36%) and canines (9%). Talon cusp may cause problems like irritation of tongue during speech and mastication, occlusal interference, caries susceptibility and displacement of the affected tooth, and esthetics. Its treatment ranges from application of sealant to gradual reduction to root canal therapy. Early diagnosis of talon cusp and its treatment can avoid complications related to this anomaly.

Key words :Talon cusp, Maxillary canine

Introduction

The talon cusp is a relatively rare developmental morphological anomaly of the tooth, characterised by an additional cusp-like projection, arising on the labial/palatal /lingual surface of maxillary or mandibular teeth.[1] Its shape resembles the english alphabets "T", "Y" or "X" when viewed from the incisal aspect.[2,3] It has an average of 3.5 mm width and 6.0 mm length. It is composed of normal enamel and dentine with a varying degree of pulp tissue.[4]

W.H.Mitchell was first to describe it in 1892. Mellor and Ripa named it as "Talon cusp" [1970] because of its similarity to an eagle's nail when seen from the incisal edge.[5] Other terminologies used to denote this anomaly are dens evaginatus of anterior teeth, interstitial cusp, tuberculated tooth, evaginated odontoma, supernumerary cusp, hyperplastic cingulum, cusped cingulum, supernumerary lingual tubercle.[6,7]

Talon cusp results from evagination of the inner enamel epithelial cells in the morphodifferentiation stage of odontogenesis.[8] Its high incidence in the lateral incisors may be due to compression of the tooth germ between the central incisor and canine.[1] Although the exact etiology is uncertain, multi factors like genetic, trauma or localized insults of the tooth germ, and hyperactivity of the dental lamina has been suggested.[2,8]

Talon cusp shows a incidence rate of 0.04-10%, with higher prevalence in males.[8,9] It is thrice more frequent in the permanent teeth than the deciduous.[8] It shows a predilection for maxilla, with the lateral incisors being the most frequently affected (55%), followed by the central incisors (36%) and canines (9%). In the deciduous dentition, the maxillary central

incisor is commonly involved (91%) It may be unilateral or bilateral.[1] In majority of cases, it is seen to originate from the lingual surface and very rarely they are documented on the labial or both labial and lingual surfaces of the same tooth.[2] It may stand away from rest of the crown or be in close approximation to the tooth surface.[6]

Talon cusp may be found as an independent condition, but it appears to be more prevalent in patients with Rubinstein-Taybi syndrome, Mohr syndrome, Sturge-Weber syndrome and incontinentia pigmenti achromians.[9,10]

Hattab et al classified talon cusp as talon, semi talon and trace talon. After the report of similar cusps on the facial surface, Stephen-Ying et al reclassified it as: *Type 1, Major talon* –a morphologically well delineated additional cusp that prominently projects from the facial or palatal/lingual surface of an anterior tooth and extend atleast half the distance from the cementoenamel junction to the incisal edge. *Type 2, Minor talon* -a morphologically well defined additional cusp that projects from the facial or palatal/lingual surface of an anterior tooth and extends more than one forth ,but less than half the distance from the cementoenamel junction to the incisal edge. *Type 3, Trace talon* -enlarged or prominent cingula and their variation, which occupy less than one forth the distance from the cementoenamel junction to the incisal edge.[1]

Smaller talon cusp is usually asymptomatic and found during routine dental examination.[1] While larger ones are unesthetic, may cause occlusal interference, irritation of lips and tongue during speech and mastication, displacement of the affected tooth, carious lesion in the developmental grooves separating the cusp, attrition of the opposing tooth, susceptibility to pulp exposure from wear or fracture leading to periapical pathosis and periodontal problems due to excessive occlusal forces.[2,8,10]

Treatment of a talon cusp should be based upon the clinical judgment taking into account its size and location. Smaller ones which do not alter esthetics, and which are not sharp enough to irritate the tongue and interfere with speech, and with no evidence of caries, may be left in place and monitered regularly.[1] Reports based on radiographic examination and histomorphometry indicate that talon cusp may contain pulp horn of varying extension and width. Therefore, reduction of larger talon cusp which interferes with occlusion and function should be done gradually over 6-8 week period, to allow deposition of reparative dentin for pulpal protection, followed by application of fluoride varnish as a desensitizing agent. At times complete reduction of the cusp followed by calcium hydroxide pulpotomy for an immature tooth or root-canal therapy may be done.[1,8,9]

Case Report

A 36 years old male patient presented to a private dental clinic for oral prophylaxis. Clinical & radiographic examination of the oral cavity revealed a well-defined unilateral accessory cusp on the palatal surface of the maxillary left permanent canine (Figs. 1,2,3). It was pyramidal in shape with a round tip and was in close approximation to the tooth surface. It measured approximately 3mm in width and 4.5mm in length from the cingulum towards the incisal edge. Shallow developmental groove was present at the junction of the cusp and the palatal surface of the crown. No dental caries was observed. It did not cause any occlusal interference nor irritated the tongue during speech or mastication. The tooth responded normally to electric pulp testing. No other dental abnormalities were evident. Medical and family histories were noncontributory. As the tooth did not pose any significant clinical problems, corrective treatment was not instituted and the patient was advised for regular check-up.

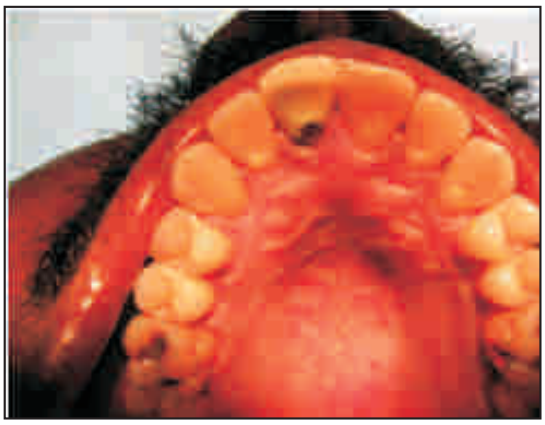

Fig 1: Occlusal aspect showing talon cusp on palatal surface of left canine

Fig 2 : Occlusal view of cast showing talon cusp on palatal surface of 23

Fig 3: IOPA radiograph of 23, 24 region

Discussion

Talon cusp is an uncommon developmental anomaly affecting the morphology of anterior tooth. It varies widely in shape, size, structure, and location. Clinically it may appear as a prominent cingulum to a cusp-like structure having pyramidal or conical form.[10] It has an average of 3.5 mm width and 6.0 mm length and is composed of normal enamel and dentine, with or without pulp.[4] It is located on the palatal/lingual/labial or very rarely on both palatal/lingual and labial surfaces of the maxillary or mandibular anterior teeth.[2]

Although the exact etiology is not known, familial involvement and its association with other dental abnormalities suggest genetic as a causative factor. Sporadic occurrences may probably be due to trauma or other local insults of the tooth germ. It may be the result of outward folding of the inner enamel epithelial cells with transient focal hyperplasia of the mesenchymal cells of dental papilla.[8] Talon cusp appears to be more prevalent in patients with Sturge-Weber syndrome, Rubinstein-Taybi syndrome, and Mohr syndrome.[9] The case reported here was not associated with any syndromes, and did not show any other dental anomalies or history of similar tooth in the family members

Talon cusp occurs with a frequency of less than 1% to 10%, affecting males more often than females. Permanent teeth are thrice more commonly involved than the primary teeth, with a predilection for the maxilla over the mandible.[8] Higher involvement of maxillary lateral incisors is noted (55%), which could be due to compression of the tooth germ between the central incisor and canine[1], followed by the central incisors (36%) and least the canines (9%).Most of the cases are unilateral, but one fifth cases are bilateral.[1] Common site of origin is the lingual surface, and very rarely on the labial or both labial and lingual surfaces of the same tooth.[2] Talon cusp reported here is unilateral, and is located on the palatal surface of the maxillary left permanent canine in close proximity to the tooth surface.

Talon cusp may pose similar problems in both primary and permanent teeth such as

irritation of lips and tongue during speech, mastication and breast feeding, interference with occlusion, displacement of the involved tooth, carious lesion in the developmental groove, attrition of the opposing tooth, pulp exposure from wear or fracture leading to periapical lesions, periodontal problems due to excessive occlusal forces and esthetics.[2,8,10]

Management of talon cusp is variable. No treatment is usually required for small asymptomatic ones except for periodic check-up. However larger ones which interfere with functions and which may cause complications require early diagnosis and treatment to prevent clinical problems. Gradual reduction may be done followed by fluoride application[1, 8] In the present case patient did not encounter any problems and hence no treatment was planned but was advised for a regular check-up.

Early diagnosis of talon cusp and a proper treatment modality can prevent complications such as severe malocclusion and periapical pathosis in the future.

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