

SEMI-TALON CUSPS ON MAXILLARY ANTERIOR TEETH: A RARE ENTITY

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ABSTRACT

Talon cusp presents as an accessory cusp-like structure protruding from the cingulum of anterior teeth labially or lingually, seen in primary or permanent dentition. Studies have shown that it consists of enamel, dentin and a variable amount of pulp tissue. Hyperactivity of the enamel organ during morpho differentiation has been attributed to its formation. Talon cusps may cause occlusal interferences leading to trauma, difficulty in cleaning the area between the nodule and the tooth causing dental caries. The purpose of this article is to document the presence of multiple talon cusps affecting permanent maxillary anterior teeth bilaterally. To the best of our knowledge, this report seems to be the first case in the literature.

KEYWORDS: Talon cusp; dens evaginatus; supernumerary teeth; accessory cusp

INTRODUCTION

Talon cusp is defined as an additional cusp that predominantly projects from the lingual surface of primary or permanent anterior teeth, is morphologically well-delineated, and extends at least half the distance from cemento-enamel junction to the incisal edge. Talon cusp is considered when its projection extends at least one millimetre or more beyond the CEJ.^[1] This anomaly was first described by Mitchell in permanent upper central incisor of a female patient as a horn-like process from the base downward to the incisal edge on the lingual surface. Mellor & Ripa named the dens evaginatus of anterior teeth as talon cusp because it showed resemblance to an eagle's talon in

shape.^[2] Various terms describe this anomaly like interstitial cusp, odontoma of the axial core type, tuberculated premolar, evaginated odontoma, occlusal anomalous tubercle, occlusal enamel pearl and supernumerary cusp. It has also been designated as prominent accessory cusp-like structure, exaggerated cingula, additional cusp, cusp-like hyperplasia, accessory cusp and supernumerary cusp.^[3] The first reported case in primary dentition by Sawyer *et al.*, is found in the archaeological means of prehistoric times. The first clinical case in the primary dentition was reported by Henderson in 1977.^[4] The etiopathogenesis is multifactorial which comprises of genetic, environmental and developmental in origin. The morpho differentiation stage of tooth development is affected in which there is an outward folding of inner enamel epithelial cells and transient focal hyperplasia of the peripheral cells of mesenchymal dental papilla. The familial involvement and the association of the talon cusp with other dental abnormalities are supportive of genetic etiology.^[2] Histologically, it comprises of normal enamel and dentin with varying degrees of pulp tissue. The size varies from that of a prominent cingulum to that of a cusp-like structure extending to the incisal edge.^[2] In Mader and Kellogg's view, large talon cusps, especially when separated from the lingual surface of the tooth, seem more likely to contain pulpal tissue.^[1] Various problems are encountered with talon cusp clinically like food retention, occlusal interference, irritation of the tongue during speech and mastication, displacement of the affected tooth, carious lesion in the deep developmental grooves, pulp necrosis, periapical pathosis, attrition of the opposing tooth,

periodontal problems, compromised aesthetics, pulp exposure due to severe attrition, restriction of tongue space, problems in breast feeding, accidental cusp fracture and temporomandibular joint pain.^[2,3] Talon cusp presents as an isolated anomaly in majority of the cases, but can be associated with mesiodens, odontome, unerupted or impacted teeth, peg-shaped maxillary incisor, dens invaginatus, cleft lip and distorted nasal alae, bilateral gemination, fusion and supernumerary teeth in few cases. Talon cusp can be accompanied by some systemic conditions such as Mohr syndrome (orofacial-digital II), Sturge-Weber syndrome, Rubinstein-Taybi syndrome, incontinentia pigmenti achromians and Ellisvan Creveld syndrome.^[3] Individuals with talon cusps on a deciduous maxillary lateral incisor show a high proportion of odontogenic abnormalities in their permanent successors.^[1]

CASE REPORT

A 16 year old patient presented with spacing and stagnation of food in the upper front region. Patient had a class I molar relationship bilaterally with normal overjet and deep overbite. The oral hygiene maintenance was fair. The patient's family and medical history was non-contributory. There was no reported history of orofacial trauma. Extraoral examinations revealed no abnormalities. Intraoral examination showed no soft tissue abnormalities. On hard tissue examination, an anomalous cusp like structure was detected on the palatal surface of permanent maxillary central incisor, lateral incisor and canine bilaterally that extended from cervical margin of the tooth to less than half the distance from the cemento-enamel junction. They were conical in shape and prominent without any other associated anomaly. Patient was diagnosed with talon cusp present bilaterally on maxillary anterior teeth. The talon cusp described in the current case was categorized as type II (Semi talon) according to Hattab *et al's.*, classification. Clinically, all maxillary anterior teeth with talon cusp were asymptomatic with no occlusal or speech interference and responded normally to pulp testing. The grooves at the junction of cusp and the palatal surfaces of all maxillary anteriors showed staining except maxillary permanent left central incisor which revealed deep palatogingival groove with discoloration. Since the patient complained of stagnation of food and inefficient

cleaning of the area, as a preventive approach, invasive sealing of the cusp-tooth junctions in all maxillary anterior teeth was planned. After prophylaxis of affected teeth, the cusp-tooth junctions were subjected to pit and fissure sealant to avoid penetration of irritants and microorganisms into the invagination.

DISCUSSION

Talon cusp has been noted to occur singly or bilaterally in the same patient. Rarely, two talon cusps may occur on a single tooth as reported by Abbot on a maxillary right central incisor,^[8] while another report from Nigeria presented two palatal talons on a maxillary left central incisor.^[9] However, presence of multiple semi-talon cusps involving all the maxillary anterior teeth is a rarity, which is reported in the present case. Small talon cusps are asymptomatic and need no treatment. Usually, large talon cusps cause clinical problems.^[2] Dental treatment is intervened only when problems in occlusion, speech or aesthetics are noted.^[3] In the majority of cases reported, the talon cusp is isolated rather than an integral part of any disorder. The present case was not associated with any known systemic developmental syndromes nor any dental anomalies on the same tooth. There was no positive family history contributing to the present case. The treatment of talon cusp depends on the presence or absence of pulp tissue. The clinical scenario decides the treatment modality which ranges from no treatment to sequential grinding, pit and fissure sealants, pulp therapy, restorations, crowns and extraction. Early recognition of this condition is essential to institute the right treatment. If the function and aesthetics are satisfactory, then no intervention is required.^[9] It has been suggested to reduce the talon cusp by grinding in consecutive appointments of 4 weeks apart and capping the exposed dentin with calcium hydroxide and resin.^[2] Since the present case was asymptomatic and non-carious with presence of prominent palatal developmental grooves, as a prophylactic measure, these grooves were cleared of debris and plaque and sealed with pit and fissure sealant. Prophylactic treatment is considered as preferred mode of approach. Application of desensitizing agent containing 0.2% of sodium fluoride following gradual reduction, reduces sensitivity, stimulates reparative dentine formation and allows tooth to

remain vital especially in permanent teeth with open apex. Further, it increases tooth resistance to acid dissolution, promotes remineralization and also inhibits the cariogenic microbial process.^[10] Although talon cusp is a relatively rare odontogenic anomaly, it has clinical significance. In patients who undergo orthodontic treatment, complications of dentin-pulp complex exposure, posterior open bite on retraction of maxillary anteriors and interference during placement of any lingual brackets may pose.^[2]



Fig. 1: Clinical picture showing talon cusp on palatal aspect of all permanent maxillary anterior teeth

CONCLUSION

Early recognition and diagnosis is important so that intervention can be done at an early stage. The treatment of talon cusp involves careful clinical judgment and is dependent upon whether the cusp contains or is devoid of a pulp horn. It is important for the dentist to be well prepared to carefully plan treatment of talon cusp, to avoid future problems. In case of severe occlusal interference, immediate removal of the cusp accompanied by pulp therapy such as root canal treatment or partial pulpotomy has to be carried out.

CONFLICT OF INTEREST & SOURCE OF FUNDING

The author declares that there is no source of funding and there is no conflict of interest among all authors.

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