

CASE REPORT

Talon cusp in fused teeth: A rare concomitant occurrence

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ABSTRACT

Talon cusp and fusion of teeth are two separate developmental dental anomalies affecting both primary and permanent dentitions. While the former is more common in permanent maxillary incisors, the latter occurs more commonly in deciduous maxillary anterior teeth. This paper describes a rare case of talon cusp in fused teeth affecting the permanent mandibular incisors. A note on the etiopathogenesis of these two anomalies and a possible hypothesis on their concurrent occurrence are mentioned. The importance of awareness and understanding of these lesions and the prophylactic measures to prevent complications is also discussed.

Key words: Dental anomaly, dental evagination, double teeth, fused teeth, talon cusp

INTRODUCTION

The talon cusp is an uncommon developmental dental abnormality in which an accessory cusp-like structure is thought to arise as a result of evagination on the surface of the tooth crown before calcification has occurred.^[1] It is named so because of its resemblance to an eagle's talon. It is predominantly seen in permanent maxillary lateral (55%) or central incisors (33%),^[2] with occurrence in the mandibular tooth being a rarity. Fused teeth on the other hand are two separate teeth resulting from the fusion of two adjacent tooth buds exhibiting union by their dentin and pulp. Fused teeth occur in both primary and permanent dentitions with a higher frequency in the anterior maxillary regions of deciduous teeth.^[3]

CASE REPORT

A 40-year-old male reported to the outpatient department of SRM Kattankulathur Dental College, with a complaint of bad odor from the mouth and with no significant medical history. Intra oral examination revealed findings contributory to his complaint. It was also observed that the permanent mandibular left central and lateral incisors were fused. In addition, the fused teeth also exhibited an accessory cusp-like projection on

the lingual aspect resembling a talon cusp [Figures 1 and 2]. The patient, though aware of an abnormal tooth, was not mindful due to lack of clinical difficulties. Counting of teeth was done to confirm the fusion. With the clinical presence of all four third molars and a missing lower premolar, the total tooth count was 30, and the permanent mandibular incisors were 3 in number, thereby confirming fusion of tooth numbers 23 and 24. An intraoral periapical radiograph was taken which revealed fusion of teeth in the coronal aspect, and two separate roots in close apposition with each other [Figure 3]. The periapical radiograph also revealed an inverted V-shaped radiopaque structure arising from the cingulum, with a pulpal extension within it thus confirming talon cusp. The patient was referred to the concerned departments both for his clinical complaints and to restore the deep fissure present between the talon cusp and the fused teeth.

DISCUSSION

Talon cusp, a rare anomalous odontogenic structure, was first described by Mitchell^[4] Mellor and Ripa^[5] coined the term talon cusp because it resembles an eagle's talon in shape. The cusp is composed of normal enamel and dentin and may or may not contain pulp. Developmentally, it may arise as a result of outfolding of inner enamel epithelial cells (precursors of ameloblasts) and transient focal hyperplasia of the mesenchymal dental papilla (precursors of odontoblasts). However, a combination of genetic and environmental factors contributes to the formation of this accessory cusp.^[1]

Hattab *et al.*^[1] classified talon cusp into three types, namely true, semi- and trace talon. True talon is an additional cusp that projects toward the palatal surface of an anterior tooth and extends to at least half the distance from the cemento-enamel

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Figure 1: Photograph showing fusion of mandibular left central and lateral incisors along with the projecting talon cusp on the lingual aspect (arrow)

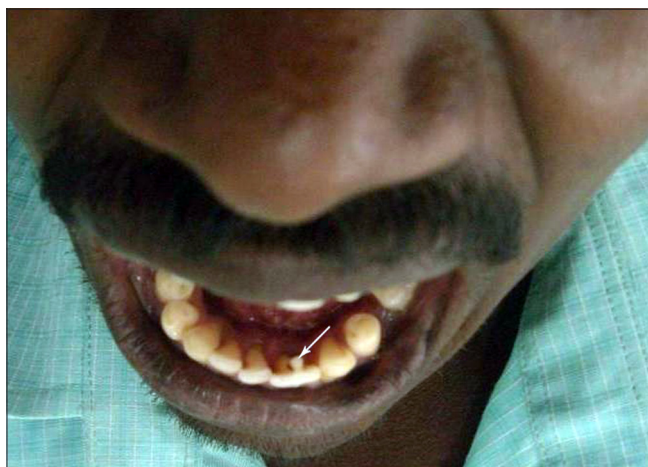


Figure 2: Occlusal view of the fused teeth with lingual talon cusp (arrow)



Figure 3: Intraoral periapical radiograph showing fusion of two teeth. An inverted V-shaped radioopaque structure with a pulpal extension within it is also seen (arrow)

junction to the incisal edge. Semi talon on the other hand is 1 mm or more in length and extends to less than half the

distance from the cemento-enamel junction to the incisal edge. Trace talon is an amplified manifestation, a protruding cingulum and its variations. Talon cusp described in our case belonged to type I or true talon according to Hattab *et al.*

Double teeth are developmental anomalies of dental hard tissues. Based upon the morphology of double teeth and the number of teeth in the affected dentitions, they are classified as products of fusion, gemination, and concrescence. Gemination implies that a double tooth originates from one dental follicle as a result of an incomplete splitting into two teeth starting at the incisal edge but aborted before cleavage is complete. In contrast, fusion indicates a union of discrete tooth germs during odontogenesis. The extent and localization of union depend on the developmental stage of the teeth at the time of fusion. When fusion occurs at cementum level, concrescence is said to be possible.^[6] Ours is a clearcut case of fusion as evinced by the tooth counting and the radiographic findings which revealed two separate pulp chambers and two separate root canals of teeth that were coronally fused with closely apposed roots.

Double teeth originate during morphodifferentiation stage of tooth development. A pressure or a physical force producing close contact between two developing tooth buds had been reported as a possible cause. Evolution, trauma, genetic, and environmental factors have also been implicated as contributing factors.^[7]

Although no clear evidence is available to explain the concurrent occurrence of a talon cusp and fused teeth, it can be hypothesized that sometimes an excessive pressure or force produces, in addition to the close apposition of tooth buds, a possible evagination of the different layers of the tooth germ, thereby resulting in an additional cusp-like protuberance. The palatal aspect of an anterior tooth has a natural protuberance in its morphology, the cingulum, and the said physical force possibly causes an exaggeration/accentuation of this natural phenomenon, thereby explaining the occurrence of the accessory cusp on the palatal/lingual aspect. The association of talon cusp and double teeth is considered rare, with only few cases reported in the literature so far.^[8-10]

Clinical problems associated with talon cusp and double teeth include attrition, compromised esthetics, occlusal interference and accidental cusp fracture, irritation of tongue, displacement of teeth, breast feeding problems and caries susceptibility because of deep developmental grooves.^[2] Treatment modalities include prophylactic placement of sealants in the developmental groove, recontouring, periodic reduction of talon cusp followed by topical fluoride application, and endodontic treatment in cases which result in pulp exposure. In our case as the patient apparently reported no difficulties with the accessory cusp, he was referred only for prophylactic sealing of the associated development grooves.

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