

Talon's Cusp: A Review

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ABSTRACT

Background: Talon cusp is a developmental dental anomaly thought to arise as a result of evagination on the surface of a tooth crown before calcification has occurred. The etiology remains unknown. The incidence is 0.04-10%. Any tooth may have a talon cusp but most of the cases involve maxillary lateral incisors, with some instances of bilateral involvement. The anomaly has been reported to be rare in the mandible. This article reports four cases of talon cusp. The first and the second cases describe bilateral involvement of talon cusp on palatal surfaces of maxillary primary centrals; in the third case talon tubercle occurs on palatal surfaces of both maxillary permanent lateral incisors and the maxillary left central incisor and in the last case a talon cusp in the lingual surface of mandibular permanent lateral incisor.

Keywords: Mandibular permanent lateral incisors, dental abnormalities, talon cusp.

INTRODUCTION

Talon cusp is an uncommon, developmental dental abnormality in which an accessory cusp like structure thought to arise as a result of evagination on the surface of a tooth crown before calcification has occurred¹. It occurs with a frequency of 0.04-10% but the etiology still remains unknown. As with other abnormalities of tooth shape and size, talon cusp occurs early in odontogenesis, i.e., during the morpho-differentiation stage². It may occur as a result of outward folding of the inner enamel epithelial cells (precursors of ameloblasts) and a transient focal hyperplasia of the mesenchymal dental papilla (precursors of odontoblasts).

The majority of reports about talon cusp show that the permanent dentition has been involved three times more often than the primary dentition and talon cusp affect both sexes but males have a higher incidence than females. Previously, the anomaly was considered rare, but the current widespread use of radiography has disclosed that talon cusp is not as rare as formerly thought. Any tooth may have

an evagination, but the majority of cases involve the maxillary lateral incisors with some instances of bilateral involvement. Following affected teeth with a decreasing frequency are: central incisors, premolars, canines, and molars. The anomaly has been reported to be rare in the mandible.

The family involvement and the association of the talon cusp with other dental abnormalities suggest that genetics may be a major causative factor³. However, sporadic occurrences of this abnormality probably are induced by trauma or other localized insults affecting the tooth germ. Most of the cases are unilateral, but one fifth of the cases are bilateral. Although this anomalous cusp has not been reported as an integral part of any specific syndrome, it appears to be more prevalent in patients with Rubinstein-Taybi syndrome, Mohr syndrome (oral-facial-digital syndrome, type II), Sturge Weber syndrome (encephalotrigeminal angiomatosis) or incontinentia pigmenti achromians³.

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Clinical problems noted with talon cusp cases include attrition, breast-feeding problems, compromised esthetics, occlusal interference, accidental cusp fracture, interference with tongue space, temporomandibular joint pain, displacement of the affected tooth, irritation of tongue during speech and mastication, periodontal problems because of excessive occlusal force, misinterpretation of radiographs of taloned teeth before eruption and caries susceptibility because of developmental grooves on the talon.

DISCUSSION

Talon cusp has been reported as a very rare dental anomaly and data on the prevalence of talon cusps, criteria for categorization, association with other dental abnormalities, and management are insufficient³. The majority of reports about talon cusp show that the permanent dentition has been involved three times more often than the primary dentition. In this case report, half of the cases were detected in the primary dentition.

Any tooth may have an evagination but most of the cases involve the maxillary lateral incisors with some instances of bilateral involvement. Following affected teeth with a decreasing frequency are; lateral incisors, central incisors, premolars, canines and molars. The anomaly has been reported to be rare in the mandible. In this article, seven of eight talon cusps involve the maxillary teeth and one involves the mandibular tooth; four talon cusps in the permanent dentition and four talon cusps in the primary dentition⁴. In cases 1 and 2, talon cusps involved maxillary primary central incisors bilaterally. Also in case 3, bilateral involvement of maxillary permanent lateral incisors and unilateral involvement of the maxillary permanent central incisor have been observed in the same jaw. Previous reports show that most of the cases are unilateral but 1:5 of the cases are bilateral. In case 4, talon cusp involves mandibular permanent lateral incisor (figure 1) which is reported to be seen very rarely⁵.

Talon cusp occurs with a frequency of 0.04-10% and affects both sexes but males have a higher incidence than females. In this report two cases involve female patients. Talon cusp originates during the morpho-differentiation stage of tooth development but the etiology of the condition

remains unknown. In the majority of cases reported, the talon cusp is isolated rather than an integral part of any disorder⁶. Nevertheless, the abnormality has been reported in patients with Sturge-Weber syndrome (encephalotrigeminal angiomatosis), Rubinstein-Taybi syndrome, Mohr syndrome (oral-facial-digital syndrome, type II) or incontinentia pigmenti achromians. None of the cases reported here were associated with any known abnormal systemic developmental syndromes.

It is clinically difficult to establish an accurate diagnosis without radiographic examination⁶. The suspicion often arises from atypical morphology of the tooth crown or eruption difficulties of the suspected tooth⁷. Extremely marked foramen cecum may also have indicated invagination.

Clinical problems noted with talon cusp cases include attrition, breast-feeding problems, compromised esthetics, occlusal interference, accidental cusp fracture, interference with tongue space, temporomandibular joint pain, displacement of the affected tooth, irritation of tongue during speech and mastication, periodontal problems because of excessive occlusal force, misinterpretation of radiographs of involved teeth before eruption and caries susceptibility because of developmental grooves on the talon⁵.

Early diagnosis of talon cusp is important and in most cases definitive treatment is needed. Deep non-carious developmental grooves on the lateral aspects of the anomalous cusps should be cleaned with slurry of pumice, acid etched and sealed with fissure sealant. If the grooves are carious, the lesion should be removed and the cavity obturate with glassionomer restorative material. In case of premature contact and occlusal interference, the talon cusp should be reduced gradually on consecutive visits over 6-8 week intervals to allow time for deposition of reparative dentin for pulpal protection. After each grinding procedure, the tooth surface should be covered with a desensitizing agent. Under certain conditions, less conservative methods can be used such as complete reduction of the cusp followed by calcium hydroxide pulpotomy for an immature tooth or root-canal therapy.

In this case report, none of treatment options were used for two of cases because there were neither premature contacts and occlusal interferences nor

pathological changes. In two of the cases talon cusp was grinded gradually in order to prevent occlusal interference and covered with desensitizing agent.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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