Bilateral Talon Cusp: A Case Report

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Abstract
The term talon cusp refers to a relatively rare dental anomaly in which an accessory cusp like structure projects from the cingulum area or cementoenamel junction. The condition can occur in either maxillary or mandibular anterior teeth in both the primary and permanent dentitions. Most of the cases are unilateral with some instances of bilateral involvement. Presentation of the following case could provide a comprehensive knowledge of the clinical entity as well as the problems associated with it, thereby preventing or minimizing possible complications.

Key words: Talon cusp, lateral incisor, accessory cusp.

Introduction

Development of the human dentition is a very complex process. Any aberrations in the different stages of tooth development can result in unique manifestations.[1] Talon cusp is an uncommon, developmental dental anomaly in which an accessory cusp like structure is thought to arise as a result of evagination on the surface of a tooth crown before calcification has occurred.[2] The term talon cusp was coined by Mellor and Ripa due to its resemblance to an eagle's talon.[3] The permanent dentition is more often affected than the primary dentition.[4] It may present unilaterally or bilaterally in both sexes.[5] The etiology remains unknown, but it seems to have both genetic and environmental components.[6] It mostly occurs as an isolated finding rather than an integral part of any disorder however it may be associated with other somatic and odontogenic abnormalities.[7]

This paper presents an unusual case of bilateral talon cusp affecting permanent maxillary anterior teeth.

Case report

A twenty two year old female patient reported with the chief complaint of pain in upper front tooth region since approximately 15 days. Pain was dull and intermittent in nature. No relevant family / medical history were reported. General physical examination revealed that the patient was in good health. Intraoral examination showed fractured permanent maxillary left central incisor. On examination, it also revealed permanent maxillary right and left lateral incisor with pronounced cusp like structure projecting from the cingulum area (Figure 1). The anomalous cusp did not irritate the tongue during speech and mastication nor did it interfere with occlusion.

Radiographic examination showed a V- shaped radiopaque structure with separate enamel and dentin in relation to permanent maxillary right and left lateral incisors, but pulp extension could not be traced (Figure 2,3).

On the basis of clinical characteristics, clinical and radiographic appearance, a diagnosis of talon cusp was made. As teeth did not pose any significant clinical problems, corrective treatment was not instituted. However, patient was advised for root canal treatment in relation to permanent maxillary left central incisor.

Discussion

Talon cusp is an uncommon dental anomaly that manifests as an accessory cusp- like structure, projecting from the lingual or facial surface of anterior teeth.[5] It was first recognized by Mitchell in 1892.[1] It has also been referred to as, interstitial cusp, occlusal anomalous tubercle and supernumerary cusp.[8]

A striking predilection of maxilla over the mandible has been noted, with more than 90% of the reported cases in maxilla.[1] Among them 55% of the cases involved lateral incisors, 33% central incisors, and 4% canines.[1] Its prevalence has been reported to be 0.06% - 7.7%.[4] Most of the cases are unilateral, but one- fifth of the cases are bilateral.[2] The majority of reports about talon cusp show that the permanent dentition has been involved three times more often than the primary dentition and affects both sexes but males have a higher incidence than females.[9] In the present case, a female patient with bilateral involvement of permanent maxillary lateral incisor has been observed.

It is believed that talon cusp originates during the morphodifferentiation stage of tooth development in which it may occur as a result of outward folding of inner enamel epithelial cells and transient focal hyperplasia of the peripheral cells of mesenchymal dental papilla.[4] The high incidence of occurrence in the lateral incisors is due to compression of the tooth germ during the morphodifferentiation stage between the central incisors and canine.[10] The sequelae of compression can either result in an outward folding or an infolding of the dental lamina.[1]

Hattab et al., classified this anomaly into 3 types on the basis of the degree of cusp formation and extension, Type I (talon) has an additional cusp that projects from the palatal surface of an anterior tooth and extends at least one half the distance from the cementoenamel junction to the incisal edge. Type II (semi talon) has as additional cusp 1mm or more in length but extending less than one half of the distance from the cementoenamel junction to the incisal edge. Type III (trace talon) manifests as enlarged and

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Figure 1: Study cast showing bilateral talon cusp on the palatal surface of permanent maxillary lateral incisor

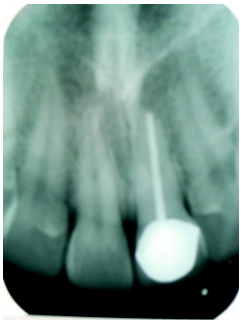

Figure 2: Intra oral periapical radiograph showing talon cusp on permanent maxillary right lateral incisor

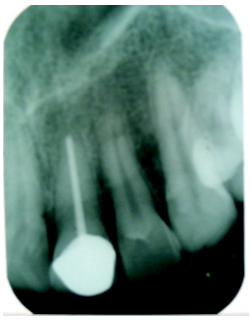

Figure 3: Intra oral periapical radiograph showing talon cusp on permanent maxillary left lateral incisor

prominent cingula and their variation.[2] The talon cusp described in the current case classified as Type III (trace talon).

Radiographically, the talon cusp is seen as a radiopaque structure, in which the enamel, dentin and occasionally the pulp can be seen.[1] Typically, the cusp looks like a V- shaped structure superimposed over the normal image of the crown.[11] The reported case revealed a V- shaped radiopaque structure with separate enamel and dentin.

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), Incontinentia pigmenti achromians, Cleft lip and palate, and Ellis-van Creveld syndrome.[9] The present case was not associated with any known abnormal systemic developmental syndromes.

Clinical problems noted with talon cusp include attrition, compromised esthetics, interference with tongue space, temporomandibular joint pain, irritation of tongue during speech and mastication, occlusal interference, periodontal problems and caries susceptibility.[9] In the present case, clinical problems like- attrition, occlusal interference, caries etc., has not been observed.

Management of talon cusp includes sequential grinding, pit and fissure sealing, pulp therapy, restorative treatment, full crown coverage and extraction of the affected tooth.[3] In the present case, none of the treatment options were used for the talon cusp because there were neither premature contacts and occlusal interferences nor pathological changes. Early recognition and continued monitoring, however is the key to proper treatment.[7] However, root canal treatment of fractured permanent maxillary left central incisor was done followed by placement of porcelain fused to metal crown in relation to permanent maxillary left central incisor.

Conclusion

Talon cusp is not an innocuous defect, but it may provide a substantial challenge during diagnosis and treatment planning. It is important to be familiar with common dental developmental anomalies. Early diagnosis and appropriate treatment approaches can minimize possible complications.

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