

CASE REPORT

Talon Cusp in Maxillary Central Incisor and its Management: A Case Report

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ABSTRACT

A talon cusp is an uncommon dental anomaly showing morphologically well-delineated accessory cusp. It is an anomaly that occurs during morphodifferentiation, and this anomaly may have numerous adverse clinical effects on oral health. Its presence causes the problem in esthetics, caries, and occlusal accommodation for the patient and problems in the diagnosis and clinical management for the dentist. This article presents a case report on talon cusp on the permanent left maxillary central incisor in a 10-year-old female child and its management. The talon cusp often presents as a problem of clinical significance as the maxillary incisor region is also associated with supernumerary tooth, and the dentist needs to reach a definitive diagnosis before managing the problem.

Keywords: Management with biodentin, Maxillary incisor, Talon cusp

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INTRODUCTION

A talon cusp is a well demarcated additional cusp located usually on the surface of the anterior tooth and extending from the cemento-enamel junction to at least half the length of the cusp. It usually represents a continuous extension from a normal cingulum to an enlarged cingulum, to a small accessory cusp, and finally to a full-formed talon cusp.^[1]

This unusual dental anomaly which shows an accessory cusp-like structure that projects from the cingulum to the incisal edge was first described by Mitchell in 1892.^[2] It was, thereafter, named talon cusp by Mellor and Ripa in 1970 due to its resemblance to an eagle's talon.^[3] According to many authors, the odontogenic anomaly of talon cusp has been known by various

synonyms such as prominent accessory cusp-like structure,^[4] exaggerated cingula,^[5] additional cusp,^[6] cusp-like hyperplasia,^[7] accessory cusp,^[8] and supernumerary cusp.^[9]

Talon cusp presents with a wide range of variation in size and shape, leading to difficulty in diagnosis. To make things easier, it has been classified by Hattab *et al.* as follows:^[10]

- Type 1: Talon – Refers to a morphologically well-delineated additional cusp that prominently projects from the palatal (or lingual) surface of a primary or permanent anterior tooth and extends at least half the distance from the cemento-enamel junction to the incisal edge.
- Type 2: Semi talon – Refers to an additional cusp of a millimeter or more extending less than half the distance from the cemento-enamel junction to the incisal edge. It may blend with the palatal surface or stand away from the rest of the crown.
- Type 3: Trace talon – An enlarged or prominent cingula and their variations, that is, conical, bifid, or tubercle-like.

CASE REPORT

A 10-year-old female child accompanied by her parents reported to the department of pedodontics and preventive dentistry with a chief complaint of “protruding upper anterior tooth on the left side that does not make her look good.” An intraoral examination was done that revealed a talon cusp on the palatal aspect of permanent left maxillary central incisor [Figure 1]. An intraoral periapical radiograph was also taken.

There was labial tipping of the permanent maxillary left central incisor as talon cusp was interfering with the chewing as mandibular left central incisor was striking against it. The talon cusp was reduced radically under local anesthesia to the point that no occlusal interference takes place, and clinically, there was no evident pulpal exposure. Still, the area was covered with bio-dentine [BiodentineTM – Septodont] [Figure 2] followed by glass-ionomer cement restoration over it. Everything was done taking into account that no occlusal interference occurs with the antagonist tooth. A Hawley appliance was planned if there were no signs of reduction of the proclination. Follow-up was done after 2 months

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and there was complete correction of the proclined upper left maxillary central incisor without any Hawley appliance being given [Figure 3].

DISCUSSION

Talon cusp is most commonly seen in the maxillary anterior teeth region. Of all cases reported in the literature, three-fourth of them are said to occur in the permanent dentition. The talon cusp predominantly occurs on permanent maxillary lateral (55%) or central (33%) incisors but have been seen less frequently on mandibular incisors (6%) and maxillary canines (4%) and if present in deciduous dentition, it is found mainly on the maxillary primary central incisor. It usually presents as a projection on the lingual aspect of the tooth, but cases have been reported on the labial aspect or both the labial and lingual aspect of tooth as well. The term, talon cusp refers to the same condition as Dens evaginatus, but on the anterior teeth. It is composed of enamel, dentine, and a varying amount of pulp tissue.^[1,11,12] The prevalence of talon cusp is reported to be 0.6% in Mexicans, 7.7% in a northern Indian, 2.5% in a Hungarian, 5.2% in Malaysian, and 2.4% in Jordanian population.^[13]

Although no exact etiology has been suggested yet, talon cusp can be said to be a combination of genetic and environmental factors. It may arise during the morphodifferentiation stage of tooth development due to the out-folding of the enamel organ or hyperproductivity of the dental lamina.^[10] Disturbances during morphodifferentiation, such as altered endocrine function, might affect the shape and size of the tooth without impairing the function of ameloblasts and odontoblasts. Sometimes, a strong genetic influence is evidenced by the occurrence of talon cusp in close family members. Talon cusp may occur alone or in association with other dental anomalies such as mesiodens, odontome, unerupted or impacted teeth, peg-shaped maxillary incisor, dens invaginatus, cleft lip, and distorted nasal alae, bilateral gemination, fusion, supernumerary teeth, and enamel clefts.^[14]

Talon cusps also have been seen in patients with Rubinstein–Taybi syndrome, Mohr syndrome, Ellis–van Creveld syndrome, incontinentia pigmenti achromians, Berardinelli–Seip syndrome, and Sturge–Weber angiomas; the strongest association being found with Rubinstein–Taybi syndrome as demonstrated by a study of 45 affected patients, in which 92% demonstrated talon cusps.^[1,15]

Using the classification by Hattab *et al.*^[10] the present case was classified as Type 1 talon cusp. Superimposition of the cusp over the main tooth made it difficult to determine the extent of pulp tissue in the anomalous cusp. There was no associated systemic or local condition in

this patient and the parental history also revealed that talon cusp was not evident in any other family member.

Management of a talon cusp depends on individual case with small asymptomatic cases requiring no treatment. Large talon cusps may cause clinical problems including occlusal interference, displacement of the affected tooth, irritation of the tongue during the speech and mastication, and carious lesion in the developmental grooves that delineate the cusp, pulp necrosis, periapical pathosis, attrition of the opposing tooth, and periodontal problems due to excessive occlusal forces.^[11]

If there is occlusal interference, the talon cusp may be reduced gradually and periodically along with topical fluoride application or total reduction of the cusp followed by pulpotomy.^[16] Sometimes complete removal of the cusp is done along with the pulp extirpation and root canal therapy.^[17] Orthodontic correction may become necessary when there is tooth displacement or malalignment of affected or opposing teeth.^[18]

In this case, the entire cusp was reduced in a single visit under local anesthesia and although there was



Figure 1: Talon cusp on the maxillary left central incisor with labial tipping of the same

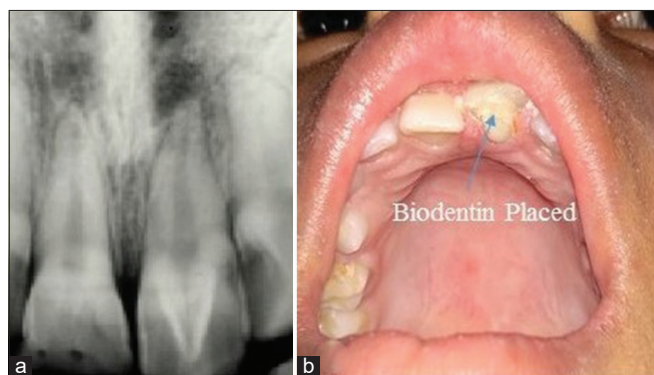


Figure 2: (a) Intraoral radiograph of the same tooth and (b) intraoperative photograph of talon cusp reduction and biodentin placement



Figure 3: Post-operative view with corrected labial tipping

no evident clinical pulpal exposure; still, the area was protected with Biodentine and glass-ionomer cement restoration was done over it. After 2 months, the patient was called for follow-up and it was found that the proclined maxillary left central incisor has become parallel with that of the right one, and no further orthodontic correction was required.

CONCLUSION

It is necessary that dental professionals recognize all types of this anomaly so as not to confuse it with other morphological changes, thereby avoiding unnecessary surgical procedures. A correct diagnosis is necessary to prevent decay, malocclusion, and esthetic issues, thus improving the oral health and quality of life of the patient. The patient will be monitored at regular sessions to assess the presence of dentinal sensitivity in the repaired region and to confirm that the occlusal interference was eliminated by reducing the talon cusp.

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