

# Mandibular Talons with Unusual Configuration: A Report of Two Cases

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## Abstract

Talon cusp is a morphologically well-delineated accessory cusp-like anomalous structure projecting from the cingulum area or cemento-enamel junction, extending at least half the distance to incisal edge of anterior teeth. Maxillary lateral incisors are commonly affected by this condition in permanent dentition while mandibular talon cusps are very rare. This case report presents two unique cases of mandibular talons on the permanent central incisors.

**Key words:** Dental anomaly, mandibular arch, permanent dentition, talon cusp

## INTRODUCTION

Talon cusp is well-delineated accessory cusp-like anomalous structure projecting from the cingulum area or cemento-enamel junction, extending at least half the distance to incisal edge of maxillary or mandibular anterior teeth in both primary and permanent dentitions and which is composed of normal enamel, dentin, and varying extensions of pulp tissue.<sup>[1,2]</sup> Talon cusps vary in their expression in terms of the tooth and tooth surface affected, shape and degree of development. They occur most frequently on the lingual aspect of the anterior teeth, less frequently on the labial surface, and occasionally on both.<sup>[3]</sup> Talon cusps can cause problems such as compromised esthetics, occlusal interference, displacement of the affected tooth, carious developmental grooves and pulpal necrosis, periodontal problems due to excessive occlusal forces, advanced attrition leading to pulpal exposure and periapical pathology, irritation of the tongue during speech and mastication, and interference with tongue space.<sup>[1,2]</sup>

Mayes<sup>[4]</sup> considered facial talon cusps into three stages, starting from the slightest to most extreme forms as follows: Stage 1 is slightest form, consisting of slightly raised triangle on the labial surface of an incisor extending the length of the crown; Stage 2 is moderate form, consisting of a raised triangle on the labial surface of an incisor that extends the length of the crown, and it may reach the incisal edge and can be observed clearly and palpated easily at this stage; Stage 3 is most

extreme form, consisting of a free form cusp extending from the cemento-enamel junction to the incisal edge on the labial surface of an incisor. Hattab *et al.*<sup>[1]</sup> classified facial talon cusps into three grades, the anomalous cusp from the most extreme to the slightest form and also considered talon cusps according to their extent from the cemento-enamel junction toward the incisal edge into three types: Type 1 (talon), Type 2 (semi talon), and Type 3 (trace talon).

Talon cusps occur with a frequency of 0.04%–10% in permanent dentition and more common in permanent dentition than the primary dentition.<sup>[1,5]</sup> Males are commonly affected than females. This dental anomaly is commonly seen in maxillary anterior teeth in both primary and permanent dentitions, and mandibular talons are very rarely reported. Maxillary lateral incisor is common tooth type affected in permanent dentition while maxillary central incisors in primary dentition.<sup>[5]</sup> Lingual-type talon cusps are very common, where facial talons are not frequently quoted and talon cusps in mandibular arch has not been documented frequently. The purpose of this report is to describe two cases of rare mandibular talons where one compromises facial aspect and other on lingual side.

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## CASE REPORTS

### Case 1

An 8-year-old male child presented to the Department of Paediatric Dentistry for a routine dental check-up. His medical history was noncontributory and without any systemic abnormality. Clinical examination revealed that intraorally he is in mixed dentition with inadequate oral hygiene. The mandibular left central incisor exhibited a talon cusp on facial aspect, and talon exhibited division into two planes at the junction of incisal and middle third of the tooth cervico-occlusally, exhibiting a groove with calculus deposits [Figure 1a]. Intraoral periapical radiograph revealed an inverted V-shaped radiopaque structure on the tooth 31 and the two apices are of 1.15 mm distant from one another [Figure 2]. The extent of pulp tissue into the cusp could not be determined on the radiograph. After discussing with parents, scaling and prophylaxis were done on the first visit. In the second and third visits, gradual reduction of facial talon was done and composite restoration was performed in tooth 31 [Figure 1b and c] to avoid caries risk and the patient was reviewed after 6 months.

### Case 2

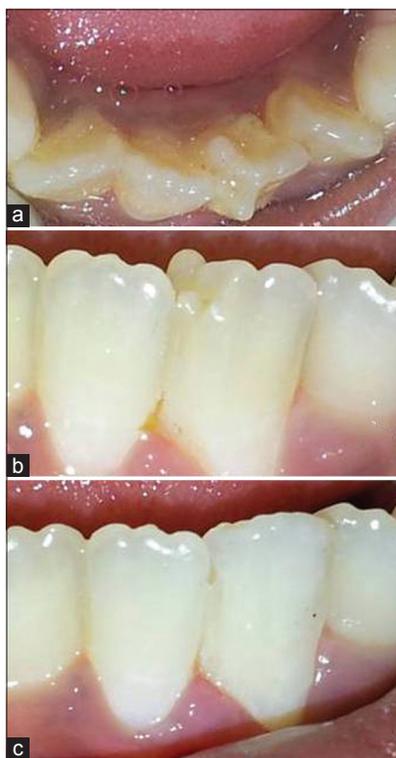
A 12-year-old male child visited the Department of Paediatric Dentistry clinic for a regular check-up. His medical and dental histories were noncontributory, and he is a healthy child to a nonconsanguineous couple. Extraoral examination showed a symmetrical face, competent lips with convex profile. Intraorally, he presented with a lingual

talon on the mandibular right central incisor [Figure 3]. On radiographic examination, intraoral periapical radiograph revealed an inverted V-shaped radiopaque structure on the tooth 31 and exhibited evidence of pulp tissue in the lingual talon [Figure 4]. There was no occlusal interference, and it was 2 mm below the occlusal level. Findings were discussed with parents; parents were not willing for the treatment; hence, patient discharged.

## DISCUSSION

Talon cusp is an accessory cusp-like structure, which arises during the morphodifferentiation stage of tooth development. This talon can occur on lingual or labial surfaces of either primary or permanent anterior teeth.<sup>[5,6]</sup> The presence of normal enamel and dentin with a substantially enlarged pulp tissue in talon would suggest that talon tooth may be a developmental anomaly originating in the stage of morphodifferentiation.<sup>[7]</sup>

The etiology of talon cusp is poorly understood. It has been suggested that the condition may have a multifactorial etiology to include both genetic and environmental factors.<sup>[6,8]</sup> Hyperactivity of the dental lamina early in odontogenesis has been suggested as a factor. Hattab *et al.*<sup>[1]</sup> suggested that the aberrant cusp might be formed as a result of an outward folding of the inner enamel epithelial cells and a transient focal hyperplasia of the mesenchymal dental papilla. Subsequently, a case study done on primary tooth reported a composition of normal enamel and dentin, with varying extensions of pulpal tissue into the talon projection.<sup>[4,9,10]</sup> The extent of pulp extension into the cusp is however difficult to determine because of its superimposition over the main pulp chamber.<sup>[11]</sup> While some indicated that talon cusps contain pulp tissue,<sup>[2,10]</sup> some found no evidence of pulp extension into the cusp.<sup>[12]</sup> However, it has been suggested that large talon cusps, especially those that stand away from the tooth crown, are more likely to contain pulp tissue.<sup>[9,10]</sup> Similarly, in Case 2, the talon cusp was away from cusp and pulp tissue was evident on the intraoral radiograph. Since there was neither occlusal interference nor problem to the tongue, the talon cusp was left without intervention.



**Figure 1:** Intraoral views of talon cusp on tooth 31 showing (a) preoperative, (b) during gradual reduction, and (c) posttreatment view.



**Figure 2:** Intraoral periapical film of tooth 31 exhibiting talon.



**Figure 3:** Intraoral clinical view of lingual talon on tooth 31.

Talon's cusp is rare dental anomaly which could be clinically evident on careful inspection. The early diagnosis of talons and its associated anomalies were evident on routine through dental examination.<sup>[13]</sup> These observations could help to prevent the associated complications. No active treatment of the talon cusps was essential if the talon was blended smoothly with the adjacent tooth structures, had not associated with any problem, and where the esthetics were not concerned.<sup>[14]</sup> Most recently, Cho<sup>[15]</sup> reported eight cases of mandibular talon cusps affecting permanent dentition in Southern Chinese. However, it had have been suggested further studies involving a large number of subjects are required to find more this unusual variations of the talon cusp.<sup>[13-15]</sup> Furthermore, a recent systematic review reported that the occurrence of talon cusps in mandibular arch is very rare and definitive management of this anomaly has not been clearly documented.<sup>[14]</sup> These authors classified talon cusps based on the presence on the surface, facial or labial (Type 1), lingual or palatal (Type 2), and both surfaces (Type 3). In present cases, Case 1 and Case 2 were categorized as Type 2 talons according to Hattab *et al.*,<sup>[1]</sup> Stage 3 according to Mayes<sup>[4]</sup> description, and Type 1 (Case 1) and Type 2 (Case 2) according to Mallineni *et al.*<sup>[14]</sup>

Small talon cusps are usually asymptomatic, necessitating no treatment. However, large, prominent, and separated talon cusps call for definitive treatment because they may cause esthetic, occlusal, periodontal, and carious problems.<sup>[9,16]</sup> The junctional site of the talon cusp with the dental surface frequently allows plaque accumulation, leading to caries formation and pulpal inflammation or periodontal disease.<sup>[5]</sup> Similarly, in Case 1, it was observed that plaque accumulation along with the talon and scaling was performed on the first visit. If there are deep developmental grooves, simple prophylactic measures such as fissure sealing and composite resin restoration can be carried out.<sup>[4,10,17,18]</sup> The treatment objectives for talons ought to include preserving pulpal vitality, meeting esthetic and occlusal requirements, establishing caries prevention or eradication in developmental grooves, and eliminating tongue irritation. Treatments may differ depending on each case, and in the present case report, treatment options differed based on case.



**Figure 4:** Intraoral periapical film showing talon cusp on tooth 31.

## CONCLUSION

Early diagnosis of these anomalies in the tooth by the pediatric dentist can thus improve the prognosis of treatment and minimize future complications. The mandibular talon cusps are extremely rare, and a comprehensive clinical and radiographic examination is beneficial in identifying such defects. The treatment options will differ based on its presentation and associated problem. Significance of radiographs in the detection of pulp should play a major role in treatment planning.

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## Conflicts of interest

There are no conflicts of interest.

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