A rare presentation of multiple talon cusps

Uma rara apresentação de múltiplas cúspides em garra

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ABSTRACT

A talon cusp is a relatively rare dental developmental anomaly characterized by the presence of accessory cusp-like structure projecting from the cingulum area or cementoenamel junction. It is frequently found on the palatal surface of the maxillary anterior teeth in the permanent dentition. The etiology is controversial, but it is suggested that this condition has a multifactorial cause, including both genetic and environmental factors. Radiographically talon cusps are radiopaque structures, in which the enamel, dentin and occasionally the pulp can be seen. The alteration is generally asymptomatic, but it may cause clinical problems eventually. Early diagnosis is important to prevent occlusal interference, irritation of the tongue, pulpal necrosis, caries and periodontal alterations. Clinical management of talon cusps may be either conservative or radical, depending on the size and shape of the affected tooth. We report a rare case of talon cusps involving all six maxillary anterior teeth in a 20-year-old patient.


INTRODUCTION

A talon cusp is a rare dental developmental anomaly in which an additional cusp-like structure projects from the cement-enamel junction of the maxillary or mandibular anterior teeth, in either the primary or permanent dentition. These projections were first described in 1892 by Mitchell. Later Gorlin and Goldman defined a talon cusp as a very high accessory cusp, which may connect with the incisal edge to produce a T-form or a Y-shaped crown contour. In 1970 the term talon cusp was first used due to the structure’s resemblance to an eagle’s talon. A wide synonymy has been used in the literature to describe talon cusps, including central odontoma, evaginatus odontoma, tuberculous premolar, Leong’s premolar, occlusal pearl, and Eagle’s cusp. Dens evaginatus is used to describe an accessory cusp-like elevation present on the posterior teeth.

A talon cusp consists of enamel and dentin, containing various amounts of pulpal tissue. As with other dental abnormalities, talon cusp development occurs during the morpho-differentiation stage of odontogenesis. The etiology is controversial. It is suggested that this condition has a multifactorial cause, including both genetic and environmental factors. Other theories include aberrant hyperactivity of dental lamina, outward folding of the inner enamel epithelium, altered endocrine functions and a transient focal

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hyperplasia of the mesenchymal dental papilla as possible developers of the anomaly\textsuperscript{1,7}.

We present a rare case of multiple talon cusps on six maxillary permanent anterior teeth.

CASE REPORT

A 20 year old white male was referred to clinic with a complaint of pain in his mandibular left second molar. The patient’s medical and family history were irrelevant. Intraoral examination revealed the presence of prominent cusp-like projections on the palatal surface of all six anterior maxillary teeth (Figure 1). These malformations were at the midline of each tooth extending from the cementoenamel junction (CEJ) to halfway to the incisal edge.

Panoramic radiographs showed V-shaped radiopaque structures on the central incisors, lateral incisors, and canines, superimposed over the normal image of the crown (Figure 2). The clinical and radiographic features suggested the diagnosis of talon cusps.

The clinical examination of the talon cusps revealed a superficial dark groove in the junction of the cusp and the palatal enamel of the lateral incisors and canines. There were no caries in these groves. The talon cusps were not related to occlusal interference, irritation on the soft tissue, nor periodontal or periapical alterations.

No treatment was indicated in this case and the patient has been under control for cavities prevention. Patient has signed a consent form giving permission to use his images.

DISCUSSION

The talon cusp is the accessory cusp-like structure, originates from disturbances in the morpho-differentiation stage of tooth development\textsuperscript{9}. The cause of this condition is still unknown, but genetic and environmental factors are thought to be involved in the etiology. Sporadic occurrence of this abnormality is not uncommon\textsuperscript{10}.

The prevalence of talon cusp has been reported in a range from one to eight percent of the population\textsuperscript{5}. There is a predilection for men, however there is variations amongst population groups. It has been reported to occur more frequently in Asians, Mexicans and Eskimos\textsuperscript{11}. A striking predilection of the maxilla has been noted\textsuperscript{12}. About seventy-seven percent of the affected teeth have been in the permanent dentition. Among them, 67 percent of the cases involved lateral incisors, 24 percent central incisors and 9 percent canines. Most cases are unilateral, however, 20% are bilateral\textsuperscript{11,13-14}. Rare cases of multiple talon cusps have been related in the literature. In the present study we describe an uncommon case of talon cusps on six maxillary anterior teeth of a Brazilian man.

Clinically, talon cusps are often described as a nodule or tubercle, shaped as a cylindrical cone with a sharp point or a raindrop, on the palatal surface of anterior teeth\textsuperscript{4}. Hattab et al.\textsuperscript{10} identified three types of this anomaly. True talon (type I) is an additional cusp that prominently projects from the palatal surface of a primary or permanent anterior tooth, and extends at least half the distance from the cemento-enamel junction to the incisal edge. Semitalon (type II) is an additional cusp of 1 mm or more extending less than the distance from the cemento-enamel junction to the incisal edge. Trace talon (type III) is an enlarged or prominent cingulum and variations namely, conical, bifid, or tubercle-like. According to this classification, the talon cusps presented in our case were characterized as semitalon (type II) on the central incisors and as trace talon (type III) on the lateral incisors and canines.
Six talon cusps: a rare presentation

Clinical management of talon cusps may be either conservative or radical, depending on the size and shape of the affected tooth. Treatment procedure may include fissure sealants, sequential grinding, pulp therapy, restorative treatment, full crown coverage and extraction of the affected tooth. However, some cases require no treatment. In this case, no treatment was necessary because the talon cusps were a clinical finding with no associated pathological manifestation.

CONCLUSION

Although talon cusps are rare, it is important to establish an early diagnosis and, if necessary, prompt treatment is required to prevent future complications. Moreover, it is important to note that this alteration may be associated with other systemic and dental anomalies.

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Collaborators

LE CÂNDIDO-SOARES, F PASSADOR-SANTOS, VC ARAÚJO and AB SOARES were involved in manuscript writing. LA THOMAZ e MC MAUTONI were in charge of patient clinical management and manuscript writing.

REFERENCES


Radiographically talon cusps are seen as radiopaque structures, in which the enamel, dentin and occasionally the pulp can be seen. Typically the cusp resembles a V-shaped structure superimposed over the normal image of the crown. The aid of radiographs is essential to assess whether the accessory cusp contains or is devoid of a pulp horn, as well as to establish the appropriate treatment. In this case, radiographic examination did not reveal pulp horn in the talon cusps.

Talon cusps have been associated with several systemic diseases, including Mohr syndrome, Rubinstein-Taybi syndrome and Sturge-Weber syndrome. In addition, the dental literature has also reported the association of talon cusps with other odontogenic anomalies such as supernumerary teeth, congenitally missing teeth, dens invaginatus, complex odontoma and impaction. However, in some cases it may appear as an isolated alteration. In the present case the patient did not have syndromes or other dental anomalies.

Talon cusps are generally asymptomatic, but have clinical significance due to its tendency for caries and the potential for occlusal interference. Early diagnosis and management of talon cusps are important, especially to avoid and prevent pulpal necrosis. Possible consequences of large talon cusps include irritation of the tongue during speech and mastication, displacement of the affected tooth, pulpal necrosis, periapical pathosis, attrition of the opposing tooth and periodontal problems due to excessive occlusal forces.


