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CASE REPORT

Talon Cusp: A Case Report and Literature Review

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ABSTRACT

Talon cusp is a well-delineated accessory cusp thought to arise as a result of evagination on the surface of a tooth before calcification has occurred. It is seen projecting from the cingulum or cementoenamel junction of maxillary or mandibular anterior tooth. It is named due to its resemblance to eagle's talon, which is the shape of eagle's claw when hooked on to its prey. The incidence is 0.04 to 8%. This article reports a case of talon cusp on maxillary permanent lateral incisor. When it occurs on the facial aspect, the effects are mainly esthetic and functional and so early detection and treatment is essential in its management to avoid complications.

Keywords: Talon cusp, Evagination, Maxillary lateral incisor.

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INTRODUCTION

Talon cusp has been defined as a supernumerary accessory talon-shaped cusp projecting from the lingual or facial surface of the crown of a tooth and extending for at least half the distance from the cementoenamel junction to the incisal edge.[1,2] Talon cusp was first recorded by Mitchell in 1892. She described this accessory cusp on the lingual surface of a maxillary central incisor as 'a process of a horn-like shape curving from the base downward to the cutting edge' in a female patient.[3,4] Mellor and Ripa named this condition as 'talon cusp' in 1970.[5]

The cusp often demonstrates a deep developmental groove where the cusp joins the lingual surface of the incisor.[6] Talon cusp consists of normal enamel, dentin and the pulpal tissue may or may not be present.[5] Both primary and permanent dentition are involved and both sexes are affected, males with higher incidence than females. Talon cusp is usually unilateral but one-fifth of the cases show bilateral occurence.[5]

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The prevalence of talon cusp varies with race, age, and the criteria used to define this abnormality. A review of the literature suggests that 75% of the cases are in the permanent dentition and 25% in the primary dentition. This anomaly has a greater predilection in the maxilla (with more than 90% of the cases reported) than in the mandible (only 10% of the cases).[7] In the permanent dentition, 55% of the cases involved maxillary lateral incisors, 33% involved central incisors and 4% involved canines.[4,8] The purpose of this article is to report a case of palatal talon cusp on the permanent maxillary lateral incisor and review its literature.

CASE REPORT

A 48-year-old female reported for a routine dental check up. The patient's medical history and family history was not contributory. General examination did not reveal any abnormality. Intraoral examination revealed a linear cusp like structure on the palatal aspect of right maxillary lateral incisor. All other teeth did not show any developmental abnormalities. On close examination of the involved tooth a well-delineated accessory cusp was present projecting from the palatal surface of right maxillary lateral incisor extending half way from cemento-enamel junction to the incisal edge (Figs 1 and 2). The vitality test did not show any abnormality. On radiographic examination, periapical radiograph revealed a V-shaped radiopaque structure superimposed on the crown of right maxillary lateral incisor (Fig. 3). A diagnosis of type 1 (True talon) talon cusp was made according to Hattab's classification and as major talon

Fig. 1: Talon cusp on right maxillary lateral incisor

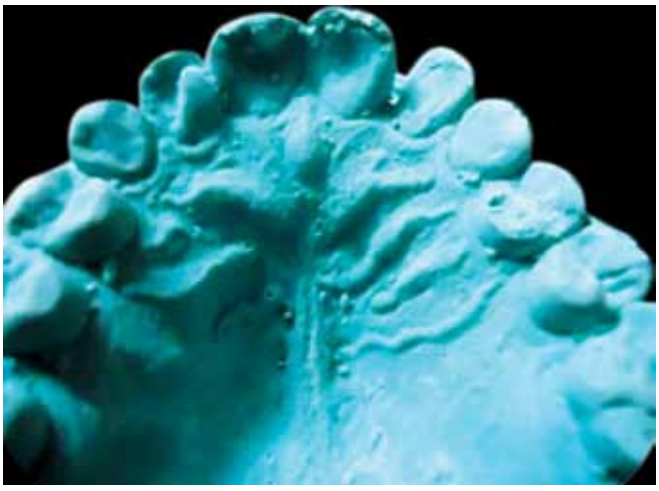

Fig. 2: Study cast showing talon cusp on right maxillary lateral incisor

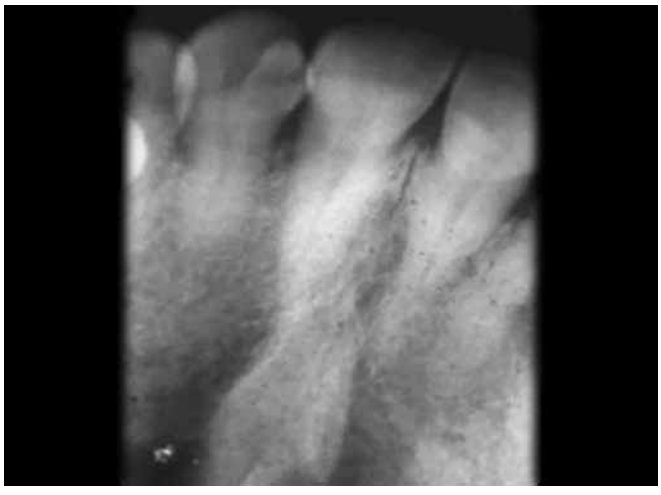

Fig. 3: Intraoral periapical radiograph shows V-shaped radiopacity superimposed on the coronal portion of right maxillary lateral incisor

according to Chin-Ying variation in talon cusp. As the talon cusp caused no difficulties, the patient was not willing for any contouring of the crown. The patient was advised periodic follow-up.

DISCUSSION

Talon cusp refers to an anomalous structure that manifests as an accessory cusp like structure projecting from the palatal/lingual cusp and rarely on the facial surface of anterior tooth. Males show a higher frequency than females. Ninety-two percent of cases affect the maxilla and the 8% affects mandible. Only central incisors are involved in the primary dentition, and the maxillary lateral incisor is most often affected in the permanent dentition (67%), followed by the central incisor (24%) and canine (9%). The shape, size, structure, location and the site of origin of talon cusp vary widely. The anomaly is commonly unilateral, but one fifth of the cases are bilateral in occurrence.[9,10] Mandibular talon cusps have been reported in the literature, to best of our knowledge 14 cases have been reported[9,11] and some are seen in the facial aspect also.

The exact etiology of talon cusp remains unknown. Various hypotheses regarding its etiology have been put forward.[12] It is thought to arise during the morpho differentiation stage of tooth development, as a result of out folding of the enamel organ or hyperproductivity of the dental lamina.[1,13] Developmentally, it may arise as a result of out folding of inner enamel epithelial cells (precursors of ameloblasts) and transient focal hyperplasia of the mesenchymal dental papilla (precursors of odontoblasts).[14] Another hypothesis suggests genetics to be a causative factor of talon cusp based on its occurrence in a family. Trauma and other localized forces on tooth germ have also been held responsible for talon cusp.[12] Because of susceptibility of the maxillary lateral incisors to anomalies, compression of its tooth germ by the adjacent central incisor and canine is also discussed. Compression could cause out-folding of the dental lamina in case of talon cusp, or infolding of the dental lamina in case of dens invaginatus. Occurrence of the talon cusp in central incisor and canine is opponent to the compression hypothesis.[5]

Hattab's et al classified talon's cusp based on the degree of formation and extension into three categories. These are:

- *Type 1 (True talon)*: A well-delineated additional cusp that predominantly projects from the palatal or lingual surface of an anterior tooth and extends half way from cementoenamel junction to the incisal edge.
- *Type 2 (Semi talon)*: An additional cusp of a millimeter or more but extending less than half the distance from cementoenamel junction to incisal edge. It may blend with palatal surface or strand away from the crown.
- *Type 3 (Trace talon)*: Enlarged cingulum and may present as conical bifid or tubercle shaped.[12]

The occurrence of facial talon cusps was reported in many cases, which was not classified by Hattab's et al. Chin-Ying described the variations in talon cusps as:

- *Major talons*: Well-delineated cusps that project from an anterior tooth's facial or palatal/lingual surface and extends at least half the distance from the cementoenamel junction to the incisal edge.
- *Minor talons*: Which occur on the same surfaces, but extend more than one fourth and less than half the distance from the cementoenamel junction to the incisal edge
- *Trace talons*: Enlarged prominent cingula and their variations, which occupy less than one fourth the distance from the cementoenamel junction to the incisal edge.[4]

The accessory cusp has been seen in association with other dental anomalies like supernumerary teeth, odontomas, impacted teeth, peg shaped lateral incisors,

dens invaginatus.[15]Although this odontogenic anomaly may not be a part of any specific syndrome, those associated with talon cusp include, Sturge-Weber syndrome, Rubinstein-Taybi syndrome, Mohr syndrome, incontinentia pigmenti achromens, Ellis Van Creveld syndrome, Berardinelli-Seip syndrome.[16]

The radiographic appearance of talon cusp varies with the morphology of the cusp and the angle at which the radiograph is taken. A V-shaped radiopacity superimposed over the normal image of the crown of the tooth is noted radiographically in cases of true talon or semi talon. Trace talon appears as a tubercle-like radiopacity originating from the cervical third of the root. The apex of the 'V' is inverted in mandibular cases.[16]

Clinical complications of talon cusps include compromised esthetics, attrition, temporomandibular joint pain, trauma to tongue and lip during speech and mastication, displacement of the affected tooth, problems in breastfeeding, accidental cusp fracture and occlusal interferences. The deep grooves that unite this cusp to the tooth act as stagnation areas for plaque and debris leading to periodontal and periapical pathosis. Talon cusp may present diagnostic problems if it is unerupted and bears resemblance to a compound odontoma or a supernumerary tooth that may lead to unnecessary surgical procedures.[16] The various treatment options for talon cusp are Gradual, periodic reduction of the cusp, application of fluoride or desensitizing agents and restoring tooth morphology or complete removal of tooth.[4]

CONCLUSION

In this article, we have reviewed the literature regarding talon cusp and have documented our case report according to the classification of Hattab's et al as type-1 (True talon) and Chin-Ying variations as major talon cusp. Clinicians should always be aware of the developmental anomalies, clinical complications and their variations for the management.

REFERENCES

1. Thakur S, Gupta R, Thakur NS, Gupta M. Facial talon cusp on permanent maxillary canine: a rare dental anomaly. Eur J General Dentist 2013;2(3):324-327.
2. Jowharji N, Noonan RG, Tylka JA. An unusual case of dental anomaly. A 'facial' talon cusp. J Dent Child 1992;59(2):156-158.
3. Mitchell WH. Case report. Dent Cosmos 1892;34:1036.
4. Jeevarathan J, Deepti A, Muthu MS, Sivakumar N, Soujanya K. Labial and lingual talon cusps of a primary lateral incisor: a case report. Pediatr Dent 2005;27(4):303-306.
5. Dumancic J, Kaic Z, Tolj M, Jankovic B. Talon Cusp: a literature review and case report. Acta Stomatol Croat 2006;40(2): 169-174.
6. Neville BW, Damm DD, White DK, Waldron CA. Color Atlas of Clinical Pathology.
7. Dash JK, Sahoo PK, Das SN. Talon cusp associated with other dental anomalies: a case report. Int Ped Dent 2004;14(4):295-300.
8. Hattab FN, Yassin OM. Bilateral talon cusps on primary central incisor: a case report. Int J Paed Dent 1996;6(3):191-195.
9. Sachdeva SK, Verma P, Dutta S, Verma KG. Facial talon cusp on mandibular incisor: a rare case report with review of literature. Ind J Dent Res 2014;25(3):398-400.
10. Hattab FN, Yassin OM, al-Nimri KS. Talon cusp in permanent dentition associated with other dental anomalies: review of literature and reports of seven cases. ASDC J Dent Child 1996; 63(5):368-376.
11. Ramalingam K, Gajula P. Mandibular talon cusp: a rare presentation with the literature review. J Nat Sci Biol Med 2011;2(2):225-228.
12. Mohan RPS, Verma S, Singh U, Agarwal N, Ghanta S, Tyagi K. Talon cusp in primary dentition: a case report. Int J Case Reports and Images 2013;4(12):709-713.
13. Hattab FN, Yassin OM, Al-Nimri KS. Talon cusp in the permanent dentition associated with other dental anomalies: Review of literature and reports of seven cases. J Dent Child 1996;63(5):368-376.
14. Thirumalaisamy E, Baskaran P, Jeyanthi K, Kumar S. Talon cusp in fused teeth: a rare concomitant occurrence. J Oral Maxillofac Pathol 2012;16(3):411-413.
15. Prabhu RV, Rao PK, Veena KM, Shetty P, Chatra L, Shenai P. Prevalence of talon cusp in Indian population. J Clin Exp Dent 2012;4(1):e23-27.
16. Sharma G, Mutneja AR, Nagpal A, Mutneja P. Nonsyndromic multiple talon cusps in siblings. Ind J Dent Res 2014;5(2): 272-274.