Case Report

AN UNUSUAL CASE OF TALON CUSP ON MAXILLARY CENTRAL INCISOR

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Abstract

Dens evaginatus is a developmental anomaly characterized by the occurrence of an extra cusp shaped tubercle projecting from the palatal or buccal surfaces (talon cusp). Commonly it occurs in either maxillary or mandibular anterior teeth in both the primary and permanent dentition. This article reports a case of talon cusp and its management.

Key words
Dens Evaginatus, Talon Cusps, Eagle's Talon.

INTRODUCTION

The talon cusp, or dens evaginatus of anterior teeth, is a relatively rare developmental anomaly characterized by the presence of an accessory cusp like structure projecting from the cingulum area or cemento-enamel junction of the maxillary or mandibular anterior teeth in both the primary and permanent dentition. This anomalous structure is composed of normal enamel and dentin and either has varying extensions of pulp tissue into it or is devoid of a pulp horn.1-4 In its typical shape, this anomaly resembles an eagle's talon,2 but it could also present as pyramidal, conical or teat-like.1-5The prevalence of talon cusp varies considerably among populations, ranging from 0.06% to 7.7%.6,7 The permanent dentition is affected more frequently than the primary dentition, and the anomaly is more common in males than in females.1,4,5,8,9 predominantly 65%of the talon cusps occurs in males 10 and prevalence varies considerably among ethnic groups ranging from 0.06% to 7.7% 11. Almost 92% of the affected (taloned) teeth in the permanent dentition have been found in the maxilla, with the lateral incisors being the most frequently involved (55%) followed by the central incisors (36%) and the canines.1,9

The etiology of talon cusp is not well understood, but appears to have both genetic and environmental components.1, 4 Similar to other abnormalities of tooth shape, talon cusp originates during the morpho-differentiation stage of tooth development. 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. It can also occur as an isolated finding or in association with other dental anomalies such as peg-shaped lateral incisor, agenesis or impacted canines, mesiodens, complex odontomes, megadont, dens evaginatus of posterior teeth, shovel-shaped incisors, dens invaginatus and exaggerated Carabelli cusp.1-5 The talon cusp has not been reported as an integral part of any specific syndrome, although it appears to be more prevalent in patients with Rubinstein-Taybi syndrome, Mohr syndrome, Sturge-Weber syndrome, incontinentia pigmenti achromians and Ellis-van Creveld syndrome.1,8,12

CASE REPORT

A healthy looking 29 year old male presented to the dental OPD of department of Conservative Dentistry and Endodontics, U.P. Dental College and Research Centre, Lucknow, India for a dental check-up. It was his first visit to the dentist. He did not present any significant medical history. Oral examination showed good oral hygiene, maxillary right central incisor was displaced labially with an accessory cusp on the palatal aspect. There was a negative family history of such dental anomaly from the patient and there was no associated systemic disorder. The cusp projected from the cemento - enamel junction and curved towards the incisal edge of the incisor (Figure 1)

which was around 3mm wide (mesiodistally),4mm (incisocervically) and 3mm thick (labiolingually) extending from cingulum area to the 0.5mm short of incisal edge . The affected tooth was labially placed in the arch with occlusal interferences on talon cusp during occlusion.

A periapical radiograph revealed an inverted V-

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shaped radiopaque structure on the maxillary right central incisor. The extent of pulp tissue into the cusp could not be determined on the radiograph. A diagnosis of type 1 talon cusp was made. The condition and the planned periodic and gradual reduction of the cusp with topical fluoride application and Composite resin facing was explained to the patient. Orthodontic alignment of the displaced central incisor was also planned. With his consent, after oral prophylaxis, a minimal reduction of the talon cusp was carried out using a diamond bur in a high-speed water-cooled handpiece (Figure 2).

Acidulated Phosphate Fluoride (APF) gel was applied to the surface of the reduced cusp (Figure 3)

to avoid any postoperative sensitivity.

DISCUSSION

Talon cusp is an odontogenic anomaly of tooth shape that represents the extreme of continuous variation progressing from an enlarged cingulum (trace talon) through a small accessory cusp (semitalon) to a talon cusp.1 Small talon cusps are usually asymptomatic and need no treatment. Large talon cusps may cause clinical problems including occlusal interference, displacement of the affected tooth, irritation of the tongue during speech and mastication, carious lesion in the developmental grooves that delineate the cusp, pulpal necrosis, periapical pathosis, attrition of the opposing tooth and periodontal problems due to excessive occlusal forces.1-5Talon cusps also present diagnostic and treatment difficulties. On unerupted tooth, the anomalous cusp can radiographically be mistaken for a supernumerary tooth or compound odontomas, leading to unnecessary surgical intervention. This diagnostic problem is especially significant because approximately 90% of all supernumeraries occur in the maxilla and half of these in the incisor region.13

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 extend at least one half the distance from thecement enamel junction to the incisal edge. Type II (semitalon) has an additional cusp 1 mm or more in length but extending less than one half the distance from the cement enamel junction to the incisal edge. Type III (trace talon) manifest enlarged and prominent cingula and their variation14. The talon cusps described in the current case classified as type1 (talon). Furthermore it is important to remember that talon cusp is occasionally combined with other systemic and dental anomalies15. However, none of these alterations was found in this case.

The treatment of talon cusp involves careful clinical judgment and review of whether the cusp contains or is devoid of a pulp horn. Earlier reports, based on radio graphic examination, stated that removal of the cusp would inevitably lead to pulp exposure that would require endodontic treatment.2 However radiographic tracing of the pulpal configuration inside the talon cusp has inherent difficulties because the cusp is superimposed over the affected tooth crown. Similarly, histological examination of extracted talon teeth failed to show the presence of a pulp horn in the talon cusp.15-18 Pitts and Hall removed 3 mm of the anomalous cusp in one visit, without pulp exposure.19Several times, we have reduced 1.0 mm to 1.5 mm of talon cusp in one appointment without exposing the pulp.1,5 However, this does not imply that all talon cusps are devoid of pulp horn.

CONCLUSION

Talon cusp is a not an harmless defect, as it may provide a challenge duringdiagnosis and treatment planning to clinician. Early diagnosis may minimize certain problems such as caries, periodontal disease and malocclusion.

The management and treatment outcome of talon cusp depends on the size, presenting complications and patient cooperation.

REFERENCES

1. Hattab FN, Yassin OM, al-Nimri KS. Talon cusp in permanent dentition associated with other dental anomalies: review of literature and report of seven cases.ASDC J Dent Child 1996; 63(5):368-76.
2. Mellor JK, Ripa LW. Talon cusp: a clinically significant anomaly. Oral Surg Oral Med Oral Pathol 1970; 29(2):225-8.
3. Mader CL. Talon cusp. J Am Dent Assoc 1981; 103(2):244-6.
4. Davis PJ, Brook AH. The presentation of talon cusp: diagnosis, clinical features, associations and possible etiology. Br Dent J 1986; 160(3):84-8.
5. Hattab FN, Yassin OM, al-Nimri KS. Talon cusp — clinical significance and management: case reports. Quintessence Int 1995; 26(2): 115-20.
6. Sedano HO, Carreon Freyre I, Garza de la Garza ML, Gomar Franco CM, Grimaldo Hernandez C, Hernandez Montoya ME, and others. Clinical orodental abnormalities in Mexican children. Oral Surg Oral Med Oral Pathol 1989; 68(3):300-11.
7. Chawla HS, Tewari A, Gopalakrishnan NS. Talon cusp — a prevalence study. J Indian Soc Pedod Prev Dent 1983; 1(1):28-34.
8. Chen RJ, Chen HS. Talon cusp in primary dentition. Oral Surg Oral Med Oral Pathol 1986; 62(1):67-72.
9. Dankner E, Harari D, Rotstein I. Dens evaginatus of anterior teeth. Literature review and radiographic survey of 15,000 teeth. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1996; 81(4):472-5.
10. Abbott P. V. Labial and palatal “talon cusps” on the same tooth-A case report. Oral Surg Oral Med Oral Pathol Oral Radial Endod 1998; 85:726-30.
11. AI-Omari M.A.O, Hattab F. N, Darwazeh A. M. G. & Dummer P. M. H. Clinical problems associated with unusual cases of talon cusp. Int Endod J 1999, 32, 183-190.
12. Hattab FN, Yassin OM, Sasa IS. Oral manifestations of Ellis-van Creveld syndrome: report of two siblings with unusual dental anomalies. J Clin Pediatr Dent1998; 22(2):159-65.
13. Hattab FN, Yassin OM, Rawashdeh MA. Supernumerary teeth: report of three cases and review of the literature. ASDC J Dent Child 1994; 61(5-6):382-93.
14. Hattab FN. Yassin OM. Al-Nimri KS. Talon cusp in permanent dentition associated with other dental anomalies: review of literature and report of seven cases. J Dent Child 1996; 63:368-76.
15. Andresa Borges Soares, JuJiana JuJianelli de Araujoe Maria Galvao de Sousa, Maria Cecilia Veronezi. Bilateral talon cusp: Case report. Quintessence Int 2001; 32:283-286.
16. Natkin E, Pitts DL, Worthington P. A case of talon cusp associated with other odontogenic abnormalities. J Endod 1983; 9(11):491-5.

17Mader CL, Kellogg SL. Primary talon cusp. ASDC J Dent Child 1985; 52(3):223-6.
18.Salama FS, Hanes CM, Hanes PJ, Ready MA. Talon cusp: a review and two case reports on supernumerary primary and permanent teeth. ASDC J Dent Child1990; 57(2):147-9.
19.Pitts DL, Hall SH. Talon-cusp management: orthodontic-endodontic considerations. ASDC J Dent Child 1983; 50(5):364-8.

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