

Case Report

Unusual Case of a Talon Cusp on a Supernumerary Tooth in Association with a Mesiodens

Prashant Babaji ^{1*} • Firoza Sanadi ² • Mahesh Melkundi ³

¹Department of Pedodontics, SPIDM Dental College, Lucknow, Uttar Pradesh, India

²Professor & Head Department of Pedodontics & Preventive Dentistry, Sardar Patel Post Graduate Institute of Dental and Medical Sciences, Lucknow

³Lecturer Department of Oral pathology College of Dental Sciences Rahu, Indore Madhya Pradesh, India

*Corresponding Author; E-mail: babajipedo@rediffmail.com

Received: 8 December 2009; Accepted: 16 April 2010

J Dent Res Dent Clin Dent Prospect 2010; 4(2):60-63

This article is available from: <http://dentistry.tbzmed.ac.ir/jodddd>

© 2010 The Authors; Tabriz University of Medical Sciences

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Talon cusp is an accessory cusp similar to a projection, extending from the cingulum or cemento-enamel junction to the incisal edge. It occurs on labial or palatal surfaces of primary or permanent anterior teeth in both arches. This accessory cusp can occur as an isolated entity or in association with other dental anomalies. Occurrence of a talon cusp on supernumerary teeth is rare and uncommon. This paper reports an unusual case of a talon cusp on a supernumerary tooth in association with mesiodens.

Key words: Talon cusp, supernumerary tooth, mesiodens.

Introduction

Talon cups are morphologically well-delineated, accessory talon-shaped cusps, projecting from the lingual or facial surface of the crown of incisors and extending at least half the distance from the cemento-enamel junction to the incisal edge.¹ Talon cusp can occur in maxillary or mandibular anterior teeth in both the primary and permanent dentition. This accessory cusp can occur as an isolated entity or in association with other dental anomalies. Occurrence of talon cusp on supernumerary teeth is extremely rare. Supernumerary teeth may vary in shape, size and structure or they can resemble the adjacent tooth. This accessory cusp shows increased predilection for males and the maxilla.^{2,3} Reported review of literature has shown that talon cusp exhibits a prevalence of 75% in the permanent dentition

compared to 25% in the primary dentition.³ The prevalence of talon cusp varies considerably between different ethnic groups. It has a prevalence rate of 0.06% in Mexican, 7.7% in North Indian, 0.17% in American and 2.5% in Hungarian children.^{4,5,6,7}

The exact etiology of this condition remains unknown. It is thought to occur during morphodifferentiation stage as a result of outward folding of inner enamel epithelial cells (precursors of ameloblasts) and transient focal hyperplasia of mesenchymal dental papilla (precursors of odontoblasts) or a combination of genetic and environmental factors (multifactorial).²

Case report

A 6-year-old boy reported to the Department of Pedodontics and Preventive Dentistry, SPPGIDMS, Lucknow, with a complaint of poor esthetics and an



Figure 1. A talon cusp on a maxillary supernumerary tooth resulting in slight labial position of the left central incisor and midline diastema.



Figure 2. A talon cusp on the palatal surface of maxillary supernumerary tooth on the left side and mesiodens on the right side, palatal to central incisors.



Figure 3. Extracted supernumerary tooth and mesiodens. Talon cusp on the palatal surface of the supernumerary tooth, extending from the cemento-enamel junction to the incisal edge.

additional tooth in the upper jaw. Intraoral examination revealed no soft tissue abnormalities. Maxillary



Figure 4. Periapical radiograph shows a V-shaped talon cusp of enamel and dentin with pulp tissue on supernumerary tooth and a mesiodens. The talon cusp extends from the cemento-enamel junction to the incisal edge.

left central incisor was slightly labially positioned with midline diastema because of a palatally positioned supernumerary tooth. A mesiodens was present palatal to maxillary right central incisor (Figure 1 and 2). The supernumerary tooth resembled maxillary central incisor with a mature root and pronounced mamellons and a talon cusp on the palatal surface. The talon cusp was pyramidal in shape and extended from the cemento-enamel junction to the incisal edge (Figure 3 and 4).

The periapical radiograph (Figure 4) showed a V-shaped radiopaque structure superimposed on the image of the involved tooth crown, with the tip of the 'V' towards the incisal edge. Shallow developmental grooves were present at the junction of the talon cusp with the palatal surface of the affected tooth without any carious lesions. The talon cusp did not interfere with the occlusion because the maxillary and mandibular incisors were not fully erupted. Management included extraction of the taloned supernumerary tooth and mesiodens under local anesthesia.

Discussion

Talon cusp is an accessory cusp-like structure, which arises during the morphodifferentiation stage of

tooth development. This cusp can occur on lingual or labial surfaces of either primary or permanent anterior teeth.^{8,9} Histomorphometric examination has revealed that the talon cusp has normal enamel and dentin with a substantially enlarged pulp tissue, which suggests that talon tooth may be a developmental anomaly originating in the stage of morphodifferentiation.¹⁰ Using a non-destructive investigation of the taloned crown under cone-beam x-ray computed tomography has revealed pulpal extensions in two talon cusps.¹¹

This anomaly varies widely in shape, size, structure, location and origin. Occurrence of a talon cusp on the labial surface and double labial talon cusps is rare and uncommon.⁸ Occurrence of talon cusps on supernumerary teeth is extremely rare. Supernumerary teeth may vary in shape, size and structure or they can resemble the adjacent tooth. Pubmed and Medline search reveals six cases of talon cusps on supernumerary permanent^{12, 13, 14} and primary^{11,14,15} and three cases on supplemental permanent teeth.¹⁶

Hattab et al² categorized talon cusps into talon, semi-talon and trace talon, according to the extent of the accessory cusp from cemento-enamel junction towards the incisal edge. The anomaly appears to be more frequent in Rubinstein-Taybi syndrome,⁹ Mohr syndrome,¹⁷ Sturge-Weber syndrome¹⁸ and incontinentia pigmenti.¹⁹ Talon cusps may be of great clinical importance and early diagnosis may be critical. Small talon cusps are usually asymptomatic and need no treatment. On the other hand, large prominent cusps may cause clinical problems, including poor esthetics, occlusal interference, displacement of the affected tooth, carious lesions in the developmental grooves and pulpal exposure due to cuspal attrition, accidental cuspal fracture, pulpal necrosis, periapical pathoses, periodontal pockets, tongue irritation and possibility of temporomandibular joint pain.^{1, 2, 20-22}

The majority of cases reported in the literature indicate that talon cusp is an isolated anomaly rather than an integral part of any disorder. Talon cusp can be found in isolation or in association with other dental anomalies such as peg-shaped lateral incisors, shovel-shaped incisors, bifid cingulum, unerupted canines and the large cusp of Carabelli, dens invaginatus, supernumeraries and complex odontomas.^{2,20,23} Panoramic radiographs are recommended for exclusion of the association of talon cusps with other abnormalities, including supernumerary teeth, odontomas, and impacted or unerupted teeth.

The present case shows the following features: 1. unusual occurrence of talon cusp on supernumerary

teeth; 2. midline diastema; and 3. associated mesiodens. Treatment was planned for extraction of the supernumerary tooth and mesiodens.

Conclusion

Talon cusp is an odontogenic anomaly arising during the morphodifferentiation stage of tooth development. This accessory cusp can occur on primary or permanent anterior teeth. Occurrence of talon cusp on supernumerary teeth in association with mesiodens is rare and uncommon. Presence of a prominent talon cusp may give rise to various clinical problems, necessitating immediate intervention.

References

1. Jowharji N, Noonansr RJ, Tylka JN. An unusual case of dental anomaly: a facial talon cusp. *J Dent Child* 1992;59:156-8.
2. Hattab FN, Yassin OM, Nimri KS. Talon cusp-clinical significance and management: Case reports. *Quintessence Int* 1995; 26:115-120.
3. Hattab FN, Yassin OM, Al-Nimrin 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.
4. Sedano HO, Carreon Freyre I, Garza de la Garza ML, Gomar Franco CM, Grimaldo Hernandez C, Hernandez Montoya ME, et al. Clinical orodental abnormalities in Mexican children. *Oral Surg Oral Med Oral Pathol* 1989;68:300-11.
5. Chawla HS, Tewari A, Gobulakrishnan NS. Talon cusp: a prevalence study. *J Indian Soc Pedod Prev Dent* 1983;1:28-34.
6. Buenviaje TM, Rapp R. Dental anomalies in children: A clinical and radiographic survey. *J Dent Child* 1984; 51: 42-6.
7. Mavrodisz Katalin; Budai Mária; Tarján Ildikó. Prevalence of talon cusp in patients aged 7-18. *Fogorvosi Szemle* 2003;96:257-9.
8. Shashikiran ND, Babaji P, Reddy VV. Double facial and lingual trace talon cusps: A case report. *J Indian Soc Pedod Prev Dent* 2005;23:89-91.
9. Subba Reddy VV, Mehta DS. Talon cusp in a primary lateral incisor: report of a case. *J Indian Soc Pedod Prev Dent* 1989;7:20-2.
10. Young L, Mass E, Beni L, Weinreb M, Vardimon AD. Enamel, dentine and pulp in talon primary maxillary central incisors: a histomorphometric study. *Eur Arch Paediatr Dent* 2007;8:136-40.
11. Siraci E, Cem Gungor H, Taner B, Cehreli ZC. Buccal and palatal talon cusps with pulp extensions on a supernumerary primary tooth. *Dentomaxillofac Radiol* 2006;35:469-72.
12. Rani A K, Metgud S, Yakub SS, Pai U, Toshniwal NG, Bawaskar N. Endodontic and esthetic management of maxillary lateral incisor fused to a supernumerary tooth associated with a talon cusp by using spiral computed tomography as a diagnostic aid: a case report. *J Endod* 2010;36:345-9.
13. Nadkarni UM, Munshi A, Damle SG. Unusual presentation of talon cusp: two case reports. *Int J Paediatr Dent* 2002; 12:332-5.
14. Salama FS, Hanes CM, Hanes PJ, Ready MA. Talon cusp: a review and two case reports on supernumerary primary and

- permanent teeth. *J Dent Child* 1990;57:147-49.
15. Topaloğlu Ak A, Eden E, Ertuğrul F, Sütekin E. Supernumerary primary tooth with facial and palatal talon cusps: a case report. *J Dent Child (Chic)* 2008;75:309-12.
 16. Lee CK, King NM, Lo EC, Cho SY. Management of supplemental permanent maxillary lateral incisors in association with talon cusp on the primary predecessors: a report of 3 cases. *J Dent Child (Chic)* 2008;75:59-63.
 17. Gardner DG, Girgis SS. Talon cusps: A dental anomaly in the Rubinstein-Taybi syndrome. *Oral Surg* 1979;47:519-21.
 18. Galdstean E, Medina JL. Mohr syndrome or oro-facial-digital II: Report of two cases. *J Am Dent Assoc* 1974; 89:377-82.
 19. Chen RJ, Chen HS. Talon cusp in primary dentition. *Oral Surg Oral Med Oral Pathol* 1986; 62:67-72.
 20. Tsutsumi T, Oguchi H. Labial talon cusp in a child with incontinentia pigmenti achromians: Case report. *Pediatr Dent* 1991;13:236-7.
 21. Mader CL. Talon cusp. *J Am Dent Assoc* 1981;103: 244-6.
 22. Shey Z, Eytal R. Clinical management of an unusual case of dense evaginatus in maxillary central incisor. *J Am Dent Assoc* 1983;106: 346-8.
 23. Al-Omari MAO, Hattab FN, Darwazeh AMG, Dummer PMH. Clinical problems associated with unusual cases of talon cusp. *Int Endod J* 1999;21:183-190.