

Mandibular Facial Talon Cusp: Case Report and its Comprehensive Management

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ABSTRACT

A talon cusp is an uncommon dental anomaly showing morphologically well-delineated accessory cusp. This case report discusses the unusual appearance of a talon cusp on the facial surface of the mandibular right permanent central incisor and its management.

KEYWORDS: Endodontic, Facial, Mandibular, Talon cusp

INTRODUCTION

Talon cusp is an uncommon dental anomaly in which an accessory cusp like structure is said to be projecting from the cingulum area or cemento-enamel junction of the maxillary or mandibular anterior teeth.^{1,2}

It was W. Mitchell in 1892, who recorded the first case of talon cusp on the lingual surface of an upper central incisor.³ Mellor and Ripa in 1970, gave the name 'talon' cusp because of its resemblance to an eagle's talon.¹

The prevalence of talon cusp has been reported to range from less than 1% to approximately 8%.^{4,5} It is more common in the permanent dentition (75%) than in the primary dentition.^{6,7} Clinical experience and review of reported cases indicate that this condition usually affects the maxillary incisor teeth (92%) and that talon cusps of mandibular incisors are extremely rare.^{8,9}

A combination of genetic and environmental factors are said to be responsible in the etiology of talon cusp. Although talon cusp has been proposed to occur during the morpho-differentiation stage of development of tooth due to hyperactivity of dental lamina, a talon cusp on the labial surface of the tooth has been suggested to arise because of the hyperplasia of labial central developmental lobe.^{7,10}

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

- **Type 1 (True talon)**
- **Type 2 (Semi talon)**
- **Type 3 (Trace talon)**

While a true or semi talon cusp may radiographically, appear as a v-shaped radiopaque structure, a trace talon may appear more tubercle-like. It has been reported that the appearance of the cusp may vary based upon its shape, size, and also on the angle at which the radiograph is taken.⁹

Treatment of a talon cusp is not always indicated, unless associated with a clinical problem.¹⁰ It has been suggested that management of talon cusp may require multidisciplinary approach if associated with functional or esthetic problems or if there is involvement of periodontal and pulp tissues.¹¹

The purpose of the present case report is to emphasize upon the rarity of mandibular facial talon and the challenges faced during its complete reduction and their management.

CASE REPORT

A 12-year old boy reported to the Department of Pedodontics and Preventive dentistry with the chief complaint of crowding in upper and lower front region of teeth and also complained of an oversized protruded tooth in the lower right front region. Past medical and dental history was not relevant.

The child appeared healthy and of appropriate physical growth for his age. There were no abnormal extra-oral findings detected.

Intraoral examination revealed the presence of mixed dentition stage with deep occlusal caries in 36 and 16. 53 and 63 were over retained. Pit and fissure caries in 46 and 26 was noted. Oral hygiene was fair and periodontal health good. Permanent right mandibular central incisor (41) showed cusp like projection and the mesio-distal dimension of the tooth appeared more than the normal.

Based on the clinical features, occlusal and panoramic radiographs, the cusp like projection was confirmed as talon cusp that revealed an inverted "V"-shaped radiopaque projection extending from the cemento-enamel junction, a pulp horn overlapping pulp chamber was also seen (Figure 1 and Figure 2 (a & b)). The talon cusp was conical in shape, curved towards the incisal edge when viewed laterally, with a deep groove between the talon

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Figure 1: Intraoral photograph showing the facial talon cusp on right mandibular central incisor

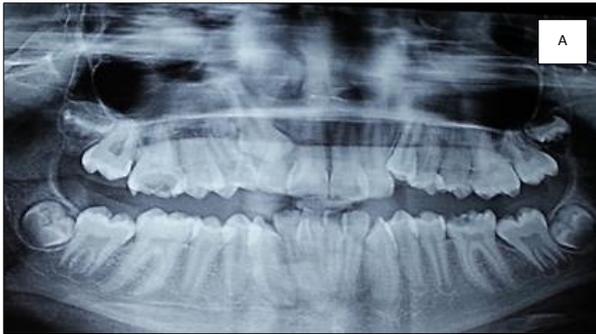


Figure 2 (a & b): Orthopantomogram and occlusal radiograph of the right mandibular central incisor showing the inverted V-shaped talon cusp

and the tooth surface. Talon cusp measured 6 mm in length cervico-incisally, 2.5 mm mesio-distally and 3mm antero-posteriorly. As the patient desired orthodontic treatment, after the orthodontic consultation we decided to reduce the talon's cusp to facilitate bracket placement.

The treatment performed was oral prophylaxis, root canal treatment of 16, indirect pulp capping followed by composite restoration in 26, composite restoration in 36, 46 and extraction of 53 and 63. Periodic gradual reduction (lateral grinding) of talon cusp was carried out in 4 visits along with subsequent fluoride varnish (0.7% Fluoroprotector) application. The talon cusp was reduced using tapered fissure bur under isolation. On the 4th visit during the reduction of the talon cusp a pulp exposure was encountered and a Direct Pulp capping procedure was done with hard-setting calcium hydroxide (Dycal). The tooth was restored with a composite restoration. The patient was then referred for orthodontic treatment.

Clinical and radiographic follow up was done at an interval of 1 month and 3 months during which period the

tooth was asymptomatic. However, a routine radiographic follow up at 6 months revealed widening of periodontal ligament space with periapical radiolucency in relation to tooth 41 (Figure 3). Thermal testing elicited a negative response. Based on the clinical and radiographic findings, a diagnosis of periapical abscess was made and endodontic management of the tooth was planned. Root canal therapy was commenced, biomechanical preparation done and calcium hydroxide and iodoform paste (Metapex) was placed as an intracanal medication.



Figure 3: Preoperative radiograph showing periapical radiolucency in relation to tooth 41

After four weeks the patient was recalled and as the tooth was asymptomatic, obturation of 41 was done. The root canals were obturated with gutta percha using a zinc oxide eugenol based sealer (Figure 4). The access cavity was restored permanently with a composite resin restorative material. The tooth was asymptomatic throughout the follow up period (Figure 5). Radiographic



Figure 4: Post-obturation IOPA



Figure 5: Postoperative intraoral photograph of right mandibular central incisor

examination revealed complete resolution of the associated lesion at 12-month follow-up (Figure 6).



Figure 6: Intraoral periapical radiograph reveals complete resolution of the lesion after 1 year

DISCUSSION

Although facial talon cusp is a relatively rare odontogenic anomaly, the case reported demonstrates that talon cusp is an anomaly of great clinical significance. Although, small talon cusps are usually asymptomatic and need no treatment, it has been suggested that large talon cusps may pose clinical problems like interferences in the occlusion, tongue irritation, necrosis of the pulp, periapical pathology and opposing tooth attrition.¹²

Early diagnosis of talon cusp is important, and the treatment varies widely depending on each case. Deep non-carious developmental grooves on the lateral aspects of anomalous cusps require simple recontouring or polishing with a slurry of pumice, acid etching and sealing with fissure sealant. If the grooves are carious, the lesion should be removed and cavity restored with a glass-ionomer restorative material.¹³ In case of esthetic concern and occlusal interferences, it has been suggested that the talon cusp be reduced gradually on consecutive visits over 6 to 8-week intervals to allow for deposition of reparative dentin for pulpal protection. In the present case after each grinding procedure, the tooth surface was covered with fluoride varnish. However, upon mechanical pulp exposure direct pulp capping procedure was performed. This is in agreement with Shey and Eitel who have recommended reducing the accessory cusp by grinding in consecutive appointments of 4 weeks apart from capping the dentin, exposed with calcium hydroxide and resin.¹⁴ Most authors have reported talon cusp to be composed of normal enamel, dentin and pulp. However, these reports were based on radiographic evaluations in which the talon cusp was superimposed over the normal portion of the tooth.¹⁵ Mader and Kellogg believe this is nearly an impossible way to interpret whether the talon cusp contains a pulpal extension.¹⁶ On other hand, pulp exposures and possible periapical pathology have been reported when attempts were made to reduce or remove those talon cusps that were creating esthetic problems.¹⁷

Although clinically asymptomatic, during follow-up visits our patient was diagnosed with periapical pathosis

associated with capped talon cusp tooth, and hence endodontic treatment was performed. To avoid such complications, “radical treatment” protocol should be adopted which includes reducing the talon cusp in a single session, followed by endodontic treatment for the tooth in question, depending on the degree of root development and pulp vitality.¹⁸ It has been stated earlier also that removal of the cusp will inevitably lead to pulp exposure that requires root canal treatment.^{1,19}

CONCLUSION

A rare mandibular facial talon cusp and its complication has been presented in this case report. Early diagnosis and appropriate treatment protocol should be undertaken to avoid possible complications. Based upon this case report, we conclude that root canal treatment should be considered as one of the treatment options if a complete cuspal reduction is necessary.

REFERENCES

- Mellor JK, Ripa LW, Talon cusp: A clinically significant anomaly. *Oral Surg Oral Med Oral Pathol* 1970;29:225-228.
- Faiez N, Hattab, Othman M, Yassin, Kazem S, Al-Nimri. Talon cusp-Clinical significance and management: case reports. *Quint Int* 1995;26:115-120.
- Mitchell WH. Case report. *Dent Cosmos* 1892;34:1036.
- Chawla HS, Tewari A, Gopalakrishnan NS. Talon cusp: A prevalence study. *J Indian Soc Pedod Prev Dent* 1983;1:28-34.
- Suresh K Sachdeva, Pradhuman Verma, Sanjay Dutta, Kanika Gupta Verma. Facial talon cusp on mandibular incisor: A rare case report with review of literature. *Indian J. Dent. Res.* 2014;25(3):398-400.
- Danker 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 and Endod* 1996;81:472-476.
- Folakemi A Oredugba Mandibular facial talon cusp: Case report *BMC Oral Health* 2005;5:9.
- Carson L. Mader. Mandibular Talon cusp. *J Am Dent Assoc* 1982;105:651-653.
- 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;63:368-376.
- Sivakumar Nuvvula, Kumar Raja Gaddam, Bhumireddy Jayachandra, Sreekanth Kumar Mallineni. A rare report of mandibular facial talon cusp and its management. *J Cons Dent* 2014;17(5):499-502.
- Shafer WG, Hine MK, Levy BM: A textbook of oral pathology. 3rd edition. Philadelphia: W.B. Saunders Co; 1974:38.
- Segura-Egea JJ, Jiménez-Rubio A, Velasco-Ortega E, Ríos-Santos JV. Talon cusp causing occlusal trauma and acute apical periodontitis: report of a case. *Dent Traumatol.* 2003;19(1):55-9
- Ankit Arora, Padmaja Sharma and Surendra Lodha. Comprehensive and Conservative Management of Talon Cusp: A New Technique. *Case Reports in Dentistry* 2016;2016:1.
- Shey Z, Eytel R. Clinical management of an unusual case of dens evaginatus in a maxillary central incisor. *J Am Dent Assoc* 1983;106:346-8.

15. U. M. Nadkarni, A. Munshi & S. G. Damle. Unusual presentation of talon cusp: two case reports. *Int J Paediatr Dent* 2002; 12:332–335.
16. Mader CL, Kellogg SL. Primary Talon cusp. *J Dent Child* 1985;52:223-6.
17. H.Cem Güngör, Nil Altay, F.Figen Kaymaz. Pulpal tissue in bilateral talon cusps of primary central incisors: Report of a case. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2000;89:231-5.
18. Rafael Alberto dos Santos Maia, Wanessa Christine de Souza-Zaroni, Raul Sampaio Mei and Fernando Lamers. Talon Cusp Type I: Restorative Management. *Case Reports in Dentistry* 2015;2015:1.
19. M. A. O. al-Omari MA, Hattab FN, Darwazeh AM, Dummer PM. Clinical problems associated with unusual cases of talon cusp. *Int Endod J.* 1999;32(3):183-90.

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