

Management of Talon Cusp : A Case Report

Dr. Meera Sandhu
Professor

Dr. Arun Sharma
Professor

Dr. Shallu Tyagi
P.G. Student

Department of Pedodontics & Preventive Dentistry, ITS Centre for Dental Studies & Research, Murad Nagar, Ghaziabad, (U.P.)

Abstract

Talon cusp is a supernumerary structure projecting from the cemento-enamel junction to a variable distance towards the incisal edge of an anterior tooth. It is composed of enamel, dentine and a variable amount of pulp tissue. Hyperactivity of the enamel organ during morphodifferentiation has been attributed to its formation. Talon cusp normally occurs on lingual aspects of primary and permanent teeth, very rare cases have been reported documented talon cusp on labial surfaces of teeth and both on labial and lingual surfaces of teeth. It may affect the function and aesthetics in the anterior area. Its early detection and treatment is essential to avoid complications.

Introduction

Talon cusp is an unusual cuspal projection showing an accessory cusp-like structure projecting from an anterior tooth with normal enamel and dentin containing varying degrees of pulp tissue.^[1] It was first described by Mitchell in 1892, thereafter named as Talon cusp by Mellor and Ripa^[2] due to its resemblance to an eagle's talon. This odontogenic anomaly has been given several synonyms such as dens evaginatus, interstitial cusp, accessory cusp and supernumerary cusp. It 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 cemento-enamel junction to the incisal edge^[3]. This anomaly varies widely in shape, size, structure, location and site of origin. Due to this variation, and in order to have diagnostic criteria, it has been classified into three types by Hattab et al^[3]

Type 1: Talon refers to a morphologically well-delineated additional cusp that prominently projects from the palatal (or facial) surface of a primary or permanent anterior tooth and extends at least half the distance from the cemento-enamel junction to the incisal edge.

Type 2: Semi talon refers to an

additional cusp of a millimeter or more extending less than half the distance from the cemento-enamel junction to the incisal edge. It may blend with the palatal surface or stand away from the rest of the crown.

Type 3: Trace talon an enlarged or prominent cingula and their variations, i.e. conical, bifid or tubercle-like.

The prevalence of talon cusp ranges from 0.04% to 10% and affects mainly maxillary lateral incisor, unilaterally or bilaterally, and may also affect central incisors, premolars, canine and molars.^[4]

Radio graphically, the appearance of a talon's cusp is similar to that of normal tooth material, presenting with radiopaque enamel and dentin with or without extension of pulpal tissue^[5]. Typically, talon's cusp looks like a V-shaped radiopaque structure, superimposed over the normal image of the crown of the tooth.

The aetiology of the condition is unknown, but it has been suggested to be a combination of genetic and environmental factors. It is thought to arise during the morphodifferentiation stage of tooth development, as a result of out folding of the enamel organ or hyperprativity of the dental lamina.

The complications of talon cusp are diagnostic, functional, aesthetic and pathological. A large talon cusp is unaesthetic and presents clinical problems. It may present diagnostic problems if it is interrupted and resembles a compound odontome or a supernumerary tooth and so leads to unnecessary surgical procedure. Functional complications include occlusal interference, trauma to the lip and tongue, speech problems and displacement of teeth. The deep grooves which join the cusp to the tooth may also act as stagnation areas for plaque and debris, become carious and cause subsequent periapical pathology^[6]

Management will depend on individual presentation and complications. Small talon cusps are asymptomatic and need no treatment. Where there are deep developmental grooves, simple prophylactic measures such as fissure

sealing and composite resin restoration can be carried out. An essential step, especially in case of occlusal interference, is to reduce the bulk of the cusp gradually and periodically and application of topical fluoride such as Acidulated Phosphate Fluoride (APF) gel to reduce sensitivity and stimulate reparative dentine formation for pulp protection, or outright total reduction of the cusp and calcium hydroxide pulpotomy. It may also become necessary sometimes, to fully reduce the cusp, extirpate the pulp and carry out root canal therapy. Orthodontic correction may become necessary when there is tooth displacement or malalignment of affected or opposing teeth.

This is a report of case of talon cusp which presented on the palatal aspect of a maxillary permanent right lateral incisor.

Case Presentation

A healthy looking 13 year old Indian female reported to the department of Pedodontic and Preventive Dentistry, ITS Centre for Dental Studies and Research, Ghaziabad, Uttar Pradesh with a chief complaint of discomfort in closing the jaws and interference in the upper front region. She did not present any significant medical history. Oral examination showed a fair oral hygiene, no carious lesion, and all the permanent teeth were present. A prominent cusp like structure on the palatal surface of the maxillary right lateral incisor was noticed. The cusp was pyramidal in shape projected from the cemento enamel junction and curved towards the incisal edge of the incisor (Figure 1). There was a negative family history of such dental anomaly from the patient. A periapical radiograph and panoramic radiograph revealed a T-shaped radiopaque structure superimposed over the normal image of crown on the maxillary right lateral incisor (Figure 2- 3). The extent of pulp tissue into the cusp could not be determined on the radiograph. A diagnosis of type 1 talon cusp was made. After diagnosis it was decided, gradual reduction of the cusp with topical fluoride application. With patient's consent,

after oral prophylaxis, a minimal reduction of the talon cusp was carried out using a diamond bur in a high-speed water-cooled hand piece. Acidulated Phosphate Fluoride (APF) gel was applied to the surface of the reduced cusp. The patient was kept under observation and recalled after 3 months. After 3 months follow up there was no occlusal discrepancy noticed, tooth was vital and there was no complain of sensitivity.

Discussion

Although talon cusp is a rare finding, it has clinical significance because these teeth often possess deep grooves in the areas where the cusp like prominence is located, predisposing the patient to dental caries. Further more; the talons often contain extensions of pulp horns. Radio logically the length of extension may be unclear because it may be superimposed over the main pulp chamber. The prognosis of teeth with talon cusp depends upon time of diagnosis. If it is diagnosed early, the accessory cusp may be progressively removed with polishing diamond burr followed by fluoride application.

The patient in this case did not give a history of its occurrence in any member of her family the present case was diagnosed as type 1 talon. Although such large cusps which stand away from the tooth had been shown to contain an extension of the pulp, superimposition of the image of the cusp over the main tooth made it difficult to determine the extent of pulp tissue in the anomalous cusp.

The presence of a talon cusp is not always an indication for dental treatment unless it is associated with problems such as compromised aesthetics, occlusal interference, tooth displacement, caries, periodontal problems or irritation of the soft tissues during mastication^[7-8]. Occlusal interference can damage the periodontium, cause infra-occlusion of the opposing tooth and also temporo-mandibular joint pain^[9]. Severe attrition or fracture of the enamel surface can cause exposure of the dentine-pulp complex and consequently, pulp necrosis. The treatment of talon's cusp may be conservative or radical, depending on the accessory cusp like shape, location, size and tooth affected. Periodic and gradual reduction of the cusp, with application of desensitizing agent, reduction of cusp with or without enzootic therapy, sealant application on the grooves and aesthetic restorations are options of treatment.^[10] In this case, the cusp was prominent and sharply defined and projected from the cervical region to the incise edge of the tooth and this resulted in occlusal interference. Selective occlusal grinding was done followed polishing and topical fluoride application.

Conclusion

In this case a conservative approach was selected, as tooth was vital, so rehabilitation by cuspal grinding was done followed by polishing and application of topical fluoride. The prognosis of teeth with talon cusp depends on the time of diagnosis and type.

Since talon cusp is an unusual and relatively rare anomaly. Its presence usually demands that definitive treatment be instituted, as it represents a problem of clinical significance rather than being a merely dental oddity.

References

1. Shafer WG, Hine MK, Levy BM. A textbook of oral pathology. 4thed. Philadelphia: W.B. Saunders Co; 1983. :40-41
2. Mellor JK, Ripa LW .Talon cusp: A clinically significant anomaly.Oral Surg Oral Pathol Oral Radiol Endo 1970; 29:225-28.
3. 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; 63:368376.
4. Tulunoglu O, Cankala DU ,Ozdemir RC.Talon's cusp: report of four unusual cases.J Indian Soc Pedod Prev.Dent 2007; 25(1):52-55
5. 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 (4):472476
6. Jowharji N, Noonan RG, Tylka JA. An unusual case of dental anomaly. A "facial" talon cusp. J Dent Child. 1992; 59:156158.
7. Mader CL. Talon cusp: J Am Dent Ass. 1981;103:244246
8. Richardson DS, Knudson KG. Talon cusp. J Am Dent Ass. 1985;110:6062
9. Hattab FN, Yassin OM, Al-Nimri KS. Talon cusp: clinical significance and management with reference to aetiology. Quint Int. 1995;
10. Soares AB, Maria JJ, Desousa G, Veronezi MC. Bilateral talon cusp: Case report. Quint Int 2001; 32:283-286.

Legends

- Fig. 1 Pre operative intra oral occlusal view of talon cusp
- Fig. 2 IOPA radiograph of the tooth with talon cusp
- Fig. 3 Panoramic radiograph
- Fig. 4 Post operative occlusal view of talon cusp

