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RESEARCH ARTICLE

A BILATERAL CARIES INVASION IN A TALON CUSPPED TOOTH

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ABSTRACT

Dental caries is a multifactorial disease of hard tooth structure. The causative factors for dental caries are time, specific bacteria, host factors and substrate. No single factor can initiate dental caries. In oral cavity more than 250 microbial species are persisting. The tooth morphology have many inaccessible areas to physiological clearance mechanism. Thus a tooth becomes an ideal place for stubborn adherence for many of these species. Talon cusp is a prominent accessory cusp supposed to arise as a result of evagination on the external surface of a tooth before calcification. It looks like a shape of eagle's claw hooked on to its prey from the cingulum or cementoenamel junction of mandibular or maxillary anterior tooth. For that reason it is named as talon cusp. The incidence of talon cusp is ranging from 0.04 to 8%. This article reports a case of talon cusp on maxillary permanent right lateral incisor with bilateral caries invasion and it's management.

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INTRODUCTION

Dental caries is considered as a microbial disease of the calcified structures of the teeth, characterized by demineralization of the inorganic portion and destruction of the organic substance of the tooth. The previous concept of management of dental caries was totally surgical intervention developed by G.V. Black which was treatment of a symptom rather than a disease (Mandel, 1983; American Dental Association, 1972a). But current concepts of dental caries reveals that it is a multifactorial, reversible, as well as complex disease caused by an imbalance in physiologic equilibrium between tooth mineral and bio film fluid (Fejerskov and Nyvad, 2003). In recent concepts minimally invasive approach is introduced with the aim to preserve and re-mineralize the remaining tooth structure as much as we can (Anusavice, 1998). Talon cusp is a supernumerary accessory eagle's hooked claw shaped cusp projecting from the lingual or facial surface of the crown of a tooth. It should extend from the cementoenamel junction to the incisal edge for at least half the said distance (Thakur *et al*., 2013; Jowharji *et al*., 1992). In 1892 Talon cusp was first recorded by Mitchell (Mitchell, 1892; Jeevarathan *et al*., 2005). In 1970 Mellor and Ripa first nomincletured this condition as 'talon cusp' (Dumancic *et al*., 2006).

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Both sexes are affected, and both primary (25%) and permanent dentition (75%) are involved. males are more affected than females. Talon cusp is usually unilateral but 20% cases reveals bilateral occurrence (Dumancic *et al*., 2006). It has a greater predilection in the maxilla (90%) than in the mandible (10%) (Mitchell, 1892). In the permanent dentition, maxillary lateral incisors is mostly involved (55%), than central incisors (33%) and canines (4%) (Jeevarathan *et al*., 2005; Hattab and Yassin, 1996) syndromes associated with talon cusp include, Rubinstein-Taybi syndrome, incontinentia pigmenti achromens, Mohr syndrome Ellis Van Creveld syndrome, Sturge-Weber syndrome, Berardinelli□Seip syndrome (Sharma *et al*., 2014).

Case report

A 18-year-old female reported with a chief complaint of hyper sensitivity in upper right front teeth region. The patient's and family history and medical history were not contributory. Her physical appearance did not reveal any abnormality. No abnormalities were found during her extraoral examination.

Thorough intraoral examination revealed malocclusion and a cusp like structure on the palatal aspect of right maxillary lateral incisor which was little bit out of the arch and crossbite also found in maxillary left lateral incisor. All other teeth did not show any developmental abnormalities.

Figure 1. Pre operative facial view showing malaligned maxillary anterior teeth

Figure 2. Preoperative palatal view showing bilaterally carious involved right maxillary lateral incisor with talon cusp

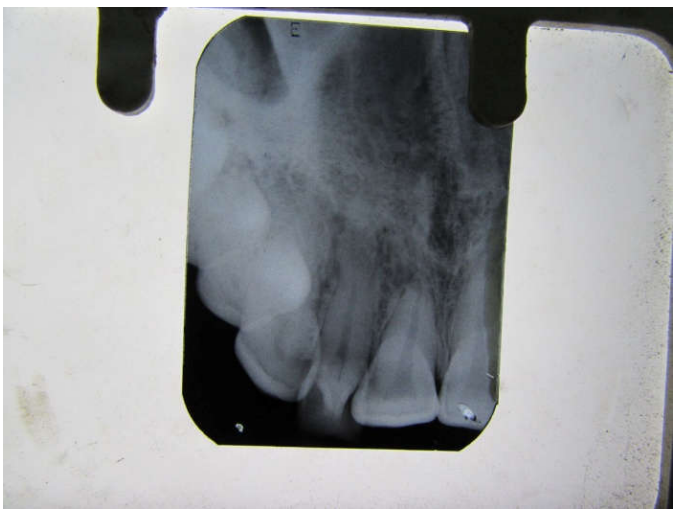

Figure 3. Preoperative radiograph

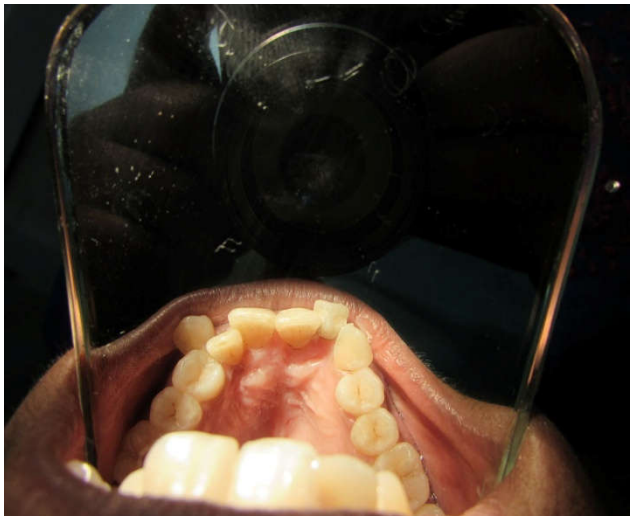

Figure 4. Post operative photograph of treated maxillary right lateral incisor

On vivid examination of the involved tooth a well-delineated accessory cusp was found projecting from the palatal surface of right maxillary lateral incisor extending half way from cemento-enamel junction to the incisal edge with carious involvement found at side of the accessory cusp bilaterally (Figs 1 and 2).

The cold test gave positive responce. Periapical radiograph revealed a V-shaped radiopaque structure superimposed on the crown of right maxillary lateral incisor with bilateral more radiolucency involving crown structure only (Fig. 3). A diagnosis of type 1 (True talon) talon cusp was made according to Hattab's classification with bilateral caries invasion was established. The patient was advised to restore the tooth with type nine extra strength glass ionomer cement and periodic check up was also advised (Fig. 4).

DISCUSSION

When it occurs on the lingual aspect, (Table 1) the effects are mainly esthetic and functional and so early detection and treatment is essential in its management to avoid complications. The tooth was already causing malocclusion in the upper arch. Clinical complications of talon cusps include malocclusion, attrition, temporomandibular joint pain, trauma to tongue and lip during mastication and phonation, accidental cusp fracture or 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. The proper etiology of talon cusp remains unknown. The various treatment options for talon cusp are application of fluoride or desensitizing agents, reshaping and restoring tooth morphology according to need or tooth extraction. Here in this case there may be persisting deep groove present bilaterally beside the talon cusp and invite food debris to accumulate and ultimately causing dental caries.

Table 1. Classification of different types of talon cusps

Hattab's et al. classification of talon's cusp (On lingual surface)		
	Type 1 (True talon)	A well-delineated additional cusp projects from the lingual surface of an anterior tooth and it extends half way from cementoenamel junction to the incisal edge of affected tooth.
	Type 2 (Semi talon)	Predominantly an additional cusp of a millimeter or more which extends less than half the distance from cementoenamel junction to incisal edge of affected tooth.
	Type 3 (Trace talon)	Predominantly an enlarged cingulum is found and it may persist as a conical bifid or tubercle.
Chin-Ying's classification of talon's cusp (on facial talon cusps)		
	Major talons	Well-delineated cusp present in the facial surface of an anterior tooth extends at least half the distance from the cementoenamel junction to the incisal edge of affected tooth.
	Minor talons	Extend more than one fourth and less than half the distance from the cementoenamel junction to the incisal edge of the facial surface of affected tooth.
	Trace talons	Predominantly enlarged prominent cingula and their variations occupies less than one fourth the distance from the cementoenamel junction to the incisal edge of the affected tooth.

Conclusion

Immediate diagnosis and urgent treatment and follow up is essential for this kind of anomalies .Patient should be informed and discussed properly regarding the consequences of this anomaly.

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