Case Report

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An Eye to Judge an Eagle's Cusp

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ABSTRACT

Background: Talon cusp or dens evaginatus is developmental dental anomaly which is characterized by a cusp like projection on the surface of maxillary or mandibular teeth resembling an eagle's talon. This may occur in both primary and permanent dentition. The most common clinical problem that it may cause is the occlusal interference with the opposing tooth. This article reports three cases of talon cusp with different clinical presentations and their brief review of literature.

Keywords: Talon cusp, Dental anomaly, Eagle's talon, Mesiodens, Diagnostic criteria.

INTRODUCTION

A talon cusp is a rare developmental dental anomaly characterised by presence of an additional cusp located on the surface of an anterior tooth and extends at least half the distance from the cemento-enamel junction (CEJ) to the incisal edge. The additional cusp has derived its name due to its high resemblance to an eagle's talon. It was first described by Mitchell as an accessory cusp in 1892 and in 1970 it was termed as Talon cusp by Mellor and Ripa[1] .

Other synonyms include dens evaginatus (term used for both anterior and posterior teeth), occlusal enamel pearl, supernumerary cusp, hyperplastic cingulum, supernumerary lingual tubercle, evaginated odontome, cusped cingulum [2]. It is usually unilateral but one-fifth of the cases show bilateral occurrence[3]. Both primary and permanent dentition are involved and both sexes are affected, males with higher incidence than females. A prevalence of 7.7% in the north Indian population have been reported[4]. It shows variation with race, age and its defined criteria. A review of the literature suggests that 75% of the cases are in the permanent dentition and 25% in the primary dentition[5]. This anomaly has a greater predilection in the maxilla (with more than 90% of the cases reported) than in the mandible (only 10 % of the cases)[6]. In the permanent dentition, 55% of the cases involved maxillary lateral incisors, 33% involved central incisors, and 4% involved canines[2].

CASE REPORT

Here in this article we have reported three cases of Talons cusp (Dens evaginatus). In Case 1 a 13 years old male patient presented with a talon cusp on the palatal surface of his maxillary lateral incisor along with a mesiodens adjacent to it (Fig 1), in case 2 a 25 years old male patient presented with a talon cusp on his mandibular central incisor (Fig 2) and in case 3 a male patient 16 years old was detected with the accessory cusp on his maxillary lateral incisor (Fig 3). In all the three cases the patients were unaware of their accessory cusp and their respective teeth were asymptomatic.

DISCUSSION

Dens evaginatus or talon cusp is an autosomal dominant condition arising during the morpho-

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differentiation phase of tooth development. Genetic and environmental factors along with a multifactorial etiology has been proposed. Its occurrence can be because of the aberrant hyperproductivity of the dental lamina[7]. It may also arise as a result of out-folding of inner enamel epithelial cells and transient focal hyperplasia of the mesenchymal dental papilla.

Fig 1: Talon cusp on the palatal surface of right maxillary lateral incisor along with a mesiodens adjacent to it.

Fig 2: Talon cusp on lingual surface of left mandibular central incisor.

Fig 3: Talon cusp on palatal surface of right maxillary lateral incisor.

Trauma and other localized forces on tooth germ have also been held responsible for talon cusp[8].Another hypothesis suggests genetics to be a causative factor of talon cusp based on its occurrence in a family. Because of susceptibility of the maxillary lateral incisors to anomalies, compression of its tooth germ by the adjacent central incisor and canine is also discussed. Compression could cause out-folding of the dental lamina in case of talon cusp, or infolding of the dental lamina in case of dens invaginatus. Occurrence of the talon cusp in central incisor and canine is opponent to the compression hypothesis[3].

Talon cusp has been reported more frequently in permanent maxillary incisors[4,9], rarely seen in mandibular incisor[10] and primary maxillary incisors[11]. As seen in one of our case (Fig 2) there have been reports of talon cusps on permanent mandibular incisors[10].The accessory cusp has been seen in association with other dental anomalies like supernumerary teeth, odontomas, impacted teeth; peg shaped lateral incisors, dens invaginatus[12]. Mader[10] (1981) reported three cases of talon cusp along with the presence of mesiodens in one case as similarly seen in one of our case (Fig 1). Talon cusp is also seen as a part of Rubinstein Taube and also Sturge Weber syndrome[4]. A genetic or hereditary pattern was noted by Sarkar[13] et al. in his study which showed the presence of talon in many members of the family. However, none of the three cases we reported in the present study were syndrome related and we could not assess it as a familial incidence.

Hattab[14] et al. classified anomalous cusp into 3 types, based on the height of the projection. He referred to T**ype 1** (talon or true talon) talon cusps as well-delineated projections from the palatal surface of primary or permanent anterior teeth and extending at least half the distance from the cementoenamel junction to the incisal edge. **Type 2** (semi-talon cusps) if the projection is small, extending less than half the distance from the cemento-enamel junction to the incisal edge. **Type 3** (trace talon) cusps are prominent cingula, which vary in shape (conical, bifid, or tubercle). The present cases fulfill the criteria of being true or type I talon, as palatal cusps were extending at least half

the distance from the cemento-enamel junction to the incisal edge in all of the three cases reported.

The treatment planning of the talon cusp varies depending upon the complications it may cause. Small talon cusps are usually asymptomatic and need no treatment, but 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 delineate the cusp, pulpal necrosis, periapical pathosis, attrition of the opposing tooth, and periodontal problems due to excessive occlusal forces.

The various treatment options for talon cusp are[15] gradual and periodic reduction of the cusp, application of fluoride or desensitizing agents, restoring tooth morphology or complete removal of tooth. Removal of the talon can more often lead to the pulp exposure which would require endodontic therapy[2].

In the three cases reported here Case 1 the patient had compromised esthetics and occlusal interference due to the presence of mesiodens and talon cusp on palatal surface of the adjacent maxillary lateral incisor its treatment included the extraction of mesiodens, gradual reduction of talons cusp followed by application of desensitizing agents or fluoride varnish followed by orthodontic correction. Case 2 and Case 3 presented with no symptoms of the affected teeth so just the restoration of the tooth anatomy was advised by gradual and selective grinding of the talon's cusp in three consecutive visits over the period of six weeks apart to avoid the exposure of pulp and allow the formation of reparative dentin with the application of fluoride varnish. After the final appointment, the residual accessory cusp was covered with composite resin. The patients were advised to seek a periodic review after 3 months.

CONCLUSION

Early detection and identification of the various dental anomalies like dens evaginatus or talon cusp can help in recognising the syndromes associated to them and various other complications like caries, periapical pathology or even periodontal diseases. In this article, we have documented three case reports highlighting their variations clinically and their optimal management.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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