Talon's Cusp as a etiology of malocclusion: A Case report

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Abstract

Talon’s cusp is a cusp like projection from the cingulum of maxillary/mandibular anterior teeth, resembling an eagle’s talon. It is a morphological developmental anomaly. Mader1 proposed that talon cusp is an anomalous cusp of successional incisor teeth. This case report shows a local etiological factor for causing malocclusion and periodontal problem.

Key words: Talons cusp, cingulam, etiology of malocclusion.

Introduction

Talon cusp was first reported in literature by WH Mitchell [1] in 1892 in women who showed a horn like cingulum on the left maxillary central incisor. After that, depending on the various authors’s nomenclature, various cases have been reported under the names of prominent cingulum, lingual tubercle, tendency toward talon cusp, occlusal anomalous tubercle, supernumery cusp, talonism and talon cusp [2]. Finally, Mellor and Ripa [2] coined the term ‘Talon cusp’ in 1970. Ratanen [3] described a 16 year old girl having talon cusp on all the maxillary anterior teeth. He stated that the occurrence of several talon cusps in the upper jaw is a form of hyper productivity of anterior ends of dental lamina. Goldstein and Medina [4] in 1974 published detailed case of Mohr syndrome, in which the patients presented talon cusp with dental defects. Henderson [5] reported cases of talon cusp in primary dentition in 1977. Hence, Davis and Brook [6] suggested that the definition of talon cusp is best compiled as – “An additional cusp that projects from the lingual surface of primary or secondary teeth, is morphologically well delineated and extends at least half the distance from the cementoenamel junction to the incised edge. A carefully framed criteria helps in establishing the true incidence and prevalence rates. In 1983, Chawla et al [7] reported the occurrence of talon cusp in permanent teeth as 4.2% in central incisors, 2.11% in lateral incisors and 1.2% in canines after evaluating around 5633 school children aged between 10 to 16 years. In 1995, Hattab et al [8] have classified talon cusp on the basis of degree and extent of cusp formation into three groups:

- Type 1: Talon has an additional cusp that projects from the palatal surface of an anterior tooth and extends at least one half the distance from the cementoenamel junction to the incised edge.
- Type 2: Semi-talon has an additional cusp 1 mm or more in length but extending less than one half the distance from the cementoenamel junction to the incised edge.
• Type 3: Trace talon manifests as enlarged and prominent cingulam and their variations.
Sarkar S, Misra J and Das G [9] reported a case of talon cusp, in which members of a family showed presence of multiple talons. They stated that genetics has a role to play in the formation of talon cusp.
The objective of this article is to report a case of talon cusp in a permanent maxillary central incisor that required occlusal correction along with endodontic treatment and bleaching.

Case report
A 16 years old female reported to department of orthodontics & dentofacial orthopedics, College of Dental Sciences, Amargadh, Gujarat with chief complain of proclination of upper front tooth. There was no relevant medical history. The patient reported that no other individual in the family had this anomaly, and that there had been no anomaly of the deciduous dentition or a history of trauma. On intra-oral examination, molars and canines were in Class I relation. In spite of normal crown size, there was a discolored maxillary left central incisor with enlarged and prominent cingulam on palatal surface. Mandibular left central incisor was having traumatic contact with maxillary left central incisor and showing gingival recession. No soft tissue abnormalities and absence of any tenderness to percussion or palpation in relation to left maxillary central incisor. (Figure-1and 2)

Discussion
Talon cusp or dens evaginatus is a rare anomaly with multifactorial etiology including both genetic and environmental factors. Various theories were proposed, however most accepted one suggests that talon cusp might occur as a result of an outward folding of inner enamel epithelial cells and a transient focal hyperplasia of mesenchymal dental papilla [10]. Talon cusp may occur in primary or permanent incisors affecting both the sexes and may be unilateral or bilateral. Furthermore it is important to remember that talon cusp is occasionally combined with other systemic and dental anomalies.

However, none of these alterations was found in this case. Clinically talon cusp differs from dens evaginatus of posterior teeth. The anterior teeth undergo shearing forces that may result in displacement of the occluding teeth and significantly less fracture of the anomalous cusps as reported in this case [11]. The treatment of talon cusp may be conservative or radical, depending on the accessory cusp like shape, location, size, and tooth affected. The treatment objectives for taloned teeth may differ depending on each case. Small talon cusps are asymptomatic and need...
no treatment. Where there are deep developmental grooves, simple prophylactic measures such as tissue seeking and composite resin restoration can be carried out. However, large, prominent talon cusp, as in this case report calls for definitive treatment to overcome esthetic, occlusal, periodontal and carious problems. 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 gel to reduce sensitivity, and stimulate reparative dentin 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 carryout root canal therapy. Orthodontic correction may become necessary when there is tooth displacement or mal-alignment of affected or opposing teeth.

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 un-erupted and resembles a compound odontoma 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 act as stagnation areas for plaque and debris, becomes carious and cause subsequent periapical pathology, management will depend on individual presentation and complications. Talon cusp in this case was asymptomatic and the patient did not complain of any functional discomfort but patient presented with proclined and discoloured left central incisor. Ferraz JAB [12] advocated that occlusal interferences of talons cusp can be adjusted by grinding palatal projections. Similarly grinding of talon cusp was carried out in this case. However the management and treatment outcome of talon cusp depends on the size, present complications and patient co-operation.

References

11. Al-Omari MAO, Hattab FN, Darwazeh AMG, Dummer PMH. Clinical problems associated with unusual cases of talon cusp. Int Endod J. 1999; 32:183-190,