

MANDIBULAR TALON CUSP: A CASE REPORT AND REVIEWDr. Pallavi Dashatwar,¹ Dr. Prakash Gadodia,² Dr. Namrata Patil,³Dr. Vinita Murgod,⁴ Dr. Vinodkumar M P⁵Sr Lecturer¹, Prof. & HOD², Reader^{3,4,5}

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Abstract: Mandibular talon cusp is a relatively rare finding. Talon cusp can be defined as cusp like projections from of maxillary or mandibular anterior teeth, in both the primary and permanent dentition; present on palatal or labial surface extended at least half the distance from the cemento-enamel junction to the incisal edge contains enamel, dentin and/or pulp.¹ Its resemblance to Eagle's talon coined it the term talon cusp. It is thought to arise during the morpho-differentiation stage of tooth development, as a result of out-folding of the enamel organ or hyperproductivity of the dental lamina. The reported prevalence is between 0.06% and 7.7%² Maxillary teeth more commonly effected in both dentitions, and maxillary lateral incisor is commonly affected in permanent dentition while central incisor in primary dentition.³ The occurrence of talon cusps in mandibular arch is very rare. In this article we present a case of 34 year old male patient having talon cusp on lingual aspect of right mandibular central incisor.

Introduction:

Talon cusp was first reported by Mitchell in 1892.¹ Accessory cusp, cusped cingulum, dens evaginatus, evaginated odontome, horn, hyperplastic cingulum, supernumerary cusp and supernumerary lingual tubercle were the names given by different authors for this anomaly.² The term talon cusp was coined by Mellor and Ripa in 1970, due its resemblance to an eagle's talon which is widely accepted.¹ Exact etiology is not known, but it is suggested to be a combination of genetic and environmental factors. It is thought to arise during the morpho-differentiation stage of tooth development, as a result of out folding of the enamel organ or hyper-productivity of the dental lamina. It is composed of enamel, dentine, and a varying amount of pulp tissue.³ The reported prevalence rate is between 0.06% and 7.7%. Permanent teeth are affected with talon cusp three times more frequently than primary teeth, and males are more commonly affected than females.² The cusp often demonstrates a deep developmental groove where the cusp joins the lingual surface of the incisor.⁴ Talon cusp is usually unilateral but one-fifth of the cases show bilateral occurrence.⁴ Talon cusp is most commonly seen in maxillary lateral incisor >maxillary central incisor> maxillary canine> Mandibular incisor.⁵

Case report:

Here we present case of 34 year male patient came to department of Oral Pathology, SD Dental College, Parbhani, Maharashtra for hematological investigation prior to tooth extraction. Medical History and family history was non-contributory. General examination presented with no apparent manifestations of any systemic, genetic and syndromic disorders. On oral examination root pieces of 46 were seen and linear cusp like structure was observed on lingual surface of the 41. Other teeth present did not show any developmental abnormalities. On close examination of the involved tooth a well-delineated accessory cusp was present projecting from the lingual surface of right Mandibular central incisor extending half way from cemento- enamel junction to the incisal edge (figure 1). The cusp was sharply demarcated by a linear developmental groove. The vitality test did not show any abnormality. Intra-oral periapical radiograph was advised to the patient but he didn't report back with it. On the basis of clinical findings diagnosis of type 1 (True talon) talon cusp was made according to Hattab's classification and 'Major talon' according to Chin-Ying variation in talon cusp.



Discussion

Talon cusp can be defined as an 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 The exact etiology is not known, but it is suggested to be multifactorial and thought to be polygenetic with some environmental influences thought to arise during the morpho-differentiation stage of tooth development, as a result of outfolding of the enamel organ or hyper-productivity of the dental lamina. This abnormality is probably induced by trauma or other localized insults affecting the tooth germ.⁶ Because of susceptibility of the maxillary lateral incisors to anomalies, compression hypothesis was also suggested. According to this hypothesis tooth germ of lateral incisor is compressed by the adjacent central incisor and canine causes 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 opposite to the compression hypothesis.⁴ It is usually associated with various syndromes like Sturge - Weber syndrome (en-cephalotrigeminal angiomas) or incontinentia pigmenti achromians, Mohr syndrome (oral-facial-digital syndrome, type-II), Ellis van Crevald syndrome, Rubinstein - Taybi syndrome.⁶

The prevalence of talon cusp is said to be 0.06% and 7.7%² It is more common in the permanent

dentition (75%) than in the primary dentition (25%), and about 92% cases are found in maxillary teeth.³

The maxillary lateral incisor is the most commonly affected in the permanent dentition, while the maxillary central incisor is the most affected in the primary dentition. According to Karthikeyan et al and Mallineni et al, in case of Mandibular talon central incisor is the most commonly affected in permanent dentition and lateral incisor in primary dentition. Mostly males are affected as compared to females. We can correlate this with our case here which shows male patient with Mandibular central incisor showing talon cusp. Mallineni et al also observed that most of the cases of talon cusp are reported from asian countries and that of Mandibular talon are reported from India.

Talon cusp can occur along with various anomalies of teeth such as fused teeth, supernumerary teeth, mesiodense, peg shaped lateral. Mallineni et al found that talon cusp is most commonly found with double teeth which can be fused or geminated teeth depending upon the number of teeth present in oral cavity.⁷ None of these anomalies were noted in present case. It can be seen either lingual or facial surface or both, it can be present unilaterally or bilaterally.⁴ Lingual talon cusp is far more common than facial talon, and majority of cases have unilateral presentation which is in accordance to our case. Hattib et al classified talons cusp in 1995 based on degree of formation and extent of cusp into 3 groups

- **Type I (Talon):** An additional cusp that projects toward the palatal surface of an anterior tooth and extends at least half the length of the cemento-enamel junction to the incisor edge.
- **Type II (Semi talon):** An additional cusp of 1 mm or more in length that extends less than half the length of the cemento-enamel junction to the incisor edge.
- **Type III (Trace talon):** Amplified manifestation, protruding cingulum and its variations.⁶

While Chin-Ying classified talon cusp on basis of surface of presentation since facial talon were not considered in Hattab's classification.⁴

- **Major talons:** Well-delineated cusp that project from an anterior tooth's facial or palatal/lingual surface and extends at least half the distance from the cemento-enamel junction to the incisal edge.
- **Minor talons:** Which occur on the same surfaces, but extend more than one fourth and less than half the distance from the cemento-enamel junction to the incisal edge
- **Trace talons:** Enlarged prominent cingula and their variations, which occupy less than one fourth the distance from the cemento-enamel junction to the incisal edge.⁴

In the present case the talon cusp can be seen projecting from lingual surface of 41 and extending about half the length from cement-enamel junction to incisal edge, so can be classified as Type I talon according to Hattab's classification and Major talon according to Chin-Ying classification.

Talon cusp does not pose any clinical problem to tooth in majority of cases but possibility of plaque accumulation and progress to caries in deep developmental groove that is associated with the cusp is highly possible. Other problems faced can be breast-feeding problems, compromised aesthetics, occlusal interference leading to temporo-

mandibular joint pain, periodontal problems because of excessive occlusal force, interference with tongue space, irritation of tongue during speech and mastication, accidental cusp fracture, misinterpretation of radiographs of teeth with talon cusp before eruption can occur.⁸

Talon cusp may not require any treatment. If talon cusp causes pre-mature contact and occlusal interference, the prophylactic enameloplasty should be gradually carried out on consecutive visits over 6 - 8 week intervals to allow reparative dentin formation for pulpal protection. After each grinding procedure, the tooth surface should be covered with an agent to control dentinal hypersensitivity. If the cusp contains any amount of pulp tissue then calcium hydroxide or Mineral Trioxide Aggregate pulpotomy or intentional root canal therapy is indicated before prophylactic enameloplasty. In case of associated deep groove, debridement with slurry of pumice, acid etching and sealing with pit and fissure sealant or composite restoration can be carried out.⁸

Conclusion:

Talon cusp is rather rare presentation. Has a definite male predilection. Asian population is mostly affected. Permanent dentition is mostly affected than primary dentition. Mandibular talon cusp is mostly seen in Mandibular central incisors in case of permanent dentition and lateral incisors in case of primary dentition. Talon cusp mostly found on lingual surface but can be present facially or on both the tooth surfaces. In most of the cases treatment is not indicated, but if cusp interferes with occlusion or groove is affected by dental caries, prophylactic enameloplasty, debridement and restoration can be carried out respectively. In this article we present the case of lingual Mandibular talon with 41 classified as Type I talon according to Hattab's and Major talon according to Chin-Yang classification.

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