

# A rare co-occurrence of facial talon's cusp on fused maxillary permanent central and lateral incisor

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## Abstract

Fusion is a developmental anomaly of dental hard tissues characterised by the union of two adjacent teeth. It can be complete or incomplete and commonly seen in deciduous than in the permanent dentition with higher frequency in anterior maxillary regions. Talon's cusp is an unusual cuspal projection from the lingual aspect of the tooth with normal enamel and dentin and varying degree of pulp tissue. It commonly affects the permanent maxillary lateral incisors followed by central incisors and canines. Talon cusp is mostly found on the lingual aspect of teeth and rarely it projects from the facial aspect. We hereby report a case of fusion of permanent left central and lateral incisor with facial talon cusp which is rarely reported.

**Keywords:** Facial; Fusion; Talon; Cusp.

## INTRODUCTION

Disturbance in any stages of tooth development can result in altered shape and size of teeth like gemination, fusion, concrescence, talon's cusp etc. Fusion of the teeth arises through union of two normally separated tooth germs (1). Talon's cusp is an anomalous cusp like structure extending from the lingual aspect of anterior teeth and is named so because of its resemblance to eagle's talon (2). The frequency of talon's cusp is 0.04 - 10% in the permanent dentition when compared to the primary dentition, with palatal or lingual surfaces of the maxillary teeth more affected (92%) than the mandibular teeth (3). Only a few cases have been reported in the literature about the presence of talon's cusp on the facial aspect of the teeth. We hereby report a case of fusion of permanent maxillary central and lateral incisor with a facial talon's cusp which is a rarity.

## CASE REPORT

A 18 year old male patient reported to the Department of Oral Medicine and Radiology with the chief complaint of gap in the upper front tooth region since eruption. The patient's medical, drug and family history were non contributory. On extra oral examination, patient had no gross facial asymmetry and had a straight profile with competent lips. The general physical examination also did not reveal any abnormalities. On intra oral examination, the maxillary left central incisor and lateral incisor appeared

to be fused with an elevation present on the facial aspect near the fusion of the two teeth. The elevation was broader cervically and tapered towards incisally resembling a Talon's cusp (Figure 1).



**Figure 1.** Clinical photograph of the patient showing fusion of permanent left central incisor and lateral incisor with facial talon's cusp.

The palatal aspect of the tooth did not show any abnormalities. A periodontal pocket measuring 5mm was present interdentally between 21 and 22. No decayed teeth were present. Angle's class I molar relation was noted on both right and left side with deep bite in relation to the anterior teeth and generalised spacing. The teeth present in the oral cavity were counted to arrive at a provisional diagnosis of fusion. 28 teeth were totally present. Based on the clinical findings and tooth count, a provisional diagnosis of Angle's class I malocclusion with generalised spacing with deep bite and fusion of crowns of 21 and 22

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with facial Talon's cusp was made.

An intra oral periapical radiograph of left maxillary central and lateral incisor was made which revealed fused coronal aspect of the 21 and 22 involving enamel and dentin with two distinct roots and pulp chambers.

A thick 'V' shaped radiopacity was noted on the middle one third at the line of fusion extending upto the incisal one third suggestive of Talon's cusp.

The density of the 'V' shaped structure was comparable to that of density of enamel. Vertical bone loss was seen interdental between 21 and 22 suggestive of localised periodontitis (Figure 2).



**Figure 2.** An intra-oral periapical radiograph showing fusion of permanent central and lateral incisor with talon's cusp.

An orthopantomogram was also made which revealed fusion between crowns of 21 and 22 with Talon's cusp with two separate roots and two root canals. Generalised horizontal bone loss was seen with angular bone loss at 16, 26, 36 and 46 region. Tooth buds of 18, 28, 38 and 48 appeared to be in the formative stage (Figure 3).

A radiographic diagnosis of generalised periodontitis and fusion of crowns of 21 and 22 with Talon's cusp was made. The facial Talon's cusp was classified as Stage 2 talon's cusp according to Mayes et al. The patient was advised for a thorough oral prophylaxis and periodontal evaluation for the bone loss followed by orthodontic correction of the

malocclusion. The periodontist suggested root planing along with prophylaxis as the suitable treatment plan for the patient. The patient also was advised for the reduction of the facial talon's cusp along with fabrication of separate crowns for the fused teeth. The patient has been kept on a regular periodic follow up.



**Figure 3.** An orthopantomogram showing fusion of permanent central and lateral incisor with talon's cusp.

## DISCUSSIONS

The abnormalities in the differentiation of the dental lamina and tooth germ leads to the formation of anomalies in the dental hard tissues (4). Fusion is defined as a single enlarged tooth in which the tooth count reveals a missing tooth in the dental arch, which was similar in our case. It can be of two types, complete and incomplete. Complete fusion is said to occur when the crown combines the features of both contributing teeth before the calcification stage. Incomplete fusion occurs at a later stage, the tooth exhibiting separate crowns, and fusion may be limited to the roots alone with pulp canals fused or separate (4). The case highlighted here suggests complete fusion of teeth. The etiology of fusion remains unclear. Few authors claim that local metabolic interferences which occur during morpho-differentiation stage of the tooth germ is the main causative factor. The other causes described are trauma, genetic and environmental factors (1). The evidences of thalidomide embryopathy causing dental fusion are also reported in literature (5). The other names used to describe fusion are connate teeth, syndontia or joined teeth and double teeth (10). The syndromes commonly associated are Wolf- Hirschhorn syndrome, Achondroplasia, Focal dermal hypoplasia, Osteopetrosis and Chondroectodermal dysplasia (4). This anomaly shows a higher prevalence in Japanese population and American Indians (4). It has a prevalence for primary dentition with a rate of 0.5% where as in permanent dentition the rate is 0.1% (10). The prevalence of fusion in Indian population was reported as 0.14%. The differential diagnosis for fused teeth can be macrodontia or gemination (9).

Talon's cusp, as defined by Mader in 1981 and Davis in 1986, as "A morphologically well delineated cusp that projects from the lingual surface of the primary or permanent anterior teeth and extends atleast half the distance from the CEJ to the incisal edge (5). This entity was described by W H Mitchell in 1892 and was named as

talon's cusp by Mellor and Ripa in 1970 because its shape resembles like an eagle's talon (1). A review of literature suggests that 25% of cases are in primary dentition and 75% in permanent dentition (6). It has predilection for maxilla (90%) (10), commonly involving maxillary lateral incisors (55%), followed by central incisors (33%) and canines (9%) (7). This anomaly is also described by terms like supernumary cusp, hyperplastic cingulum, evaginated odontome, cusped cingulum, accessory cusp and supernumary lingual tubercle (2). The accessory cusp has been seen in association with other dental anomalies like, odontomas, supernumary teeth, peg shaped lateral incisors, dens invaginatus and impacted teeth. Talon's cusp have been seen in patients with Mohr syndrome, Sturge – Weber syndrome, Ellis van Creveld syndrome and Rubinstein Tyabi syndrome (2). The case described here had a facial talon's cusp which is a rare finding.

Mayes et al suggested a classification for the labial talon's cusp after investigating the dentition of 301 skeletons from a pre-European contact American Indian population which is as follows (10).

**Stage 1:** Is the smallest form with a slightly raised triangle on the labial surface of an incisor tooth extending up to the length of the crown, but not reaching the cemento-enamel junction/ incisal edge.

**Stage 2:** Is the moderate form which is a raised triangle on the labial surface of an incisor tooth extending up to the length of the crown which does not reach the cemento-enamel junction but reaches the incisal edge.

**Stage 3:** Is the most extreme form which is a free-form cusp extending from the cemento-enamel junction up to the incisal edge on the labial surface of an incisor tooth.

Based on this staging system, our case could be categorized into stage 2.

The association of talon's cusp and fused teeth are considered rare, with only few cases reported (10).

Talon's cusp is usually encountered in the lingual aspect of teeth and a few cases are reported with facial talons cusp (2,10). Thirumalaisamy et al had reported a case of fusion of the permanent left mandibular central and lateral incisors with talon's cusp on the lingual aspect (2). Goswami et al had also reported a case of fusion of permanent mandibular right central and lateral incisor with both facial and lingual talon's cusps (10). Fusion and facial talon's cusp is a rare anomaly, presenting with problems like aesthetics, accidental cusp fracture, occlusal interferences, breast feeding problems, caries susceptibility and

periodontal problems. The treatment depends upon the patient's esthetic, orthodontic, periodontal and functional requirements. For esthetic correction, tooth contouring is the most commonly used treatment modality. The other alternative esthetic treatment options include, composite restoration, porcelain veneers, and crowns. (9). The present case showed angular bone loss in the region of 21 and 22 indicating chronic localised periodontitis. Oral prophylaxis and root planing was advised as the treatment modality for the patient. The patient was also advised tooth contouring for the facial talon's cusp and fabrication of separate crowns for the fused teeth.

The case reported here is unique because the fused permanent left maxillary central with lateral incisor has a facial talon's cusp with few reported cases.

## CONCLUSION

A case of fusion of permanent teeth with facial talon's cusp has been reported which is a rarity. The dental physician should be able to identify the problem and treat the same to avoid complications arising from this developmental anomaly.

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