



TALONS CUSP –A MARKER OF SYNDROMES - A CASE REPORT

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ABSTRACT

A small malformation in the tooth anatomy during development like the talons cusps formed on the palatal surfaces of the anterior teeth can suggest of any syndrome associated pathology. Rubinstein-Taybi syndrome, or broad thumb-hallux syndrome, is a well-defined rare congenital disorder characterised by postnatal growth deficiency, craniofacial dysmorphism, broad thumbs and great toes, and mental retardation (intellectual disability). Occurrence may be either sporadic or through autosomal dominant inheritance, including the uncommon presence of talon cusps and an unerupted supernumerary tooth. This is a case report of a rare case of talons cusp, its features and management.

Keywords: Talons Cusps, Rubinstein-Taybi Syndrome, Broad Thumb-Hallux Syndrome,

INTRODUCTION

Can a small intra oral feature guide us in diagnosing a complicated clinical syndrome. Yes. A small malformation in the tooth anatomy during development like the talons cusps formed on the palatal surfaces of the anterior teeth can suggest of any syndrome associated pathology. Rubinstein-Taybi syndrome, or broad thumb-hallux syndrome,

is a well-defined rare congenital disorder characterised by postnatal growth deficiency, craniofacial dysmorphism, broad thumbs and great toes, and mental retardation (intellectual disability). Occurrence may be either sporadic or through autosomal dominant inheritance, including the uncommon presence of talon cusps and an unerupted supernumerary tooth.

The talon cusp, or dens evaginatus of anterior teeth, is a relatively rare developmental anomaly characterized by the presence of an accessory cusp like structure projecting from the cingulum area or cemento-enamel junction of the maxillary or mandibular anterior teeth in both the primary and permanent dentition. This anomalous structure is composed of normal enamel and dentin and either has varying extensions of pulp tissue into it or is devoid of a pulp horn [1- 4]. In its typical shape, this anomaly resembles an eagle's talon,2 but it could also present as pyramidal, conical or teat-like [1- 5]. The prevalence of talon cusp varies considerably among populations, ranging from 0.06% to 7.7% [6,7]. The permanent dentition is affected more frequently than the primary dentition, and the anomaly is more common in males than in females [1, 4, 5, 8, 9]. predominantly 65% of the talon cusps occurs in males [10] and prevalence varies considerably among ethnic groups ranging from 0.06% to 7.7% [11]. Almost 92% of the affected (taloned) teeth in the permanent dentition have been found in the maxilla, with the lateral incisors being the most frequently involved (55%) followed by the central incisors (36%) and the canines [1, 9]. The etiology of talon cusp is not well understood, but appears to have both genetic and

environmental components [1, 4]. Similar to other abnormalities of tooth shape, talon cusp originates during the morphodifferentiation stage of tooth development. It may occur as a result of outward folding of inner enamel epithelial cells and transient focal hyperplasia of the peripheral cells of mesenchymal dental papilla. It can also occur as an isolated finding or in association with other dental anomalies such as peg-shaped lateral incisor, agenesis or impacted canines, mesiodens, complex odontomes, megadont, dens evaginatus of posterior teeth, shovel-shaped incisors, dens invaginatus and exaggerated Carabelli cusp [1-5]. The talon cusp has not been reported as an integral part of any specific syndrome, although it appears to be more prevalent in patients with Rubinstein-Taybi syndrome, Mohr syndrome, Sturge-Weber syndrome, incontinentia pigmenti achromians and Ellis-van Creveld syndrome [1, 8, 12].

CASE REPORT

A 24 year old male presented to the Dept of Oral Pathology, D. Y. Patil Dental College, Bidar, for a dental check-up. It was his first visit to the dentist. He did not present any significant medical history. Oral examination showed good oral hygiene, maxillary right central incisor was displaced labially with an accessory cusp on the palatal aspect. There was a negative family history of such dental

anomaly from the patient and there was no associated systemic disorder. The cusp projected from the cemento - enamel junction and curved towards the incisal edge of the incisor which was around 3mm wide (mesiodistally), 4mm (incisocervically) and 3mm thick (labiolingually) extending from cingulum area to the 0.5mm short of incisal edge. The affected tooth was labially placed in the arch with occlusal interferences on talon cusp during occlusion.

A periapical radiograph revealed an inverted V- shaped radiopaque structure on the maxillary right central incisor (**Figure 1**). The extent of pulp tissue into the cusp could not be determined on the radiograph.

A diagnosis of type 1 talon cusp was made. The condition and the planned periodic and gradual reduction of the cusp with topical fluoride application and Composite resin facing was explained to the patient. Orthodontic alignment of the displaced central incisor was also planned. With his consent, after oral prophylaxis, a minimal reduction of the talon cusp was carried out using a diamond bur in a high-speed water-cooled handpiece (**Figure 2**).

Acidulated Phosphate Fluoride (APF) gel was applied to the surface of the reduced cusp (**Figure 3**) to avoid any postoperative sensitivity.



Figure 1: OPG Showing Talons Cusp



Figure 2: IOPA Showing Talons Cusp



Figure 3: Cast Showing Talons Cusp

DISCUSSION

Talon cusp is an odontogenic anomaly of tooth shape that represents the extreme of continuous variation progressing from an enlarged cingulum (trace talon) through a small accessory cusp (semitalon) to a talon cusp [1]. Small talon cusps are usually asymptomatic and need no treatment. 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 that delineate the cusp, pulpal necrosis, periapical pathosis, attrition of the opposing tooth and periodontal problems due to excessive occlusal forces [1-5]. Talon cusps also present diagnostic and treatment difficulties. On unerupted tooth, the anomalous cusp can radiographically be mistaken for a supernumerary tooth or compound odontomas, leading to unnecessary surgical intervention. This diagnostic problem is especially significant because approximately 90% of all supernumeraries occur in the maxilla and half of these in the incisor region [13].

Hattab et al., 1996, classified this anomaly into 3 types on the basis of the degree of cusp formation and extension. Type I (talon) has an additional cusp that projects from the palatal surface of an anterior tooth and extend at least

one half the distance from the cement enamel junction to the incisal edge. Type II (semitalon) has an additional cusp 1 mm or more in length but extending less than one half the distance from the cement enamel junction to the incisal edge. Type III (trace talon) manifest enlarged and prominent cingula and their variation [14].

The talon cusps described in the current case classified as type1 (talon). Furthermore it is important to remember that talon cusp is occasionally combined with other systemic and dental anomalies [15]. However, none of these alterations was found in this case.

The treatment of talon cusp involves careful clinical judgment and review of whether the cusp contains or is devoid of a pulp horn. Earlier reports, based on radio graphic examination, stated that removal of the cusp would inevitably lead to pulp exposure that would require endodontic treatment [2]. However radiographic tracing of the pulpal configuration inside the talon cusp has inherent difficulties because the cusp is superimposed over the affected tooth crown. Similarly, histological examination of extracted talon teeth failed to show the presence of a pulp horn in the talon cusp [15-18]. Pitts and Hall removed 3 mm of the anomalous cusp in one visit, without pulp exposure [19]. Several times, we have

reduced 1.0 mm to 1.5 mm of talon cusp in one appointment without exposing the pulp [1, 5]. However, this does not imply that all talon cusps are devoid of pulp horn.

CONCLUSION

Talon cusp is a not an harmless defect, as it may provide a challenge during diagnosis and treatment planning to clinician. Early diagnosis may minimize certain problems such as caries, periodontal disease and malocclusion. The management and treatment outcome of talon cusp depends on the size, presenting complications and patient cooperation. Talon cusp can guide us in the diagnosis of other clinical syndromes like Rubinstein-Taybi syndrome, Mohr syndrome, Sturge-Weber syndrome, incontinentia pigmenti achromians and Ellis-van Creveld syndrome.

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