



Case Study

Talon Cusp with Double Tooth in Primary Dentition: A Rare Entity

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Double tooth with talon cusp is a rare developmental anomaly affecting primary dentition. Talon cusp normally occurs on the palatal surface of primary maxillary central incisors, while double teeth are often noticed in the maxillary anterior region. We report a unique case of double tooth with palatal talon cusp associated with hypodontia in the maxillary arch.

Key words: Dental anomalies, fusion, hypodontia, primary dentition, talon cusp.

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1. INTRODUCTION

Development of the human dentition is a complex process. Any aberrations through different stages of the tooth development can bring about unique manifestations, either in the primary or in the permanent dentition.¹ Double tooth is a rare developmental disorder characterized by the union of two adjacent teeth at the crown level, forming a single tooth with an enlarged clinical crown with one or two root canals.² The prevalence of this identity has been reported as 0.14% - 5% in primary dentition with no gender predilection and

0.1% in permanent dentition.³ Talon cusp is a morphologically well-delineated accessory cusp-like structure projecting from the cingulum area or cement-enamel junction towards the incisal ridge. It was first described by Mitchell⁴ and later the term talon cusp was coined by Mellor and Ripa⁵ due to its resemblance to an eagle's talon. The incidence and prevalence of talon cusp varies from less than 1% to 8% and 0.04% to 10% respectively among different populations.⁶ The occurrence of talon cusp is associated with double tooth is very rare identity. Therefore the purpose of the present case report is to describe a unique case of palatal talon cusp on double tooth associated with hypodontia in primary dentition.

2. CASE REPORT

A 6-year-old south-Indian boy reported to the department of Paedodontics and Preventive Dentistry with a chief complaint of decay in the upper right front teeth region. The parent reported no history of trauma and there was no familial history of the similar trait. General examination of the patient did not reveal anything significant. On intra-oral examination he presented with primary dentition and his oral hygiene was adequate. A structure similar to a macrodontic tooth was observed in relation to 51 and 52 regions (Figure 1). The presence of notching in the incisal edge of the central incisor which measured about 15 mm mesiodistally at the mid-coronal level and 8.5 mm cervico-incisally. Palatal examination showed an accessory cusp-like structure, resembling a talon cusp extending not more than half the length from cervical margin of the crown with a distinct of labio-lingual groove (Figure 2). The maxillary lateral incisor on the affected side is missing and the number of teeth was less than normal in that segment. The maxillary lateral incisor on the affected side had joined with the central and carious lesion in the groove was noted and the contra-lateral incisor appeared normal in dimensions but with chronic periapical abscess. An intra-oral peri-apical radiograph (Figure 3) revealed the presence of double tooth with an individual pulp chambers and root canals, and terminating into two apical foramina. There was no evident of same entity in permanent dentition (individual tooth germs of teeth 11 and 12 were present). The talon cusp resembled a V-shaped structure superimposed on the affected crown.

Talon cusp neither cause any occlusal interference nor any pathological change, hence, none of the treatment procedures has been performed. But esthetics was compromised because of the large size of one tooth and the absence of another and due to the presence of caries in the groove. Oral prophylaxis was performed to improve the patient's oral hygiene. With a parental consent, the dental caries was restored with composite resin and the talon cusp was left as such (Figures 4).

3. DISCUSSION

Double tooth and talon cusp are rare developmental dental anomalies. Double teeth are more frequent in the primary dentition whereas talon cusps are more common in the permanent dentition.⁷ In the present case, double tooth and talon cusp were noticed in the primary dentition. Both double tooth and talon cusps are morphological dental anomalies which occur in the morpho differentiation stage of tooth development.⁸ The occurrence of this duo is extremely rare, however, both anomalies were evident in the present case.

Etiology of double teeth may be due to the influence of physical forces producing close contact or necrosis of epithelial tissue between two developing tooth buds, embryological persistence of the interdental lamina between two germs, genetic predisposition, and environmental factors.^{9,10} It may also occur with several syndromes such as achondrodysplasia, chondroectodermal dysplasia, focal dermal hypoplasia, and osteopetrosis.¹¹ The exact etiology of talon cusp is unknown; however, there is a strong support for multi-factorial etiology, involving both genetic and environmental factors. Increased incidence of talon cusps has been observed in patients with Mohr syndrome, Sturge-Weber syndrome, Rubinstein-Taybi syndrome, Incontinentia pigmentii Achromians, Ellis van creveld syndrome, and Alagille's syndrome.^{7,12} The true etiology of both these dental anomalies has not been exactly reported in the literature.

Double tooth may be complete or incomplete, depending on the stage of tooth development at the time of union, with one normal and the other may be supernumerary teeth or conjoint tooth bud. When the fusion is partial, there is one crown with two separate roots. In cases of complete fusion, one tooth is formed and this leads to a reduced number of teeth (hypodontia) in the dental arch.¹³ The crowns of fused teeth appear to be bonded together clinically, with a small groove between the mesial and distal sections of a single wide crown.⁹ Typically, it has two independent endodontic systems. Occasionally, there may be one pulp chamber divided into two root canals. When the patient has double primary teeth, the possibilities that may be anticipated in permanent dentition include normality, presence of supernumerary teeth and repetition of fusion in permanent teeth.¹⁴ Conversely, in present case, the evidence of two individual tooth germs were present in permanent dentition.

Hattab and co-workers⁷ classified talons based on the wide variation in clinical size and shape of talon cusp/ based on the degree of cusp formation and extension classified this anomaly into three types: Type 1 (Talon): a morphologically well-delineated additional cusp that prominently projects from the palatal (or facial) surface of a primary or permanent anterior tooth and extends at least half the distance from the cement-enamel junction to the incisal edge. Type 2 (Semi

talon): an additional cusp of a millimeter or more but extending less than half the distance from the cement-enamel junction to the incisal edge. It may blend with the palatal surface or stand away from the rest of the crown. Type 3 (Trace talon): an enlarged or prominent cingula and their variations, i.e. conical, bifid or tubercle-like. Most recently Mallineni and co-workers¹⁵ divided talons into buccal/facial, lingual/palatal, and buccal and lingual types. The talon exhibited in present case is type 2 according to Hattab and co-workers⁷ whilst palatal type, as per Mallineni and co-workers' description.¹⁵

The treatment of talon cusp requires careful clinical judgment and is dependent on its size and shape. Management includes no treatment, sequential grinding, pit and fissure sealing, pulp therapy, restorative treatment, full crown coverage, extraction of the affected tooth and eliminating tongue irritation.¹⁶ Asymptomatic anterior double tooth should be left alone unless problems arise with esthetics, spacing, and dental caries.² Simple composite restorations or pit and fissure sealants can be used to camouflage and prevent caries development in the fissures.⁷ While exfoliation times usually differ for each tooth involved in the fusion, variations in root resorption should be considered.¹⁴ In the present case, no resorption is seen for the fused teeth and exfoliation times for both the incisors are similar and no special problems are expected. Furthermore, in the present case, talons cusp was left as such, as it did not cause any occlusal interference. The double teeth with caries in the line of fusion were restored with composite resin and aesthetics were maintained.



Fig 1: Labial view of maxillary arch showing fusion in relation to teeth 51, and 52.



Fig 2: Palatal view of maxillary arch showing double tooth in teeth 51,52 region with talon cusp

An understanding of these dental anomalies and their associated problems are crucial to provide prophylactic measures, thereby preventing or minimizing possible complications. However, the management depends upon the morphology, complications and patient's compliance. The

occurrence of double tooth and talon cusp in primary dentition and association with permanent dentition has not been clearly documented in the published literature. Hence there is need of studies to prove the relationship of these anomalies and its association with its successors.

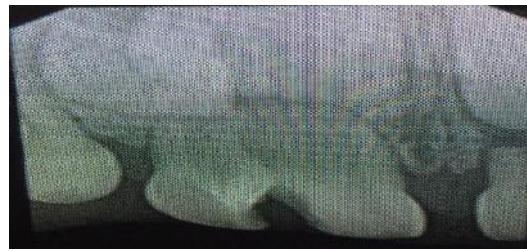


Fig 3: Radiographic view of showing double tooth in primary dentition (teeth 51 and 52) with talon cusp and presence of teeth 11 and 12.



Fig 4: Post treatment intra-oral frontal view

4. REFERENCES

1. King NM, Tongkoom S, Itthagaran A, Wong HM, Lee CK, A catalogue of anomalies and traits of the primary dentition of southern Chinese, *J Clin Pediatr Dent* 2008, 32:139- 146.
2. Yeun SWH, Chan JCY, Wei SHY. Double primary teeth and their relationship with the permanent successors: a radiographic study of 376 cases. *Pediatr Dent* 1987; 9:42-52.
3. Shilpa G, Gokhale N, Mallineni SK, Nuvvula S. Prevalence of dental anomalies in deciduous dentition and its association with succedaneous dentition: A cross-sectional study of 4180 South Indian children. *J Indian Soc Pedod Prev Dent* 2017; 35:56-62.
4. Mitchell WH, Letter to the editor. *Dent Cosmos* 1892; 34:1036.
5. Mellor JK, Ripa LW, Talon cusp: a clinically significant anomaly, *Oral Surg Oral Med Oral Pathol* 1970; 29:225-228.
6. Mallineni SK, Manan NM, Lee CK, King NM. Talon cusp affecting primary dentition in two siblings: a case report. *Rom J Morphol Embryol* 2013; 54:211-213.
7. Hattab FN, Yassin OM, Al-Nimri KS. Talon cusp- Clinical significance and management: Case reports. *Quintessence Int* 1995; 26:115-120.
8. Shafer WG, Hine MK, Levy BM. *A Textbook of Oral Pathology*. 6th ed. Philadelphia: Saunders Co; p. 47.

9. Dinesh Rao B, Hegde S. A talon cusp on fused teeth associated with hypodontia: report of a unique case. *Eur J Dent* 2010; 4:75-80.
10. Jeevarathan J, Deepti A, Muthu MS, Sivakumar N, Soujanya K. Labial and lingual talon cusps of a primary lateral incisor: a case report. *Pediatr Dent*. 2005; 27(4):303-6.
11. Rao A. Synodontia of deciduous maxillary central and lateral incisors with a supernumerary tooth. *J Indian Soc Pedo Prev Dent* 2000; 71-74.
12. Lee CK, King NM, Lo EC, Cho SY, Talon cusp in the primary dentition: literature review and report of three rare cases. *J Clin Pediatr Dent* 2006; 30:299-305.
13. Santos LM, Forte FDS, Rocha MJC. Pulp therapy in maxillary fused primary central incisor-report of a case. *Int J Pediatr Dent* 2003; 13:274-78.
14. Eidelman E. Fusion of maxillary primary central and lateral incisors bilaterally. *Pediatr Dent* 1981; 3:346-7.
15. Mallineni SK, Panampally GK, Chen Y, Tian T. Mandibular talon cusps: A Systematic review and data analysis. *J Clin Exp Dent* 2014; 6:e408-13.
16. Nuvvula S, Gaddam KR, Jayachandra B, Mallineni SK. A rare report of mandibular facial talon cusp and its management. *J Conserv Dent* 2014; 17:499-502.

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