



MULTIPLE DEVELOPMENTAL ANOMALIES IN A NON-SYNDROMIC PATIENT: A CASE REPORT

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ABSTRACT

Variations and Changes in the morphological structures are seen with human teeth, such changes are seen as accessory cusp or roots. Accessory cusps are common alterations in the teeth morphology. The commonest accessory cusps are the talons cusp, Leongs premolar and cusps of carabelli. The present report describes a case of bilateral heart shaped talon's cusp on the maxillary central Incisor along with pulp stones. An Incidental finding of supernumerary tooth in the maxillary arch is also reported.

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INTRODUCTION

Talon's cusp was first described by Mitchell in 1892. Talon cusp is rare dental anomaly. They are the accessory cups seen with maxillary incisors and resembles eagle's claw. Davis and Brooks defined the talon cusp as an additional cusp that projects prominently from the palatal surface of a primary or permanent anterior Tooth [1]. Other synonyms include occlusal enamel pearl, supernumerary cusp, dens evaginatus (preferred when posterior teeth are involved) [2]. It has got preponderance for males. Talons cusp consist of enamel, dentine and usually contain pulp horn. The aetiology remains unknown, but found to be associated with both genetic and environmental components [3]. It may be due to outward folding of inner enamel epithelial cells and transient focal hyperplasia of peripheral cells of mesenchymal dental papillae [4,5] during the morpho-differentiation stage of tooth development. It has been also reported to be associated with parental consanguinity [6]. The predominantly affected teeth are maxillary lateral incisors [7].

Pulp stones are the discrete intra-pulpal calcifications frequently found in molars [8]. Pulp calcification size varies from tiny particles to large masses that almost obliterate the pulp space. Pulp stones have a clinical significance in root canal therapy [8]. Radio graphically, pulp stone appears as radiopaque structure in the pulp chamber or root canals [9]. Supernumerary teeth are those which are additional or in excess of normal number. They could be single or multiple,

unilateral or bilateral and can be present anywhere in the dental arch [10]. Both genetic and environmental factors play a role in the etiology [11]. Morphological classification of supernumerary teeth includes conical, tuberculate or supplemental [12]. Radicular cyst or periapical cyst is the most common odontogenic cyst. It may be due to trauma or dental caries. It is generally seen in male. Radio graphically, it appears as a radiolucency in relation to the apex of a non-vital tooth with a well-defined corticated border.

This paper presents an unusual case of heart shaped talon's cusp on palatal aspect of maxillary central incisor along with a pulp stone in the pulp canal and a radicular cyst. A supernumerary tooth is also seen distal to second molar in the same maxillary arch.

Case Report

A 24-year-old male patient reported to the department of Oral Medicine and Radiology with a chief complaint of decayed lower left back tooth since 1 month and also complains of food lodgment in the same region since 15 days. No history of pain was given by him. He gave a history of trauma, 15 years back while playing. The area of impact was upper front teeth. No other significant history was reported by him. His medical, social, dental and family history was non-contributory. No history of consanguineous parents reported. Extra-oral examination was non-contributory. On intra-oral examination, full complement of teeth was present including all third molars

but mandibular right and left third molar were horizontally impacted. A heart-shaped protuberance was seen on the palatal aspect of maxillary right and left central incisor. The maxillary right and left lateral incisor has less prominent protuberances. The maxillary left central incisor was discolored and extrusion of about 1mm from the contralateral tooth i.e. maxillary right central incisor was seen. Pulp vitality test revealed non-vital maxillary left central incisor. Deep occlusal caries was seen with mandibular right and left molars. Investigations made were intraoral periapical radiograph and orthopantomogram to evaluate the status of the mandibular right and left third molars and the inferior alveolar canal. On the basis of clinical examination, a provisional diagnosis of talon's cusp with both the maxillary central incisors and radicular cyst with maxillary left central incisor was made. Bilateral horizontal impaction with mandibular third molars. Deep occlusal caries was seen with mandibular right and left molars.

The intraoral periapical radiograph revealed heart shaped well defined areas of increased density of enamel were seen in the cervical third of the crown in relation to maxillary right and left central incisor suggestive of talon's cusp. A single, oval intra-pulpal radiopacity was observed in the cervical portion of the pulp canal in relation to maxillary right and left central incisor respectively. A well-defined radiolucency with corticated border was seen in association with maxillary left central incisor in the apical region of the root measuring approximately 8 x 12mm, suggestive of rarefying osteitis (radicular cyst). Interestingly, an impacted maxillary left third molar, which was seen embedded above the maxillary tuberosity region suggesting the presence of a supernumerary tooth distal to maxillary left second molar which was mistakenly diagnosed as maxillary left third molar. Based on the clinical and radiographically findings, our case is an atypical combination of talon's cusp, pulp stones, and a radicular cyst in left upper maxillary central incisor and also a supernumerary tooth in the same arch.

The line of treatment advised was extraction of the impacted mandibular right and left third molar, restoration of mandibular left first, second molar and oral prophylaxis. In our present case, talon's cusp didn't cause any problem so no treatment was rendered for it. Root canal treatment along with enucleation of cyst was advised for the radicular cyst with maxillary left central incisor. Extraction with the supernumerary tooth and the impacted maxillary left third molar was not advised as the supernumerary tooth was well erupted in the arch and these teeth were not possessing any problem.



Figure 1



Figure 2



Figure 3

DISCUSSION

Talon's cusp was described as a process of horn-like shape curving from the base to the cutting edges on the palatal surfaces of the incisors [14]. Talon's cusp generally extends at least half the distance from cemento-enamel junction to the incisal edge of the incisor [13]. It can interfere with aesthetics, occlusal interferences, irritation to tongue, speech, periodontal problems, carious lesions, periapical pathosis etc. Its prevalence ranges from less than 1% -8% of the population [15] and it can affect both the primary and the permanent dentition with preponderance to permanent dentition [16]. Hattab *et al* classified talon's cusp on the basis of degree of cusp formation into and extension: [17]

Type 1 Talon: a morphologically well-delineated additional cusp that prominently projects from the palatal surface of a primary or permanent anterior tooth and extends at least half the distance from the cemento-enamel junction to the incisal edge.

Type 2 Semi talon: an additional cusp of 1 mm or more, but extending less than half the distance from the cemento-enamel junction to the incisal edge. It may blend with the palatal surface or project away from the rest of the crown.

Type 3 Trace talon: an enlarged or prominent cingulum in any of its variant forms (i.e. conical, bifid, or tubercle-like) originating from the cervical third of the root.

According to the above classification, the anomalous cusps on the maxillary central incisors in our case are type 3 talon cusps [17]. Chin-Ying *et al* has classified talon's cusp in primary dentition [18], according to which, our present case falls in trace talon's cusp category. There are number of syndromes associated with talon's cusp which includes Mohr's syndrome, Sturge-weber syndrome, Rubinstein-taybi syndrome, and Ellis-van crevald syndrome. [17, 19, 20, 21].

A single, oval pulp stone was found in our current case in the maxillary central incisors bilaterally along with the talon's cusp. The etiology is unknown. It is found to be in association with systemic or genetic diseases such as dentin-dysplasia, anemia, metabolic disorders as well as in patients with orthodontic treatment, and syndromes such as van der woude syndrome, Ehlers-danlos type I and otodontal syndrome. Hypercalcemia and renal lithiasis are found in patients with pulp calcifications. [22, 23]. In the present case, these mentioned conditioned were absent. A radicular cyst was seen in relation to the maxillary central incisor with talon's cusp and pulp stone. Since there was a presence of radicular cyst in left maxillary central incisor, endodontic intervention was mandatory. Pulp stones could have been hindrance during the treatment.

Radicular cysts, being the most common inflammatory cysts arises from the epithelial residues in the periodontal ligament or the periapical tissues following necrosis of the pulp, remains asymptomatic. Radicular cyst was found to be associated with the left upper maxillary central incisor. Supernumerary teeth are developmental disturbances which during ontogenesis and results in excessive number of teeth due to hyperactivity of dental lamina [24]. Supernumerary teeth may be seen in either jaw, may or may not affecting the dentition. Supernumerary teeth are associated with impaction, rotation, rootresorption, abnormal root formation [25]. But in our current case, it erupted distal to maxillary left second molar and resembled maxillary left third molar on clinical examination. Supernumerary teeth are found to be associated with certain syndromes such as cleidocranial dysostosis [26], cleftlip, cleft palate, gardener's syndrome [27]. No such conditions were found in the current case.

CONCLUSION

Developmental anomalies of teeth are clinically detectable abnormalities. Hence, careful observation and required investigations are mandatory for the diagnosis of such variations in the morphology of teeth [13]. A heart shaped talon's cusp with pulp stones and a supernumerary tooth in the same arch is an uncommon finding in a non-syndromic patient.

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CONFLICTS OF INTEREST- Nil

References

1. Khattar Haddadin, Medyan Al-Rousan, Ma'an Al-Far, Mohammad Al- Omary. Four Maxillary Talon Cusps: A Case Report. *Journal of The Royal Medical Services* 2008;57-60
2. Danker E, Harari D, Rotstein I. Dens evaginatus of anterior teeth: Literature review and radiographic survey of 15,000 teeth. *Oral Surg Oral Med Oral Pathol Oral Radiol and Endod* 1996; 81: 472-476.
3. Davis PJ, Brook AH. The presentation of talon cusp: diagnosis, clinical features, associations and possible etiology. *Br Dent J* 1985; 159:84-88 *Oral Pathol Oral Radio Endod* 1996; 81:472-476
4. Hattab FN, Yassin OM, Al-Nimri KS. Talon cusp - Clinical significance and management: Case reports. *Quintessence Int* 1995; 26:115-120.
5. Hattab FN, Yassin OM, Al-Nimri KS. Talon cusp in permanent dentition associated with other dental anomalies: review of literature and reports of seven cases. *ASDC J Dent Child* 1996; 63:368-376.
6. Davis PJ, Brook AH. The presentation of talon cusp: diagnosis, clinical features, associations and possible aetiology. *Br Dent J* 1986; 160:84-88
7. Bahar Ozcelika Burcu Atila. Bilateral Palatal Talon Cusps on Permanent Maxillary Lateral Incisors: A Case Report. *Eur J Dent* 2011; 5:113-116)
8. Maryam Ghasempour, Samane Hemmati, Samane Gharekhani, Ehsan Mooudi. Multiple Developmental Dental Anomalies in a Non-Syndromic Patient: Report of a Rare Simultaneous Occurrence. *Journal of Dentistry, Tehran University of Medical Sciences, Tehran, Iran* 2015;12:379-384
9. Ozkalayci, Zengin, Turk, Sumer, Bulucu, Kirtiloglu. Multiple Pulp Stones: A Case Report. *Eur J Dent* 2011;5:210-214
10. Amarlal D, Muthu M S. Supernumerary teeth: Review of literature and decision support system. *Indian J Dent Res* 2013; 24:117-22
11. Shah A, Gill DS, Tredwin C, Naini FB. Diagnosis and management of supernumerary teeth. *Dent Update* 2008; 35:510-2, 514-6, 519-20.
12. Szu-Ting Chou, Hong-Po Chang, Yi-Hsin Yang, Chih-Yin Lung, Yu-Chuan Tseng, Chin-Yun Pan, Jung-Husan Cheng. Characteristics of supernumerary teeth among non-syndromic dental patients. *Journal of Dental Sciences* 2015;10: 133-138
13. Shalini Gupta, Kavita Nitish Garg, Amay Tripathi, and Om Prakash Gupta. Distribution of Various Developmental Dental Anomalies in Uttar Pradesh: A Hospital Based Study. *RRJDS| Volume 2| Issue 3| July-September, 2014*
14. Mitchell WH. Case report. *Dent Cosmos*. 1892; 34: 1036,1892
15. Dash JK, Sahoo PK, Das SN. Talon cusp associated with other dental anomalies: a case report. *Int J Paediatr Dent*. 2004; 14:295-300
16. P. Sumer and A. Z. Zengin. An unusual presentation of talon cusp: A case reports *British dental journal* 2005; 199:429-430
17. Hattab FN Yassin OM, al-Nimri KS. Talon cusp in permanent dentition associated with other dental anomalies: review of literature and report of seven cases. *ASDC J Dent Child* 1996; 63:368-376
18. Chin-Ying SH, Girija V, Fei YJ. Bilateral talon cusp in primary teeth: Clinical significance and treatment. *J Dent Child* 2001; 68:239-243.
19. Chen RJ, Chen HS. Talon cusp in primary dentition. *Oral Surg Oral Med Oral Pathol* 1986; 62:67-72.
20. Hattab FN, Yassin OM, Sasa IS. Oral manifestations of Ellisvan Creveld syndrome: report of two siblings with unusual dental anomalies. *J Clin Pediatr Dent* 1998; 22:159-165.
21. Gardner DG, Girgis SS. Talon cusp: A dental anomaly in the Rubinstein-Taybi syndrome. *J Oral Surg* 1979; 47:519-52
22. Kantaputra PN, Sumitsawan Y, Schutte BC, Tochraeontanaphol C. Vander Woude syndrome with sensorineural hearing loss large craniofacial sinuses, dental pulp stones and minor limb anomalies: Report of four generations Thai family. *Am J Med Genet* 2002; 108:275-80.

23. Nayak M, Kumar J, Prasad LK. A radiographic correlation between systemic disorders and pulp stones. *Indian J Dent Res.* 2010; 21:369-73.
24. Wang XP, Fan J. Molecular genetics of supernumerary tooth formation. *Genesis.* 2011 Apr; 49 (4):261-77.
25. Mittal M, Sultan A. Clinical management of supernumerary teeth: A report of two cases. *J Indian Soc Pedod Prev Dent.* 2010; 28:219-22
26. Khandelwal V, Nayak AU, Naveen RB, Ninawe N, Nayak PA, Sai Prasad SV. Prevalence of mesiodens among six- to seventeen-year-old school going children of Indore. *J Indian Soc Pedod Prev Dent.* 2011; 29:288-93.
27. M. Thérèse Garvey. Supernumerary Teeth -An Overview of Classification, Diagnosis and Management. *J Can Dent Assoc* 1999; 65:612-6

