CONICAL DECIDUOUS CANINE AND ‘PEANUT’ SHAPED PERMANENT LATERAL INCISOR IN THE MAXILLARY ARCH: REPORT OF A TYPICAL CASE

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ABSTRACT

Variation in the shape of dentition contributes to a wider percentage of morphological differences in the dentition, due to environmental or genetic influences. In most of the cases, maxillary lateral incisors fall a prey for expression of differences. But to our knowledge, variation in its shape resembling ‘peanut’ has never been described. This article reports a case of weird morphological anomaly with conical deciduous canine and ‘peanut’ shaped lateral incisor in the maxillary arch.

KEYWORDS: Tooth crown morphology, deciduous teeth, tooth transposition, maxillary canine.

INTRODUCTION

Morphological variation in dentition, may it be primary or permanent are most often associated with specific syndromes or by genetic determination. But, sporadic expression of alteration in shape of deciduous as well as permanent dentition at the specific region might be due to disturbance during the morphodifferentiation stage of tooth formation (Bhaskar SN, 1990). This paper...
describes a case of non-syndromic morphological variation in right maxillary deciduous canine and permanent lateral incisor, accompanied by transposition of permanent left canine.

**CASE REPORT**

A 10 year old Malay boy attended Pediatric Dental Clinic of AIMST Dental Institute, Malaysia for routine dental check up. His past medical history and extra oral examination were non contributory. Parents’ dentition did not reveal any evidence of hereditary dental anomalies, except several restored teeth. The two siblings, accompanied with the patient were also free from morphologically altered dentition. Intra oral examination showed the presence of mixed dentition and full compliments of teeth were present for his age. The OPG suggested morphological variation in crown of 53, 12 and transposed path of eruption of 23 in between the roots of 21 and 22 (Figure 1).

![Figure 1](image.png)

Figure 1 : OPG showing transposed 23 within rectangle, peanut shaped 12 inside the ellipse and conical 53 within the rounded rectangle
The morphology of 53 was conical, asymptomatic and was having preshedding mobility. 12 was very typical in its morphology (Figure 2); having mesial and distal slopes, with the pointed incisal edge. This tooth resembled canine from labial aspect and premolar from incisal view. The lingual aspect was bulbous, altogether mimicking the shape of ‘Giant American Peanut’ (Figure 2). The morphological measurements of 12 are described in Table 1. On the left side of the maxillary arch, the lateral incisor had normal morphology. But the OPG revealed complete transposition of erupting canine between 21 and 22.

Figure 2: Occlusal and lingual view of conical 53 and Peanut shaped 12
DISCUSSION

The developments of dental anomalies in the lateral incisors are well recognized and these teeth often fall prey for various types of anomalies such as agenesis, alterations of shape and size, and supernumeraries (Ravn JJ, 1977; Jarvinen S and Lehtinen L, 1981; Stamatiou J and Symons AL, 1991). But their cause(s) remain uncertain. ‘Field concept’ states that the tooth primordia grow and differentiate within ‘fields’ of diffusing morphogenetic substances, with one field for each tooth type (Butler PM, 1939; Dahlberg AA, 1945). A tooth growing in the centre of a field (known as the polar or key tooth), should show less variation than the teeth on either side and the farther from the centre, the more variable the teeth should be. In humans, four morphogenetic fields have been identified— incisor, canine, premolar and molar. Within these fields, the upper central incisor, lower lateral incisor, canine, first premolar and first molar are identified as ‘polar teeth’. Further, the development of the lateral incisor in humans is not clear. It has been proposed that the upper lateral incisor can originate partly on the maxillary and partly on the medial nasal process (Ooë T, 1957). The complex origin of the human upper lateral deciduous incisor can explain its developmental vulnerability, resulting in anomalies of number, shape, and size and their frequent association with Orofacial clefts (Böhn A, 1963; Hansen K and Mehdinia M, 2002).

MORPHOLOGY DESCRIPTION

Conical right deciduous canine (53)

The morphology expression of primary maxillary canine was ‘circular’ or ‘conical’ form. The characteristic buccolingual (BL) compression and mesiodistal (MD) elongation of the crown was absent. In occlusal view, the crown shape was circular and greatest crown dimension was at the base of the crown (at the cervical aspect)( Figure 2). In labial (facial) view, the crown outline was ‘conic’ rather than the more characteristic ‘diamond’ shape of
primary incisors (Figure 3). Typically, the greatest mesiodistal diameter of the maxillary canine crown is at mid-crown height or approximately midway between the cervix and the apex of the crown, whereas in this tooth it was at the cervical third.

![Figure 3: Labial aspect of 53 and 12](image)

Similar finding was reported in a study to investigate the co-variants along with talon’s cusp among Malay children (John R Lukacs and Sri Kuswandari, 2009). They found two of three individuals having talon cusp also possessed unusual conical crown structure in their maxillary and mandibular primary canines. While talon cusp was previously been reported to co-occur with supernumerary teeth including mesiodens that was the first report of its association with cone-shaped primary canines, suggesting this morphological trait might be more commonly seen in Malay child population

**‘Peanut’ shaped permanent lateral incisor (12)**

The crown of the tooth from labial aspect appeared pentagonal like canine, instead of rounded angles of rectangle like normal incisors; with mesial and distal slopes in incisal 1/3rd to meet to form a single cup (Figure 3). A shallow
ridge extending from cusp towards the cervix, dividing the tooth into symmetrical halves. The slopes were at an angle of 45 degree to the ridge. The ridge in the cuspal region was slightly more prominent than in cervical portion of the labial surface. Whereas, lingual portion of the crown was diamond / pentagonal shape in its outline; with its base narrowing minimally towards the cervix than on the labial aspect. The cingulum of the lateral incisor was more prominent and bulbous. From incisal view, tooth appeared like the cusp of a premolar with a shallow distal groove and deep mesial fissure with marginal ridge. The mesial fissure and the distal groove united in the midline of the cusp with a lingual prominent ridge that continued cervically, with the formation of grooves along the cingulum. From the incisal aspect, the crown was asymmetric in morphology, where the mesial half resembled close to the premolar and the distal half like a canine. In a survey conducted at Java, approximately 20% of the upper lateral incisors were of canine-like shape, which was the first in literature to report this kind of morphological variation (Schlegel D and Satravaha S, 1984).

Transposition of canine (23)

The present case has an evidence of transposition of Maxillary left canine with lateral incisor (Mx3-2) or (Mx.C.I2) (Peck S and Peck L, 1995) (Figure 1). Tooth transposition is considered to be a subdivision of ectopic eruption, can be defined as a positional interchange of two adjacent teeth in the dental arch (Peck L, Peck S and Attia Y,1993). It is a Complete transposition, where both crown and entire root structure is transposed, unlike in Incomplete transposition, where there is transposition of the crown but not the root apex (Shapira Y and Kufinec MM, 1989 a). The maxillary canine is more likely than any other tooth to become transposed, due to its longest period of development and long way to travel from early formation stage to its complete eruption (Shapira Y and Kufinec MM, 1989 b).
Although the etiology of tooth transposition is still obscure, the two proposed principal theories of this anomaly is transposition of the analogue during odontogenesis and migration of the tooth from the normal path of eruption\textsuperscript{16}. However, bilateral occurrence of the problem, sex-associated frequency difference, high prevalence of other associated dental anomalies like peg-shaped lateral incisor, over retained deciduous teeth, trauma, mechanical interference, bone disease, tumors or cysts and congenitally absent teeth stressed on genetic as well as environmental influence\textsuperscript{13,16,17,18}. Studies have reported left side dominance\textsuperscript{12, 19, 20} and 0.4\% prevalence\textsuperscript{21, 22, 23}. This case of a maxillary canine-lateral incisor transposition needs surgical-orthodontic treatment followed by esthetic reshaping of the involved teeth in the maxillary arch for dental and facial esthetic enhancement.

CONCLUSION

A case of conical shaped deciduous canine and permanent lateral incisor with the labial aspect like canine and the incisal aspect like premolar, which is being typically termed as ‘peanut shaped’ lateral incisor in the maxillary arch associated with transposition of canine is presented. This report of variation in morphology in conical canine is only the second in literature. Though there is only one report of canine-like lateral incisor, this unusual expression like ‘peanut’ shaped lateral incisor, having both the features of canine and premolar has not been reported previously and is the first of its type. Documentation of such morphological variation may contribute as vital evidence in forensic identification.

REFERENCES

Conical Deciduous Canine and ‘Peanut’ Shaped Permanent Lateral Incisor in the Maxillary Arch: Report of a Typical Case


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