



A hidden truth: Report of a unique case with multiple anomalies in an Indian patient

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Abstract

The present manuscript demonstrates presence of unusual interesting dental anomalies in Indian female patient which was encountered following radiographic examination. Intra-osseous transmigration of permanent maxillary canine, central incisor along with horizontal impaction of a supernumerary tooth in close approximation with nasal cavity and maxillary sinus along with rhizomicroly (short root anomaly) was evident in this reported case which calls for unified research.

Keywords: Anterior teeth impaction; Intra-osseous; Retained primary teeth; Rhizomicroly; Supernumerary tooth; Transmigration.

INTRODUCTION

Explored literature of numerous publications on transmigration of permanent maxillary canines exhibits a debate, addressing its etiology, prevalence, case reports/series, diagnosis, clinical manifestations, classification systems and treatment, as this condition represents an unusual tooth eruption phenomenon [1-3]. When the impacted tooth within the bone crosses the dental midline is termed as ‘transmigration’ and most frequently mandibular canine is getting affected [4-6]. Transmigration of permanent maxillary canine is quite an infrequent finding. All the articles published till date on transmigration of tooth involved a single tooth either unilaterally or bilateral [1-6]. But occurrence of two teeth transmigrating to the opposite side of the arch is an extremely rare finding with only one case report reported by Kumar et al [7] in 2012 (Table 1). The present case is the second case showing transmigration of two teeth such as permanent maxillary left canine along with central incisor and is associated with other dental anomalies like presence of supernumerary tooth (mesiodens) which is also impacted at the higher level close to the nasal septum and rhizomicroly (short root anomaly) involving permanent mandibular right second molar. The above reported cases occurred in patients with Indian ethnicity emphasizing the importance of future prevalence studies on this dental phenomenon in various population groups across the globe in order to investigate the both anthropological and genetic importance of this anomaly.

Table 1: Published articles on transmigration of both permanent maxillary canine and incisors

Sl. No.	Author/Year/Ethnicity	Transmigrated Canine	Transmigrated Incisors	Associated Anomalies
	Present case Nagaveni NB/2024/India	Permanent Maxillary left canine Unilateral	Permanent Maxillary left central incisor Unilateral	Horizontal Impaction of Supernumerary tooth close to the nasal cavity and maxillary sinus + Rhizomicroly (Short Root Anomaly involving permanent mandibular right

				second molar
1.	Nagaveni NB/2023/India [8]	-	Maxillary left central incisor Unilateral	-
2.	Kumar et al/2012/India [7]	3 cases All unilateral (1 – right, 2 – left)	Left lateral incisor Unilateral	-

CASE REPORT

A 17-year-old Indian female patient belonging to South region of India reported to a private dental clinic complaining of pain in the right lower back tooth region from past one week. Patient medical history was non-contributory and physical examination revealed absence any particular systemic or metabolic or syndromic disorders. Intraoral examination was carried out to examine all teeth, which showed totally destructed permanent mandibular right first molar due to dental caries. Further examination revealed presence of retained primary teeth such as maxillary left central incisor, lateral incisor and canine with absence of their permanent counterparts. All other permanent teeth were erupted in the oral cavity. In order to evaluate the diseased molar, patient was subjected to a radiographic examination. On orthopantomograph (Figure 1), permanent right first molar was totally destructed associated with periapical lesion. Continued examination of the radiograph also confirmed the presence of primary teeth and surprisingly the permanent counterparts such as maxillary left canine, central incisor and one more tooth were totally impacted within the bone. The permanent canine was in horizontal position and transmigrated with its tip of the cusp crossing the mid-palatal suture. The central incisor was also impacted in horizontal position with its crown facing midline crossing the midline and was close to the nasal cavity. One smaller rudimentary tooth structure was observed close to the nasal cavity and at the root apex of impacted central incisor (Figure 1). This did not resemble to a lateral incisor in morphology but was familiar to the mesiodens. Rhyzomicroly (short root anomaly) involving permanent mandibular right second molar was also observed. Finally, based on literature search this case was diagnosed as transmigration of permanent canine and central incisor along with impaction of a supernumerary tooth and short root anomaly. Patient was informed about the existing condition and explained about the treatment options. As patient's main focus was on the first molar, extraction was indicated and kept under observation till the development of any pathology and exfoliation of retained primary teeth.

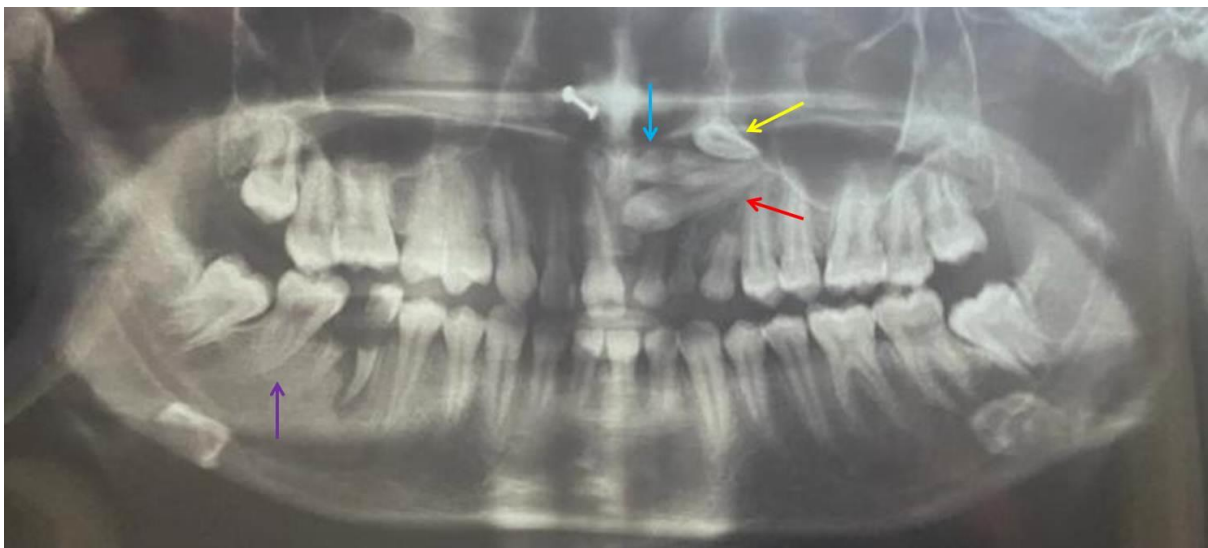


Figure 1: Orthopantomograph showing intraosseous transmigration of permanent maxillary left canine (red arrow) and central incisor (blue arrow) crossing the mid-palatal suture, horizontal-transverse impaction of supernumerary tooth (mesiodens) (yellow arrow) and Rhyzomicroly involving permanent mandibular right second molar (purple arrow). Retained primary left central, lateral incisor and canine can also be seen.

DISCUSSION

Recently, Nagaveni NB published a unique, rare and first case of transmigration of permanent maxillary central incisor which is also not reported till date according to best of best current knowledge [8]. The present case is different from other previous reports showing transmigration of both central incisor and canine along with presence of another anomaly involving a mesiodens which was very close to the nasal cavity. On radiographic examination, it was evident that central incisor was placed above the canine with its incisal tip touching the mid-palatal suture. Being a first tooth to develop and

erupt in to the oral cavity, the central incisor might have pushed up during eruption process. As canine is the strongest tooth having longest root length compared to central incisor, during eruption it might have applied more pressure from the existing tooth area and has shifted below the central incisor and has crossed the midline for more distance compared to the central incisor. In the case reported by Kumar et al [7], the opposite scenario was observed, where the transmigrated canine was situated above the central incisor and was associated with some peri-apical radiolucency suggestive of a dentigerous cysts, so authors performed surgical removal of both canine and lateral incisors.

Regarding transmigration, various authors [1-6] have given different definitions in that one suggesting more than half of tooth structure should cross the dental midline to be considered as ‘transmigration.’ [1] However, one author [3] has recommended that it is not the actual length of the tooth which crosses the midline; rather it is the inherent tendency of the tooth which crosses the midline suture. In addition to this, we should also consider the stage of the tooth at which a clinician identifies the tooth. Therefore, keeping these points, in the present case, both central incisor and canine was considered and diagnosed as transmigrated teeth.

One more peculiar and surprising finding was also evident in the current case. Along with transmigrated central incisor and canine one smaller, rudimentary shaped tooth was found above these two teeth which were also impacted in transverse direction. Author faced a diagnostic dilemma in distinguishing whether it is a lateral incisor or a mesiodens. Using advanced imaging techniques this confusion must have solved, but unfortunately patient was not willing to go for this. But based on its morphological structure constituting rudimentary shape, short root and crown size, the tooth structure was diagnosed as a supernumerary tooth [9]. Moreover, the most frequent congenitally missing tooth is the permanent lateral incisor, and the most common observable dental anomaly in such scenario is the occurrence of a supernumerary tooth. Considering these two strong points, the tooth was diagnosed in confidence as a supernumerary tooth (mesiodens).

Impaction of permanent teeth is also a most observable dental finding and when they get impacted within the alveolar bone usually shows eruption failure [10,11]. This results in retaining of primary teeth in the oral cavity because of absence of resorption phenomenon within the roots and they remain for long time exceeding their normal exfoliation period. The similar incident was observed in the current case, where all three primary teeth including central incisor, lateral incisor and canines were retained although patient has attained 17 years, showing almost full length of the roots in all these three teeth with little evidence of root resorption. This clinical finding strongly recommends for thorough investigation of the case following radiographic examination to rule out presence of impacted teeth and sometimes associated complications.

Pertaining to treatment, transmigrated teeth are usually kept under observation due to their unfavourable position within the bone. Surgical removal is indicated if there are any associated symptoms or pathology [7]. In this case, the possible consequences were explained to the patient, addressing only chief complaint of the patient and kept under observation.

Short root anomaly or Rhyzomicroly is the radicular anomaly characterized by tooth having equal proportion of crown and root length in a ratio of 1:1 [11, 12]. This was evident in the present case associated with mandibular second molar roots when measure with a graduated scale. Literature shows publications on this root anomaly in different population [11].

CONCLUSION

The present case shows combination of dental anomalies or phenomenon pertaining to different dental variations such as tooth eruption phenomenon (transmigration of canine and central incisor and impaction), anomaly involving the tooth number (supernumerary tooth or mesiodens), radicular anomaly (Rhyzomicroly/Short root anomaly) and delayed tooth resorption (retained primary teeth). It is an alarm call for researchers to investigate more such unique cases which further shed more light on research evidence.

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