



Maxillary Canine Transmigration – Report of an Unusual Tooth Eruption Phenomenon

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Abstract

Different variations in tooth eruption phenomenon are encountered during clinical practice such as transmigration, transposition, ectopic eruption and delayed eruption. “Tooth Transmigration” is an unusual condition characterised by migration of impacted tooth or impacted tooth crossing the dental midline intraosseous. Literature search reveals occurrence of tooth transmigration more in the mandible. Reports on maxillary tooth transmigration are extremely scarce. The present article shows a rarest case of maxillary canine transmigration encountered in a 24-year-old Indian female patient.

Keywords: Canine impaction, Tooth Transmigration, Maxillary canine, Dental Midline, Mid-palatal suture.

Introduction

Transmigration of permanent maxillary canine is an unusual dental eruption abnormality referring to “intra-osseous migration of impacted tooth across the dental midline to the opposite side of the dental arch” [1-3]. Literature search shows countable number of reports on maxillary tooth transmigration involving the permanent maxillary canine [4-10]. There are few reports on transmigration of permanent maxillary incisors and mandibular canines [11-15]. These transmigrated canines are always impacted and diagnosed following a routine radiographic examination. As the prevalence of transmigration is more frequent in the mandible, there is a classification system to describe the pattern of mandibular canine transmigration [7-10]. Concerning maxillary canine transmigration still there is a debate regarding its etiology, clinical manifestations, diagnosis, prevalence, classification system and treatment modality. Quest for the identification of new dental variations, anomalies, abnormalities, dental phenomenon is in fast urge for the formulation of new protocols, guidelines and policies needed to provide comprehensive, holistic care to the patient and for the society. Therefore, with the aim of presenting a new dental anomaly, the present case was recorded and case report was prepared as this adds further knowledge and documentation on uncommon tooth eruption phenomenon like “tooth transmigration.”

Case Report

A 24-year-old female patient reported to a private dental clinic complaining of pain in the right lower back tooth region since a week. Physical examination revealed moderate built and well-nourished with good behaviour. Intra oral examination showed eruption of all permanent teeth except for the mandibular both right and left third molars and maxillary right canine. Primary right canine has been exfoliated and its space was occupied by a first premolar. On contralateral side of the dental arch and in mandibular arch permanent canines were erupted. No other dental anomalies were observed. To know the status of third molars patient was subjected to a radiographic examination. Upon panoramic radiograph examination, both right and left third molars were found to be in a mesio-angular impaction. Further observation of the radiograph, showed an impacted maxillary right canine in mesio-angular position (Figure 1). The one third portion of the crown tip of the impacted canine has crossed the mid-palatal suture and located at the root apex of the right central incisor. The root of the canine was completely formed and found closer to the floor of the maxillary sinus. Patient did not have signs and symptoms associated with an impacted canine. Based on radiographic features the case was diagnosed as “transmigration of maxillary canine.” Patient was explained about the existing dental pathology and its consequences. As patient chief complaint was concerned with the lower third molars, surgical removal of the same was planned under local anaesthesia.

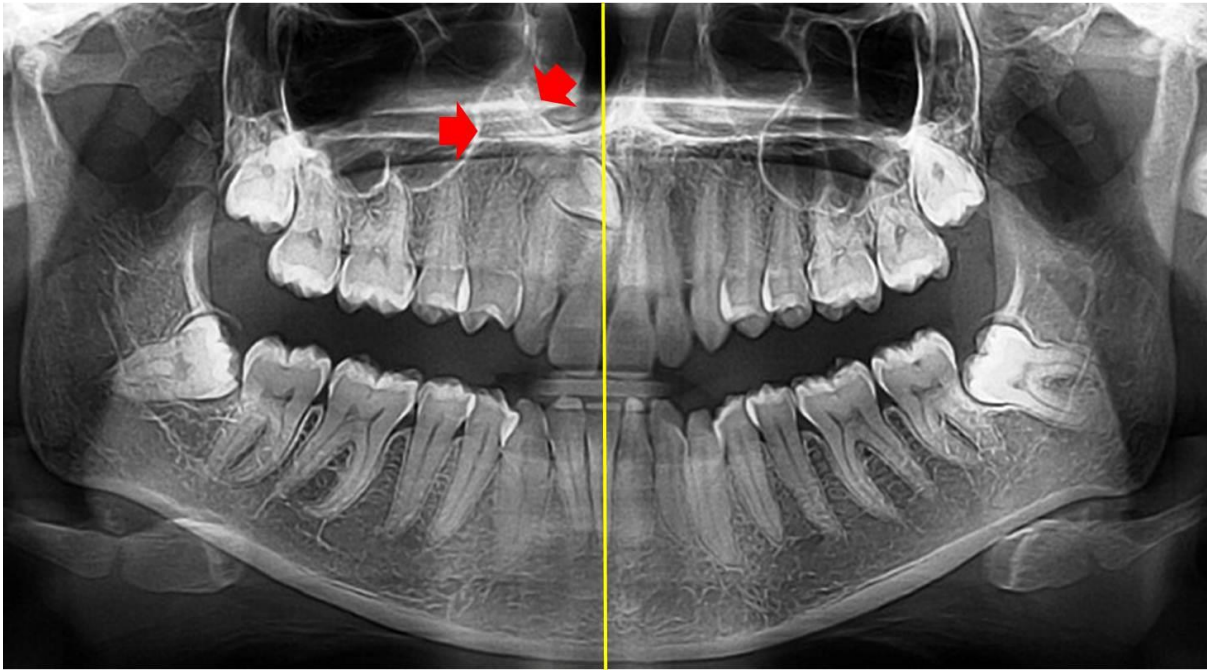


Figure 1: Panoramic radiograph showing the transmigration of maxillary right canine (red arrows). One third portion of the canine has crossed the dental midline (yellow line).

Discussion

Permanent canines are always tooth of interest to a clinician because they most commonly encountered with different dental variations. They might get impacted, found with transposition, or show migration/transmigration and sometimes found with root gigantism [11-16]. Among these, transmigration involving the permanent maxillary canine is an uncommon clinical entity alerting all clinicians as management of such cases is highly challenging. When transmigration occurs in the maxilla, most of the time it is unilateral. When it occurs bilateral then that condition is referred as “mirror image canines” or “kissing canines” and reports of this phenomenon is an extremely rare [1]. Explored literature search revealed few case reports on occurrence of transmigrated permanent maxillary canines (Table 1) [1-10]. Hardly twelve case reports have been reported till date excluding very few prevalence studies [1-10]. Among these, highest case reports are reported from India (N=6) compared to other parts of the world. Details about author information was not obtained to confirm the publication origin from remaining publications. Nagaveni NB reported continuously four cases of maxillary permanent canine transmigration in 2023 and 2024 representing Indian contribution [1-4]. Evaluation of the side affected revealed that left canine affected more frequently compared to right canine. The reason behind this clinical presentation is not known and all cases reported were found unilateral. Reports on this condition can be noted from 2003 [10] onwards and before to this there are no publications. This signifies lack of awareness about transmigration of tooth or diagnosis of this condition might have remain unnoticed. As tooth transmigration is always found on radiographs, majority time the impacted canines remain undiagnosed from transmigration. Only those cases going for orthodontic treatment or any pathology in the dental arch requiring radiographic examination could reveal the hidden truth of tooth transmigration. Therefore, knowledge about occurrence of tooth transmigration is highly essential among all dental clinicians. When they come across any case with missing permanent canines or when over-retained primary canines exist, it is essential that these cases compulsorily should be subjected to a complete radiographic survey to identify and diagnose tooth transmigration or other dental anomalies.

Table 1: Literature search showing reported case reports on transmigration of Permanent maxillary canines

Sl. No.	Author & Year	Publication Origin	Transmigrated Tooth	Unilateral/Bilateral
1.	Nagaveni NB/2024 [1]	India	Left canine	Unilateral
2.	Nagaveni NB/2024 [2]	India	Left canine	Unilateral
3.	Nagaveni NB/2023 [3]	India	Left canine	Unilateral
4.	Nagaveni NB/2023 [4]	India	Right canine	Unilateral
5.	Narsapur et al/2014 [5]	India	Right canine	Unilateral
6.	Kumar et al/2012 [6]	India	cases Right	Unilateral

			2 – Left	
7.	Kurol et al /2006 [7]	-		Unilateral
8.	Auluck & Mupparapu/2006 [8]	-		Unilateral
9.	Ryan et al/2005 [9]	-	Left	Unilateral
10.	Shapira & Kuftinec/2005 [10]	-	-	Unilateral

Tooth transmigration involving either maxillary or mandibular arch is reported only in the permanent dentition [1-15]. There are lack of documentation or publications about occurrence of tooth transmigration in the primary dentition showing no particular etiology associated with this. The reason behind less occurrence of transmigration in the maxillary arch compared to mandible has been explained in the available literature. The strong mid-palatal suture and compact bone type of maxilla acts as a barrier for the tooth to cross dental midline as compared to mandible where the bone is more porous [5-10]. As a result, compared to maxilla, in mandible the impacted tooth easily crosses the dental midline using strong eruptive force. The eruptive force found in the maxillary canines might not be sufficient to cross the dental midline or mid-palatal suture. Transmigration of maxillary canine can occur isolated or with other dental anomalies. From the list of reported cases presented here, Nagaveni NB, recently published a unique case consisting of transmigration of maxillary canine along with permanent central incisor and horizontal impaction of a mesiodens which is not reported till date [2]. All three teeth were impacted high in the alveolus and were close to the nasal septum. This case report documented transmigration of permanent central incisor which is too a rare phenomenon. With respect to disturbance in tooth eruption phenomenon, tooth migration cases have also been reported. Tooth migration is different from transmigration and refers to a condition where an impacted tooth within the alveolar bone migrates from its original position to another position or to a far distance from its position towards its distal side. Again, mandibular teeth have been found more commonly associated with this different dental abnormality. Nagaveni NB from India recently published a case report showing migration of mandibular supernumerary supplemental premolar towards angle of the mandible associated with other anomalies like multiple both erupted and unerupted anomalous supernumerary premolars occurring in maxillary and mandibular arch [17]. This unusual dental eruption phenomenon has been referred as “Paramolar Wanderung” in the history of dental literature.

When transmigration occurs, most of the time primary canines remain over-retained. This finding has been reported in previous case publications [1-6]. In the present primary canine has been exfoliated and the its space was occupied by the adjacent first premolar. Treatment for the transmigrated canine involves, orthodontic treatment or wait and watch method. Surgical intervention is required when signs and symptoms develop or when the transmigrated tooth found with any pathology. In the case described here, as patient did not have any symptoms associated with the affected tooth, no treatment was carried out and patient was kept under regular observation.

Conclusion

Tooth transmigration involving maxillary permanent canine is an unexplored field requiring a greater number of prevalence studies to draw out precise guidelines regarding its etiology, clinical features, diagnosis and treatment options. Detailed information should be made available in the dental textbooks to create knowledge about this dental abnormality among all dental students and clinicians.

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