Ectopic Eruption of a Transmigrated Mandibular Canine: A Rare Case Report

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Migration of teeth, both physiological as well as pathological, is a well-documented phenomenon. Transmigration, on the other hand, is a rare phenomenon where a tooth crosses the midline and migrates to the opposite side without any pathological influence. An impacted tooth especially canines migrate to a location some distance away but do not usually cross the midline. Even so, the tooth remains impacted. Here is a unique case of transmigration of a left mandibular canine, which has erupted labial to its counterpart on the right mandibular arch. Transmigration of the mandibular canine is a rare phenomenon. Even rare is an eruption of this transmigrated canine into the opposite arch where it can be mistaken as a supernumerary tooth.

Keywords: Eruption, Mandibular canine, Tooth migration midline, Transmigration

INTRODUCTION

Even though canine impaction is more frequent seen in the maxilla, transmigration of canines is more prevalent in the mandibular arch.1 Ando et al.2 in 1964 were the first to coin the term “Transmigration” followed by Tarsitano et al.3 In 1971, who described transmigration as a phenomenon in which an unerupted mandibular canine migrates, crossing the midline. This definition was altered by Javid4 in 1985 to include the clause that at least one half or more of the length of the tooth is required to cross the midline to term it as transmigration. According to Joshi5 the distance traveled by the canine after crossing the midline is not as important a parameter as the tendency of the canine to cross the barrier of the mandibular midline suture. Transmigration almost always exclusively is seen in mandibular canines.1,6

Typically migrated canines remain impacted. Very occasionally they may erupt into the oral cavity, at the midline or into the opposite arch. Women are more affected than men.4 Unilateral canine transmigration is reported to be more common than bilateral. The aim of this paper is to report an unusual case of transmigrated mandibular canine which, unlike other reported cases, did not remain impacted, but erupted into the oral cavity, giving the impression of a supernumerary tooth in that arch. This condition can be classified as Type 3 transmigration according to the classification given by Mupparapu.7

Adverse effects of transmigrated canines include resorption or tilting of roots of adjacent teeth due to the pressure exerted by the migrating cuspid, neuralgic symptoms and pain, and discomfort due to lodgment in abnormal areas of the jaw like the coronoid process of base of the mandible.8

CASE REPORT

A 13-year-old female patient reported to the Department of Oral Medicine and Radiology wanting to get her teeth aligned. Intraoral examination revealed a retained deciduous canine in the mandibular left side. The canine in the fourth quadrant had erupted labially (Figure 1). A (supposed) supernumerary canine in the fourth quadrant was noticed between the central and lateral incisor. No other abnormality was detected intraorally (Figure 2).

A panoramic radiograph (Figure 3) was taken to determine the presence of any other abnormality which cannot be seen clinically. The radiograph revealed no other impacted tooth.

On clinical examination of the supposed supernumerary canine and the ipsilateral canine, the morphology suggested that they are the mirror images of each other. As a general rule, in mandibular permanent canines, the mesial slope is...
shorter than the distal slope. Hence, the mesial and distal sides of both canines were determined and came to the conclusion that the supposed supernumerary tooth was actually the left canine. Furthermore, the distal outline of the crown of the supposed supernumerary tooth was concave between the cervical area and the middle third which gives added weightage to our conclusion.

Based on these clinical and radiological findings, it was concluded that the canine had transmigrated from the opposite arch and erupted into the oral cavity in a position between the central and lateral incisors. It is not a supernumerary tooth of the fourth quadrant.

The patient was referred to the Department of Orthodontics for alignment of the arch along with transplantation of the migrated canine.

**DISCUSSION**

Clinical findings associated with transmigrated canines include retained deciduous canines and in case of eruption of the transmigrated tooth, an extra tooth in the opposite arch which may be mistakenly identified as a supernumerary tooth. An impacted transmigrated canine is usually asymptomatic but can lead to the development of follicular cyst and fistulisation.

A number of factors have been considered as the possible etiology for transmigration, such as presence of odontomas, cysts, and tumors along the path of eruption of the permanent canine, retained deciduous canine, or premature exfoliation of the deciduous canine, excessive length of the mandibular canine crown. Proclination of the lower anteriors, enlarged symphysial cross-sectional area of the mental region also play an important role in the transmigration. Other proposed etiological factors proposed are genetics, endocrina disorders, and trauma.

In 2002, Mupparapu classified canine transmigration into five distinct types depending on the path of deviation. The types are as follows:

- **Type 1 (45.6%)**: Canine positioned mesioangularly across the midline within the jaw bone, labial or lingual to anterior teeth and the crown portion of the tooth crossing the midline.
- **Type 2 (20%)**: Canine horizontally impacted near the inferior border of the mandible below the apices of the incisors.
- **Type 3 (14%)**: Canine erupting either mesial or distal to the opposite canine.
- **Type 4 (17%)**: Canine horizontally impacted near the inferior border of the mandible below the apices of either premolars or the molars on the opposite side.
- **Type 5 (1.5%)**: Canine positioned vertically in the midline (the long axis of the tooth crossing the midline) irrespective of eruption status.

According to this classification, our case falls under Type 3 transmigration, with the tooth erupting mesial to the opposite canine. Type 3 type of transmigration follows Type 5 in terms of the rarity of occurrence, making this case...
the second rarest forms of transmigration with a very few cases reported in a literature.

The incidence of transmigrated canines is seen more in female than in males in the ratio of 1.6:1, with no apparent reasoning behind it. Left-side transmigration has been found to be more common. Furthermore, while canine impaction is seen more common in the maxilla, transmigration of the canines is exclusively seen in the mandible. This could be due to unavailability of space in the maxilla between the apices of the incisors and the nasal floor, whereas the mandible has more space between the root apices of the incisors and the lower border of the mandible. This case is in concurrence with all the above findings.

Transmigration of a permanent canine must be suspected when there is absence of the permanent canine along with retention of the deciduous canine. Transmigration can also be suspected whenever there is a single supernumerary tooth in one arch with retained deciduous canine in the opposite arch. Diagnosis is based on panoramic and intraoral periapical radiography. Thorough knowledge of the anatomy of the canine is of paramount importance to differentiate between right and left canines. According to Ando et al., who conducted a study on canine transmigration in a patient for 6 years, the most rapid movement occurs before completion of root formation.

Management of cases of transmigration depends on the stage of development of the tooth, the position of the tooth on the discovery of the condition, and the associated symptoms. In the case of eruption of the canine into the oral cavity, the clinician needs to evaluate the associated problems if any. In the case of favorable positioning of the tooth in the arch, orthodontic alignment will suffice along with surgical transposition if required. In cases of non-favorable position, surgical removal of the canine may be the preferred choice of treatment.

In this case, as the patient does not have any serious problems associated with an extra tooth in the fourth quadrant due to transmigration of the canine from the opposite side, we came up with the treatment plan of creating space by orthodontic alignment of the dentition and extraction of the retained deciduous canine followed by surgical transposition of the transmigrated canine. Orthodontic alignment of the teeth has been started.

**CONCLUSION**

Transmigration and subsequent eruption of a mandibular canine are a rare event. Over retained deciduous mandibular canines should always be treated with caution. Intraoral periapical radiographs may not be sufficient to detect transmigration of permanent canines. This should always be supplemented with a panoramic radiograph. Thorough knowledge of the tooth anatomy is of paramount importance in such cases.

**REFERENCES**