Transmigration of Mandibular Canine: A Case Report with Review of Literature

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ABSTRACT

Transmigration of canine is a rare phenomenon and eruption of such transmigrated canine is even rarer. The prevalence of transmigrated canine has been found to be only 0.14 to 0.31%. We present a case report with review of literature on its etiological possibilities.

Keywords: Canine, Transmigration, Mandible, Etiology.


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INTRODUCTION

Preruptive migration of tooth across the midline is termed as transmigration. The incidence of mandibular canines to migrate across the midline are rare. The occurrence of transmigration of mandibular canines varies from 0.14 to 0.31%. Transmigrated canines usually remain impacted and asymptomatic or they ectopically erupt at the midline or on the opposite side of the arch.

CASE REPORT

A 38-year-old female patient reported to the department of oral medicine and radiology with the chief complaint of mobile tooth in the lower front region of the jaw since 1 week. Oral examination revealed a tooth simulating 33 in the midline, the tooth was mesiolingually rotated (Fig. 1). 31 was missing, patient gave history of extraction of 31, 1 year back. 42 showed grade-2 mobility. A periapical radiograph of anterior region showed permanent mandibular canine in the midline (Fig. 2).

DISCUSSION

The term transmigration was coined by Ando et al. In a very true sense transmigration is not a pathological entity. However, it might be associated with pathologies like cyst and odontomes. It has been observed that the left side is more involved than the right and women seemed to have this condition more than men. So far, 196 cases of mandibular canine have been reported. According to Javed, an impacted canine that has crossed the midline more than half its length is considered as transmigration.

Abnormal displacement of tooth bud in the embryonic life is commonly accepted explanation. It has been suggested that the proclination of lower anteriors, increased axial inclination of the unerupted canine and an enlarged symphyseal cross-section area of chin play an important part in process of transmigration.

Howard observed that those unerupted canines that lie between 25º and 30º in the midsagittal line do not migrate across the mandibular midline. Those canines between 30º and 95º tend to cross the midline. An overlap appears to exist between 30º and 50º when the angle exceeds 50º crossing the midline becomes a rule.

Javed, Joshi and Sheete suggested that an abnormally strong eruption force, which drives the canine through the
dense symphysis and that the conical shape of the canine may be the cause of transmigration.

Vichi and Franchi\(^9\) suggested that agenesis of the adjacent tooth, in particular the lateral incisor, may favor the retention of the primary canine and that the excess of space in the dental arch may account for absence of correct guide for eruption. They stated that the unerupted canine has the possibility of deviating from its normal developmental site, moving to a horizontal position, and migrating through the symphyseal bone only, if enough space is available in front of the mandibular incisors.

Mupparapu\(^11\) proposed a classification of mandibular canine transmigration based on migrating pattern and position of canine in the jaw.

- Type 1—canine impacted mesioangularly across the midline, labial or lingual to the anterior teeth.
- Type 2—canine horizontally impacted near the lower border of the mandible inferior to the apices of the incisors.
- Type 3—canine erupting on the contralateral side.
- Type 4—canine horizontally impacted near the inferior border of the opposite side.
- Type 5—canine positioned vertically in the midline with the long axis of the crossing the midline.

Most of cases reported in the literature are type 1. Our case is type 5 variant.

The transmigrated canine usually remains impacted, but it erupts labially, linguually or in mirror image fashion with the contralateral side canine (Table 1).

Transmigrated teeth maintain their nerve connection to the originating side, where the tooth germ is formed. Therefore, it is important to anesthetize the nerve on the originating side.\(^22\)

Various treatment modalities like surgical extraction of transmigrated canines, transplantation, exposure and orthodontic alignment have been suggested.\(^23\) Surgical extraction is the most favored treatment. If the patient is asymptomatic and has any associated abnormalities, such as developing apical cyst, neuralgia, resorption of adjacent tooth root or displacement of teeth, then surgical extraction should be planned immediately. If the patient is asymptomatic the transmigrated canine can be left in place, however, regular follow-up with radiographs is required to monitor the movement of these teeth. However, in our case the patient wanted removal of the 42 and artificial replacement of the missing 32 and 42, so the patient was referred to oral surgery and prosthodontics departments for further management.\(^16,23\)

**CONCLUSION**

Transmigration of mandibular canine is a rare and elusive phenomenon described in dental literature. The eruption of such transmigrated canine is even rarer. An early and timely intervention would lead to better management of transmigrated canine and hence avoids the complication associated with transmigrated canine.

**REFERENCES**


**Table 1: The list of cases reporting transmigrated canine, erupted in the oral cavity**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Years</th>
<th>Position of the transmigrated canine</th>
<th>Overretained deciduous present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruszt(^12)</td>
<td>1958</td>
<td>Left canine migrated up to right side and erupted labially</td>
<td>No</td>
</tr>
<tr>
<td>Kaulman and Buchner(^13)</td>
<td>1968</td>
<td>Right canine up to left canine and erupted labially</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Pratt(^14)</td>
<td>1969</td>
<td>Right canine transmigrated near mesial surface of left canine and erupted labially</td>
<td>Yes</td>
</tr>
<tr>
<td>Barnett(^15)</td>
<td>1977</td>
<td>Left canine transmigrated up to right side and erupted labially</td>
<td>No</td>
</tr>
<tr>
<td>Abbot et al(^16)</td>
<td>1980</td>
<td>Right canine between left canine and lateral and erupted labially</td>
<td>Yes</td>
</tr>
<tr>
<td>Shapira et al(^17)</td>
<td>1982</td>
<td>Left canine transmigrated to lingual surface of right lateral incisor</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>Sofat(^18)</td>
<td>1983</td>
<td>Right canine between the two central incisors</td>
<td>Yes</td>
</tr>
<tr>
<td>Dhoooria et al(^18)</td>
<td>1986</td>
<td>Left canine erupted labial to right central incisor</td>
<td>Yes</td>
</tr>
<tr>
<td>Gadalla(^19)</td>
<td>1987</td>
<td>Left canine erupted extraorally inverted position through the chin on right side</td>
<td>No</td>
</tr>
<tr>
<td>Vichi, Franchi(^10)</td>
<td>1991</td>
<td>Right canine transmigrated and erupted near lateral incisor</td>
<td>No</td>
</tr>
<tr>
<td>Joshi MR(^5)</td>
<td>2001</td>
<td>Right canine in mirror image position on the left</td>
<td>No</td>
</tr>
<tr>
<td>Batra P(^20)</td>
<td>2003</td>
<td>Mandibular canines touching each other in the midline, right lower canine erupted in contact with its counterpart on the left</td>
<td>Yes</td>
</tr>
<tr>
<td>Auluck A(^21)</td>
<td>2006</td>
<td>Right canine erupted in the midline</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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