Transmigration of the Mandibular Canine: A Report of Two Rare Cases

Anilkumar L Bhoweer1, Sudarshan Ranpise2
1Consultant Dental Surgeon, Department of Oral Medicine & Maxillofacial Radiology, Mumbai, Maharashtra, India, 2Professor and Head, Department of Oral Medicine & Radiology, Bharati Vidyapeeth Dental College, Kharghar, Navi Mumbai, Maharashtra, India

When the tooth, instead of erupting in its normal position, remains impacted and crosses midline and is seen on the opposite side of the jaw, it is termed as Transmigration; e.g., right side tooth is seen on the left side and vice-versa. This phenomenon occurs without any pathology intervening cause. Canines are commonly seen unerupted and remain impacted, but rarely seen crossing the midline and migrating to the opposite side. They are usually symptomless. Here, we present two such rare cases of transmigration of the mandibular canine, one from the right side to the left side and appearing piercing the lower border of the mandible and producing a hard bulge on the left side of the lower jaw, but without any pain. The other case is of transmigration of mandibular left canine toward the right side well below the inferior alveolar canal beyond mental foramen facing toward posterior region of the mandible and causing pain symptoms in the jaw due to its close proximity to inferior alveolar canal. It is very essential to have panoramic radiograph to detect such abnormalities at an early stage to plan treatment and avoid future complications. Cone beam computed tomography images also play an important role.

Keywords: Cone beam computed tomography images, Panoramic radiograph, Transmigration, Unerupted permanent canines

INTRODUCTION

In human beings all canines, maxillary and mandibular, are very important in their respective position and well-alignment for aesthetic purpose and mastication. Everything disturbs if canines are not perfectly situated in their proper position.

Many times, either single or both in each jaw found either malpositioned or even impacted in the jaw bone. It is normal for canine to get trapped while erupting and remains impacted within the jaw bone at various positions but usually remains on the same side of the jaw. It is extremely rare for the canine to be seen impacted on the opposite side of the jaw as right to left or left to right crossing midline of the jaw and vice-versa. Sometimes, it may occur due to some pathology, like cyst or tumor, as pushing consequences. However, it is extremely rare to see the tooth on the opposite side of the jaw bone crossing the midline without involvement of any pathology, like cyst or tumor. This is called as Transmigration of tooth. Such cases are extremely rare and intraoral periapical radiographs can commonly miss out these teeth, as they are placed much below the apices of the teeth. Therefore, Panoramic Radiograph plays an essential role, especially if any tooth is missing on the side without any history of extraction, mixed dentition to detect such abnormalities and to plan treatment.

There are a few cases reported as Aydin et al. during survey of 4500 patients with orthopantomogram (OPG) reported 14 cases of canine transmigration with 8 mandibular canines being transmigrated. Javid1 found only 1 case of transmigration of the mandibular canine. Aktan found in a survey of 5000 patients more mandibular canines transmigrated than maxillary canines. Commonly, it has been observed as unilateral and not bilateral transmigration of canines. The term transmigration was first used by Ando et al.2 Ever since the first transmigration of canine was first reported in 1951 and panoramic radiographs became popular, more cases were reported thereafter. From its travel of distance on the opposite side, Mupparapu3 proposed classification of transmigrated teeth based on their migratory pattern and position in the jaw. As Nodine4 puts forth, it is difficult to find out etiological factor for transmigration of tooth. Joshi5 mentions it is sometimes rare to find mandibular canine impaction than maxillary canine and transmigration of the mandibular canine is a rare event. Shapiro and Kuftinec6 feel some pathology, such as cyst, odontoma, accompanies such abnormality. Bahl et al.7 report a case where horizontally impacted canine was detected accidentally on a panoramic radiograph below the apices of lower incisors and close to the inferior border of the mandible which was surgically removed.

In this paper, two cases of mandibular transmigrated canines are presented, one from the right to left and the other from left to the right side crossing the midline toward posterior region and close to the inferior border of the mandible. One almost piercing through the inferior cortex of the mandible
He had a history of swelling 6 years back and he was treated by a local dentist for periapical abscess of the lower right first molar by root canal treatment (RCT) and filling. Now, the patient was complaining about pain and discomfort on the same side, i.e., right lower jaw in the posterior segment of the jaw of the recurrent type referring to angle of the mandible and face.

On examination, mandibular right side, second, and third molars were missing. The first molar right side canine was present but left side canine was missing, but there was no gap between lateral incisor and first and second premolar due to shifting. The first molar distobuccal cusp was fractured and second showed filling and third molar normal.

In the upper jaw, right side third molar area edentulous and all other teeth were present. Central incisors show incisor proximal restoration and left first molar distal surface caries and gap.

OPG X-ray (Figure 2) was taken revealed on the right side of the mandible horizontally impacted canine almost at the inferior cortex of the mandible and the crown facing toward posteriorly and under the mental foramen (right) and between inferior alveolar canal and inferior border of the mandible, 48, 47, sockets were healed. 46 RCT with restoration positive. Apical area of second premolar, 45, revealed ratification and distal caries close to a pulp.

Mandibular right canine is present and left canine is missing in the arch. It was the missing left side (33) canine which had transmigrated toward right side crossing the midline horizontally migrating and was trapped posteriorly between inferior alveolar canal and inferior border of the mandible. This is probably causing pain in the posterior region of the right side of the mandible.

It was the perfect situation for referral for cone beam computed topography (CBCT) image to know exactly how close the crown is to the inferior alveolar canal. CBCT images revealed the proximity of the nerve to the crown (Figures 3-6). The patient was given medication for relief of pain and referred to senior Oral Surgeon for the operation.

**CASE REPORTS**

**Case 1**
Young male patient wanted to correct dental irregularity. The Orthodontist relied on an intraoral full mouth periapical radiograph which could not reveal the clinically missing right mandibular canine in the jaw bone contributing to the dental irregularity and gaps in the anterior teeth. It might have been thought to be absent as there was no history of any extraction of the tooth in childhood. The orthodontic bands were also fitted for correction with arch wire.

However, the patient told the Orthodontist later that he feels some bulge on the left side of the lower jaw. Right side permanent canine was missing in the arch and left side permanent canine was clinically present in its place (Figure 1).

The patient was, therefore, referred for OPG, where it was seen clearly that the right side missing tooth (right canine) in the arch was actually impacted and had transmigrated, crossing the midline to the other side (left) of the jaw, but was deep down at the lower border of the mandible piercing the cortex in the posterior segment of the jaw below the molars (Figure 1). Due to this, the patient was feeling the bulge in the lower jaw bone on the left side. There was no pain. However, nothing could have been done and hence, it was advised to have it surgically removed by Oral Surgeon and to continue orthodontic treatment.

**Case 2**
A young male patient, age 31 years, had some discomfort and pain on right side of the lower jaw and was referred for diagnosis.

![Figure 1: Orthopantomogram X-ray for case 1](image1)

![Figure 2: Orthopantomogram X-ray for case 2](image2)
and needful surgical extraction, explaining the possibility of injury to the nerve.

**DISCUSSION**

Impacted canines are of great importance to orthodontists, oral and maxillofacial surgeons. The OPG is of the greatest importance to identify such abnormality and is a necessity for treatment planning for the benefit of the patient to avoid future complications. Transmigration of canine crossing the midline and appearing on the opposite side is extremely rare phenomenon. Its real position and closeness to important structures need to be identified by proper investigation.
The transpositional tooth maintains the nerve supply from the original side. It is very difficult to know the exact etiology of such transmigration.

Although some authors mentioned no symptom of pressure of inferior alveolar nerve was present in their patient, but in our case pain and discomfort was present and CBCT images confirmed the close proximity of the transmigrated canine crown and follicle, probably causing pressure effects due to the thrust of eruption force. CBCT images revealed the tooth crown is placed more lingually. In our case, there was no evidence of any pathology (as cyst, tumors, etc.) as the cause; neither was there any history of such surgical procedure. In our case, the surgical removal was the only choice, by expert, as the tooth was placed more linguually (CBCT image) to prevent any damage to the nerve.

CONCLUSION

Transmigration of the mandibular canine is the rarest phenomenon. Missing permanent tooth or teeth, mixed dentition, proper investigation, especially pantograph, is almost mandatory to detect such abnormality at an early stage and for better treatment planning and to avoid possible complications due to delay. Incident rate 0.34.

REFERENCES