

Transmigrated Kissing Canines: A Case Report of Bilateral Impacted Mandibular Canines

SHRABASTI DEY¹, ASISH KUMAR DAS², SUBHASISH BURMAN³, ABHIJIT MAJI⁴, ABHISHEK KHATUA⁵

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ABSTRACT

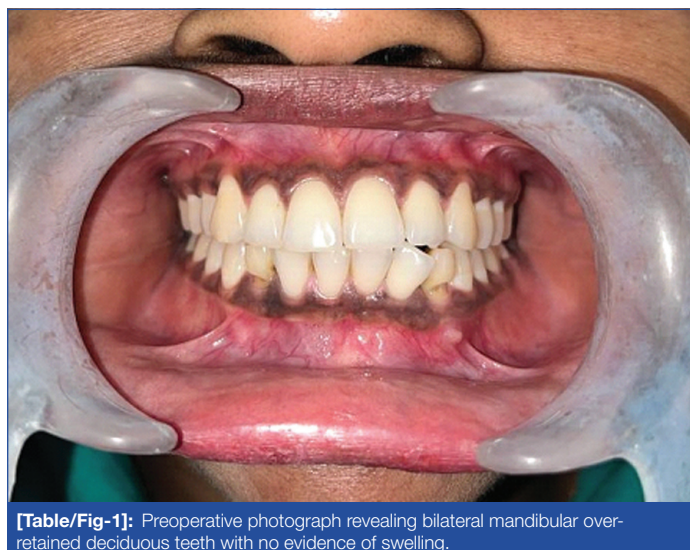
Mandibular canines, also known as the “cornerstone” of the dental arch, are important factors for dental arch stability, masticatory function, and maintaining natural facial expressions and aesthetics. Due to their eruption pattern and sequence, canines are prone to impactions with a 20 times higher frequency for maxillary canines than mandibular canines. Bilateral impactions of permanent mandibular canines are rare occurrences with a low incidence of 0.12%. Migration of teeth is a frequently documented ectopia. However, pre-eruptive migration across the midline of the arch is an unusual occurrence known as transmigration. Hereby the authors present a 29-year-old female patient who reported pain and swelling of the anterior mandible. On examination, it was revealed to be associated with bilaterally impacted permanent mandibular canines associated with transmigration. The case was managed by surgical extraction of both impacted teeth leading to resolution of the pain and swelling.

Keywords: Canine teeth, Cuspids, Mandible, Oral surgery, Unerupted teeth

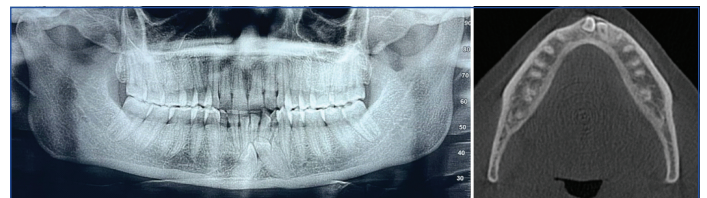
CASE REPORT

A 29-year-old female patient reported with a complaint of pain and swelling in the lower anterior jaw for the past two years. The pain was insidious in onset, dull and throbbing in nature, and presented with intermittent frequency. There were no exacerbating factors. However, the pain was relieved on taking analgesic medications. There was no history of trauma.

On examination, there were no clinically significant findings extraorally. On intraoral examination, bilateral mandibular over-retained deciduous canines were noted. On palpation, there was a tender bony-hard swelling in the mandibular labial sulcus with slight expansion of the labial cortex. Mandibular anterior teeth overlying the swelling were vital [Table/Fig-1]. Radiographic examination (orthopantomogram) revealed the presence of bilateral impacted mandibular permanent canines, of which the right canine, which was rotated along its long axis, had crossed the midline, or transmigrated, and laid just adjacent to the medially drifted left canine exhibiting a ‘kissing’ phenomenon. Cone-beam Computed Tomography (CBCT) was also done to determine the exact position of the teeth, which were found to be located within a single follicular space with their cusp tips placed buccally and their roots positioned more lingually [Table/Fig-2].



[Table/Fig-1]: Preoperative photograph revealing bilateral mandibular over-retained deciduous teeth with no evidence of swelling.

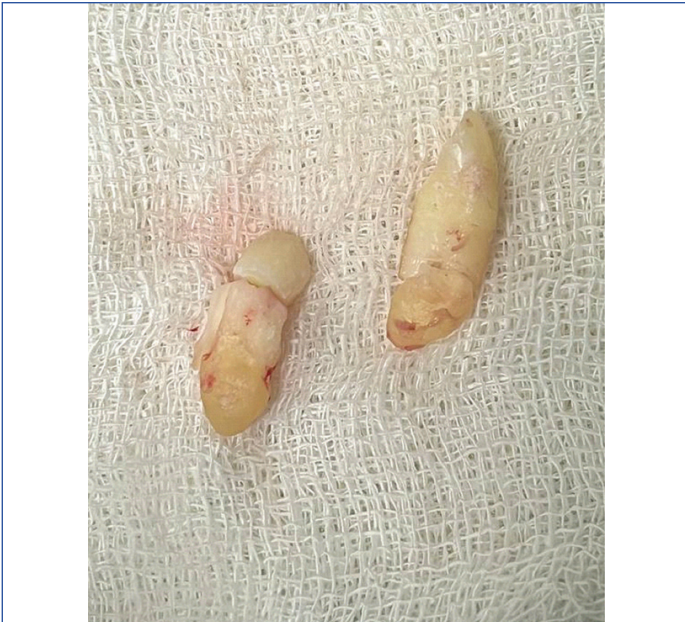


[Table/Fig-2]: Orthopantomogram revealing ‘kissing canines’; CBCT- axial section demonstrates single follicular space.

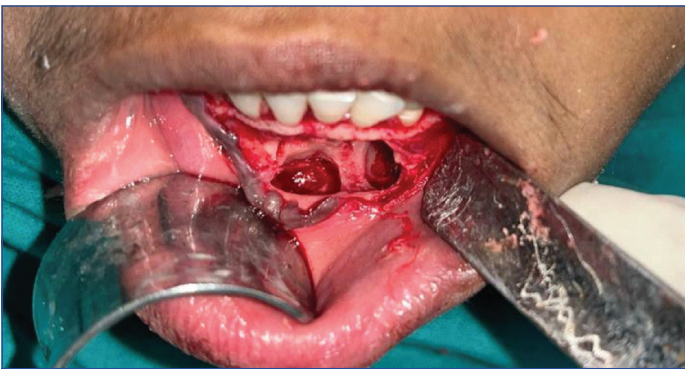
The patient was referred for an orthodontic consultation to explore the possibility of extraction of deciduous canines followed by permanent canine exposure with orthodontic management to bring them in alignment. However, she did not desire a lengthy orthodontic procedure and instead wished to have them removed as she was having chronic and recurrent bouts of pain. After eliciting proper medical history, the surgical procedure was carried out under local anaesthesia for which 2% lignocaine hydrochloride with 1:100,000 adrenaline was used for bilateral pterygomandibular block. A trapezoidal flap was raised for adequate access to the site of impaction. The bony bulge housing the two canines was located and adequate bone removal was done to expose both the teeth [Table/Fig-3]. The plane of cleavage was identified, and surrounding bone was removed using HP-4 and 6 surgical carbide burs to allow removal of both teeth [Table/Fig-4]. Both canines had to be sectioned using 702 carbide burs and were removed in pieces. The follicle was delineated and removed from the bony defect [Table/Fig-5,6]. Absorbable gelatin sponge (Abgel) was placed in the resulting defect, and primary closure was done using vicryl [Table/Fig-7]. The over-retained deciduous canines were not removed owing to the unwillingness expressed on behalf of the patient since they



[Table/Fig-3]: Bony bulge exposed upon flap elevation.
[Table/Fig-4]: Impacted canines exposed upon deroofting overlying bone. (Images from left to right).

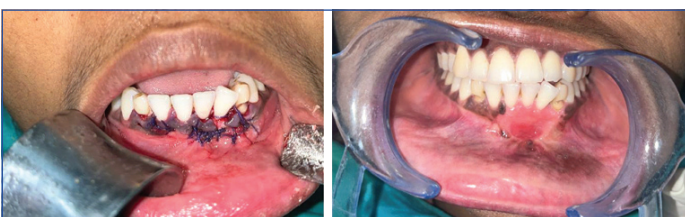


[Table/Fig-5]: Both canines sectioned and removed in pieces.



[Table/Fig-6]: Extraction sockets after removal of impacted canines.

were asymptomatic with no significant mobility. Postoperatively, the patient did not report for follow-up till the wound underwent dehiscence with exposure of the underlying bone. Regular irrigation and dressing were done using bismuth iodoform paraffin paste-impregnated gauze till the wound underwent secondary healing. Currently, the patient is under four months of follow-up, and there is satisfactory healing of the operative site [Table/Fig-8]. The patient has no complaints at present.



[Table/Fig-7]: Primary closure. **[Table/Fig-8]:** Four months postoperative showing satisfactory secondary healing. (Images from left to right).

DISCUSSION

Displacement or malposition of an unerupted tooth from its normal position to a site some distance away on the contralateral side, crossing the midline, without the influence of any pathological entity, is an infrequent phenomenon known as dental transmigration [1]. The phenomenon of transmigration was earlier thought to be unique to mandibular permanent canines due to the dearth of reports for any other teeth [2]. However, a study published by Nagpal A et al., reports a significant association between maxillary canine transmigration and palatally impacted canines, thus indicating transmigration may also occur in maxillary canines [3]. Originally thought to be very rare, the incidence of transmigration has been more frequently reported since the introduction of orthopantomography in day-to-day clinical

dentistry, although the reported prevalence is still as low as 0.12%-0.98% [4,5].

In 1973, Van Hoof RF first described the term “kissing” in dentistry in the context of molars [6]. Radiographs of this reported patient show crowns of mandibular impacted canines contacting each other with the roots pointing in opposite directions, thus exhibiting a kissing phenomenon [7].

There have been various proposed theories for transmigration, including displacement of tooth bud during development, premature loss of deciduous teeth, hereditary factors, trauma, endocrinopathy, and osteodental discrepancy. However, the aetiology remains unknown [7].

Transmigration of mandibular canines has been classified by Mupparapu M in 2002 into five distinct patterns [2]. Of these five patterns, this reported case may be classified into Type-1, defined as “canine positioned mesio-angularly across the midline within the jaw bone, labial or lingual to anterior teeth, and the crown portion of the tooth crossing the midline” [2]. Type-1 has also been reported as the most common migratory pattern in the literature, presenting with 11%-76% of cases, while Type-4 and -5 were the least common as reported by authors such as Azeem M et al., and Sathyanarayana HP et al., [5,8]. Of the nine cases reported by Mupparapu M, three canines showed the Type-1 pattern of transmigration, of which one was impacted and associated with a cystic lesion, and the other two had erupted in the midline [2]. Umashree N et al., also reported four cases of transmigration, of which one case presented by a 15-year-old female revealed an incidental finding of an impacted permanent right mandibular canine exhibiting the Type-1 trans migratory pattern [1]. This tooth was not associated with any pathological finding. However, it had an unfavourable position and was consequently surgically extracted. Other authors such as Pérez-Flores et al., and Joshi HN et al., have also commonly reported the Type-1 pattern of transmigration [9,10]. On the other hand, Martínez-Rodríguez C et al., reported Type-4 to be the most commonly presented migratory pattern followed by Type-2 and Type-1 [11]. Most cases of transmigration are associated with impacted permanent teeth and retained deciduous teeth. A very low percentage of teeth undergoing transmigration eventually erupt, either at the midline or on the contralateral side [2].

Most cases of transmigrated mandibular canines are asymptomatic but present with over-retained deciduous canines or a conspicuous absence of permanent canines. Some cases may present with vestibular swelling due to cystic changes. The management of these cases includes exposure followed by orthodontic alignment, transplantation, extraction, or a wait-and-watch policy in cases of early detection to monitor their development and assess the possibility of orthodontic intervention [7]. Canines that have crossed the midline are considered impossible to align, making early detection crucial for timely intervention [9]. According to Stafne EC, if the malpositioned tooth is detected early, there are higher chances of successful orthodontic realignment [12]. However, in cases associated with pathological lesions, surgical extraction is the treatment of choice [7].

CONCLUSION(S)

Transmigration of mandibular canines is a rare ectopia which, if detected early, can be corrected by orthodontic realignment. However, if undetected, they may undergo cystic changes for which surgical extraction remains the only choice of treatment. Early recognition of this dental anomaly can help avoid extraction of the tooth as well as other aesthetic and functional complications such as pain and swelling, as seen in the present reported case. In cases detected well into adulthood where the canine has already migrated a substantial distance towards the contralateral jaw, as in the present reported case, bringing the canine into alignment via orthodontic treatment may be mechanically impossible, rendering a guarded prognosis of

conservative management without tooth extraction. Hence, surgical extraction of the involved tooth is often the most suitable modality of management in such symptomatic cases presenting in adults, while a “wait-and-watch” philosophy may be prudent in asymptomatic adults with an incidental finding of canine transmigration.

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PARTICULARS OF CONTRIBUTORS:

1. Postgraduate Trainee, Department of Oral and Maxillofacial Surgery, Dr. R. Ahmed Dental College and Hospital, Kolkata, West Bengal, India.
2. Professor and Head, Department of Oral and Maxillofacial Surgery, Dr. R. Ahmed Dental College and Hospital, Kolkata, West Bengal, India.
3. Professor, Department of Oral and Maxillofacial Surgery, Dr. R. Ahmed Dental College and Hospital, Kolkata, West Bengal, India.
4. Assistant Professor, Department of Oral and Maxillofacial Surgery, Dr. R. Ahmed Dental College and Hospital, Kolkata, West Bengal, India.
5. Assistant Professor, Department of Oral and Maxillofacial Surgery, Dr. R. Ahmed Dental College and Hospital, Kolkata, West Bengal, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Shrabasti Dey,
16LD1, Greenwood Nook, Kolkata-700078, West Bengal, India.
E-mail: deyrshrabasti@gmail.com

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