



Kissing transmigrated mandibular canines sharing a Dentigerous cyst: A case report

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ABSTRACT: The Latin word "cuspid" means point, so the canines - long, pointed and the sharpest teeth of the oral cavity are called cuspids. They play a pivotal role in the smile of a person and the tearing of food. Transmigration is a rare phenomenon seen almost exclusively in the mandibular canines. An unerupted permanent canine crossing the midline is called transmigration and is an unusual event. Dentigerous cyst or follicular cyst is a benign non-inflammatory odontogenic cyst associated with the canine of an impacted, embedded, unerupted, or developing tooth. Transmigrated canine associated with the dentigerous cyst is properly diagnosed by radiographic evaluation, which is primarily based on the panoramic radiograph.

KEYWORDS: Transmigration, malalignment, unerupted, panoramic, dentigerous

I. PRESENTATION OF CASE

A 13 yr old male patient reported to the Department of Oral Medicine & Radiology, Faculty of Dental Sciences, SGT University for orthodontic treatment with the chief complaint of forwardly placed upper front teeth. On clinical examination, he was diagnosed with Angle's Class II Div 1 malocclusion with proclined maxillary anteriors, retrognathic mandible, increased overjet, increased overbite, missing 33 & 43, and normal gingiva. There was no history of trauma, fever, or any other systemic disease.

The patient was referred to the department of orthodontics for correction of malocclusion

where a lateral cephalogram was advised [Fig 1] which revealed impacted canines near the inferior border of the mandible.

For further evaluation, OPG was advised. Orthopantomograph [Fig 2] revealed impacted 43 and 33 lying horizontally, both crossing the midline, with 33 lying above the inferior border of the mandible while 43 lying just below 33 and subapical to anterior mandibular incisors. The two transmigrated canines demonstrated the kissing phenomenon. There was a unilocular radiolucency of approximately 1*2 cm around the crown as well as the lateral root aspect of the impacted teeth with well-defined sclerotic borders suggestive of cystic changes. The lesion appeared to be attached to the cemento-enamel junctions of both teeth. Apical root resorption with respect to 34 was also observed.

For further evaluation of the pericoronal pathology, CBCT (medium FOV) of the jaw was done. [Fig3]

It revealed an oval-shaped lesion enveloping the coronal portion of 33 and 43 in the anterior mandible. The lesion was approximating the root of 31/41 (at the apical and middle third level) and 32/42 (at the apical third level) on the labial side. The lesion was approximately (in mm): 12.81 (labio-lingually) x 19.51 (superior-inferiorly) x 15.61 (mesiodistally). The periphery of the lesion was well defined without any evidence of cortication or sclerosis. There was an expansion of the anterior mandible in the area of the lesion with marked



[Fig 1] Lateral cephalogram showing impacted canines near the inferior border of the



[Fig 2] Orthopantomograph showing transmigrated impacted 33, 43 with well- defined radiolucency around the coronal portion of canine suggestive of dentigerous cyst

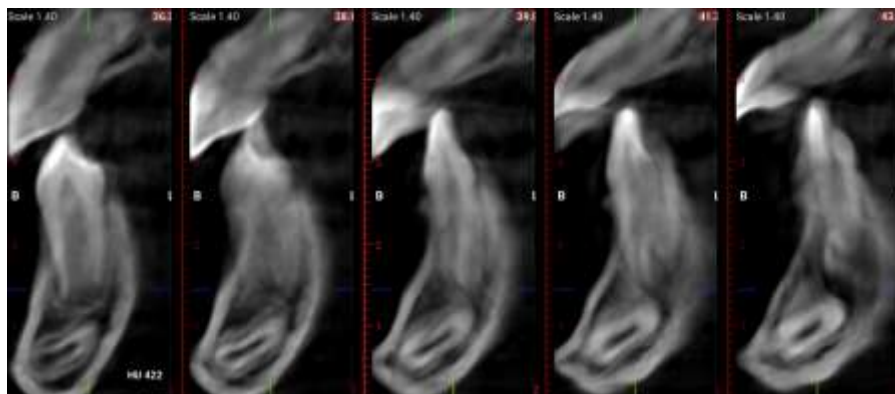


Fig 3. a. Paraxial View on CBCT showing impacted canines near the inferior border of mandible



thinning of the labial cortical plate. No root resorption was seen secondary to the lesion. Lingual foramen was not appreciable secondary to the lesion, however lateral lingual foramen was appreciable at the labial aspect in the symphysis region, 32 and 42 regions. So radiographic diagnosis of transmigration concerning 33 and 43, Over-retained 85 with erupting 45 and Dentigerous cyst with respect to 33 and 43 was made.

Differential diagnoses considered were hyperplastic follicles, OKC, ameloblastic fibroma, and eruption cyst. Normal follicular space is 2-3 mm and when the space is more than 5 mm dentigerous cyst should be considered. OKCs are not always pericoronal and cause less expansion and less root resorption. Ameloblastic fibromas mostly occur in the younger age group and are well defined, have a corticated border and mostly they do not have tooth structure or calcification within the lesion. Eruption cyst is a soft tissue variant of dentigerous cyst. Clinically, it is a bluish swelling that is expanded to the oral cavity.

Treatment planning, in this case, was enucleation of the cyst and extraction of the impacted canines. [Fig 4] Enucleation of the cyst along with the extraction of the impacted canines was done under general anesthesia. Splitting of 33 was required for removal whereas 43 was removed in total along with the cystic lining. Extraction of 85 was done. Postoperative recovery was good with satisfactory wound healing. Enucleated sample of the cyst was sent to oral pathology to confirm the radiographic diagnosis. Biopsy report revealed the presence of thin non-keratinized, stratified squamous epithelium with odontogenic islands in the connective tissue suggestive of dentigerous cyst confirming our radiographic diagnosis.

The orthodontic treatment was delayed for 3 months to allow the callus healing of the cystic defect and avoid any complication or fracture due to orthodontic forces. As the cystic lining of the follicular cyst was in contact with the root apices of mandibular incisors and roots of mandibular premolars having open apices, it was decided to proceed with the removable Class II corrector, Twin Block so that periodic evaluation of vitality of the mandibular incisors and premolars with Electric Pulp Tester can be done. The patient had Angle's Class II Div 1 malocclusion superimposed on Skeletal Class II jaw bases with mandibular retrognathism with horizontal growth pattern, deep bite, decreased lower anterior facial height, increased overjet, proclined and protruded

maxillary and mandibular anteriors, incompetent lips, proclined, strained, short upper lip and convex profile, constricted lower pharynx and positive Visual Treatment Objective. Presently, the patient is given the twin block appliance to increase mandibular growth, achieve Class I molar relationship, and improve the profile of the patient. Further, the mandibular first premolars will be substituted as canines during phase II fixed orthodontic treatment to achieve Class I canine relationship.

II. DISCUSSION

The term "Transmigration" first used by Ando et al is an uncommon phenomenon in which an unerupted tooth crosses the midline. [6] The incidence of transmigration, generally found in mandibular canines, has been reported to be ranging from 0.8–3.6% to 0.1%. [7] Kara et al reported the prevalence of transmigration in mandibular teeth and found an incidence of 0.079% transmigrated canines, 0.0017% transmigrated lateral teeth and 0.0026% transmigrated premolars.[8] Transmigrated mandibular canine has been reported unilaterally in most of the cases, but bilateral occurrence in some cases has been found in some cases. A more frequent occurrence in females than males is reported in the ratio of 1.6:1. [9,10]

The etiology of transmigration of teeth is still unknown, however, factors such as ectopic growth of the tooth bud, retention or premature loss of a primary tooth, inadequate eruption space, and excessive length of the crown have been identified. Genetic factors, endocrine disorders, and trauma have also been proposed as etiological factors [2,3]. Transmigrated mandibular canines have been classified into five types by Mupparapu: [11]

Type 1: Mesioangular impacted canine impacted across the midline, labial or lingual to the anterior teeth with the crown portion of tooth crossing the midline.

Type 2: Horizontally impacted canine near the inferior border of the mandible below the apices of the incisors.

Type 3: Canine erupted either mesial or distal to the opposite canine.

Type 4: Horizontally impacted canine near the inferior border of the mandible below the apices of the premolar or molar on the opposite side.

Type 5: A vertically positioned canine in the middle with the long axis of the tooth crossing the midline.

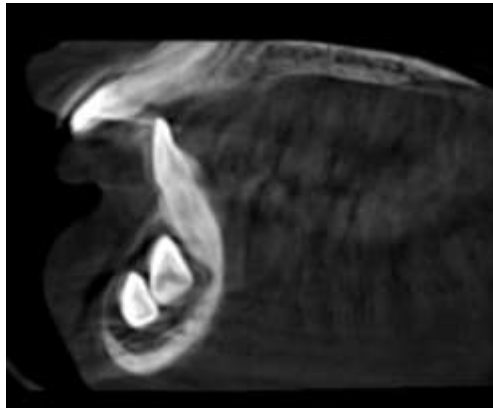


Fig 3.b. Sagittal section of CBCT showing position of coronal portion of impacted canine with enlarged follicular space

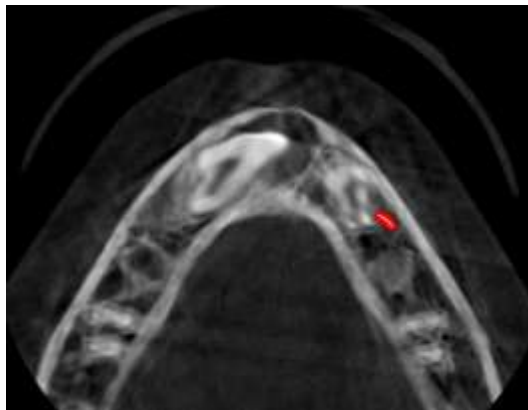


Fig 3.d. Axial section of CBCT showing position of impacted canine



Fig 4. Exposed anterior mandible with the extraction of 33, 43

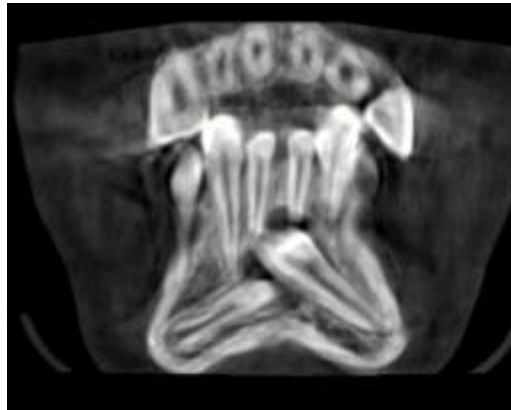


Fig 3.c. Coronal section of CBCT showing position of impacted canine

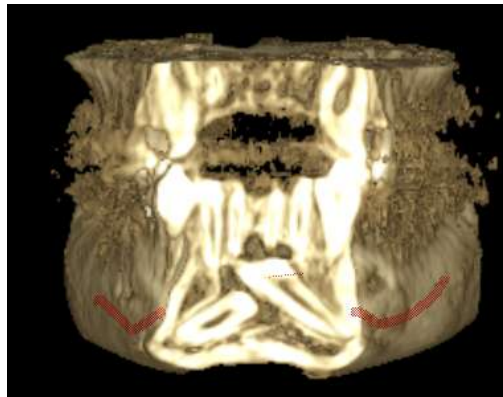


Fig 3.e. 3-D Reconstruction showing position of Impacted Canine wrt 43, 33



Type 1 (45.6%) is the most common type of transmigration followed by Type 2 (20%), Type 4 (17%), Type 3 (14%), and Type 5(1.5%).

Transmigrated canines are usually asymptomatic, with a rare occurrence of a follicular or dentigerous cyst or chronic infection with fistula formation. [4,5] They may erupt ectopically or

remain impacted and diagnosed on routine panoramic radiography taken for evaluation of missing permanent canines or retained deciduous canines or in pre-treatment records taken for orthodontic treatment. Transmigrated teeth may cause root resorption or tilting of adjacent teeth and even pain, discomfort, swelling, or neuralgic



symptoms due to impingement of the mandibular canal. [12]

Therefore, timely diagnosis and treatment of transmigrated teeth are of great importance.

Repositioning of impacted transmigrated mandibular canine is a very rare indication owing to its unfavorable position. Erupted transmigrated canines should be extracted instead of the premolars in case of extraction orthodontic cases to restrict excessive treatment time. In non-extraction orthodontic cases, surgical exposure with orthodontic realignment can be tried for the labially placed canine when the crown has not migrated past the adjacent lateral incisor. If enough space is available, surgical repositioning and transplantation are the other treatment options. Orthodontic realignment and recontouring of a crown can be attempted if the canine has ectopically erupted into the oral cavity.

When transmigrated teeth might develop some pathology, surgical extraction is the indicated treatment of choice. In asymptomatic patients with no pathology, surgical extraction can be delayed and the patient can be called on periodic follow-up. [13,14]

III. CONCLUSION

Kissing transmigrated mandibular canine is a rare finding but, if it is present it is associated with benign pathologies like Dentigerous cyst.

These associated pathologies are associated with morbidity in the maxilla-facial region. Hence, these kinds of diseases should be diagnosed and treated as early as possible to prevent any irreversible damage to maxilla-facial structures.

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