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CASE REPORT

Dentigerous Cyst Associated With a Transmigrated Canine of the Mandibular Symphysis: A Case Report

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Abstract

Introduction

Transmigration is a infrequent phenomenon seen almost exclusively in the mandibular canines. Transmigration, is an intraosseous displacement of an unerupted teeth in which a movement phenomenon causes it to cross midline by more than half. Dentigerous cyst(DC) is one of the most common types of odontogenic cyst. Accumulation of fluid among the reduced enamel epithelium and the tooth crown is suggested as the possible etiopathogenesis of this particular cyst by most authors. Clinically, it is asymptomatic but can cause cortical bone expansion. DC is usually associated with an unerupted or developing teeth bud, and is found most often associated ith crowns of mandibular third molars followed by maxillary canines and then maxillary third molars. Early detection of a transmigrant tooth is essential for the treatment, planning and prevention of more complicated situations.

Case Report

An 30-year-old male was admitted to our department with a complaint of moderate pain in the left canine region of the mandible. On an intra-oral examination, we noted that the mandible left canine were clinically unerupted. The panoramic radiograph and 3D computed tomography revealed that the left mandibular canine had migrated to left side crossing the midline below the apices of the incisors, and showed pericoronal radiographic changes suggestive of cystic degeneration. DC was enucleated and the associated impacted teeth extracted under general anesthesia.

Conclusion

As a result is therefore important to perform radiographic-clinic examination of all unerupted teeth.

Keywords: transmigration, mandible symphysis, dentigerous cyst, canine

Introduction

Migration of a canine from its normal position to the contralateral hemiarch, crossing the midline is known as transmigration. This phenomenon is a infrequent, unusual developmental anomaly of unknown origin and it occurs almost exclusively with mandibular canines but also develops infrequently in maxillary canines as well.[1] The etiological factor that causes the migration of a tooth is still not clear.[2]

This condition was first reported by Aydin and Yılmaz[3] in 2003. In a review of 4,500 panoramic radiographs, Aydin et al.[6] identified eight mandibular canines and six maxillary canines (0.31 %). This anomaly is generally asymptomatic, with no pain or over pathology, and usually cannot be detected during a clinical examination. Transmigrating tooth can occasionally give rise to resorption of roots and tilting of adjacent teeth.[4]

DC are mostly asymptomatic and found incidentally during the evaluation of an unerupted teeth.[5] If the patient has infection and expansion, they become symptomatic. In the event of infection, it can cause a painful swelling. In the case of an expansion into cortical bone, DC can cause facial asymmetry, and destruction of the adjacent tissues. Histological diagnosis plays a key role in the definite diagnosis.This study discusses the case report of a transmigrated mandibular canine, which was also associated with a DC.

Case Report

An 30-year-old male was admitted to our department with a complaint of moderate pain in the left canine region of the mandible. He was systemically healthy and extra-oral examination was within normally. There was no sign of any regional lymphadenopathy. His mouth opening was normally.

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On an intra-oral examination, we noted that the mandible left canine were clinically unerupted.

For the radiological evaluation, a panoramic radiograph and CBCT was taken. The panoramic radiograph and 3D computed tomography revealed that the left mandibular canine had migrated to left side crossing the midline below the apices of the incisors, and showed pericoronal radiographic changes suggestive of cystic degeneration (Fig 1).

DC was enucleated and the associated impacted teeth extracted under general anesthesia (Fig 2-3). Surgical exposure of the canine with an excisional biopsy of the surrounding dentigerous cyst was performed.(Fig 4) The patient tolerated the procedure well. Patient was given a week course of antibiotic and analgesic. Sutures were removed on the ten day after operation and the postoperative course was uneventful. The extracted tooth with the cystic capsule was sent for histopathological examination. Hematoxylin and eosin-stained sections of the specimen were prepared. It showed thin connective tissue wall with a thin layer of stratified squamous epithelium (Fig 5). These features confirmed the features of dentigerous cyst. Post-operative clinical follow-up that was conducted after one and six month of the surgery was uneventful.

Figure 1

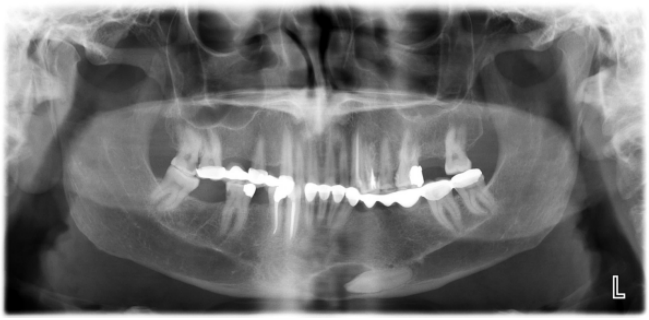

Figure 1: Panoramic radiograph showing horizontally impacted left mandibular canine located at symphysis of mandible crossing the midline.

Figure 2

Figure 2: Intra-operative view

Figure 3

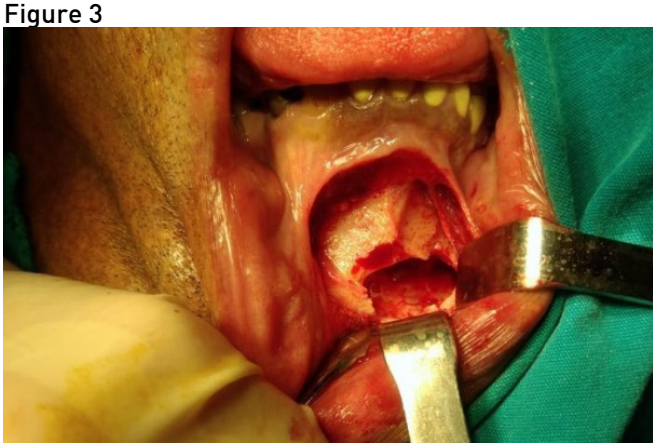

Figure 3: Intra-operative view

Figure 4

Figure 4: Histopathologic specimen

Figure 5

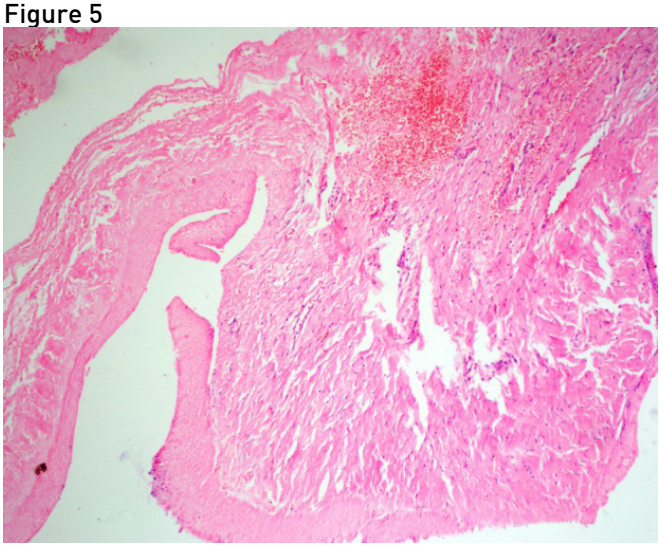

Figure 5: Histopathologic view of the lesion. (H&E, X 100)

Discussion

Canine impaction is more commonly in the maxilla than in the mandible, but canine transmigration is mostly in the mandible. The larger cross-sectional area of the anterior mandible compared with the anterior maxilla may be a reason for the higher frequency of mandibular canine transmigration.[6]

The etiology and exact mechanism of transmigration is still not clear, though a number of factors have been suggested. Tumors, cysts, supernumerer tooth and odontomas may cause malposition of teeth if they lie in the path of eruption of teeth. Other factors suggested by some authors as possible etiological factors are premature loss of deciduous teeth, retention of the deciduous canine and excessive length of the crown of the mandibular canines.[7]

Transmigrated mandibular canines are reported more frequently in females than males in the ratio of 1.6:1.8 In the present case impacted mandibular canines were classified based on angulations and depths of the involved teeth. In terms of angulation impacted mandibular canines can be classified as mesioangular, distoangular, vertical, or horizontal. Depth of the impactions were classified as Level A, Level B, and Level C as follows.[9]

Level A.The crown of the impacted caninetooth is at the cervical line of the adjacent tooth.

Level B.The crown of the impacted caninetooth is between the cervical line and rootapices of the adjacent tooth.

Level C.The crown of the impacted canines is beneath the root apices of the adjacent tooth.[9]

Transmigrated canines are classified by the criteria established by Mupparapu10 as follows.

- **Type 1:** Mesioangular canine with the crown crossing the midline, lateral or lingual to the anterior tooth.
- **Type 2:** Horizontal canine, near the lower edge of the mandible, under the apexes of the lateral incisors.
- **Type 3:** The canine is erupted, medially or distally to the opposite side.
- **Type 4:** The canine is horizontal near the lower edge of the mandible, under the apexes of the premolars and/or the contralateral molars.
- **Type 5:** The canine is positioned vertically, in the midline, with the long axis of the tooth crossing the midline.

Majority of times transmigrated canines are usually asymptomatic, although follicular cyst development surrounding the impacted tooth and chronic infection along with fistula creation have been recorded.[11] Nodine12, stated that migrated mandibular canines are frequently revealed without producing any obvious symptoms indicative of their existence. Ando et al.13 also described that they had not found any symptoms like pain or compression of mandibular nerve due to the transmigrated canines in their patient. As in our case, patient was accidentally diagnosed with impacted canine with absence of clinical symptoms.

Several treatment options are proposed for transmigrated canines, including surgical removal, transplantation, exposure and orthodontic treatment and in some cases plain follow.[4]

In our case, extraction was the ideal treatment option. Because presence of a cystic epithelium around the tooth attached to neck of tooth and the histopathological confirmation of a dentigerous cyst.

Conclusion

Transmigration of canine is a rare event caused by multiple etiologies. This case describes the presentation of the dentigerous cyst associated with impacted left lower canine crossing the midline which is a rare case in the literature. In conclusion is therefore important to perform radiographic-clinic examination of all unerupted teeth.

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