



TRANSMIGRATION OF IMPACTED MANDIBULAR CANINE ASSOCIATED WITH DENTIGEROUS CYST- AN UNUSUAL CASE REPORT

Dental Science

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ABSTRACT

Transmigration is defined as the migration of an impacted tooth across the midline by more than half of its length. The etiology and exact mechanism of transmigration is still not clear, although a number of factors have been suggested. Possible etiological factors are premature loss of deciduous teeth, retention of the deciduous canine, crowding, spacing, supernumerary teeth, and excessive length of the crown of the mandibular canines. This case report presents a case of an horizontally impacted permanent lower right mandibular canine and its management. Early diagnosis and appropriate intervention prevents the possible future complications caused by the transmigrated teeth. Therefore, clinical evaluation followed by a detailed radiographic screening is very important for optimal management of the tooth.

KEYWORDS

transmigration, impaction, mandibular canine, dentigerous cyst

INTRODUCTION

Although tooth eruption is a clinical condition characterized by failure of the tooth to emerge in the appropriate position and might sometimes lead to a tooth impaction, translocation or even transmigration. Impaction is defined as the failed eruption of a permanent tooth with a completely developed root, while the transmigration is defined as the migration of an impacted tooth across the midline by more than half of its length.^{1,2}

Frequently impacted teeth are third molars, followed by maxillary canines, mandibular premolars, and maxillary central incisors. Mandibular canines appear to be impacted less often than maxillary canines.³ The reported frequencies of mandibular canine impaction range from 0.05% to 0.4%.⁴

However, the etiology and exact mechanism of transmigration is still not clear, although a number of factors have been suggested. Tumors, cysts, and odontomas may cause malposition of teeth if they lie in the path of eruption of teeth.⁵ Other factors suggested by some authors as possible etiological factors are premature loss of deciduous teeth, retention of the deciduous canine, crowding, spacing, supernumerary teeth, and excessive length of the crown of the mandibular canines.⁶

Transmigrated canines usually remain impacted and asymptomatic or they ectopically erupt at the midline or on the opposite side of the arch and can cause pressure resorption of roots or tilting of adjacent teeth and neuralgic symptoms or these teeth migrate to adjacent structures like the coronoid process causing pain and discomfort to the patient.⁷ This case report presents a case of an horizontally impacted permanent lower right mandibular canine and its management.

Case report

A 13 year old male patient reported to the department of pedodontics and preventive dentistry for a routine checkup. Intraoral clinical examination revealed the unerupted mandibular canine and premolar in right and left quadrant.[figure 1] On palpation non tender swelling was observed in the right vestibule region.

On orthopantomogram examination and mandibular occlusal radiograph the lower right canine was observed to be in horizontal position below the apices of lower left central and lateral incisor (type 2 of Mupparapu pattern of transmigration) with well-defined radiolucency surrounding the tooth.[figure 2 & 3] Based on clinical and radiographic examination, a provisional diagnosis of transmigrated impacted mandibular right canine was made associated with a cyst. Routine blood investigations were made and found to be within normal limits.

All aseptic measures were properly carried out, and preoperative antibiotic was subsequently given. The surgical extraction of lower right impacted permanent mandibular canine was planned. Surgical procedure was carried under local anesthesia (lidocaine 2% with epinephrine 1:100,000). Incision was made at the level of the mucogingival junction and full thickness flap was reflected [figure 4]. All the measures were taken in to account to protect the mental nerve during surgical procedure. Lower right canine was extracted via a labial approach from the right side but adequate amount of local anesthetic was administered on left side.[figure 5] The tooth along with the cyst was then removed, and the curettage of the remaining cavity was further done.[figure 6] Soft tissue closure was subsequently done with 3-0 vicryl suture.[figure 7] On histopathological study, a definitive diagnosis of dentigerous cyst was given. The patient is under a regular follow-up [figure 8 & 9] and mandibular incisors are still under observation for endodontic treatment.

DISCUSSION

Transmigration is the movement of an unerupted mandibular canine across the midline.⁸

The development of root is often in a horizontal direction might be due to the position of tooth bud which leads to the impaction of canine into horizontal manner.⁹ The most common type of migration is horizontal and can migrate anteriorly, but semihorizontal transmigrant canines have also been reported.¹⁰

Mupparapu proposed a classification for transmigrated teeth. The author classified these teeth into five types on the basis of migration pattern and their position in the jaw. The classification can be summarized as: Type 1: mesio-angular impaction of canine crossing the midline, labial or lingual to the anterior teeth; Type 2: horizontal impaction near the inferior border of the mandible inferior to the apices of the incisors; Type 3: canine erupting on the contralateral side; Type 4: horizontally impacted canine near the inferior border of the mandible near the apices of posterior teeth on the opposite side; and Type 5: canine positioned vertically in the midline with the long axis of the tooth crossing the midline.¹¹

Transmigration of maxillary canine is rare because of the shorter distance between the roots of maxillary incisors and the floor of the nasal fossa and restriction of the path of tooth movement by the roots of adjacent teeth, the maxillary sinus, and the midpalatal suture, which probably act as a barrier.¹² There are several reports related to transmigrated teeth pathologies including; a cyst or an odontoma,¹³ Gardner's syndrome¹⁴, or fracture.¹⁵ Although Nodine and Ando et al reported that impacted and migrated mandibular canines were often discovered without producing any apparent symptoms and they did not

observe any symptoms such as pain or oppression of mandibular nerve owing to the transmigration of canine in their patients.^{16,17}

Several treatment options proposed for unerupted mandibular canines are surgical removal, transplantation, exposure and orthodontic alignment, and observation. The present type of case report is a horizontal type associated with a cyst which is crossing the midline and clinically associated with the roots of mandibular incisors. In such cases surgical extraction is the only line of treatment.

Early diagnosis and appropriate intervention prevents the possible future complications caused by the transmigrated teeth. Therefore, clinical evaluation followed by a detailed radiographic screening is very important for optimal management of the tooth.¹⁸

CONCLUSION

Transmigration of an impacted mandibular canine is often diagnosed accidentally in a routine radiographic study and a rare clinical phenomenon. Although Various treatment options are available but surgical extraction of the impacted tooth is the definite choice of treatment in cases where it has been associated with any cystic degeneration.¹⁹

FIGURES



Figure 1 pre operative view



Figure 2 pre operative OPG



Figure 3 mandibular occlusal radiograph



Figure 4 mucoperiosteal flap raised



Figure 5 cyst associated with lower mandibular incisors



Figure 6 extracted mandibular canine associated with pathology



Figure 7 soft tissue closure with 3-0 vicryl suture



Figure 8 post operative healing



Figure 9 post operative OPG

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