Dentigerous Cyst associated with a Transmigrated Canine

Bijo Alexander, Silvia Angel Morrison, PJ Swathy Anand, V Syamkumar

ABSTRACT

Impacted canines are not uncommon, but movement of impacted canine crossing the midline (transmigration) is a rare phenomenon. The study discusses the case report of a transmigrated mandibular canine associated with a dentigerous cyst in a 17-year-old female patient. Mandibular canines are cornerstones of dental arch and their importance is manifested by stability of dental arch, maintenance of normal facial expression, and masticatory efficiency. Early detection of this condition by the use of radiographs, especially panoramic radiographs, and preserving the canine by orthodontic intervention or surgical transplantation are needed.

Keywords: Canines, Mandible, Transmigration.

CASE REPORT

A 17-year-old female patient reported to the ESIC Super Speciality Hospital, Asramam, Kollam, Kerala, India, with a swelling over the mandibular symphysis area with occasional pain (Fig. 1). Palpation showed a firm consistency over the symphysis lower border of mandible area. Dental examination of the patient showed retained 83 and absence of 43.

Panoramic radiograph was requested, which showed a transmigrated 43 in a horizontal position, with the crown below the contralateral 33 and the root below the mandibular incisors (Fig. 2). The tooth was lying close to the lower border of mandible.

A radiolucency was seen surrounding the crown of the teeth attached to the neck of the tooth mimicking a dentigerous cyst (Fig. 3). The extracted tooth with the cystic capsule was sent for histopathological examination. It showed thin...
connective tissue wall with a thin layer of stratified squamous epithelium. Rete peg formation was absent and the connective tissue wall showed varying islands of odontogenic epithelium (Fig. 4). These features confirmed the features of dentigerous cyst.

DISCUSSION

Canine impaction is more prevalent in maxilla\textsuperscript{6} than in mandible, but canine transmigration is frequent in the mandible.\textsuperscript{7} Mandibular canine is the only tooth where migration and crossing midline has been documented.\textsuperscript{2}

Transmigration of canine is a rare phenomenon with about 0.31\% incidence.\textsuperscript{8} Transmigration is more frequent in females than males.\textsuperscript{9}

Mupparapu\textsuperscript{10} used the below criteria to classify transmigrated canines:
- **Type I:** The canine is impacted mesioangularly across midline, lateral, or lingual to the anterior tooth with crown portion of tooth crossing the midline.

**DISCUSSION**

Canine impaction is more prevalent in maxilla\textsuperscript{6} than in mandible, but canine transmigration is frequent in the mandible.\textsuperscript{7} Mandibular canine is the only tooth where migration and crossing midline has been documented.\textsuperscript{2}

Transmigration of canine is a rare phenomenon with about 0.31\% incidence.\textsuperscript{8} Transmigration is more frequent in females than males.\textsuperscript{9}

Mupparapu\textsuperscript{10} used the below criteria to classify transmigrated canines:
- **Type I:** The canine is impacted mesioangularly across midline, lateral, or lingual to the anterior tooth with crown portion of tooth crossing the midline.

- **Type II:** The canine is horizontally impacted near the inferior border of the mandible below the apices of incisors.
- **Type III:** The canine has erupted mesial or distal to the opposite side.
- **Type IV:** The canine is horizontally impacted near the inferior border of mandible below the apices of either premolars or molars on the opposite side.
- **Type V:** The canine is positioned vertically in the midline with long axis of the tooth crossing the midline.

The present case is a classical example of type II transmigration with mandibular canine at lower border of mandible and horizontally impacted below apices of incisors.

Javid\textsuperscript{5} proposed that transmigration should be considered when half the length of the crown crosses the midline. Joshi\textsuperscript{11} suggested that it is not the distance of migration after crossing the midline, i.e., important but the tendency to cross the midline.

Tumors, cysts, odontomas may cause malposition of teeth if they lie in the path of eruption.\textsuperscript{3} Other suggested factors include premature loss of deciduous teeth, retention of deciduous canine, crowding, spacing, supernumerary teeth, and excessive length of crown of mandibular incisors.\textsuperscript{12}

In the present case, it can be safely assumed that transmigration occurred due to presence of dentigerous cyst. Dentigerous cyst may severely displace the associated tooth. The tooth can transmigrate due to cystic pressure.\textsuperscript{13}

Several treatment options are proposed for transmigrated canines, including surgical removal,\textsuperscript{14} transplantation,\textsuperscript{15} exposure and orthodontic treatment,\textsuperscript{16} and in some cases plain observation.\textsuperscript{17}

In this case, extraction was the ideal option for the following reasons:
- Location of canine at lower border of mandible with no chance of bringing it back to the original location.
Presence of a cystic capsule around the tooth attached to neck of tooth and the histopathological confirmation of a dentigerous cyst.

Presence of a bulge in the lower border symphysis region with occasional painful symptoms.

Thoma\textsuperscript{18} suggested that transmigrated canines usually have to be removed. Fiedler and Alling\textsuperscript{14} recommend extraction of a transmigrated canine

**CONCLUSION**

Transmigration of canine is a rare event caused by multiple etiologies. The presence of over-retained mandibular deciduous canine or missing permanent canine should be clinically and radiographically investigated. Further documentation of this anomaly can lead to improvement of the classification system and better understanding of this condition.

**REFERENCES**