

Case Report**Transmigration of impacted mandibular canine: Report of two cases.**

Arora R, Verma VK, Panda S, Sachan A

**ABSTRACT:** Transmigration is a rare phenomenon in which an unerupted tooth migrates and crosses the midline. In this article we present two cases which were diagnosed during routine orthodontic examination. Incidence, prevalence, etiology, complication and management aspect have also been discussed.

**Key words:** Mandibular; Canine; Transmigration; Panoramic view; Cone beam computed tomography; Orthodontics.

## INTRODUCTION

Migration of a tooth across the jaw midline without the influence of any pathological entity is called as transmigration.<sup>1</sup> This is a rare condition. Most of the cases of transmigration are asymptomatic, however some cases presents complication such as pain, infection cysts, tumors, resorption of the adjacent teeth, jaw fractures, malpositioning of the mandibular anterior teeth and marginal bone resorption near the adjacent teeth.<sup>2, 3, 4</sup> The cause of this rare anomaly is obscure but possible causes may be hereditary, premature loss of the deciduous teeth, small root fragment, incorrect position of the dental lamina, hyperdontia, crowding, spacing in the dental arches, odontoma and alveolar crest trauma.<sup>2, 5, 6, 7</sup> Here we report 2 rare cases of mandibular canine transmigration.

## CASE REPORTS

**Case 1** - A 20 year old female patient reported to department of orthodontics and Dentofacial orthopaedics with the chief complaint of forwardly placed upper front teeth. Intraoral examination revealed increased overjet, spacing in lower anterior teeth and clinically missing lower permanent right canine. The panoramic radiograph revealed transmigrated permanent right mandibular canine. It had migrated below apices of lower incisors and was lying in a horizontal fashion (Figure 1).

This radiographic position of tooth could be classified by Mupparapu as Type 2.<sup>8</sup> There was no pathologic finding associated with the transmigrated tooth. No other dental anomaly was seen in the radiograph.



*Figure 1: Panoramic radiograph showing transmigrated mandibular right canine below apices of lower incisors in horizontal fashion*

**Case 2** - A 17 year old male patient reported to department of orthodontics and Dentofacial orthopaedics with chief complaint of forwardly placed upper anterior teeth. Intraoral examination revealed increased overjet, missing tooth 33, over retained tooth 73, mesioangularly inclined 43 erupted labially below 42. The radiographic examination before orthodontic treatment revealed transmigration of lower left canine. Transmigrated mandibular left canine was found between the roots of central incisors with the crown portion of the tooth crossing the midline.



*Figure 2: Panoramic radiograph showing transmigrated mandibular left canine between the roots of central incisors with the crown portion of the tooth crossing the midline*

Labial surface of transmigrated mandibular left canine was found close to with mesial surface of right mandibular canine (Figure 2). According to Mupparapu classification it could be classified under type 1.<sup>8</sup>

## DISCUSSION

Various definitions of transmigration as found in the literature, According to Javid (1985)<sup>9</sup> an impacted mandibular canine that has crossed the midline more than half of its length should be considered as transmigrated. Tarsitano and associates<sup>10</sup> defined transmigration as a phenomenon in which an unerupted mandibular canine migrates, crossing the mandibular midline.

In 2002, Mupparapu<sup>8</sup> classified mandibular canine transmigration depending on its path of deviation into five types:

Type 1: Canine positioned mesioangularly across the midline within the jaw bone, labial or lingual to anterior teeth, and the crown portion of the tooth crossing the midline (45.6%).

Type 2: Canine horizontally impacted near the inferior border of the mandible below the apices of the incisors (20%).

Type 3: Canine erupting either mesial or distal and opposite to canine (14%).

Type 4: Canine horizontally impacted near the inferior border of the mandible below the apices of either premolars or molars on the opposite side (17%).

Type 5: Canine positioned vertically in the midline, (long axis of the tooth crossing the midline) irrespective of eruption status (1.5%).

Aydin et al<sup>11</sup> stated that the incidence of canine transmigration was 0.31%. There was a prediction for occurrence in female over males.<sup>12, 13</sup> Aktan et al<sup>12</sup> reported in a panoramic radiographic survey of 5000 patients and found that transmigration of mandibular canines was greater than maxillary canines. It may be due to the fact that the distance between the root apices and the lower border of the mandible is more and an impacted canine gets more space to migrate.<sup>14</sup> In cases of unilateral transmigration of mandibular canine, left side is more frequently involved.<sup>15, 16</sup>

If primary canine is over-retained or permanent canine has not erupted more than one year after eruption age panoramic radiograph or other supplemental radiographs such as occlusal radiographs is recommended for detecting impaction or transmigration. Panoramic radiograph is very useful in early detection of impaction or transmigration.<sup>17</sup> Cone beam computerized tomography (CBCT) facilitates proper localization of impacted or transmigrated tooth.<sup>18</sup> Early diagnosis helps clinician to intercept and preserve the canine as it plays important role in aesthetics and function in human dentition.

Various treatment modalities of transmigrated canine have been suggested depending on stage of development of the tooth, distance of migration, angulation when they are identified and symptoms associated with transmigrated canine.<sup>7</sup> Treatment modalities for impacted transmigrated canine are observation, surgical exposure with orthodontic alignment, transplantation and surgical extraction.<sup>7, 19, 20, 21</sup>

**CONCLUSION:** Early diagnosis and intervention is desired in cases of transmigration to prevent complications associated with it. Panoramic radiographs are helpful in this regard.

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