Bilateral Transmigration of Mandibular Canines: A Rare Occurrence

Pradeep Devadoss · R. S. Neelakandan ·
Darpan Bhargava · T. Ramakrishnan

Received: 22 September 2009 / Accepted: 19 February 2010 / Published online: 22 March 2011
© Association of Oral and Maxillofacial Surgeons of India 2011

Abstract Transmigration is a phenomenon in which an unerupted tooth migrates and crosses the midline. Transmigration of the mandibular permanent canine is a rare phenomenon. We report a case of bilateral transmigrated mandibular canines, which presented as pain in the lower anterior teeth.

Keywords Mandibular Canine · Transmigration · Impacted canine

Introduction

Transmigration of the mandibular permanent canine is a rare phenomenon. Although transmigrated canines have been reported in literature [1], bilateral transmigration is extremely rare and there are very few published cases till date [2]. We report a case of bilateral transmigrated mandibular canines, which presented as pain in the lower anterior teeth.

Case Report

A 27 year old female patient, reported to the Department of Oral and Maxillofacial Surgery with a chief complaint of sensitivity and pain in mandibular incisors. Sensitivity and pain was reported for the past one month. On clinical examination the lower incisors were attrited with no other significant abnormality noted. As the attrition did not appear severe enough to cause significant discomfort to the patient and due to a lack of response to the desensitizing paste, we eliminated it from our list of probables. Bilaterally retained deciduous canines were present in the mandibular arch. A vitality test was performed, and all four teeth were found to be vital. As a part of the routine assessment we went ahead with radiologic investigations which included intraoral periapical radiographs, a mandibular occlusal radiograph and a panoramic radiograph.

The intraoral periapical radiographs revealed retained deciduous canines with evidence of a tooth like radio-opacity periapically, suggestive of impacted canines lying in close proximity to the root apices of lower anteriors and right lower premolars (Figs. 1, 2). The mandibular occlusal radiograph did not reveal any significant abnormality (Fig. 3). The panoramic radiograph confirmed the presence of bilaterally impacted transmigrated canines (Fig. 4, 5). Due to the lack of any other clinical evidence directing us towards the cause of pain, we proceeded to acknowledge the impinging bilaterally impacted mandibular canines as a potential source.

We proceeded with transalveolar extraction of the impacted canines and reserved the option of intentional root canal treatment if the symptoms did not subside. The patient was on periodic review for two months post operatively. She remained free of symptoms and did not require further intervention.

P. Devadoss · R. S. Neelakandan · D. Bhargava (✉)
Department of Oral and Maxillofacial Surgery, Meenakshi
Ammal Dental College and Hospital, Meenakshi University,
Chennai, India
e-mail: emaildarpan@gmail.com

T. Ramakrishnan
Department of Periodontics, Meenakshi Ammal Dental College
and Hospital, Meenakshi University, Allapakkam Main Road,
Maduravoyal, Chennai 600095, India

Fig. 1 Intraoral periapical radiograph revealed retained deciduous canines with evidence of a tooth like radio-opacity periapically close to the root apices of right lower premolars

Fig. 2 Intraoral periapical radiograph with evidence of a tooth like radio-opacity periapically in close proximity to the root apices of lower anteriors

Fig. 3 Mandibular occlusal radiograph with no significant abnormality

Discussion

In 1971, Tarsitano and colleagues [3] defined transmigration as a phenomenon in which an unerupted mandibular

Fig. 4 Panoramic radiograph showing bilaterally impacted transmigrated canines

Fig. 5 Cropped Image of the panoramic radiograph showing transmigrated canines

canine migrates, crossing the mandibular midline. According to Javid [4], an impacted mandibular canine that has crossed the midline more than half of its length should be considered as transmigrated. Joshi [5] stated that more important consideration should be the tooth crossing the midline and not the distance of the migration. Therefore any pre-eruptive migration of a tooth across the midline is termed as transmigration, irrespective of the distance of migration [2]. In cases of unilateral transmigration of mandibular canine, left canine is more frequently involved. The incidence of transmigrated canines is much higher in females than in males. In majority of the cases transmigration of an impacted tooth is a unilateral phenomenon although a very few cases of bilateral presentation are reported [1]. According to Mupparapu [6] 45 percent of transmigrant canines found in the literature are in the mesioangular position, followed by 20 percent in the horizontal position. Few cases have been reported in which the transmigrated canines were positioned vertically in the midline.

Axial inclination criteria proposed by Joshi [5] can help predict the likelihood of canine impaction and transmigration. Canines lying within 25–30 degree of the mid-sagittal plane have a tendency for impaction, but they do not tend to cross the midline. Canines that are found within

30–50 degree of the midsagittal plane tend to cross the midline and for those at an angle greater than 50 degree, almost always transmigrate.

It has been suggested that transmigrated canines are mostly asymptomatic, although follicular cyst formation, chronic infection with fistula, pain due to impingement, resorption of adjacent teeth, swelling as well as ectopic eruption could occur, which make them prime candidates for removal [7]. According to the literature removal of impacted teeth was performed in our case. Treatment considerations for transmigratory teeth depend on the stage of development, distance of migration, angulation when they are identified and whether the patient is symptomatic. Proposed treatment options for transmigrated mandibular canines include surgical removal, transplantation and surgical exposure with orthodontic alignment [8]. If these malpositioned teeth can be identified early, it may be possible to orthodontically correct them. Stafne [9] found that the greatest amount of tooth migration occurred before the root is completely formed, which emphasizes the importance of early diagnosis to resolve this problem before the tooth migrates far from its ideal location. Surgical exposure with orthodontic realignment can also be done for labially impacted transmigrated canine [10]. If the mandibular incisors are in a normal position and space for the transmigrated canine is sufficient, transplantation may be undertaken [8]. In general, surgical extraction is the most favoured treatment [8]. If the patient is symptomatic and has any associated abnormalities such as a developing apical cyst, pain, resorption of an adjacent tooth root or displacement of teeth, then surgical extraction should be planned. If the crown of the transmigrated canine moves past the opposite incisor area or if the apex is seen to have migrated past the apex of the adjacent lateral incisor, it might be mechanically impossible to bring the tooth back into place. In such cases extraction may be the preferred modality of treatment [5].

Even though the teeth have transmigrated to the contralateral side, they maintain their nerve connection to the originating side [11]. Therefore, it is important to anaesthetise the nerve on the originating side. In our case,

both the mandibular nerves were blocked with a local anesthetic. The potential complications during surgical removal of transmigrated impacted canines include injury to the mental nerve and root apices of the adjacent teeth, which makes it imperative to use precise surgical technique.

In some patients where indications for removal do not exist, it is acceptable to leave the impacted canine in situ. In such a case periodic radiographic follow up to check for any pathologic change is essential [12].

References

1. Sumer P, Sumer M, Ozden B, Otan F (2007) Transmigration of mandibular canines: a report of six cases and a review of the literature. *J Contemp Dent Pract* 8(3):104–110
2. Aydin U, Yilmaz HH (2003) Transmigration of impacted canines. *Dentomaxillofac Radiol* 32(3):198–200
3. González-Sánchez MA, Berini-Aytés L, Gay-Escoda C (2007) Transmigrant impacted mandibular canines: a retrospective study of 15 cases. *JADA* 138(11):1450–1455
4. Javid B (1985) Transmigration of impacted mandibular cuspids. *Int J Oral Surg* 14(6):547–549
5. Joshi MR (2001) Transmigrant mandibular canines: a record of 28 cases and a retrospective review of the literature. *Angle Orthod* 71:12–22
6. Mupparapu M (2002) Patterns of intra-osseous transmigration and ectopic eruption of mandibular canines: review of literature and report of nine additional cases. *Dentomaxillofac Radiol* 31(6):355–360
7. Buyukkurt MC, Aras MH, Caglaroglu M, Gungormus M (2007) Transmigrant mandibular canines. *J Oral Maxillofac Surg* 65(10): 2025–2029
8. Camilleri S, Scerri E (2003) Transmigration of mandibular canines—a review of the literature and a report of five cases. *Angle Orthod* 73(6):753–762
9. Rebellato J, Schabel B (2003) Treatment of a Patient with an impacted transmigrant mandibular canine and a palatally impacted maxillary canine. *Angle Orthod* 73(3):328–336
10. Wertz RA (1994) Treatment of transmigrated mandibular canines. *Am J Orthod Dentofacial Orthop* 106(4):419–427
11. Shapira Y, Kuftinec MM (2003) Intrabony migration of impacted teeth. *Angle Orthod* 73(6):738–743
12. Andreasen JO, Petersen JK, Laskin DM (1997) Textbook and color atlas of tooth impactions, 1st edn, Munksgaard, Copenhagen