

# Intra-Osseous Migration of Second Lower Premolar- Literature Review and a Case Report

Hamed Mortazavi<sup>1</sup>, Maryam Baharvand<sup>1</sup> and Mahdi Niknami<sup>2</sup>

<sup>1</sup>Department of Oral Medicine, School of Dentistry, Shahid Beheshti University of Medical sciences, Iran

<sup>2</sup>Department of Oral and Maxillofacial Radiology, School of Dentistry, Tehran University of Medical Sciences, Iran

\*Corresponding authors: Mahdi Niknami, Assistant Professor, Department of Oral and Maxillofacial Radiology, Tehran, Dental School, North Kargar st, Tehran, Iran, Tel: +989123278014; E-mail: [Niknami81@yahoo.com](mailto:Niknami81@yahoo.com)

Received date: February 01, 2017; Accepted date: November 20, 2017; Published date: November 27, 2017

Copyright: © 2017 Mortazavi H, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## Abstract

Migration is a kind of eruption abnormality where a tooth is grown far from its original site of development. The incidence of mandibular second premolar impaction has been estimated to be 2.1% to 2.7%. The frequency of its intra-osseous distal migration is 0.25%. We report a case of extremely distally intra-osseous migration of mandibular second premolar which was found in routine radiography. A 28-year-old woman who attended at dental clinic to treat teeth caries was noticed to have her lower second premolar located horizontally in the homolateral mandibular angle below the inferior alveolar nerve canal on panoramic view. As the patient was asymptomatic, she was advised to take follow-up radiographs to rule out any cystic/neoplastic changes. Taking panoramic radiograph in patients with missing mandibular premolars should be considered, because in rare cases migration or transmigration of these teeth may happen.

**Keywords:** Migration; Second Premolar; Mandible

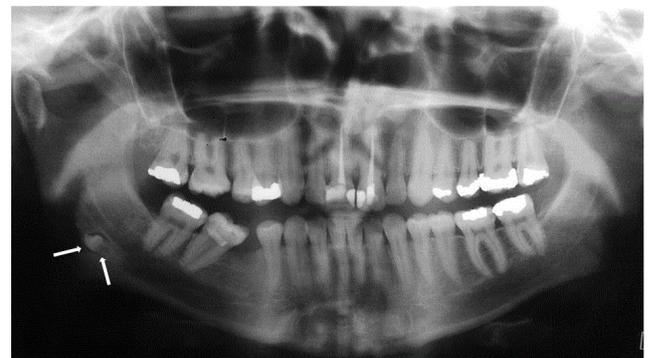
## Introduction

Anomalies in dental eruption are referred to as ectopic, which might be encountered in several regions around the oral cavity [1]. When teeth are grown in areas far from their regular place of development the condition is named migration or transmigration [1,2]. According to Peck's study, dental migration occurs exclusively in the mandible which refers to the horizontal movement of un-erupted teeth [2]. This entity occurs in permanent dentition and usually involves mandibular lateral incisors, the canine, and the second premolars. There is a female predilection with a female to male ratio of 1.7:1.2. Intra bony migrations of un-erupted teeth may take place in both distal and mesial directions. For example, the mandibular lateral incisor and in rare instances the first premolar tends to migrate distally, whereas mandibular canine most often migrates mesially and even some times across the midline [3-5]. The incidence of mandibular second premolar (MSP) impaction has been estimated to be 2.1% to 2.7% [5]. The frequency of its intra-osseous distal migration is 0.25% [5]. It is noted that in most instances, intra-bony migration of the MSP is idiopathic, unilaterally, and without any associated dental anomalies. Both genetic and environmental factors are implicated in the etiology of this anomaly. Early loss of permanent first molar increases the chance of distal migration of MSP to 5% to 10%. [1,6]. Management of this condition depends on the position of malposed tooth, the degree of discomfort, and the associated pathologic lesions if any [4-6]. In this paper we report a 28-year-old woman with an extremely distally intra-bony migration of MSP which was found in routine radiography.

## Case Report

A 28-year-old woman attended at our Clinic, Tehran, Iran to treat dental caries. She had a panoramic radiograph, which was taken one

week ago. No history of systemic disease, skeletal abnormalities or dental extraction was mentioned. In the panoramic view, second premolar was noticed to locate horizontally in the homolateral mandibular angle below the inferior alveolar nerve canal (Figure 1).



**Figure 1:** Panoramic view shows distal migration of right second mandibular premolar to below the inferior alveolar nerve canal.

Follicular space was seen as pericoronal radiolucency with sclerotic borders around the tooth. The patient reported no discomfort and was not aware of this anomaly prior to dental examination. Therefore surgical removal of the migrated tooth was not considered, but the patient was asked to take periodic panoramic radiographs (twice a year) for early detection of any changes in size of dental pericoronal radiolucency due to formation of cystic lesions such as dentigerous or follicular cyst and possible damages to inferior alveolar canal.

## Discussion

Intra-bony migration of premolars has a low occurrence compared to other teeth. There are some etiological factors involved in migration of teeth such as retention or premature loss of a primary tooth, ectopic growth of tooth buds, genetic factors, endocrine disorders and trauma [7]. Distal migrations are not yet completely understood, because the teeth tend to move mesially as a result of masticatory forces [3]. Distal migration of MSP can occur due to development of the tooth bud with a variable degree of distal inclination under the distal root of the primary second molar. When deciduous root is resorbed and the permanent molar is extracted early, the second premolar may migrate distally. In rare instances the MSP was reported to migrate as far distally as the mandibular angle and the coronoid process. Such a migration is slow and occurs during a period of several years [5]. The intra-bony migration cannot be diagnosed by using routine periapical radiographs because the tooth is usually horizontally under the root of other teeth and near the border of the mandible [5,6]. Therefore, radiographic examination including panoramic view and sometimes occlusal radiographs should be requested [6]. In accordance to our case, it is noted that premolar migration is more common in females [8,9]. It was demonstrated that 55.5% of the mandibular ectopic premolars were located in the right side and 44.4% were in the left side as well [9]. Intra-osseous migration of MSP is often unilateral, horizontal, and asymptomatic. It can appear at any age (ranged from eight to 62 years old) and happen mostly in adults older than 20 years, which corroborates our report [5,7,9]. Management options for migrated premolars include surgical exposure combined with orthodontic therapy. Extraction of a migrated second premolar is indicated when risk of pressure resorption of the adjacent teeth roots exists, in case of neurologic symptoms, periodontal disturbances or cystic formation. In patients with no considerable sign or symptoms

periodic radiographic observation should be suggested [5]. In conclusion, taking a panoramic radiograph in patients with missing mandibular premolars should be considered, because in rare cases migration or transmigration of these teeth may happen.

## References

1. Alves DB, Pedrosa EF, Andreo JC, de Carvalho IM, Rodrigues Ade C (2008) Transmigration of mandibular second premolar in a patient with cleft lip and palate-case report. *J Appl Oral Sci* 16: 360-363.
2. Peck S (1998) On the phenomenon of intraosseous migration of nonerupting teeth. *Am J Orthod Dentofacial Orthop* 113: 515-517.
3. Shapira Y, Kufinec MM (2003) Intrabony migration of impacted teeth. *Angle Orthod* 73: 738-743.
4. Nag R, Mathur R, Mathur J (2014) Transmigration of unerupted mandibular second premolar associated with chronic nonspecific osteomyelitis: report of a rare case. *Indian J Stomatol* 5: 31-32.
5. Matteson SR, Kantor ML, Proffit WR (1982) Extreme distal migration of the mandibular second bicuspid. *Angle Orthod* 52: 11-18.
6. Shagoon H, Esmaeili M (2010) Bilateral intraosseous migration of mandibular second premolars in a patient with nine missing teeth. *J Dent (Tehran)* 7: 50-53.
7. Fuziy A, Costa AL, Pastori CM, Freitas CFD, Torres FC, et al. (2014) Sequential imaging of an impacted mandibular second premolar migrated from angle to condyle. *J Oral Sci* 56: 303-306.
8. Infante-Cossio P, Hernandez-Guisado JM, Gutierrez-Perez JL (2000) Removal of a premolar with extreme distal migration by sagittal osteotomy of the mandibular ramus: report of case. *J Oral Maxillofac Surg* 58: 575-577.
9. Kara MI, Ay S, Aktan AM, Sener I, Bereket C, et al. (2011) Analysis of different type of transmigrant mandibular teeth. *Med Oral Patol Oral Cir Bucal* 16: e335-e340.