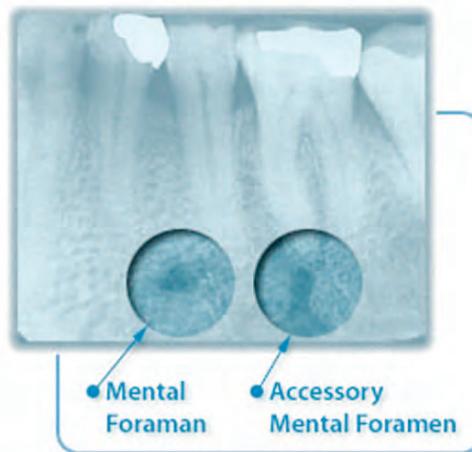


An Accessory Mental Foramen: A Case Report

Leyla Berna Çağırankaya, DDS, PhD; Hilmi Kansu, DDS, PhD



Abstract

Aim: The aim of this article is to present a case of an accessory mental foramen (AMF).

Background: The mental foramen is an important anatomical structure of particular importance in local anesthesia and surgical procedures in terms of achieving effective mandibular nerve blocks and avoiding injuries to the neurovascular bundles. Although rare, multiple mental foramina have been described in humans. In these cases one foramen is termed the mental foramen and the others are referred to as an AMF.

Report: A 62-year-old woman presented for a routine dental examination. In addition to the normal radiographic image of the mental foramen, periapical radiographs of the left mandibular premolar and molar region revealed a round-shaped radiolucency with distinct borders along with an inferior extension below the apex of the mesial root of the first molar. This image was considered to be an AMF.

Summary: Although no surgical operation was planned, the patient was informed about the existence and importance of the anatomical variation with regard to the need for local anesthesia, diagnosis of periapical disease, and the prevention of nerve damage during surgery in that area of the mandible.

Keywords: Accessory mental foramen, AMF, mental foramen, inferior alveolar nerve, mandible

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Introduction

The mental foramen is an important structure that needs to be considered in the administration of local anesthesia and the performance of surgical procedures. An understanding of the anatomy of the region is essential for performing effective nerve blocks and avoiding injuries to the neurovascular bundles.

The mandibular canal contains the inferior alveolar nerve and blood vessels which divides into mental and incisive segments between the roots of the first and second premolars or below the second premolar. The mental canal diverts toward the mental foramen while the incisive canal continues below the incisor teeth where it generally divides into a plexus of nerve branches and its main trunk is lost.¹

Four patterns of emergence of the mental nerve have been described: anteriorly directed, posteriorly directed, a right-angled pattern, and multiple foramina.² The multiple foramina pattern is a rare type of emergence with only one of the foramen being considered the mental foramen while the others are referred to as accessory mental foramen (AMF).³

The present paper reports a case of AMF using conventional radiological images.

Case Report

A 62-year-old woman presented in September 2006 for a routine dental examination. Intraoral examination revealed clinical signs of periodontal disease and several restorations. Periapical radiographs of the left mandibular premolar and

molar region revealed a round radiolucency with distinct borders along with an inferior extension below the apex of the mesial root of the first molar (Figure 1).

An accurate radiographic interpretation could not be performed on the panoramic radiograph because of image distortion (Figure 2).

A lateral mandibular radiograph revealed the image of an uninterrupted mandibular canal between the mental foramen and the other radiolucent image below the first molar (Figure 3).

The image below the first molar was considered to be an AMF. Although no surgical operation was planned in the area, the patient was informed about the existence and importance of the anatomical variation.

Discussion

In humans the mental foramen is usually a single opening on each side of the mandible. However, in some cases there is no mental foramen⁴ and in other cases there are several.^{1-3,6-9} Double mental foramina are well described in the literature and are presumed to be the result of branching of the mental nerve prior to its exit from the mental foramen.⁵

AMF may range from minor foramina formed by a small osseous bar to distinct and separate foramina.² AMF normally occur singly, but the number can range from one to three foramina.⁶ In the present case the lateral mandibular radiograph shows what appears to be another



Figure 1. Periapical radiographs demonstrating **A.** mental foramen between the premolar teeth and **B.** a radiolucency below the first molar.

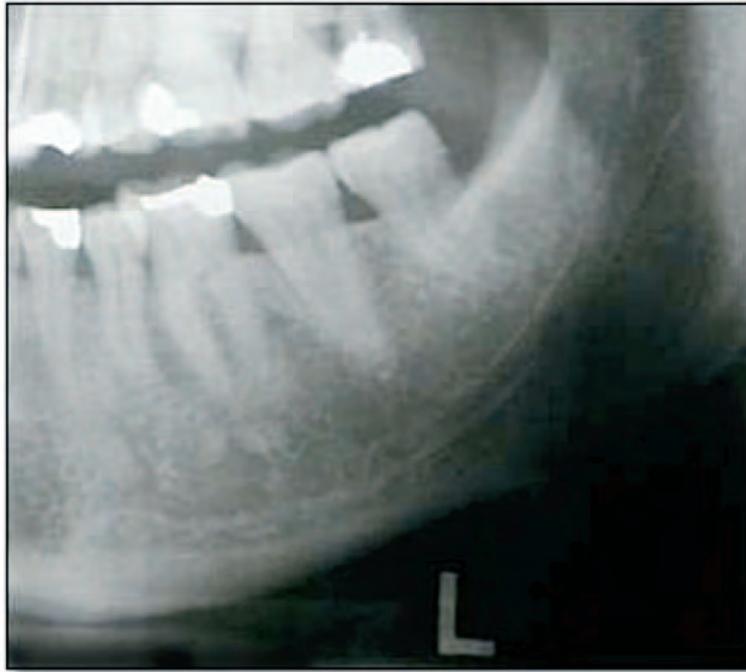


Figure 2. A cropped panoramic image that was useless for radiographic interpretation.

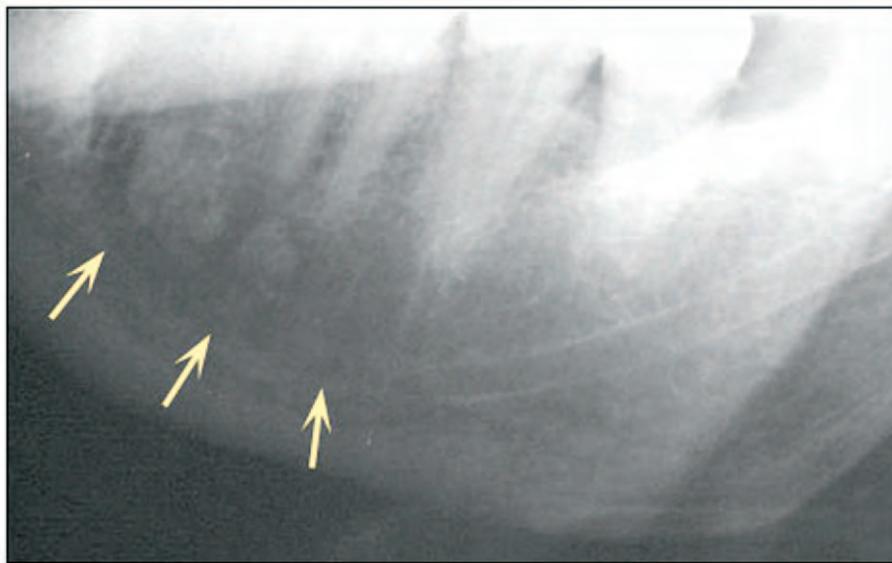


Figure 3. Lateral mandibular radiograph showing the connection between the mandibular canal and the mental foramina.

AMF below the distal root of the first molar which is not visible on periapical radiographs.

The frequency of AMF has been reported to range from 1.4% to 9% with the highest incidence in Negro and Maori males.^{2,6-9} Sawyer et al.⁶ reported the incidence of AMF did not differ significantly between right- and left-hand sides of the mandible. The reported distances between the mental foramen and AMF were: 0.67 mm, 2.1 mm, and 5.74 mm.³

On the other hand, Serman⁵ produced evidence for a mental foramen complex which is a separate anatomical entity from the AMF. The undivided inferior alveolar nerve exits the mandibular canal through the mental foramen. Once the nerve reaches the surface it lies in the groove between the foramina and divides into the terminal mental and incisive branches. The incisive nerve thus has an extra-osseous commencement and runs a short extra-osseous course before re-entering

the mandible through the more anteriorly situated foramen. No intra-osseous canal is found between these two foramina. The posteriorly situated foramen, therefore, has a larger lumen to accommodate the undivided inferior alveolar nerve. The more anteriorly situated foramen is smaller as it only has to accommodate the incisive nerve.

While it may be difficult to distinguish the mental foramina complex from an AMF on radiographs, the presence of an uninterrupted mandibular canal made the case for the radiolucent image located below the first molar being an AMF.

Summary

Although no surgical operation was planned, the patient was informed about the existence and importance of the anatomical variation with regard to the need for local anesthesia, diagnosis of periapical disease, and the prevention of nerve damage during surgery in that area of the mandible.

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