

Bilateral Two-rooted Mandibular Canines in the Same Individual: a Case Report

Caninos Mandibulares Birradiculares Bilaterales en
el Mismo Individuo: Presentación de un Caso

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ABSTRACT: The normal anatomy of canines teeth comprises one root and one large canal centered through its axis; however some canines may present two roots and two canals. Thus, the knowledge of normal root canal anatomy and their variations is essential to minimize the possibility of occurrence of accidents during the development of dental treatments. In this report we describe a case of bilateral mandibular canines with two roots and two canals found radiographically in the same individual.

KEY WORDS: dental morphology, mandibular canine, root anatomy.

INTRODUCTION

Tooth development results of several interactions between oral epithelium and underlying mesenchymatic tissue during odontogenesis (Fuentes & Oporto, 2009; Borie *et al.*, 2010). Dental anomalies can result from many factors, including genetic and environmental ones. Although defects in certain genes have the highest incidence, etiological events in pre-natal and postnatal periods have also been blamed for anomalies in tooth dimension, morphology, position, number, and structure (Basdra *et al.*, 2000; Uslu *et al.*, 2009).

Morphological variations occur by the interaction of abnormal tissue during the specific stages of tooth development. According to the period when this condition happens, the tooth could show an abnormal development and / or eruption, ectopic or some anatomical variation (Oporto *et al.*, 2010). There are various theories explaining the existence of abnormal number of roots (greater than normal), including hyperactivity of the Hertwig's epithelial root sheath (Holtzman, 1997) and a pathological degeneration in the same area, producing an invagination from the dental papilla forming an accessory root (Roig & Morelló, 2006).

Generally, the basic anatomy of canines comprises one root and one large canal centered through its axis, but approximately 15% of the case reported the presence of two canals in the mandibular canine; more rare is the report of the presence of two different angulated roots (Andrei *et al.*, 2011), observing the prevalence reported in the literature between 1.7% (Pécora *et al.*, 1993) to 5% (Ouellet, 1995).

Therefore, the aim of this article is to present a case of bilateral mandibular two-rooted mandibular canines with two canals in a patient without underlying disease.

CASE REPORT

A 44-year-old Chilean female individual came to dental control for a routine examination. The extra-oral examination showed no abnormalities, and the intraoral investigation revealed the presence of caries in some teeth, not showing any signs of periodontal disease. Among the complementary tests that were requested, a panoramic radiograph was taken with

plaster casts for the maxilla and mandible. In panoramic radiograph the both canines in the mandible showed two roots and two canals (Fig. 1). Subsequently, a periapical radiograph of both mandibular canines was taken to check de initial diagnosis (Fig. 2). During anamnesis, the patient reported no history for systemic or syndrome diseases.

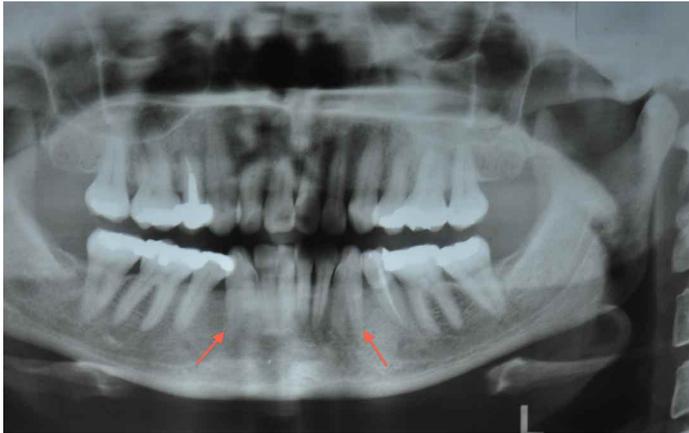


Fig. 1. Panoramic radiograph of the individuals with bilateral two-rooted mandibular canines (arrows).

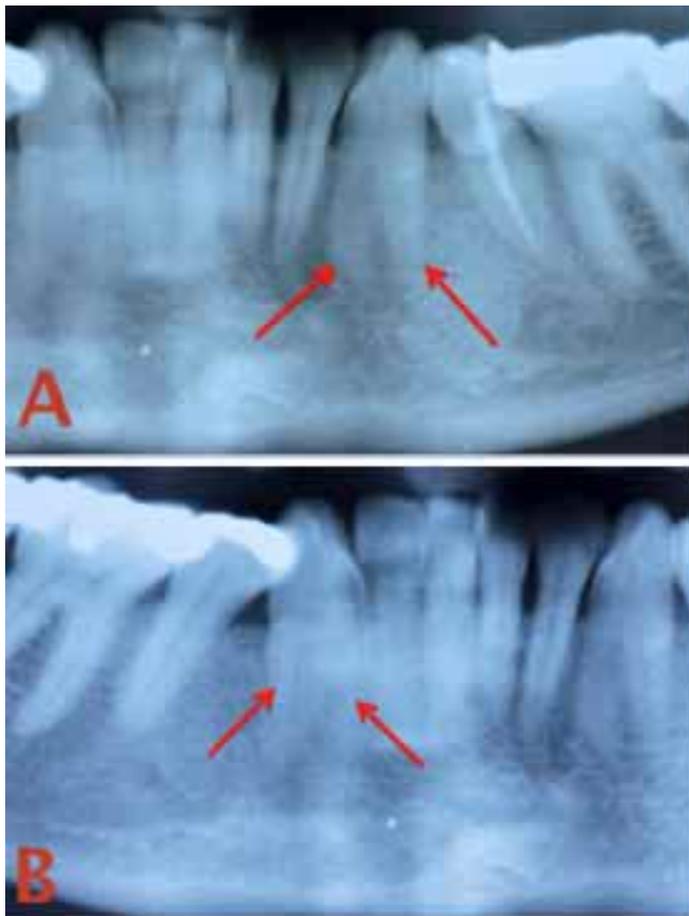


Fig. 2. Periapical radiograph of each two-rooted mandibular canine. A. Tooth 34. B. Tooth 44.

DISCUSSION

The canine is called the “cornerstone” of the mouth because of its location, which reflects its dual function to complement the incisors and premolars during mastication (Andrei *et al.*). Although mandibular canine generally have one root canal, the presence of two roots and two different canals has been reported by some authors (D’Arcangelo *et al.*, 2001; Victorino *et al.*, 2009). The prevalence of these anatomic variations in mandibular canines is 1% of the cases (Victorino *et al.*) and is higher in European population and low to nonexistent in Asians (Lee & Scott, 2011).

The root and canal morphology may be evaluated by many techniques such as cone-beam computerized tomography (Tian *et al.*, 2012), clinically (Marcaccini *et al.*, 2012), radiographically (Oporto *et al.*), endoscopically (Aracena *et al.*, 2012), among others. Thus, in this case the bilateral two-rooted mandibular canines were found radiographically. Although in the panoramic radiograph both two-rooted mandibular canines were clearly observed, a periapical radiograph was taken to confirm the number of canals of each individual’s canines, concurring with Victorino *et al.* The two-rooted canines present a buccal and lingual root with their respective canals; finding that is impossible to observe because the radiograph is a two dimensional supplementary examination.

Versiani *et al.* (2011) evaluated the anatomy of two-rooted mandibular canines using a high-resolution computed tomography, reporting that the furcation was frequently located in the middle thirds of roots (58%). Also, it was noted that size of buccal and lingual roots was equal in 28% of the cases or with lingual roots larger than buccal (36%) curved to mesial.

The knowledge of normal root canal anatomy and their variations is essential to minimize the possibility of occurrence of accidents during the development of dental treatments, as concluded Setzer *et al.* (2011). The final purpose of this case report highlights the importance of complete knowledge about the morphology of root canals and their possible variations, complementing the clinical examination with radiographic investigation, to increase the capacity of treating difficult cases during clinical approach.

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RESUMEN: La anatomía normal de los dientes caninos comprende una raíz y un gran canal centrado a través de su eje, sin embargo algunos dientes canino pueden presentar dos raíces y dos canales. Así, el conocimiento de la anatomía normal de canal de la raíz y sus variaciones son esenciales para minimizar la posibilidad de accidentes durante el desarrollo de tratamientos dentales. En este informe se describe el caso de dientes caninos mandibulares con dos raíces y dos canales bilateralmente hallados radiográficamente en el mismo individuo.

PALABRAS CLAVE: morfología dental, canino mandibular, anatomía de la raíz.

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