

İKİ KÖKLÜ MANDİBULAR KANİNDE KÖK KANAL TEDAVİSİ TEKRARI: OLGU SUNUMU

ENDODONTIC RETREATMENT OF MANDIBULAR CANINE WITH TWO ROOT CANALS- CASE REPORT

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Özet

Mandibular kaninler çoğunlukla tek köklü ve tek kanallıdır. Bu olgu sunumunda 56 yaşındaki bayan hasta, gerçekleştirilecek protetik rehabilitasyon öncesi mandibular sol kanin ve laterale endodontik tedavi uygulanması için kliniğimize yönlendirilmiştir. Periapikal radyografide lateral ve iki köklü kaninde yetersiz kök kanal tedavisi saptandı. Kron restorasyonların uzaklaştırılması ve rubber-dam izolasyonundan sonra kök kanal tedavisi tekrarı tamamlandı.

Anahtar Kelimeler: Mandibular kanin; iki kök; kök kanal anatomisi; kök kanal tedavi tekrarı.

Abstract

The mandibular canine is usually considered a single-rooted tooth with a single root canal. A 56-year-old female patient with a non-contributory medical history was referred to our clinic for endodontic treatment of the mandibular left canine and lateral incisor for prosthetic rehabilitation. Initial radiographic examination revealed the presence of incomplete root canal filling in lateral incisor and canine with two roots. After removal of the previous crown restoration and rubber dam isolation, endodontic retreatment was performed.

Key words: Mandibular canine; two roots; root canal anatomy; endodontic retreatment.

Introduction

The main purpose of endodontic treatment is to eliminate infection from the root canal and and to prevent reinfection (1). A failure in endodontic treatment usually occurs because of insufficient debridement or incomplete canal obturation. To overcome this it is important that the clinician has a detailed knowledge of the root canal morphology. Mandibular canine usually have one root and one root canal, however the occurrence of two roots and even more two root canals is rare, ranging from 1.2 % (2) to 5% (3). This paper reports endodontic retreatment case of mandibular canine with two roots and two canals.

Case report

A 56-year-old female patient with a non-contributory medical history was referred to our clinic for endodontic treatment of the mandibular left canine and lateral incisor for prosthetic rehabilitation. No spontaneous symptoms were reported, and a mild response to percussion testing was present. Clinical examination showed crown restoration both on tooth. No mobility was noted. Periodontal probing was within normal limits. Initial radiographic examination revealed the presence of incomplete root canal filling in lateral incisor and canine with two roots (Figure 1). Endodontic retreatment was performed in two appointments. In the first appointment, after removal of the previous crown restoration and rubber dam isolation, the coronal access cavity was completed. Gutta percha was removed with Hedstrom files (Maillefer, Switzerland). Root canal length was determined radiographically and confirmed with an apex locator (Apex Pointer™, Micro-Mega®, Besançon, France). Chemomechanical preparation was performed with Revo-s files (Micro-Mega®, Besançon, France) and canals

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were irrigated with 5.25% NaOCl (Sultan Healthcare, Hackensack, NJ) during instrumentation. Final irrigation with sodium hypochlorite, sterile saline and chlorhexidine solution 2% (Vista Dental Products, Racine, WI) in each root canal was performed. The canals were dried with sterile paper points and an interim dressing of calcium hydroxide and 1% chlorhexidine was placed as medication in each root canal for 2 weeks.

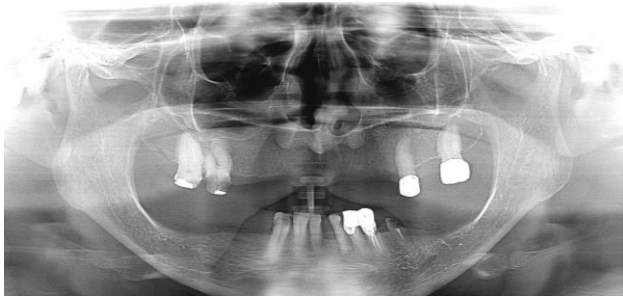


Figure 1.

In the second appointment, the calcium hydroxide dressing was removed, the canals were irrigated again and dried with sterile paper points. The root canals were filled with Herofill and an epoxy resin based AH Plus sealer (Dentsply Maillefer, Ballaigues, Switzerland). A size 30 Herofill Soft-Core was heated for 35 seconds in the Herofill oven, and was then seated to working length. The handle of the system and excess material were removed after cooling with a small round bur and then the tooth was restored with composite resin (Figure 2). The patient was recalled after a 12-month period and found to be asymptomatic (Figure 3).

Discussion

Knowledge of anatomical variations in number of roots, number of root canals might improve the outcome of endodontic treatment related to the effective cleaning and shaping of the root canal system (4). Additional root canals if not detected, are a major reason for failure (5). Incomplete removal of all the irritants from the pulp space may increase the possibility of treatment failure (6).

The internal anatomy of roots does not necessarily follow the external anatomy of the tooth and human mandibular canines are no exception to this rule (7). Care should be taken at access opening because exploration and location of canal orifices helps to navigate the

canal. Practice of extension of access cavity buco-lingually, is mandatory to find extra and hidden canals. The initial radiograph is extremely important for endodontic treatment. Radiographs taken from different angles might be helpful in finding and locating extra canals (8).



Figure 2.

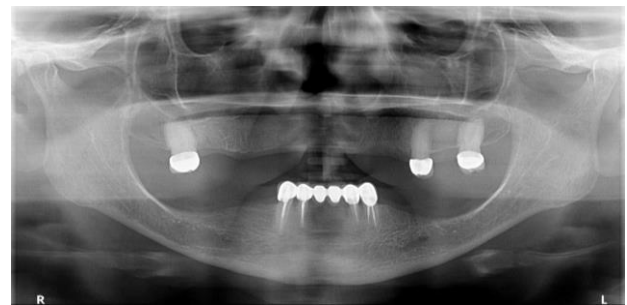


Figure 3.

Pecora et al.(2) studied the internal anatomy, direction and number of roots and size of 830 extracted mandibular canines and found that 98.3% of these teeth presented with a single root, 92.2 % presenting with one canal and one foramen, 4.9% with two canals and one foramen and only 1.2 % with two canals and two foramina. Pineda & Kuttler (9), Green (10) and Vertucci (11) reported that 15% of mandibular canines presented with two canals with one or two foramina. The incidence of two rooted canines was as low as 1.7% (7).

Holtzman (12) reported mandibular canine with three root canals.

As to the direction of the roots, %51 of the roots were straight and %49 showed curvatures. On the radiographic examination, only mesial and distal curvatures can be observed and not buccal and lingual ones. Fortunately, the incidence of buccal or lingual curvatures is very low (3.2 and 1%, respectively) (2).

Ex vivo studies have analysed root canal morphology of mandibular canines using clearing techniques (2,7) and micro-computed tomography (13). A clearing and staining technique has been considered valuable in studying the internal anatomy of teeth as it is inexpensive, does not require complex laboratory equipment and allows a thorough examination of the root canal system (14,15). Versiani et al. (13) reported that root bifurcation was located at the middle and apical thirds therefore the risk of accidental bifurcation perforation is minimal. On the other hand, it would be difficult to find the canal entrances.

Knowledge about root canal morphology and possible root canal irregularity, coupled with clinical and radiographic examination might increase the ability of clinicians to treat difficult endodontic cases. In addition clinicians should remind that the root canal system is a complex structure.

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