

# ENDODONTIC TREATMENT OF MANDIBULAR CANINE WITH TWO CANALS - A CASE REPORT

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## ABSTRACT

The mandibular canine is usually considered a single-rooted tooth with a single root canal. However, two canals and more rarely two roots may also occur. This paper reports the case of a patient with bilateral mandibular canines with two roots and two root canals. The initial periapical radiographs of the mandibular right and left canines for endodontic treatment revealed the presence of two root canals in each tooth. After coronal opening, the cervical third was prepared with a SX file of the ProTaper system and root canal length was confirmed using Root ZX mini electronic apex locator. Root canal preparation was completed with the series of ProTaper instruments and the root canal was filled with gutta-percha and AH plus sealer. The final radiographs showed two well-obtured canals ending at the electronically located apices. Clinicians should always consider the presence of anatomical variations in the teeth during endodontic treatments. Despite the low prevalence, variations may occur in the number of roots and root canals of mandibular canines, as demonstrated in this case report.

Received on: 2<sup>nd</sup>-Dec-2014

Revised on: 18<sup>th</sup>-Jan-2015

Accepted on: 2<sup>nd</sup>-Feb-2015

Published on: 15<sup>th</sup>-Feb-2015

### KEY WORDS

Mandibular Canine; Two Roots; Two root canals

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## [I] INTRODUCTION

The aim of endodontic treatment is the elimination of infection from root canal system and prevention of re-infection. The anatomy of root canal system determines the parameters under which endodontic treatment will be accomplished and also directly affects the success of the root canal treatment.[1] Anomalous root and root canal morphology can be found associated with any tooth with varying degree and incidence.[1-4] Knowledge of the root canal anatomy is the basic prerequisite for successful completion and outcome of endodontic treatment.[5] Numerous studies done by various others revealed a wide variation in the number of roots and canal pattern in mandibular canines. The occurrence of two roots and even more two root canals is rare, ranging from 1% to 5%. [6, 7] This paper reports the case of a patient with mandibular canines having two roots and two root canals.

## [II] CASE REPORT

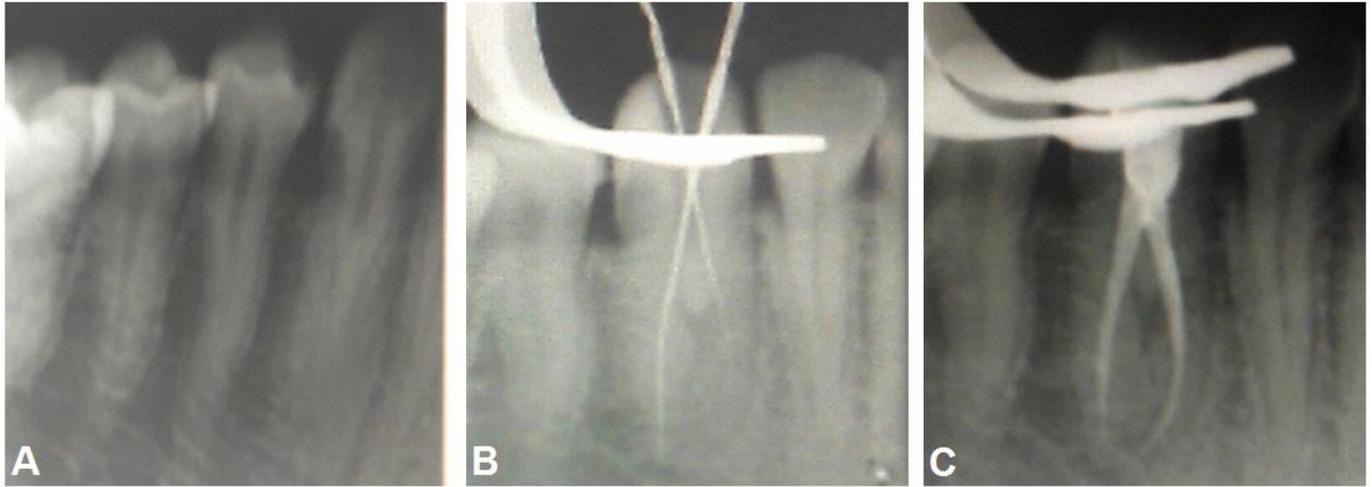
A 32-year-old male patient reported to the Endodontology department with severe pain in right and left mandibular canine region. The diagnostic radiographs showed deep proximal caries in relation to 33 and 43. Also it showed two roots for both 33 and 43. Endodontic treatment was performed under local anesthesia. The rubber dam kit was used for isolation. Access cavity preparation for both 33 and 43 revealed buccal and lingual canals (Figure-1 and -2). The cervical third was

prepared with a SX file of the ProTaper system and root canal length was confirmed using Root ZX mini apex locator. Root canal preparation was completed with series of ProTaper instruments. 5% Sodium hypochlorite was used for irrigation. Final obturation was performed with 20 number 6% gutta percha and AH plus sealer was used.

## [III] DISCUSSION

The complex nature of root canal morphology of canines should be thoroughly understood. Good quality of radiographs are taken at two different horizontal angulations are very helpful in providing the clues about the number of root canals a tooth can have. Interpretation of radiographs is equally important. During radiographic examination, a careful interpretation of periodontal ligament space could suggest the presence of an extra root or canal. Additional root canals if not detected, are a major reason for failure. [4] Nevertheless, manual exploration of root canal system with an endodontic file or explorer is a reliable way to identify the exact configuration of root canal, especially the number of foramina.[1] 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 buccolingually, is mandatory to find extra and hidden canals. Efforts should be made to locate the point where the root or the canals divide. The more apically a root canal divides, the more difficult

here [4]. In this case, root canals were divided immediately below the pulp chamber, so, it became easy to carry out further treatment.



**Fig.1: Radiographs of tooth 33.** A) Preoperative radiograph, B) Working length radiograph, and C) Post obturation radiograph



**Fig.2: Radiographs of tooth 43.** A) Preoperative radiograph, B) Working length radiograph, and C) Post obturation radiograph

#### [IV] CONCLUSION

Clinicians should be aware of anatomical variations in the teeth they are managing, and should never assume that canal systems are simple. Even though the most common anatomy of mandibular canines comprises a single root and a single root canal, clinicians should consider the possible variations and always search for the second root canal in teeth with either one or two roots.

#### ACKNOWLEDGEMENT

DR Nitin Shah, DR Anupam Sharma, Dr Rajendra Daule

#### CONFLICT OF INTEREST

No competing interests in relation to the work.

#### FINANCIAL DISCLOSURE

The instruments and materials needed to carry out endodontic treatment were financed by self.

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