BILATERAL MANDIBULAR CANINE WITH TWO CANALS IN ONE ROOT
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ABSTRACT
Mandibular canines are single rooted teeth with a single root canal and approximately 15% may have one root with two canals or two roots with two or three canals. This paper reports a case of mandibular canine with two canals, which was diagnosed by using Cone Beam Computed Tomography (CBCT).

Key Words: Mandibular canine; Internal anatomy; Root canal; Endodontic treatment

Introduction
The internal anatomy of root canals often does not reproduce the simplicity of the external anatomy of the root. Human mandibular canine do not escape from the rule, and do not present an internal anatomy as simple as could be expected.1 Mandibular canine usually have a single root with one root canal, the expectation being two canals is rare, ranging from 1% to 5%2,3 and this morphological features of the tooth may also adversely affect endodontic procedure.4,6 Even though the most common anatomy of mandibular canines constitute of 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. This paper reports a case of mandibular canine with two canals, which was diagnosed by using Cone Beam Computed Tomography (CBCT).

Case Report
A female aged 41 years referred from the department of Oral Medicine and Radiology to the postgraduate clinics of Endodontics with chief complains of pain and tenderness in relation to mandibular anterior tooth. Clinical examination revealed severe attrition, tenderness on percussion on tooth which showed no response on pulp testing. An intra oral periapical radiograph (IOPA) revealed periapical radiolucency and periodontal ligament space widening. Tooth was diagnosed for pulp necrosis with periapical involvement. Root canal treatment was proposed. The procedure was done under adequate anesthesia. After access cavity preparation a file was inserted into the canal but that was not in the centre of the tooth, it was little towards lingual side, which led to the doubt for a second canal. Another file was inserted which went towards buccal side, to confirm an IOPA (Figure 1) and CBCT 0.2mm voxel size at 128kvp and 3-8mA (Figure 2) were taken and CBCT revealed typical Vertucci’s type III canal configuration in tooth 33 and 43. Endodontic treatment was carried out with 6% gutta percha n0 25 with single cone technique. An IOPA was taken to ensure proper obturation (Figure 3).

Discussion
Knowledge of dental anatomy is a sine qua non condition for dental practice. Complete knowledge about the complexities of the root canal system is essential for the applications of the principles, resolving the problems encountered during the shaping and cleaning of the root canals, determining the apical limits and dimensions of canal preparations, and for performing successful microsurgical procedures.7 Endodontist and clinicians ought to know the internal anatomy of the teeth in detail, since endodontic treatment is otherwise impossible. Ignorance of internal tooth anatomy leads to the failure of endodontic treatment, since failure to localize an existent second root canal hinders its cleansing and sealing.1 Mandibular canines are recognized as usually having one root and one root canal in the majority of cases8 Vertucci reported that 15% of mandibular canines presented with two canals with one or two foramina. Laurichesse et al 9 reported that 2% of mandibular canines presented with one root and two canals and that 1% had two roots and two canals. Lower canines with two roots are often more difficult to instrument. If not taken into consideration, this may lead to a deviated preparation, the emphasis again being on the labial side of the canal. The lingual canal must be looked for using a small file with a curved tip.

It is an important criterion to detect such anatomical aberrations on the permanent teeth, so that the endodontic treatment can be performed appropriately. The initial radiograph is extremely important because it allows for the identification or suspicion of an extra root and root canal anatomical variations. Bifurcations in the cervical and middle third may be observed radiographically when the X-ray incidence angle does not cause superimposing of images or CBCT. In the present case, identification of the second root canal was noticed due to the entrance of first file. However it does not always occur. Identification of the second root canal is even more difficult in the presence of tooth/teeth crowding. Therefore the radiographic images should be carefully analyzed in order to interpret and identify details that may suggest the presence of an extra root or root canal. A second ex-centred X-ray may be done for aiding the earlier radiograph interpretation for proper root canal anatomy analysis. If endodontist still have a doubt about the presence of an extra root/ root canal, he/she may take CBCT unlike this case by which it becomes very easy and evident that contralateral canine also has an extra root canal (Figure 2) and bifurcation occurring at the median third and apical foramen is single. Although Endodontic treatment of mandibular...
Canine generally offers no difficulties, it is advisable to always be aware of possibility of variations in its internal anatomy. Even though the most common anatomy of mandibular canine 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 either one or two roots.

Conclusion
In conclusion it is an absolute requisite to locate and treat extra canals to prevent root canal treatment failure. This case report justifies the importance of radiographs and CBCT in cases of variations.

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