

Additional root in the mandibular first molar - a rare case report

Abstract

Morphological and anatomical variations are not uncommon in human dentition. The study of root anatomy of teeth has an endodontic as well as an anthropological significance. Mandibular first permanent molars usually have two roots, placed mesially and distally and three root canals i.e. two in the mesial root and one in the distal root. A variation in number of roots as well as canal morphology is not uncommon. The third root usually appears as a thin strand in the disto-lingual position. A clear understanding of these variations is very important for success of endodontic procedure. A dentist should be aware of these anatomic variations as this can affect the treatment outcome. A 21-year-old male reported to the comprehensive oral care clinic in the department of public health dentistry with pain and swelling in relation to lower right first molar. An intra oral periapical radiograph revealed 3 roots. The radiograph revealed periapical radiolucency and widening of periodontal space. Prior to starting the endodontic treatment the clinician must be aware of the anatomic variations in tooth.

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Introduction

A clear understanding of the anatomy of human teeth becomes an essential prerequisite for achieving success in endodontic treatment. The presence of an untreated canal may be a reason for failure. The importance of developing a visual picture of the expected locations and number of canals in a particular tooth can't be overlooked. This report describes a mandibular first molar with unusual root morphology present in the form of distolingual root. The main objective of root canal treatment is to locate all the root canals and thorough mechanical and chemical cleansing of the entire pulp space followed by complete obturation with an inert filling material.¹ Therefore, it is imperative that aberrant anatomy is identified prior to and during root canal treatment of such teeth. Unusual root anatomy number associated with the mandibular first molar has been reported

in several Studies. In 1974, Vertucci and Williams² as well as Barker et al.,³ described the presence of an extra distal root. Since then, there have been multiple case reports of aberrant canals in the mesial root of the mandibular molar.⁴⁻⁶ The present report describes additional distal root and its clinical significance.

Case report

A 21-year-old male patient attended comprehensive oral health-care clinic of the department of Public-health dentistry, presented with a non-contributory medical history, a chief complaint of gingival soreness in his right mandibular region. Pain was continuous and aggravated on biting at tooth no. 46. Clinical examination revealed tenderness on vertical percussion. Radiographic examination revealed deep caries with pulpal involvement and distinct supplemental distal root was identified (Figure 1).



Figure 1

Discussion

This case report highlights the importance of having an understanding of variations in the normal tooth morphology. Anatomical variations are an acknowledged characteristic of mandibular permanent molars. Most mandibular first and second molars in Caucasians have 2 roots, with 2 mesial and 1 distal canals. The presence of a third root in the permanent first molar is the major variant in this group. Mandibular molars can have an additional root known as radix molaris. This condition is considered to be unusual or dysmorphic root morphology. Detailed presentation of prevalence of radix molaris among different ethnic groups⁷ has been shown in Table 1.

Table 1 Prevalence of radix molaris based on ethnicity

Ethnic Group	Prevalence
Caucasians	3.4-4.2
Africans	3
Eurasian and Indian	<5
Vidharv Population	3.2
Mongoloid traits(Chinese, Eskimo and Americans Indians)	5->30

Conclusion

This case describes a mandibular first molar with an unusual number of roots. Dental clinicians should keep this possibility in mind while performing root canal treatment. Instrumentation is one of the key factors in the success of endodontic therapy; therefore, the clinician should be aware of the incidence of the extra root in the mandibular first molar. The clinician can then perform a thorough examination of the pulp chamber to insure complete debridement of

all the root canals. This increases the chance for long-term successful endodontic therapy.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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