

CASE REPORTS

Three Root Canals and Dens Formation in a Maxillary Lateral Incisor: A Case Report

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A 19-yr-old female presented with three root canals and dens formation in a maxillary right lateral incisor. This rare condition was treated with conventional endodontic therapy.

Endodontic treatment involves the thorough mechanical and chemical cleansing of the entire pulp cavity and three-dimensional obturation with an inert filling material. In some cases, however, a root canal may be left untreated because of the failure to recognize its presence. Although in the literature there is sometimes disagreement as to the anatomy of the pulp cavities of permanent teeth, the maxillary incisors are generally considered to be single-rooted, single-canaled teeth (1). Surveys conducted by Green (2), Pineda

and Kuttler (3), and Vertucci (4) all found that 100% of maxillary central and lateral incisors have single canals. However, a few case reports (5–13) contradict these surveys. Two roots and two canals have been found in maxillary central incisors (10, 11). In addition, two root canals in a maxillary lateral incisor was reported by Thompson et al. (14). These cases are thought to be the result of abnormal development of the tooth and the root. They often manifest clinically as gemination, fusion, and concrescence. The present case report discusses the treatment of a maxillary right lateral incisor with three root canals, as well as dens formation.

CASE REPORT

A 19-yr-old female in good health was referred to the endodontic clinic for root canal treatment of the maxillary right lateral

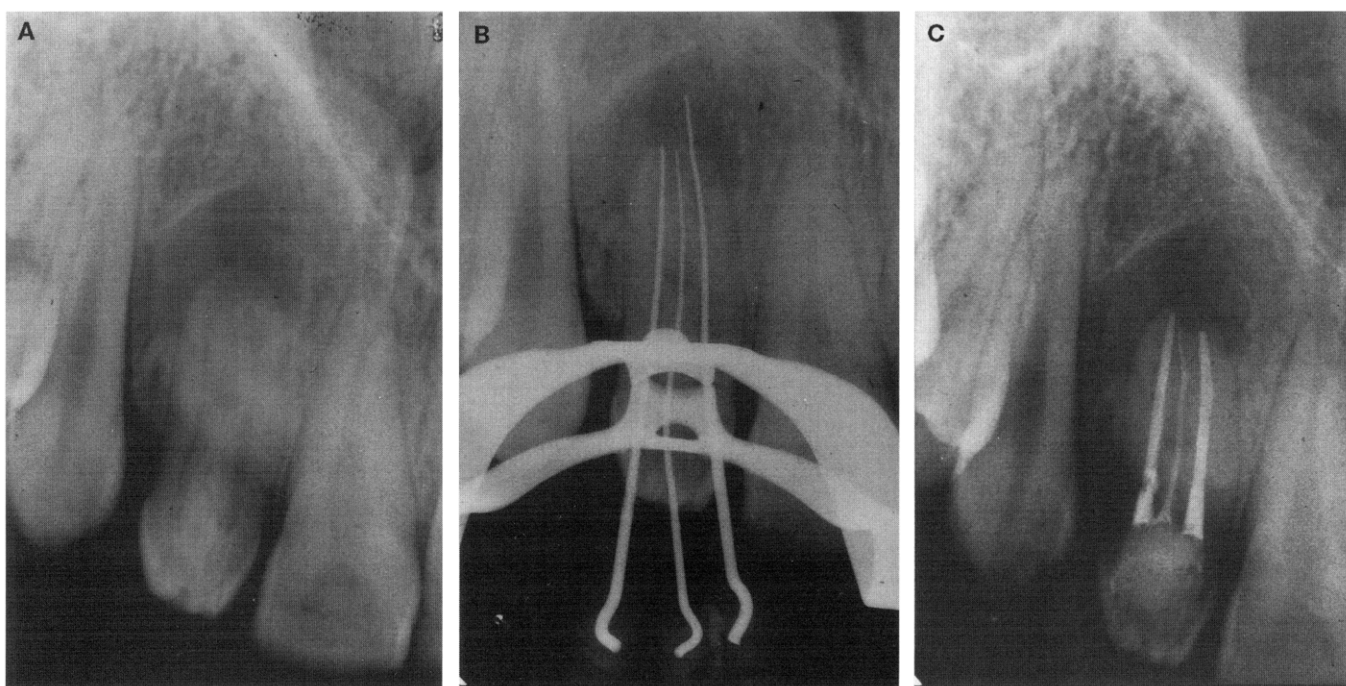


FIG 1. (A) Periapical radiograph showing apical radiolucency and abnormal root canal morphology. (B) Three canals have been traced using the endodontic files. (C) Periapical radiograph taken immediately after completion of endodontic treatment.

incisor. Clinical evaluation revealed a maxillary right lateral incisor with discolored crown that did not respond to electric pulp test. The crown was free of caries, but the patient reported a history of trauma 7 to 8 months previous. The periodontal health of the tooth was normal, and the patient had good oral hygiene. The neighboring teeth were tested with the electric pulp test and were found normal. A slight tender swelling was noted in the vestibule in the approximate region of the apex of the tooth. The tooth was also tender on percussion.

The periapical radiograph (Fig. 1A) revealed a broad, short root with an apical radiolucency of 3 mm in diameter. The root canal morphology was abnormal, as revealed by radiographs that clearly showed more than one canal.

Root canal treatment was planned for the tooth. A rubber dam was placed, and an access to the pulp chamber was made. Two #10 files, one in the mesial direction and the other in the distal direction, were inserted and a radiograph was taken. On the radiograph, a radiolucent demarcation was noticed in between the two files. A #8 file was then inserted in between the two #10 files. This revealed the presence of a third canal (Fig. 1B). All three canals were biomechanically and chemically prepared, and were obturated with a hot vertical condensation technique (Fig. 1C).

One week after completion of endodontic therapy, all of the symptoms disappeared. When the patient was reviewed after 3 months, there were no symptoms, but there was no radiological change in the periapical lesion. Further recalls were not possible, because the patient left the country for good.

DISCUSSION

The occurrence of more than one root canal in maxillary incisors is rare. The possibility of the presence of multiple canals in cases

of dens indente, fusion, or gemination does exist, and should be carefully explored and treated.

One such case of treatment of three canals in the maxillary lateral incisor with dens formation is reported herein.

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You Might be Interested

No question there has been a gradual increase in human height over the years. Just since 1972 an increase has been noted. The only related factor in the post-1972 increase (*J. Med Screening* 2:133) is family size, i.e. children from large families are shorter than children from small families.

Less competition in snatching that last doughnut off the breakfast table?

T. Thumb