

## Management of Double Rooted Maxillary Central Incisor with Two Roots Canals

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**Abstract:** The purpose of this article is to describe endodontic treatment of the central incisor with two roots. Radiographs show two distinct roots in the middle portion of the tooth.

**Keywords:** Endodontic treatment; Radiograph; Central incisor.

The successful treatment of teeth is dependent upon cleaning the root canal system as thoroughly as possible and filling it in all dimensions.[1] It seems that central incisors have the simplest root canal system.

Vertucci reported that 100% of central incisors have only one canal (Type I).[2] But as with other teeth, it is possible to see variations in these teeth. Some investigators have reported different maxillary central incisors with two canals.[3-9]

Mangani and Ruddle[10] demonstrated a most unusual four canal central incisor with resorption. They believed that maxillary central incisor teeth can vary dramatically in their external and internal anatomy.

In this article, the endodontic treatment of a maxillary central incisor with two canals is described.

### Case report

A 16-year-old male was referred to the Endodontic Department of Inderprastha Dental College & Hospital, Ghaziabad. He had no

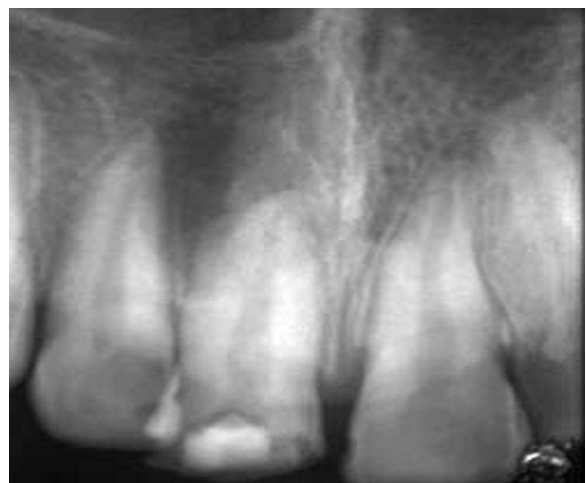
problem in his medical history, and his chief complaint was pain on palpation in his maxillary right central incisor region.

The clinical appearance of this tooth showed a vast composite resin restoration, and the patient reported he had suffered a traumatic injury. Diagnostic radiograph revealed radiolucency around the apex of tooth, with two separated roots (Figure 1). Also, vitality tests confirmed necrosis of the pulp.

Probing depths around the tooth were less than 3 mm, and no unusual mobility was detected. After anesthesia with xylocaine 2% plus epinephrine 1/80000 (*AstraZeneca Pharma India Limited, India*), a rubber dam was placed and the access cavity was prepared following negotiation of the major canal, which separated into two canals in the middle third of the root.

A #35 stainless steel file (*Dentsply-Maillefer*,

**Figure 1: Initial radiograph**



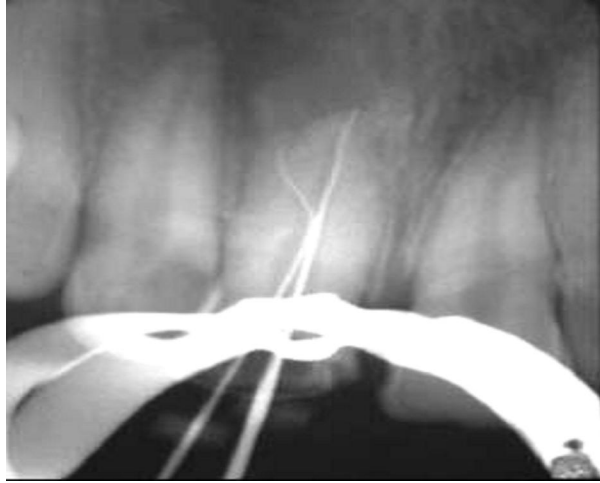
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**Figure 2: Working length determination radiograph**



*Swiss*) with a severe curved tip was used to find the location of the separation. Then a #15 file was used to negotiate the second canal.

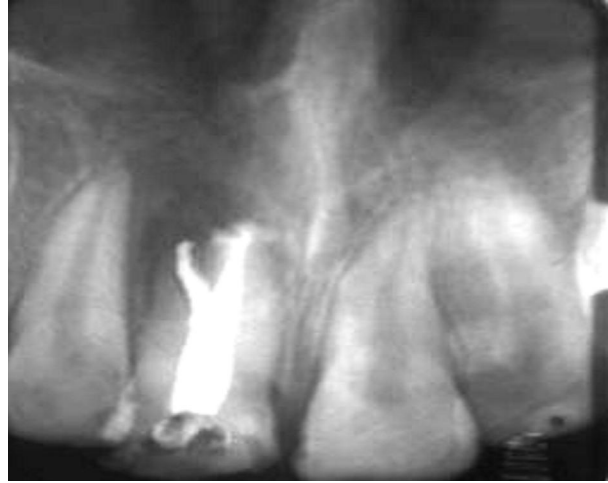
A working film was exposed to confirm existence of a canal and differentiation from a perforation. The working film confirmed a second canal that separated from the first canal at a severe angle (Figure 2).

In order to prepare a straight line and have better access to this canal, removal of the dentin bulge was carried out with gate Glidden drill #3 and #4 (*Dentsply-Maillefer, Swiss*) until the orifice of the second canal, which was 11 mm under the reference point, was found. Then, larger files could penetrate the canals easier (Figure 3). After chemo-mechanical cleaning, shaping and irrigation with 5.25%

**Figure 3: Master cone fitness radiograph**



**Figure 4: Final radiograph**



sodium hypochlorite, obturation was done with gutta-percha and AH26 (*Detrey-Dentsply, Swiss*) as a sealer, using a combination of lateral and vertical condensation techniques (Figure 4).

Clinical symptoms seemed to be fairly improved after 15 days.

## Discussion

This article reported a maxillary central incisor with exclusive characteristics. This tooth had two separated roots in the middle and apical portions. However, there is no similar tooth in the accessible reports. Also, radiographs showed three accessory canals in the apical portion of the deviated canal that formed an apical delta. Vertucci[2] has reported that only 1% of the maxillary lateral incisors have apical delta.

This article also emphasizes taking an angulated radiograph for more complete knowledge of the root canal system, even for the tooth that apparently is most easily treated.

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