

Retreatment of a lower molar

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_Case report

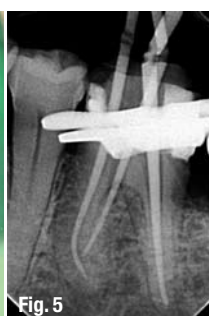
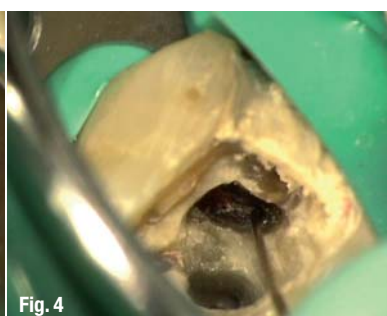
A 61-year-old male patient, with a non-contributory medical history, was referred by a general dentist for retreatment of a mandibular first molar. The tooth was tender to percussion. Peri-apical radiolucency was evident in both roots and the furcation area. A previous root-canal treatment had been performed more than ten years ago. The canal filling was short in length and the remains of a screw post were present in the mesiolingual canal (Figs. 1 & 2). The treatment plan was to restore the tooth with a cast dowel and porcelain-fused-to-metal (PFM) crown.

After local anaesthesia had been administered, a rubber dam was placed and the temporary filling removed. The fragmented post was removed by means of ultrasonic tips under magnification (G6, Global Surgical). Owing to the vicinity of the post to the furcation, care was taken not to remove dentine distal to the post. The root-filling material apical of the post and from the orifices of the other root canals was also removed with ultrasonic tips. Observation under high magnification revealed a small perforation of the root-canal wall where the post was placed (Fig. 3). The patient and the referring dentist were informed that the tooth was to be retreated and the perforation defect sealed with MTA cement (DENTSPLY Maillefer).

A copious amount of irrigation (2.5% NaClO) was used throughout the treatment. The root canals were

_Endodontics is all about preserving the natural dentition. There is no better implant than the natural tooth, given the fact that it can be treated and restored effectively and predictably. Many factors, such as root perforation, affect the prognosis of endodontic treatment.¹ Today, perforations can be managed predictably with the use of MTA cement as sealing material.²

The purpose of this article is to illustrate the endodontic retreatment of a mandibular first molar with perforation in the coronal third of the mesiolingual root canal, aided by the use of magnification provided by the dental operating microscope (OM).



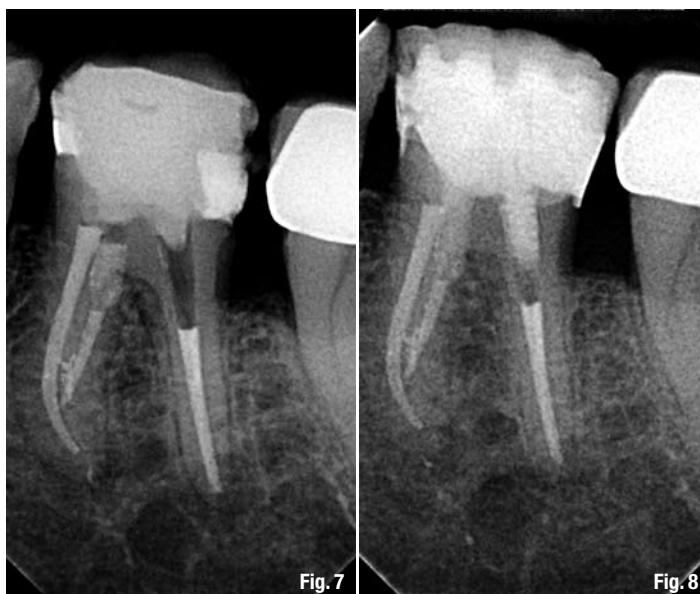
flared with a combination of Gates–Glidden burs and rotary NiTi instruments. Under high magnification, an additional root–canal space was found in the distal root (Fig. 4). Remnants of the previous root–canal filling material were removed with a combination of hand files and rotary instruments, and patency was achieved with small stainless–steel hand files. Working length was calculated with an apex locator (Root ZX mini, J. Morita) and PathFile (DENTSPLY Maillefer) rotary instruments were used for pre-flaring.

The mesial root canals were instrumented to 40/04 and the distal to 50/04 with rotary instruments (BioRace, FKG). The smear layer was removed through one-minute irrigation with 17% EDTA (Ultradent). Passive ultrasonic irrigation was performed with 2.5% NaClO and ESI needles (EMS), three times for one minute each in every canal. The canals were dried and Ca(OH)₂ was placed with a Lentulo spiral (DENTSPLY Maillefer) as an intra-canal medication. Cavit G (3M ESPE) was used as temporary filling material. The patient was given oral and written post-operative instructions and was told to return after 15 days.

At the second appointment, the anti-microbial irrigation regimen was repeated and the canals were dried with sterile paper points. Gutta-percha points were placed in the canals and a master-cone radiograph was taken (Fig. 5). The sealer used was AH Plus (DENTSPLY DeTrey). The continuous wave of condensation technique was applied during obturation with System B (SybronEndo) at 4 mm from the apical terminus of the canal, and back-filling was done with thermo-plasticised gutta-percha using the Obtura III Max (Obtura Spartan).

Care was taken not to accidentally push sealer into the perforation site. The mesiolingual root canal was back-filled to a level apical of the perforation (Fig. 6). After obturation, white MTA, delivered with the MTA gun (both DENTSPLY Maillefer), was used to seal the perforation site. As requested by the referring dentist, no post space was left in the distal root canal, as he wished to create his own space to place an intra-radicular post (Fig. 7). Cavit-G was used as temporary filling material. The patient was referred back to the dentist for the final restoration and was told to return after a six-month period for a recall examination.

At the recall appointment seven months later, the radiograph showed no evident radiolucency in the peri-radicular tissues of the tooth (Fig. 8). However, it also revealed that the new post had not been placed at the adequate length. The general dentist was contacted and reassured me that a new dowel and PFM crown would be placed.



Conclusion

Advances in technology and biomaterials have not yet been proven to enhance overall success rates in endodontics.³ Root perforations can affect prognosis in a negative way.¹ Nevertheless, the OM allows clinicians to work with great precision even under the most demanding circumstances,⁴ and MTA greatly enhances success when treating perforations in the furcal area.² In addition, the use of ultrasonics under magnification facilitated the removal of the post despite its small size. Passive ultrasonic irrigation removed debris and necrotic tissue effectively from the mesial isthmus area, allowing obturation material to fill it, as can be observed in the final X-ray (Fig. 8).

Editorial note: A complete list of references is available from the publisher.

_about the author

roots



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