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Endodontic treatment and restoration of non-perforated internal root resorption: A case report



Internal resorption is an inflammatory process initiated within the pulp chamber with loss of dentin and invasion of the cementum. There are two types of internal root resorption, the first is the internal inflammatory resorption and the other is the internal replacement resorption. Trauma and pulpal inflammation/infection could be the major contributory factors in the initiation of internal resorption.¹ Teeth with internal resorption should undergo appropriate endodontic treatment without delay (see Fig. 1).

A 36-year-old woman presented with gingival swelling corresponding to the apical area of lower anterior teeth. Periapical radiographs revealed internal root resorption in the lower right central incisor. Cone beam computed tomography showed internal root resorption in cervical part of the root canal without perforation. The lower right central incisor was free of caries, the electronic pulp test and cold test elicited negative results, and there was tenderness on biting and/or percussion and palpation. The pulpal diagnosis was that of pulp necrosis, with a periapical diagnosis of acute apical abscess. Under local anesthesia, the pulpal chamber was opened. There was profuse bleeding from the root canal because of inflamed pulpal tissues. The canal was flushed with 2.6% sodium hypochlorite. The working length was 15 mm, as measured by apex locator and confirmed by periapical radiography. After cleaning and shaping, calcium hydroxide paste (ApexCal, Ivoclar Vivadent AG, Schaan, Liechtenstein) was placed into the canal. The access cavity was closed with 3 mm of glass ionomer composite liner (Ionoseal, VOCO GmbH, Cuxhaven, Germany). Twenty-one days after treatment, the patient was asymptomatic. An ultrasonic instrument was used to

remove calcium hydroxide and inflamed tissue at the resorption area under a microscope. The canal was obturated with gutta-percha and mineral trioxide aggregate sealer (Endoseal MTA, Maruchi, Wonju, Korea) by warm vertical compaction. Seven days after obturation, post space of 10 mm was prepared with a Pessio-reamer drill (Dentsply Sirona, Charlotte, NC, USA). The tooth was restored with a Cytec fiber-reinforced post (Cytec Blanco, Hahnenkraat, Germany) and composite resin.

The anatomic and morphologic features of internal root resorption were unique recesses which might be existed microorganisms in infected teeth. The combination of ultrasonic instrumentation and microscopy is effective in the removal of organic debris and biofilm present in the root space.² The chemical dissolution of the infective pulp and organic debris with sodium hypochlorite must be emphasized. The use of calcium hydroxide as an interappointment dressing maximizes the effect of disinfection procedures, helps to control the bleeding, and necrotizes residual pulp tissue.³ The compromised teeth are susceptible to fracture because of the decreased wall thickness.⁴ Placement of fiber posts after root canal treatment can improve the distribution of forces and decrease the risk of fracture, especially in teeth with a cervical cavity.⁵

In conclusion, application of calcium hydroxide can help cease internal root resorption. Subsequent conventional endodontic treatment and fiber post insertion can help preserve the infected tooth. Therefore, the treatment plan for internal root resorption, including the endodontic and restorative considerations, should be communicated to the patient.

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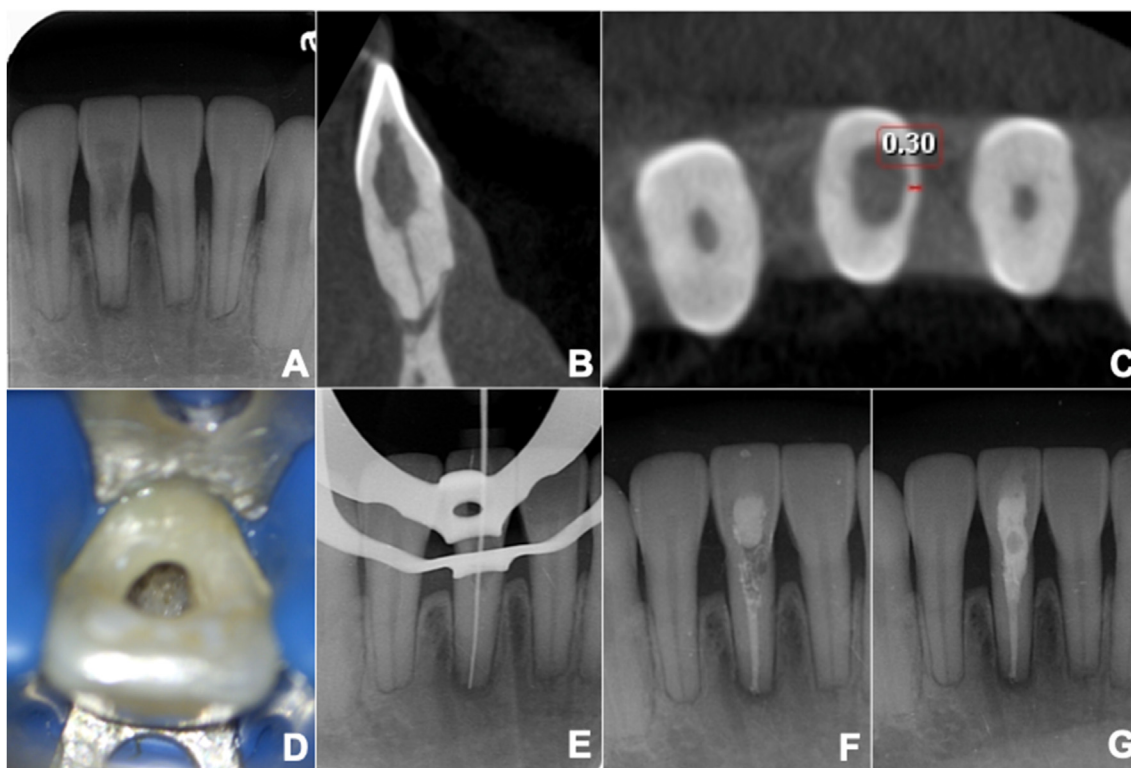


Figure 1 (A) Preoperative radiograph showing internal root resorption of tooth 41; (B) Mesial-Distal view from Cone-Beam Computerized Tomography; (C) The thinnest wall is 0.3 mm; (D) Resorption area under microscope (E) Working length determination (F) Gutta-percha and Endoseal MTA obturation (G) Fiber-reinforced post placement and composite resin restoration.

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

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