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Case Report

Endodontic management of small molars



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Introduction

Root canal anatomy and the macro-morphology of any tooth is not a constant factor, variations can be presented and the clinicians should be acquainted with it to achieve the goal of endodontics, prevention and elimination of apical periodontitis.¹ Lack of adequate knowledge of these variations result in iatrogenic mishap of missed anatomy and can predispose to treatment failures resulting in orthograde and in some cases retrograde endodontic retreatment.²

The root canal and the macro-morphology of maxillary premolars are highly variable. One of the deviations includes the presence of an 'extra root' giving the nomenclature of 'small molars' or 'ridiculous molars' as their anatomy resembles the adjacent maxillary molars. The reported

incidence of the three root scenario is less and it ranges between 0 and 6% in maxillary first premolar and 0.3–2% in maxillary second premolar.^{2,3}

The presented case series describes an unusual macro-morphology of maxillary first premolars with three roots and its endodontic management.

Case report

Case 1

An 18-year-old male patient with non contributory medical history reported to the dental office with continuous pain in the maxillary right quadrant. Clinical examination revealed proximal carious lesion in the maxillary first premolar (14). Intra oral periapical radiographic (IOPA) examination revealed distal carious lesion approximating the pulp and the rare phenomenon of three rooted 14 (Fig. 1a). Pulp sensibility tests were positive. A diagnosis of irreversible pulpitis for 14 was proposed and orthograde endodontic treatment was planned.

After obtaining the informed consent, the tooth was anaesthetized and isolated using rubber dam. Access cavity was performed using cavity access set (Dentsply Maillefer, Ballaigues, Switzerland). The access cavity design was 'T', shaped rather than the usual oval and mesio-buccal (MB) and disto-buccal (DB) orifice were in close proximity to each other. The palatal orifice was located beneath the palatal cusp.

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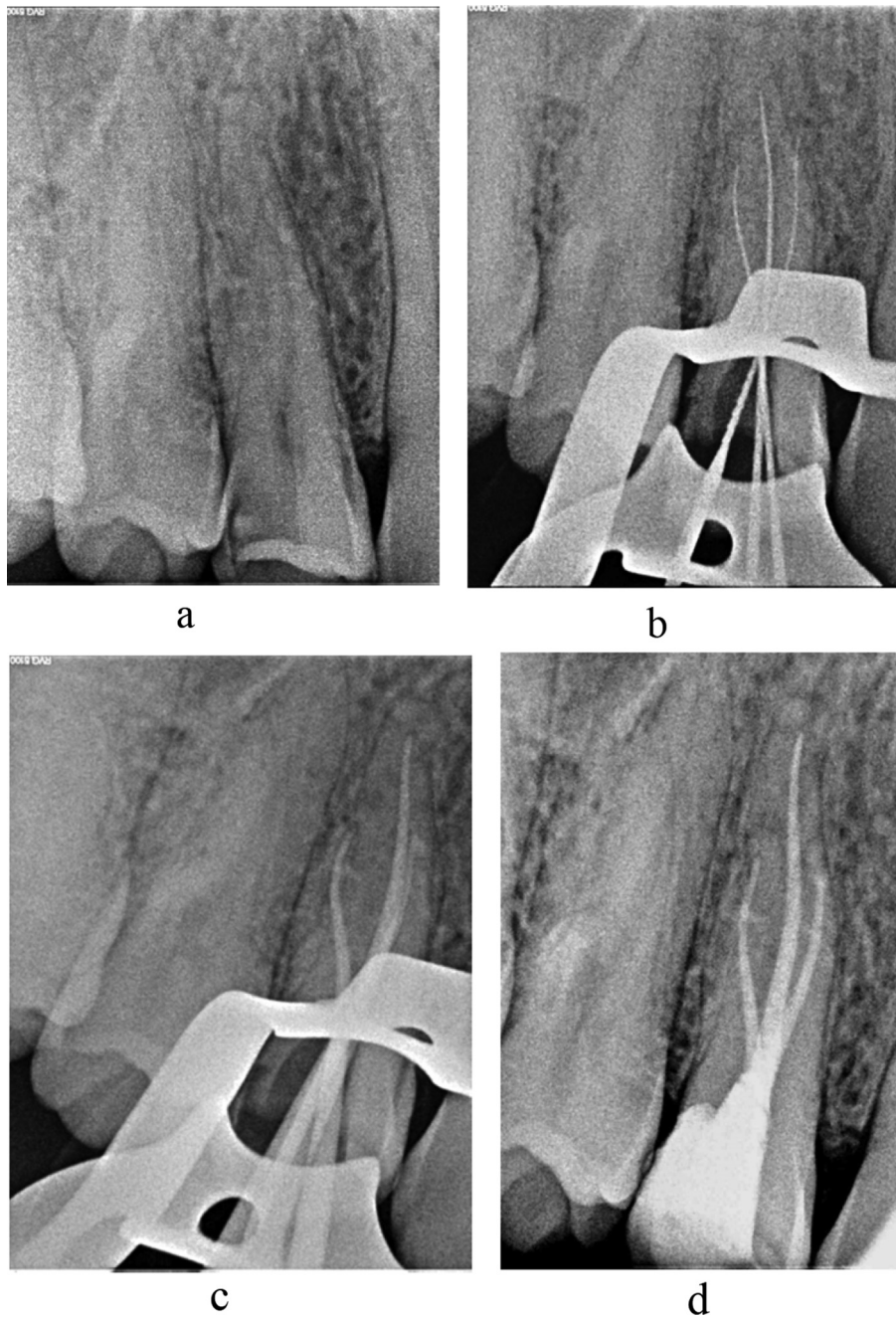


Fig. 1 – (a) Preoperative IOPA showing ‘fast break’ sign. (b) IOPA showing working length determination. (c) IOPA showing master cone GP placement. (d) IOPA showing completed obturation.

The working length of the root canals was determined using electronic apex locator (Root ZX, J. Morita Corp., Tokyo, Japan) and authenticated with IOPA (Fig. 1b). The root canals were prepared using Mtwo (VDW GmbH, Germany) rotary instruments. 2.5% of sodium hypochlorite and 17% of EDTA were used as root canal irrigants. Calcium hydroxide (Metapex, Meta Biomed Co., Ltd.) was used as root canal disinfectant and the tooth was temporized (Cavit, 3MESPE, Minnesota, USA).

The patient was recalled after a week and tooth was re-entered and irrigated to remove the calcium hydroxide. Chlorhexidine 2% (Asep RC, Stedman Pharmaceuticals Pvt., Ltd.) was used as final irrigant. Gutta percha (GP) master cones

(Dentsply Maillefer, Ballaigues, Switzerland) of appropriate size were selected (Fig. 1c) and the root canals were obturated using AH-Plus (Dentsply DeTrey, Konstanz, Switzerland) resin sealer (Fig. 1d). The access cavity was restored using composite resin (LuxaCore Z, DMG, Germany). Eight month follow up showed the patient asymptomatic.

Case 2

A 32-year-old male patient with non-contributory medical history referred to the dental clinic for endodontic

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