



Severe Canal Curvatures

Contributed By: Dr. David Thom – June 2000

History:

73 year-old male referred to the University of Toronto Graduate Endodontic Clinic for treatment of tooth #3.8. This tooth will be used as a posterior abutment for a new cast removable prosthesis.

Findings:

The cast retainer on this tooth was previously removed to find extensive decay. Upon examination, the patient was asymptomatic and this tooth tested negative to a cold stimulus (Endo-ice). Percussion, palpation, periodontal probings and mobility of this tooth were within normal limits. A periapical radiograph shows the mesial roots to be calcified and severely curved, possibly containing radiopaque debris or a separated instrument.

Pre-operative Diagnosis:

Necrotic pulp without periradicular extension.

Treatment rendered:

Two mesial canals (which merged in the mid-third of the canal) and a single distal canal were located. RC-Prep was used to facilitate instrumentation down the mesial canals using Flex-R files in a crown-down, balanced force manner. The distal canal was calcified, so small sized stainless steel Flex-O files (#06 and #08) were used with RC-Prep to negotiate the distal curvature in the apical third. Working lengths were confirmed using the Root ZX apex locator. After initial instrumentation, the canals were medicated with calcium hydroxide paste, the chamber filled with a cotton pellet, covered by Cavit, and the retainer re-cemented using I.R.M..

During the second treatment session, the canals were instrumented by selectively using hand nickel-titanium files of increasing taper (.02, .04, .06) to shape the mesial canals to 0.279 mm apical diameter and the distal root to 0.360 mm diameter. A System B heat source and nickel-titanium finger pluggers were used to obturate the three canals using a warm vertical compaction technique. The chamber was filled with a cotton pellet, covered by Cavit, then the tooth was restored using I.R.M. to cement the cast retainer.

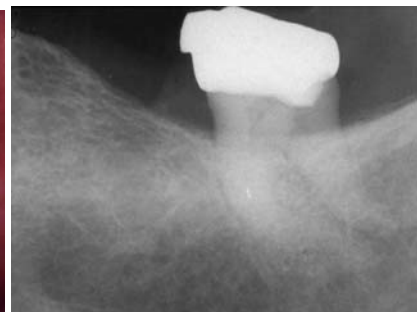
Slides:



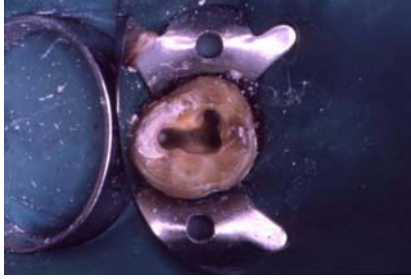
Buccal view of tooth #3.8



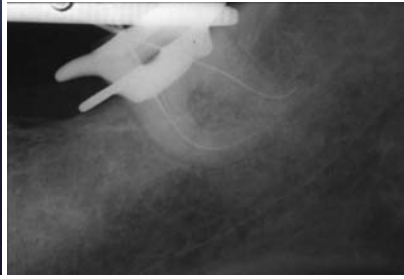
Occlusal view showing cast retainer of sectioned FPD



Pre-operative periapical radiograph indicating severe root curvature.



Intra-operative occlusal view showing canal orifices.



Radiograph showing curvature of trial files to working length.



Cone-fit radiograph to confirm proper master gutta percha cone placement.



Check radiograph following down-pack using nickel-titanium finger pluggers and back-pack with the Obtura.



Final radiograph with the cast retainer recemented.