Feb 2012

GreenRoot News

We have greatly enjoyed working with you as part of your endodontic team, and appreciate your referrals. Thank you again for your trust in us in taking care of the endodontic needs of your patients.

-GreenRoot Team

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A story of a hidden canal

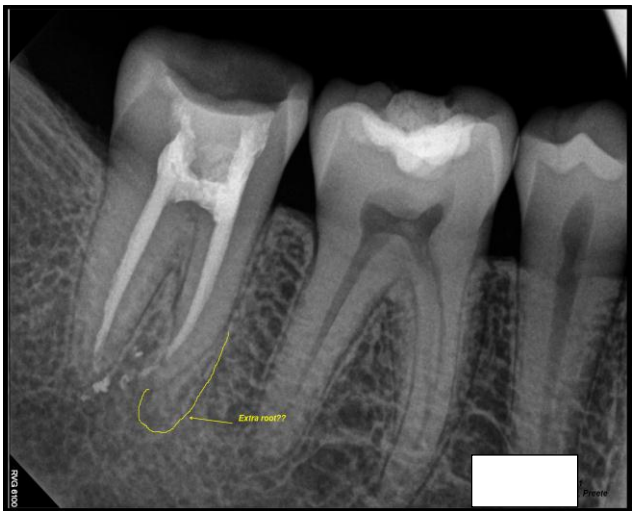

Fig. 1: Pre-Op PA showing the presence of possible separate mesial root.

A 37 year old female presented to our office on a Friday evening just a few minutes before our closing time complaining of severe pain in tooth # 31 that was previously root canal treated just over a year ago.

Upon clinical exam, there were multiple crack lines on #31. Being a very busy gynecologist, she admitted not being able get a crown done post RCT. She also admitted night grinding. However, she was not aware of the benefits of using a night guard. #31 was extremely tender on percussion & palpation. Periodontal probing & mobility were within normal limits (WNL).

Upon initial radiographic exam, one of the angled periapical radiographs showed a suspicious extra PDL indicating a possibility of extra mesial root (Fig.1). However, it was not very clear on the other pre-operative radiographs.

Medically, patient suffered from severe ulcerative colitis which limited her tolerance to usual NSAIDs like Ibuprofen which is highly effective in treating endodontic pain.

Based on my initial testing, #31 was diagnosed with failed endodontic therapy with symptomatic apical periodontitis. I also suspected a possible vertical root fracture &/ missed root canal anatomy. During this visit, she was also educated about the benefits of using a night guard & stressed on having one fabricated by her Dentist. I decided to take the Cone Beam CT (CBCT) after all the thermafil carriers were taken off to prevent any false positive result for vertical root fracture due to beam hardening artifact created by the radiopaque obturation material.

During the emergency appointment, the thermafils were removed & Calcium Hydroxide was placed as interim appointment. However, no fracture lines were seen entering the pulp chamber under the microscope.

Vicodin & short term Prednisone was used for pain control due to her medical condition which limited her GI tolerance to Ibuprofen.

Upon acquiring a cone beam CT scan (CBCT), the presence of a separate mesiolingual root was seen. CBCT also revealed the secondary dentin formation in coronal third of the root & gave me the vital clue that I need to drill down into the root to actually locate the canal (Figs. 2 & 3). However, no evidence of vertical root fracture was seen.

During next visit, the paler secondary dentin was differentiated from the yellower primary dentin under magnification.

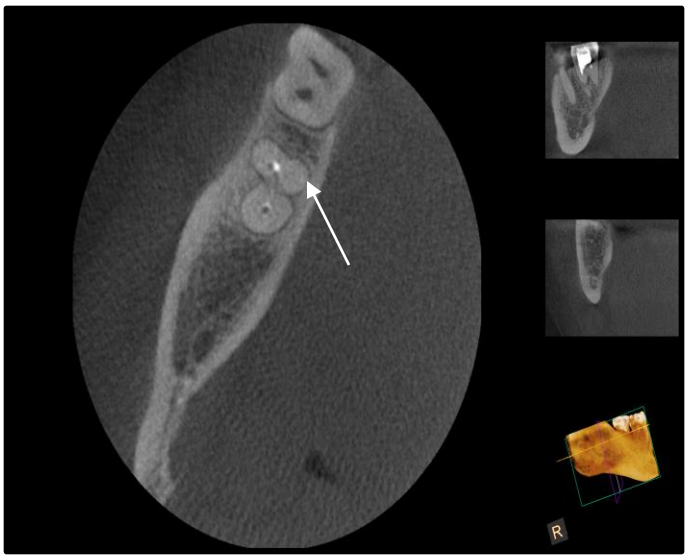

Fig. 2: Axial CBCT slice showing secondary dentin formation on mesio lingual root in the coronal third of the root

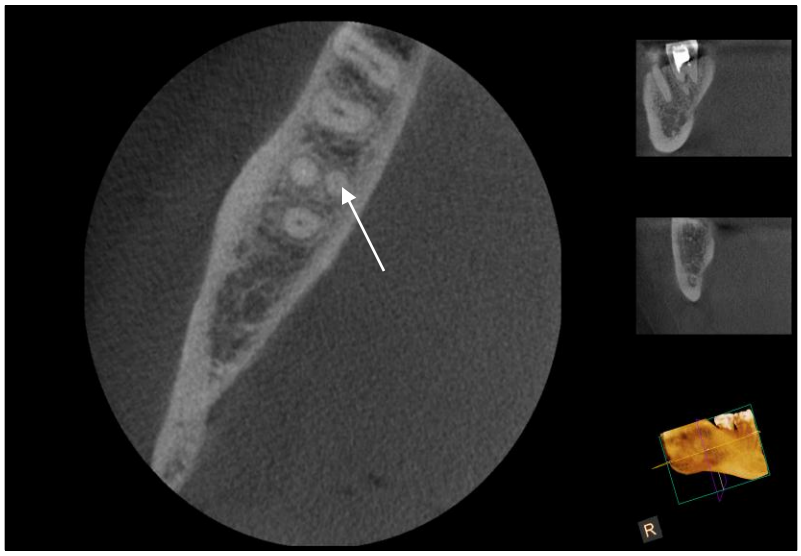

Fig. 3: Axial CBCT slice showing separate mesio lingual root in the mid & apical third

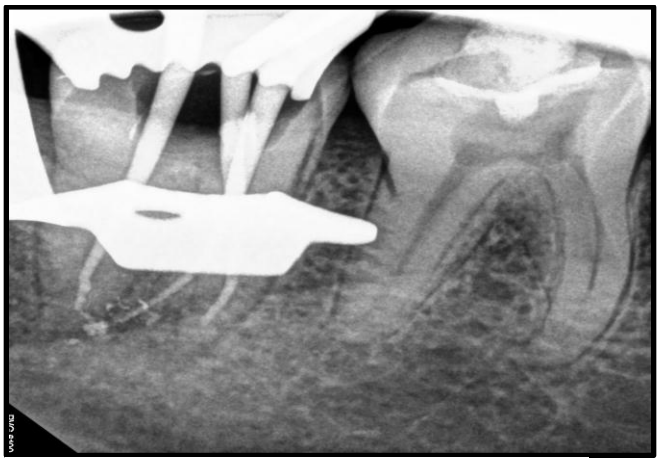

Fig. 4: Conefit x-ray

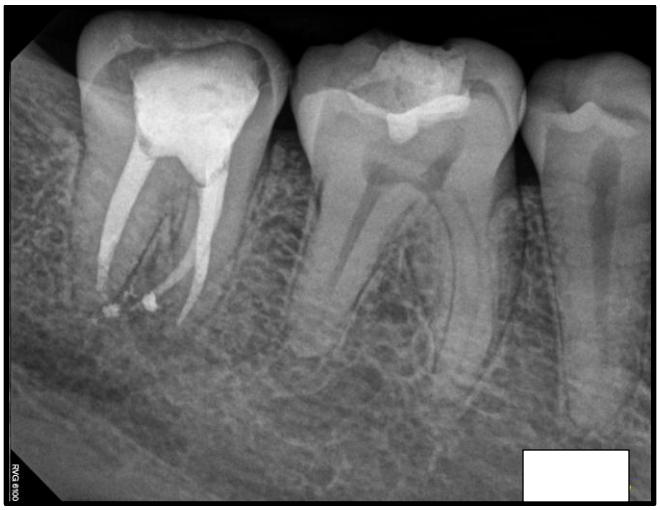

Fig. 5: Post-Op X-ray

Under the microscope, the secondary dentin was carefully removed using fine ultrasonic tips without removing too much radicular dentin. The hidden mesiolingual canal was found in the coronal & mid third junction. A gush of purulent exudate was released from the missed anatomy. The mesiolingual canal was then thoroughly cleaned & another dressing of Calcium Hydroxide was given.

Obturation was completed after one week & the access was restored with Flurocore under rubber dam isolation (Figs. 4 & 5).

Patient was returned back to her general dentist for a permanent crown. A recommendation was given for fabrication of a night guard.

Even though, the most common finding in the re-treats that we routinely come across in our office is missed anatomy & hence there is nothing unique about this particular case. This particular case however emphasizes the importance of having the right tools & right techniques to deliver the right care that our patients truly deserve.

My take home points from this case:

- **Taking multiple angled pre-operative radiographs & use of advanced radiographic techniques like CBCT helps in better diagnosis of the problem.**
- **Proper magnification & illumination aids in better detection of finer root canal anatomy.**
- **Fine ultrasonic tips works better than burs or gates glidden when careful drilling in the root anatomy is involved. It not only helps in better visualization but also removes lesser radicular dentin than other modalities.**