

CS 8100 3D Extraoral Imaging System

CBCT provides clarity of prognosis

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Case Overview:

A 67-year-old female taking Forteo (Teriparatide) for the treatment of osteoporosis was referred to my office by her general dentist because of her history of ongoing low grade discomfort associated with the UR quadrant and more specifically tooth #3. Her dental history revealed previous root canal therapy was completed on tooth #3. She didn't recall when, but was confident it was greater than five years prior to presenting to my office.

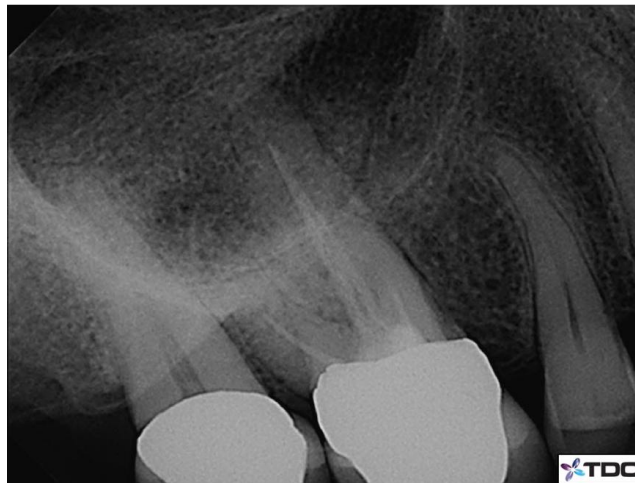
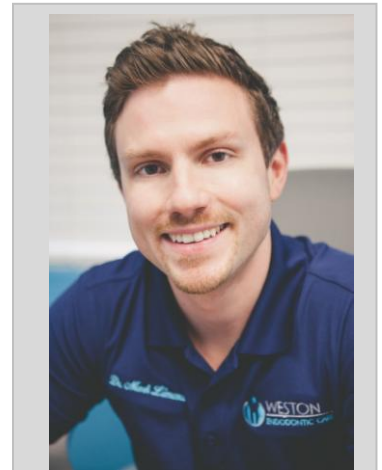


Figure 1: 2D periapical radiograph of previous RCT on tooth #3.

Clinical examination revealed a slight buccal swelling associated with the tissue buccal to tooth #3. No sinus tract was evident. The palpation of the temporalis and masseter muscles did reveal some trigger point sensitivity suggestive of myositis possibly subsequent to parafunctional habits. Tooth #3 demonstrated slight sensitivity to biting, palpation and percussion. A 6mm probing was noted on the mesiobuccal (MB) aspect of the palatal (P) root. This finding was concomitant with purulent discharge.

The PA radiograph (Figure 1) demonstrated that tooth #3 had previous root canal treatment. Probable radiolucent findings were associated with the apical portion of the MB and P roots. The root canal filling material



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Dr. Limosani is a Fellow of the Royal College of Dentists of Canada and a diplomate of the American Board of Endodontics. He is currently on staff at Miami Children's Hospital and teaches at the AEGD residency program at Community Smiles.

Dr. Limosani has lectured locally and internationally on dental traumatology, restoration of endodontically treated teeth, restoratively minded endodontics, diagnosis and treatment planning and cone beam computed tomography (CBCT) use in endodontics.



associated with all three roots appeared underextended and underfilled. A decision was made to take a cone beam computed tomography (CBCT) scan in order to obtain more valuable diagnostic information.

Findings:

The sagittal slice demonstrated attenuation patterns suggestive of a narrow bony defect associated with the MB aspect of the P root of tooth #3. The axial slice demonstrated the high likelihood of an unaddressed second MB canal as well as a furcal defect involving the MB and palatal roots. No radiolucent findings were associated with the apical portion of the MB root.

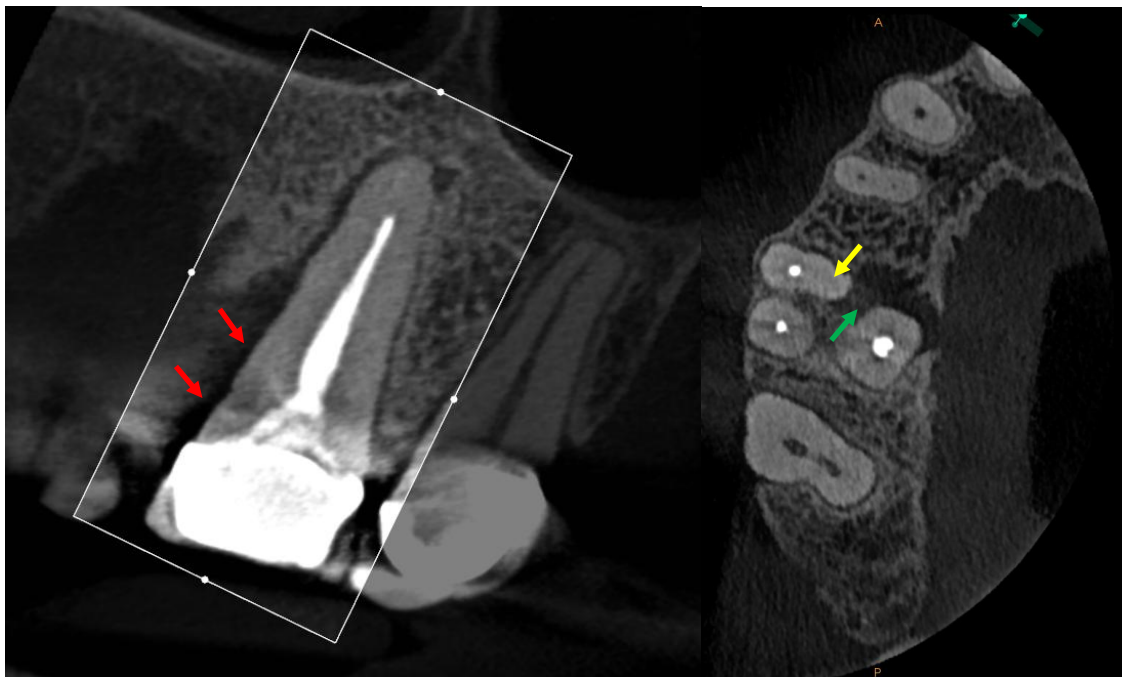


Figure 2: Oblique sagittal CBCT view of #3 with attenuation patterns suggestive of a narrow bony defect associated with the MB aspect of the P root of tooth #3 (red arrows)

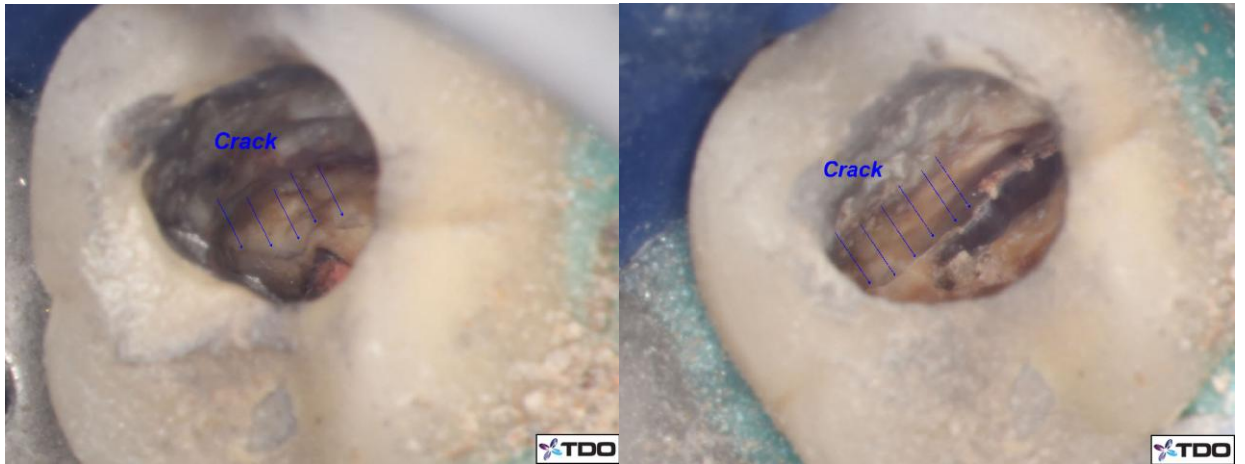
Figure 3: Axial view with finding of an unaddressed MB2 canal (yellow arrow) and furcal defect (blue arrow) on #3.

Treatment Plan:

My endodontic diagnosis for tooth #3 was a previously endodontically treated tooth with an acute apical abscess. The differential diagnosis associated with the etiology of bone loss was assessed as follows: 1) A crack extending from the MB root to the P root 2) A second mesio-buccal (MB2) canal that was unaddressed during the initial therapy that was causing persistent periradicular periodontitis.

The patient was given the option to have the tooth extracted or to re-access the pulp chamber in order to investigate the presence of a crack or missed canal. She agreed to access the tooth, where upon a crack was discovered (Figures 4 and 5), extending from the MB canal through the palatal root.





Figures 4 & 5: Operating microscope intraoral photographs of the partially debrided tooth # 3 with the finding of a crack extending from the mesiobuccal canal through the palatal root

Testimonial:

As clinicians, we can all recognize the importance of managing patient expectations prior to initiating treatment. When explaining all potential risks and benefits associated with our intervention, it becomes imperative for us to gather a significant amount of evidence in order to allow the patient to make an enlightened decision. CBCT helps uncover another layer of the dental diagnostic truth, while concomitantly enabling us to properly document our decision making process.

The CS 8100 3D extraoral imaging system is an integral part of treatment planning and has provided me the resources to make my discussions with patients more thorough and meaningful. It enhances the value of the care I provide. CBCT technology provides practitioners with another level of comprehension both from a diagnostic and a case management perspective.

With 3D imaging, we are able to evaluate cases more accurately, while at the same time providing the patient with more effective diagnostic tools that minimize additional costs, procedures and discomfort.

Would you like to know more? Visit us on the web at www.carestreamdental.com.

Clinical Case Study

