

Limited To Endodontics Newsletter

The logo consists of the letters 'LTE' in a bold, white, serif font, centered within a solid black square.

Limited To Endodontics

A Practice Of Endodontic Specialists

July 1 2009 Volume 2

Endodontic Treatment For The Compromised Tooth

The goal of endodontic therapy is to either prevent the establishment of periapical pathology by the removal of irreversibly inflamed pulp tissue or to reverse the course of existing apical periodontitis when the pulp has become infected.

Achieving these objectives can be quite challenging when we are treating a compromised tooth. Such teeth can be defined as having a reduced or questionable long term prognosis due to any one of a number of endodontic, periodontal or reconstructive problems that may be difficult to overcome. Decisions must be made if they should be saved or extracted and replaced with an implant. Providing our patients with the best treatment plan is an important dilemma facing our profession.

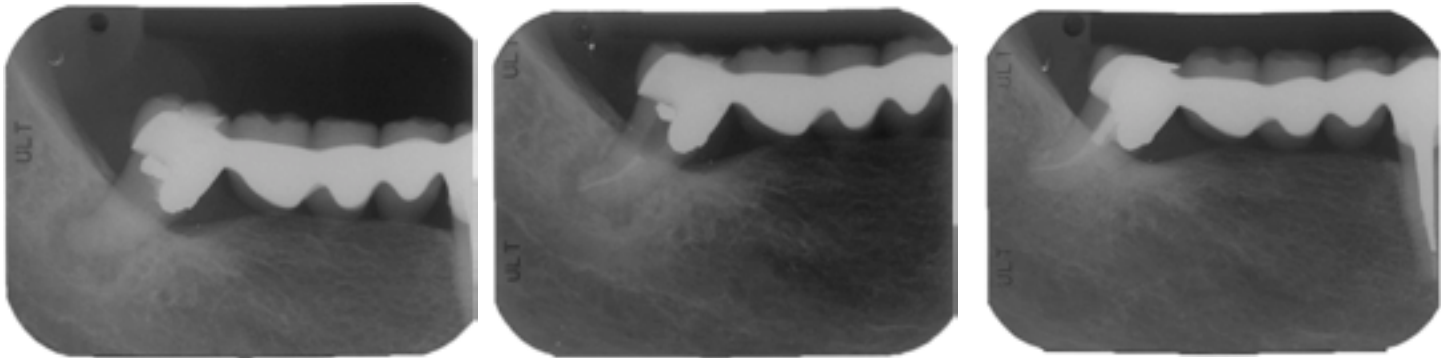
A major literature review conducted by The Academy of Osseointegration found equal survival rates between single tooth implants and restored endodontically treated teeth. They concluded that the decision to place an implant or do endodontic therapy should be based on criteria other than the long-term outcome of the 2 treatment approaches because the outcome is similar.¹ These results are consistent with the only study to date comparing single tooth implants and restored endodontically treated teeth.² The criteria that may influence the outcome of treatment involve issues of restorability, periodontal support/bone quality, esthetics, systemic factors, potential for adverse effects, and the preferences of the patient.³ Other factors include the age of the patient, the presence and location of cracks, and most importantly, the expertise of the practitioner.

Often there is no consensus on what constitutes a compromised tooth. Moreover, there is disagreement among dentists as to what constitutes proper therapy. In one study, clinicians agreed on the treatment plan in only 62% of the cases.⁴ We have all seen situations where teeth were treated that should have been extracted, and conversely, where teeth that could have been saved were extracted. Some practitioners may look at a challenging endodontic case and assume that the outcome is poor based on their experience and reports in the literature. The results reported by many of these studies are invalid in today's environment because they were done before the use of the surgical operating microscope (SOM) and do not take into account the skill of the operator. The desire and expertise of the operator is difficult to quantify.

The decisions made by patients are enormously influenced by the advice we give them. Rarely will a patient insist that we attempt to save a tooth which we feel has a hopeless prognosis. At Limited to Endodontics, a multidisciplinary approach is used in working with the patients, their general dentists and any other appropriate health care practitioners to arrive at the best treatment plan. Sometimes what some might consider the "ideal" treatment is not the only treatment that may have a reasonable mid or long-term prognosis for survival.

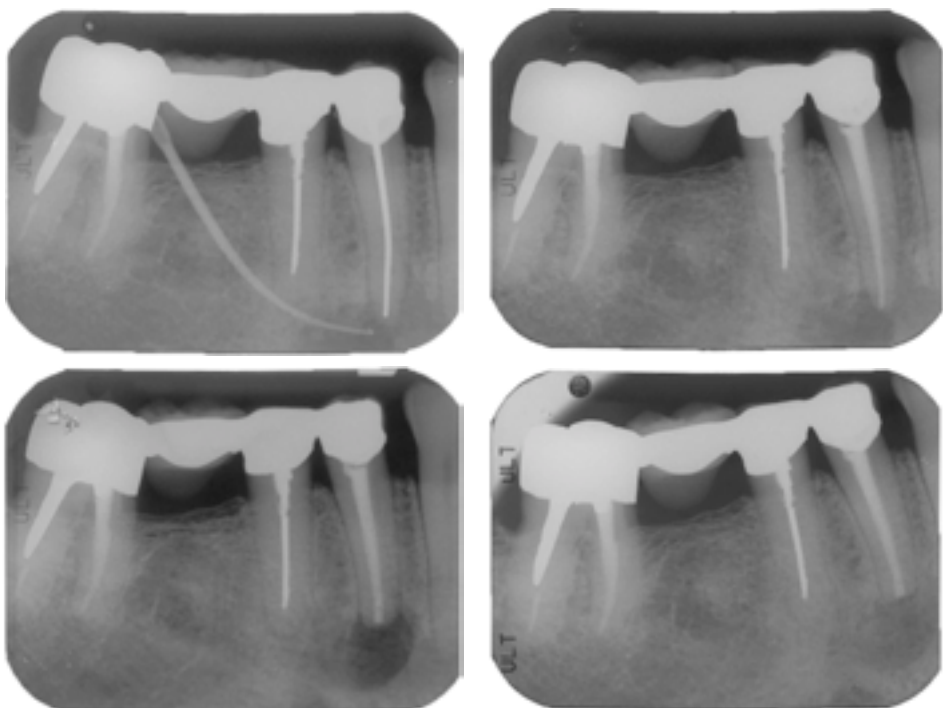
We would like to share with you some of the compromised teeth we have treated and explore the possibilities for future treatment considerations.

Case #1 involved an 82 year old patient who presented with a sinus tract involving the terminal abutment (tooth #32) of a long-span bridge done over 40 years ago by a prominent prosthodontist. The canal was so calcified that it could not be seen radiographically. She desperately wanted to save her bridge and reverse the course of the infection. A previous attempt had been made to locate the canal without the use of the SOM. While using the SOM does not guarantee that all calcified canals will be located, many canals will not be found without its use. The SOM was used, the canal was located, and the sinus tract resolved over the course of 2 weeks. An 18 month recall radiograph shows resolution of the periapical lesion.



Case #1. The starting radiograph, left, shows what appears to be a totally calcified canal. The recall radiograph, right, reveals complete healing

Case #2 involved a 79 year old patient who presented with a localized swelling opposite the #30 pontic that did not seem to be of odontogenic origin. She was referred to an oral surgeon for an evaluation. We did not see her for almost 2 years when she presented again with a sinus tract entering the mucosa at the same location. She had undergone a CT scan and was scheduled to have one or more teeth extracted. The scan identified “significant periapical osteopenia and bone loss” surrounding the root tip of tooth #27 and #28. Additionally, there was “no clear bony margin” between the sinus tract and the inferior alveolar canal. She asked whether she needed to have her tooth extracted. The sinus tract was traced to tooth #28 and tooth #27 reacted positively to pulp testing. A decision was made to initiate non-surgical endodontic retreatment of tooth #28, which unfortunately did not resolve the sinus tract. Periapical surgery with limited curettage, apicoectomy and retrofilling were performed. The sinus tract healed and a 6 month recall demonstrated significant osseous regeneration.



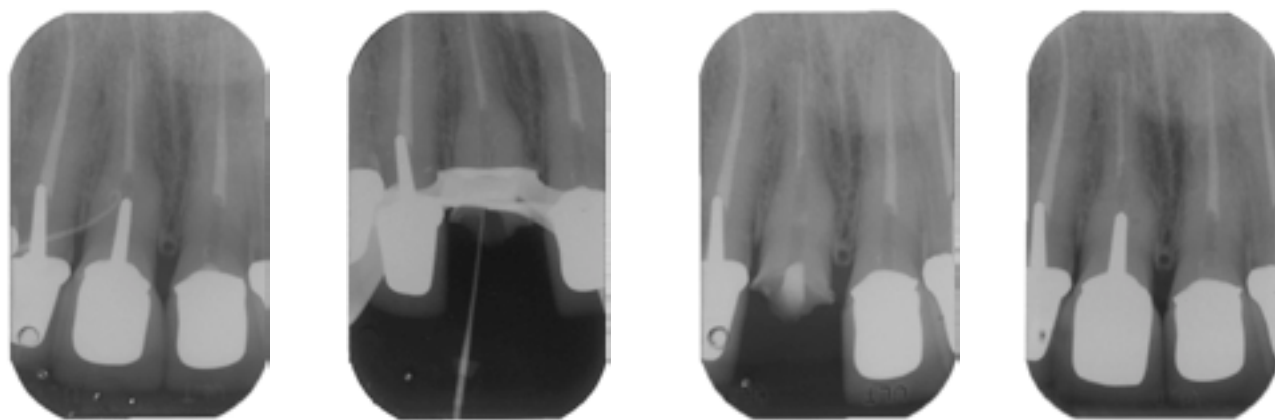
Case #2. The sinus tract entered the mucosa at the location of the pontic and traced to #28. The retreatment did not result in healing, upper right. Periapical surgery, lower left, and recall, lower right.

Case #3 involved a 67 year old patient who presented with palpation sensitivity involving the buccal mucosa of tooth #3. A narrow periodontal pocket to the apex of the buccal roots was present into the buccal trifurcation. The patient also had a history of chronic bilateral sinus infections and was under the care of an ENT specialist. The treatment challenges encountered involved locating and instrumenting the calcified canals and controlling the continuing drainage of exudate into the palatal canal from the maxillary sinus. Although the pocket resolved within 3 weeks from the initiation of treatment, drainage continued into the palatal canal. We were in consultation with the patients physician, and at his advice placed him on augmentin for 3 weeks. After completion of treatment, the patient was referred to his physician for follow up care for his sinusitis. After CT scan evaluation, the physician referred him to an oral surgeon who operated and removed a cyst that involved the maxillary sinus. The one year recall shows almost complete osseous regeneration.



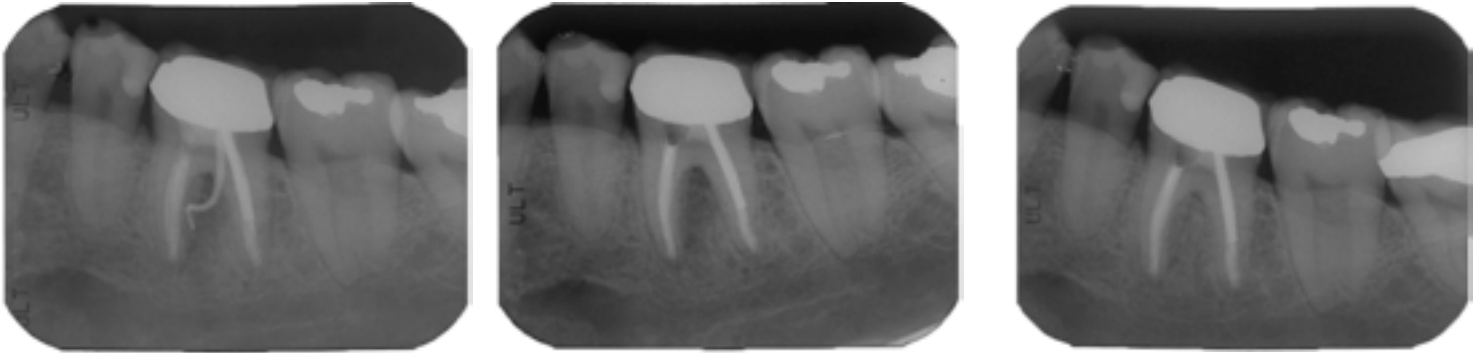
Case #3. The DB canal was difficult to locate. Osseous regeneration is evident on the right recall radiograph.

Case #4 involved a 67 year old patient that developed a sinus tract which traced to the incisal third of the labial surface of tooth #8. A full mouth reconstruction had just been completed and the patient was distraught about the infection. The periodontal status was excellent. After evaluating various treatment options, including extraction and implant placement, a decision was made to reenter the canal nonsurgically by removing the post and crown. Exploration of the post space revealed a perforating resorptive defect. The space was disinfected with passive ultrasonic irrigation and a bonded composite was flowed into the resorption. Observation a few weeks later showed resolution of the sinus tract. A 3 year recall shows normal bone. The sinus tract has never returned.



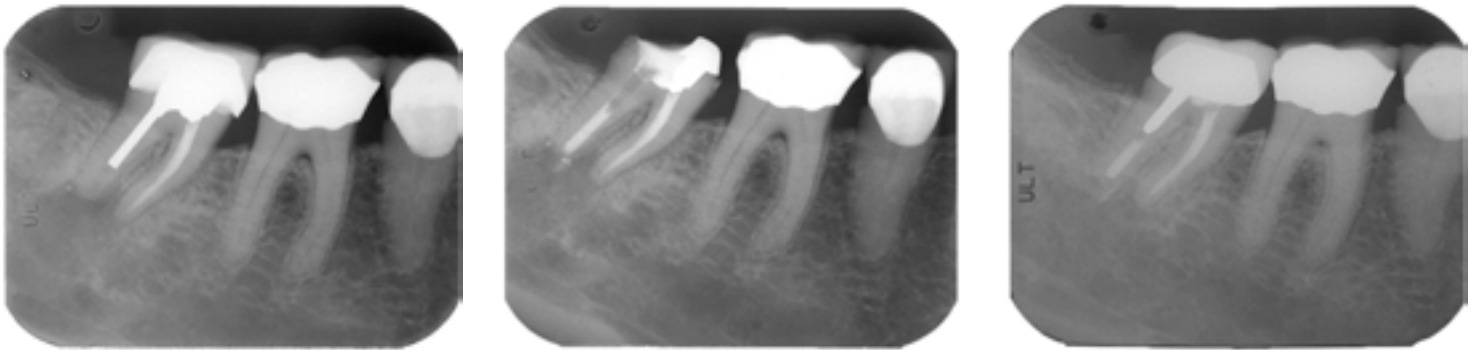
Case #4. From left to right, sinus tract traced, file entering resorption, resorption filled with composite, and 3 year recall.

Case #5 involved a 47 year old patient with a history of conventional endodontic therapy performed in 1997 followed by a surgical retreatment with retrograde fillings in the mesial and distal roots in 2002. She presented in 2007 with a sinus tract that traced to the mid-distal surface of the mesial root. The periodontal status was normal. The pattern of bone loss suggested the possibility of a vertical root fracture. During the non-surgical retreatment of the mesial root, it was noted that the apical retrograde seal was intact and a mid-mesial canal was not located. Aggressive ultrasonic irrigation was employed in an attempt to reduce the bacterial population that could have been located between an isthmus connecting the MB and ML canals and egressing laterally. The sinus tract resolved and a 6 month recall shows complete healing.



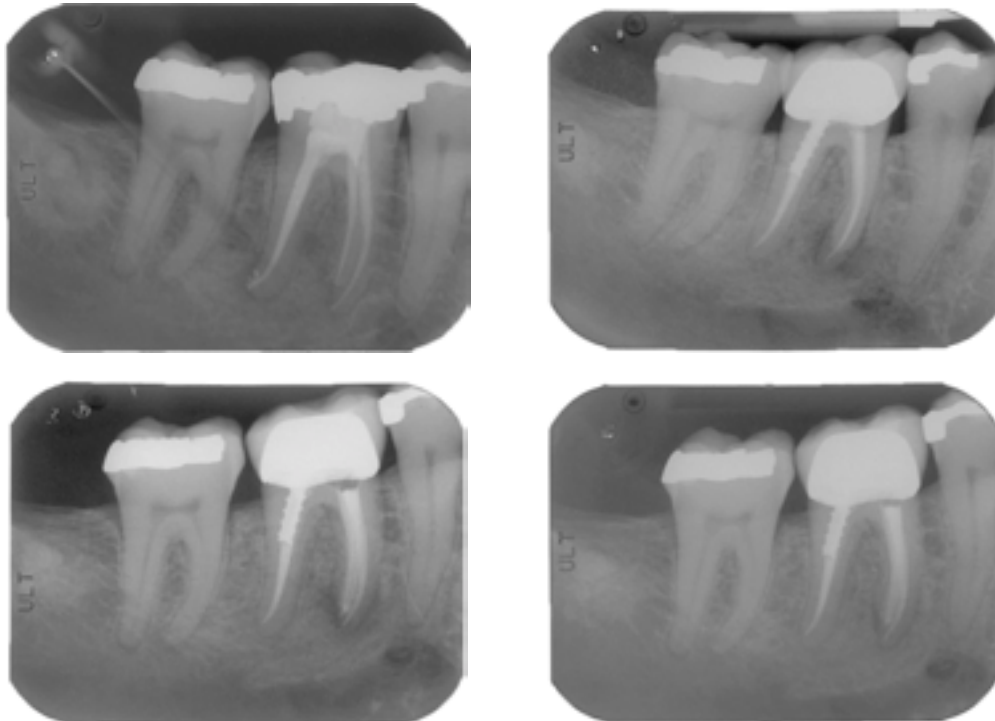
Case #5. The sinus tract was traced, upper left, and the mesial root was retreated, center. Osseous regeneration noted at the 6 month recall, upper right.

Case #6 involved a 46 year old patient who presented with an abscess involving tooth #31. The patient wanted to save her tooth. The crown and cast post were removed and the distal canal was retreated. A 5 year recall shows normal healing.



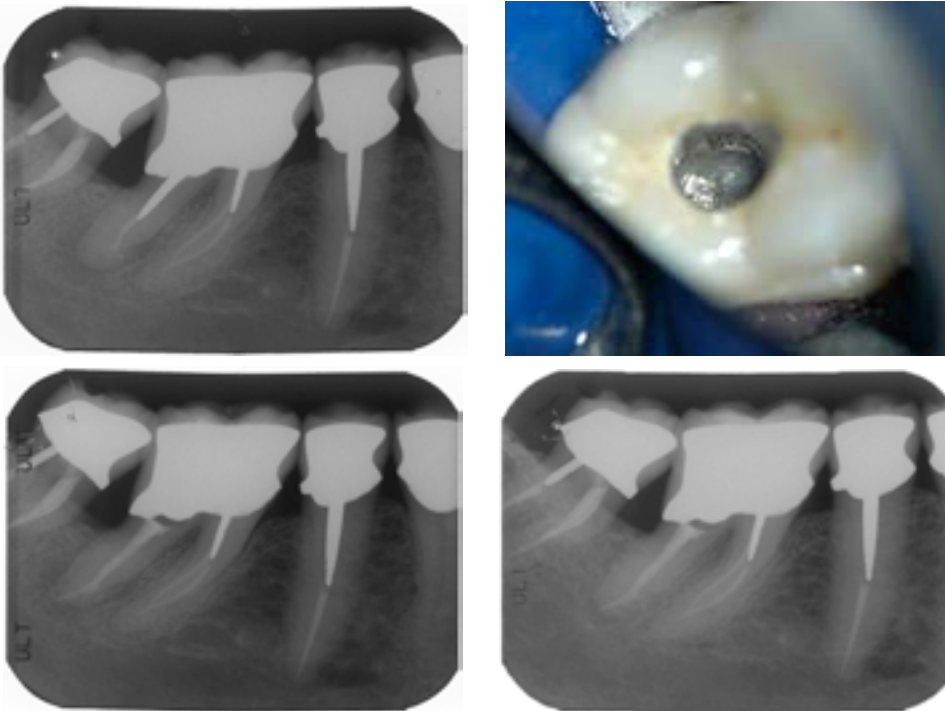
Case #6. The distal root was retreated, center, and a 5 year recall shows complete osseous regeneration.

Case #7 involved a 46 year old patient who had a root canal procedure over 8 years before presenting with percussion sensitivity involving tooth #30. A decision was made to do a non-surgical retreatment of the mesial root. After removal of the MB and ML gutta percha, a mid-mesial canal was located with the SOM. All 3 mesial canals had their own apical foramen. The tooth became comfortable after the disinfection procedures and a 6 month recall reveals complete healing.



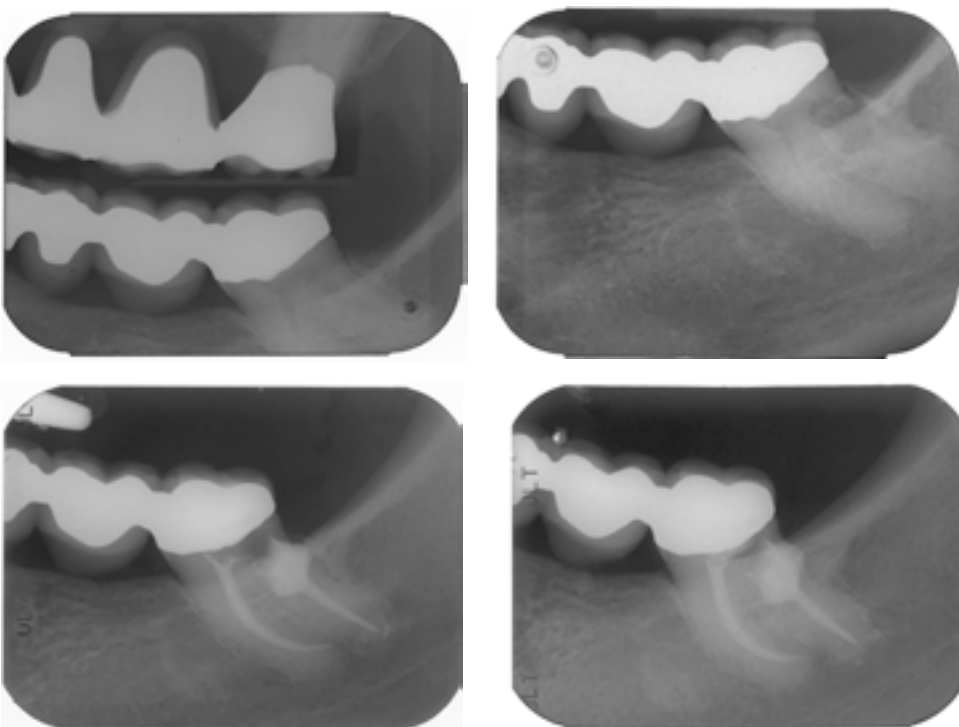
Case #7. The original completed procedure, top left and the tooth 8 years later, top right. Retreatment completed, bottom left and 6 month recall, bottom right.

Case #8 involved a 65 year old patient who presented with pain and percussion sensitivity. The periodontal status was normal. The anatomy precluded a surgical approach and the patient had prior implant failures and wanted to attempt to save the tooth. It was decided to retreat the distal root because of the presence of an apical radiolucency. After the distal aspect of the cast core was removed, the distal post was visualized utilizing the SOM and removed with ultrasonics. The symptoms resolved and the patient has been comfortable since the retreatment was done over 2 years ago.



Case #8. The distal cast post is isolated through a minimal access opening in the upper right photograph. Retreatment of the distal canal, lower left, and a 2 year recall, lower right demonstrates almost complete bone regeneration.

Case #9 involved a 56 year old patient that had internal resorption that was discovered when a routine FMX series was taken. The resorption was not detected on a bite-wing taken 18 months prior. The tooth was the terminal abutment of a long span bridge. After the initial instrumentation visit, hemorrhaging was observed from the area where the resorption was perforating. At the next visit, the bleeding had stopped and MTA was placed. A 2 year recall shows a stable situation.



Case #9. A normal situation is seen on the bite-wing, upper left, and resorption is detected, upper right. The treatment is completed, lower left, and a 2 year recall, lower right.

References

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