

A close-up photograph of a dental procedure being performed on a tooth model. A hand is visible on the left, holding a metal bracket or guide. A dental drill is being used on the tooth, which is held in a metal fixture. The background is a teal-colored surface.

PORTFOLIO 01

Assigning a Level of Difficulty to Your Endodontic Cases



ROOT CANAL SPECIALTY
ASSOCIATES

Root Canal Specialty Associates
provides care in all phases of surgical
and nonsurgical endodontics. With
decades of combined experience, four
locations, and nine endodontists,
we have you covered.

LOCATIONS

Ann Arbor
Brighton
Livonia
West Bloomfield

DOCTORS

Dr. Robert Coleman*
Dr. Steven Edlund*
Dr. Martin Goode
Dr. Wesley Ichesco
Dr. Alexandra Martella
Dr. Christopher McWatters
Dr. Andrew Racek
Dr. Michael Shapiro
Dr. Martha Zinderman

* Active Diplomate of the American
Board of Endodontists





PATIENTS COME FIRST

You care about your patients. We care about your patients too – and promise to return them to your office feeling better.

Our priority is to put them at ease and make them feel comfortable from the moment they connect with our team.

We pride ourselves in consistently delivering the highest standard of endodontic care no matter which location or doctor your patient visits. We offer extensive scheduling availability for both routine and urgent care. Your patients will receive the prompt and specialized attention they deserve, when they need it.

"I was nervous before my appointment since I had never had any sort of dental work done aside from six-month cleanings – not even a cavity filling. I didn't know what to expect. Root Canal Specialty Associates was very thorough and went through everything step-by- step before my appointment. It was a great experience—very quick and painless. Their staff put me at ease..."

Angelina T.,
Patient, Root Canal

We take our referral partnerships very seriously. Consider us an extension of your team.

In many cases, a compromised tooth can be retained with endodontic treatment. If you have concerns about complicated conditions or treatment options for your patient, our doctors are available for endodontic case consultation whenever you need it.

Together we can relieve pain, save teeth and provide your patients with optimal, quality care. And because of our focus, procedures can be performed in an efficient and predictable manner – creating positive experiences and favorable outcomes.

"My experience with Root Canal Specialty Associates (RCSA) has been wonderful as a patient and referring doctor. In the 30+ years of referring to RCSA, feedback from my patients has been 99% positive. The doctors are always available to discuss cases, and the staff is always helpful and pleasant. As a patient myself, I was surprised how efficiently the doctors worked."

Dr. Michael Pardonnet
*Great Lakes Family
Dental Group*

Our doctors have an extensive and diverse mix of educational and clinical experience.

Trained at top endodontic programs across the country – and with over 170 years of combined experience – our doctors deliver superb results.

We are dedicated to advancing the specialty of endodontics through teaching and staying at the forefront of technology and innovation.

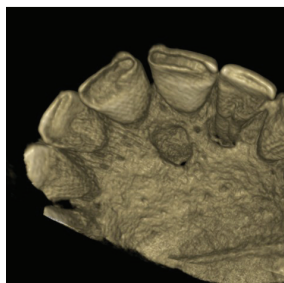
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"Root Canal Specialty Associates (RCSA) is a team of excellent clinicians with strong diagnostic and treatment skills. RCSA employs up-to-date technology to help in all phases of treatment. They also continually strive to incorporate changes within the practice to consistently deliver clinical excellence to their patients."

Dr. Neville J. McDonald
*Professor, Division Head
and ASE Program Director,
Endodontics CRSE,
University of Michigan,
School of Dentistry*



We offer **Cone Beam Computed Tomography (CBCT)** at all four locations – a 3-dimensional imaging technology that helps us make better diagnoses and treatment decisions for our patients.

Want to hear more about the indications for and benefits of CBCT imaging? **Call (734) 261-7800 to schedule a time to talk.**

GUIDELINES FOR ASSESSMENT

The cases shared here have been treated by Root Canal Specialty Associates and have been deemed moderate to difficult based on guidelines from the American Association of Endodontics (AAE) shown below. These guidelines also include an assessment form, making it easier to decide whether a referral is the best choice – enabling you to assign a level of difficulty to your case.

Reference the AAE assessment form we've included for you, or visit rootcanaldocs.com/patient-referral to download a PDF and see a complete list of considerations to properly evaluate whether a case meets minimal, moderate, or high levels of difficulty.

If you have concerns about complicated conditions or treatment options for your patient, our doctors are available for endodontic case consultation whenever you need it.

AAE LEVELS OF DIFFICULTY

MINIMAL DIFFICULTY

Preoperative condition indicates routine complexity (uncomplicated). These types of cases would exhibit only those factors listed in the **minimal difficulty** category. Achieving a predictable treatment outcome should be attainable by a competent practitioner with limited experience.

MODERATE DIFFICULTY

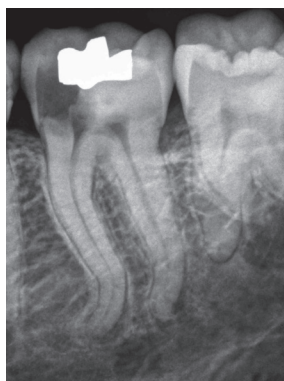
Preoperative condition is complicated, exhibiting one or more patient or treatment factors listed in the **moderate difficulty** category. Achieving a predictable treatment outcome will be challenging for a competent, experienced practitioner.

HIGH DIFFICULTY

Preoperative condition is exceptionally complicated, exhibiting several factors listed in the **moderate difficulty** category or at least one in the **high difficulty** category. Achieving a predictable treatment outcome will be challenging for even the most experienced practitioner with an extensive history of favorable outcomes.

Conventional endodontic therapy of a mandibular second molar with atypical anatomy (s-shaped mesial root).

TOOTH #18



Pre-Op



Post-Op

DIAGNOSTIC & TREATMENT CONSIDERATIONS

POSITION IN THE ARCH
Mandibular second molar

TOOTH ISOLATION
Simple pretreatment modification required for rubber dam isolation

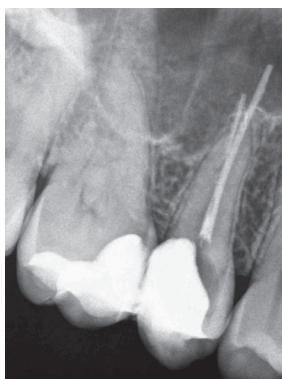
CANAL & ROOT MORPHOLOGY
Extreme curvature ($>30^\circ$)
or S-shaped curve

Preoperative evaluation revealed extensive caries and a coronal fracture. Clinical testing supported a diagnosis of symptomatic irreversible pulpitis with symptomatic apical periodontitis.

While there were no patient conditions that exceeded a minimal level of difficulty, there were several diagnostic and treatment considerations that could potentially complicate and adversely affect the outcome of this case. The presence of caries and a fractured mesiolingual cusp made rubber dam isolation moderately difficult. In addition, being a second molar with an s-shaped mesial root created a very high level of treatment difficulty.

Endodontic retreatment of a maxillary second bicuspid with overextended filling material.

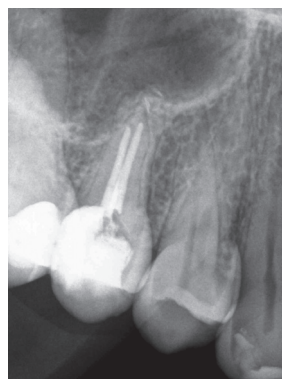
TOOTH #4



Pre-Op



Gutta Percha Removed



Post-Op

PATIENT CONSIDERATIONS

EMERGENCY CONDITION

Severe pain

ADDITIONAL CONSIDERATIONS

ENDODONTIC

TREATMENT HISTORY

Previous nonsurgical endodontic treatment with complications

Patient presented with severe pain in the maxillary right quadrant. Radiographic examination revealed previous nonsurgical endodontic treatment with the canal filling material extended beyond the apex and perforating the Schneiderian membrane.

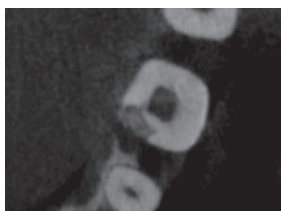
Patient considerations such as severe pain requiring emergency care can create a high level of treatment difficulty. In addition, the history of previous endodontic therapy complicated by the overextension of canal filling material make the management of this case extremely challenging.

Conventional endodontic therapy with the surgical repair of an external resorptive defect involving a mandibular first molar.

TOOTH #19



Pre-Op



CBCT Axial View



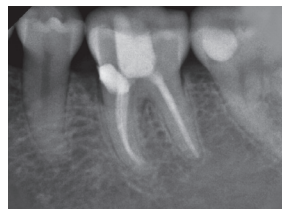
Conventional RCT Post-Op



Resorptive Defect Exposed



Defect Restored



One Year Post-Op

DIAGNOSTIC & TREATMENT CONSIDERATIONS

RESORPTION

External resorption

Patient presented with an asymptomatic, unrestored and vital mandibular first molar. Radiographic examination revealed invasive cervical external resorption on the mesial surface of the root extending below the alveolar crest. Cone Beam Computerized Tomography (CBCT) showed that this defect was extensive and communicated with the pulp. Depending on the size and location of the defect, teeth exhibiting external resorption can be very complex and difficult to treat predictably.

A multi-stage treatment approach, including both conventional endodontic therapy and surgical intervention was planned to try and obtain a successful outcome. After isolating the defect, endodontic treatment and a core build-up was placed. A surgical approach allowed complete removal of the resorptive tissue and restoration of the defect. One year follow-up shows excellent healing and the patient remains asymptomatic.

Cone beam computerized tomography (CBCT) used to enhance diagnosis and treatment planning.

TOOTH #29



Pre-Op



CBCT Sagittal View



CBCT Coronal View

DIAGNOSTIC & TREATMENT CONSIDERATIONS

RADIOGRAPHIC DIFFICULTIES

Moderate difficulty interpreting radiographs

CANAL & ROOT MORPHOLOGY

Mandibular premolar with two roots

RADIOGRAPHIC APPEARANCE OF CANALS

Indistinct canal path

Preoperative evaluation and clinical testing supported a diagnosis of pulpal necrosis with symptomatic apical periodontitis. Conventional radiography displayed a mandibular premolar with atypical root morphology. Further study using Cone Beam Computerized Tomography (CBCT) disclosed the presence of a horizontal root fracture.

All other considerations aside, the presence of a mandibular premolar with two roots would have made endodontic treatment very difficult. However, the additional diagnostic information obtained by the CBCT helped to determine a more appropriate treatment plan (extraction) avoiding endodontic failure and further complications.

Endodontic retreatment of a maxillary first premolar with atypical anatomy and previously separated instruments.

TOOTH #5



Pre-Op



Post-Op

PATIENT CONSIDERATIONS

MEDICAL HISTORY

One or more medical problems

GAG REFLEX

Gags occasionally with radiographs/treatment

DIAGNOSTIC & TREATMENT CONSIDERATIONS

CANAL & ROOT MORPHOLOGY

Maxillary premolar with three roots

Patient presented with a medical history that included controlled diabetes and a previous myocardial infarction followed by an angioplasty procedure with stent placement. In addition, he reported that he frequently gags during the exposure of dental radiographs. The radiographic examination revealed incomplete endodontic therapy complicated by separated instruments and atypical root morphology.

The patient's multiple medical problems and elevated gag reflex make this case moderately difficult. In addition, maxillary premolars with three roots and previous treatment complications (such as separated instruments) make achieving a predictable treatment outcome highly challenging for even the most experienced practitioner.

ADDITIONAL CONSIDERATIONS

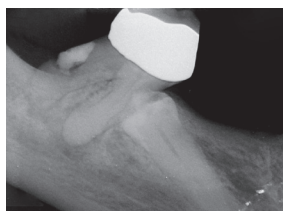
ENDODONTIC

TREATMENT HISTORY

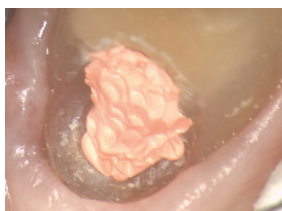
Previous access with complications (separated instruments)

Medically compromised patient with complex endodontic-restorative needs.

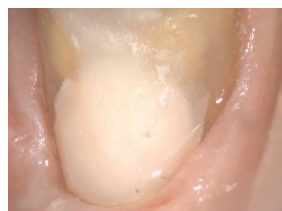
TOOTH #31



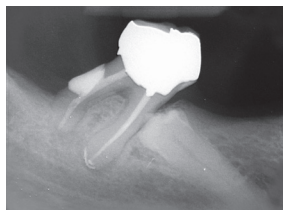
Pre-Op



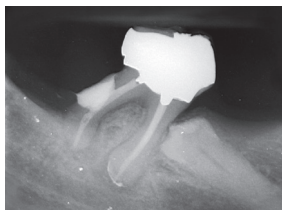
Caries Removed



Distal Restored



Post-Op



One Year Post-Op

PATIENT CONSIDERATIONS

MEDICAL HISTORY

Complex medical history/serious illness/disability

DIAGNOSTIC & TREATMENT CONSIDERATIONS

POSITION IN THE ARCH
2nd or third molar; extreme inclination (>30degrees)

TOOTH ISOLATION
Extensive pretreatment modification (restoration of distal caries)

An elderly patient presented with a symptomatic mandibular second molar. Their medical history indicated that they were receiving a regimen of IV bisphosphonate therapy administered every three months. Preoperative evaluation revealed that tooth #31 was extremely inclined, had subgingival distal root caries and approximated an impacted bicuspid. Additionally, the tooth was restored with a crown that served as the key abutment for a mandibular removable denture. Clinical testing supported a diagnosis of pulpal necrosis with symptomatic apical periodontitis.

This case exhibits numerous complicating factors creating an extremely high level of difficulty. Due to the risk of osteonecrosis (MRONJ), extraction was not a favorable treatment option. Prior to endodontic therapy, the distal caries was removed and restored without eliminating access to the canal space. Due to the severe inclination, endodontic treatment was completed through the mesial rest seat. A one year follow-up exhibited excellent healing.

Maxillary lateral incisor with dens invaginatus.

TOOTH #7



Pre-Op



CBCT Axial View



Post-Op

DIAGNOSTIC & TREATMENT CONSIDERATIONS

RADIOGRAPHIC DIFFICULTIES

Moderate difficulty interpreting radiographs

CROWN MORPHOLOGY

Significant deviation from normal tooth/root form (dens invaginatus)

Patient presented with pain, tenderness to percussion, and intraoral swelling associated with tooth #7. Clinical testing supported a diagnosis of pulpal necrosis with symptomatic apical periodontitis. The radiographic examination revealed the presence of dens invaginatus (dens in dente) with two deep infoldings of enamel and dentin mesial and distal to a main canal. This finding was confirmed and better visualized for treatment planning with Cone Beam Computerized Tomography (CBCT).

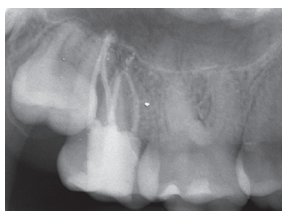
While there were no patient considerations that exceeded a moderate level of difficulty, the atypical crown and root morphology associated with dens invaginatus makes these cases highly difficult to treat. Accurate pretreatment visualization and an understanding of the aberrant morphology are key factors in obtaining clinical success in cases such as this.

Conventional endodontic therapy of a maxillary second molar with atypical anatomy.

TOOTH #2



Pre-Op



Post-Op



One Year Post-Op

DIAGNOSTIC & TREATMENT CONSIDERATIONS

POSITION IN THE ARCH

2nd or 3rd molars

CROWN & ROOT MORPHOLOGY

Maxillary molar with atypical anatomy

The patient presented with a history of pain in the maxillary right quadrant. Clinical examination revealed that tooth #2 had a deep palatal groove and caries was present. Clinical testing supported a diagnosis of pulpal necrosis with symptomatic apical periodontitis. During endodontic treatment, a second palatal was located with the aid of a surgical operating microscope.

Although the patient was young and healthy, maxillary molars may offer significant anatomical variability. Due to their position in the arch, locating and negotiating all canals without supplementary magnification and illumination can be very challenging, especially if atypical anatomy is present.

WHEN TO REFER

Sometimes it's difficult to know when a referral is best for your patient. Guidelines from The American Association of Endodontists (AAE) enable you to assign a level of difficulty to your case, making it easier to decide whether a referral is the best choice.

Reference the AAE assessment form we've included for you, or visit **rootcanaldocs.com/patient-referral** to download a PDF and see a complete list of considerations to properly evaluate whether a case meets minimal, moderate, or high levels of difficulty.

READY TO REFER?

Visit us at **rootcanaldocs.com** to fill out our online referral form.

FOUR LOCATIONS, ONE GREAT EXPERIENCE.

ANN ARBOR	BRIGHTON	LIVONIA	WEST BLOOMFIELD
(734) 973-2727	(810) 229-7800	(734) 261-7800	(248) 626-0600

As one of the largest endodontic specialty practices in the state, we have four offices in SE Michigan to better accommodate your patients. All of our offices have hours Monday through Friday with early morning (7am) openings and evening appointments (until 7pm), and availability on Saturdays in Livonia. Patients can make an appointment at the location that's most convenient for them.

We also participate with most major dental benefit plans so your patient's experience will not only be pleasant, but hassle-free.

Visit **rootcanaldocs.com** for more information about each of our locations.