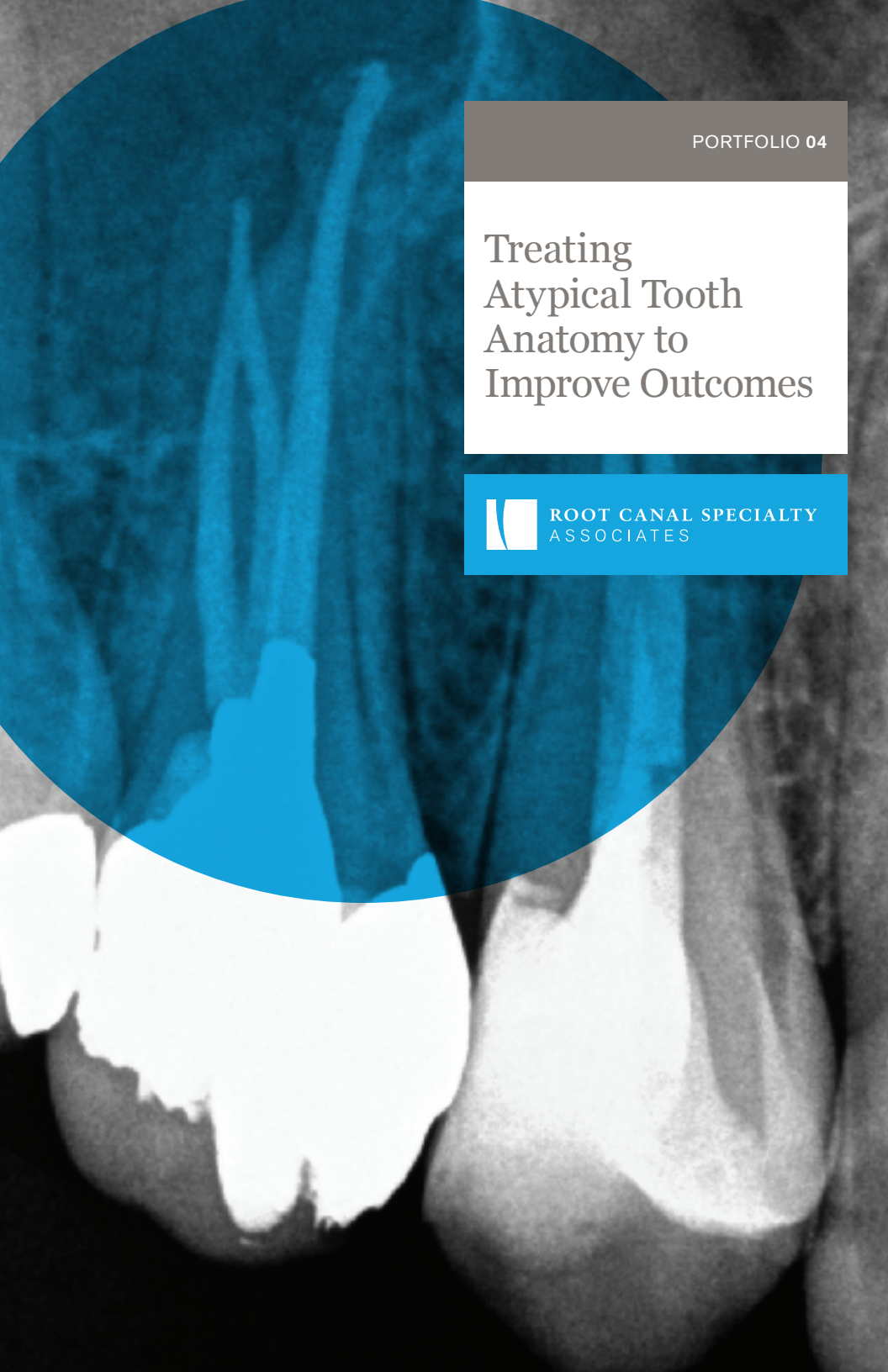

PORTFOLIO **04**

Treating Atypical Tooth Anatomy to Improve Outcomes

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 9 endodontists, we have you covered.

LOCATIONS

Ann Arbor
Brighton
Livonia
West Bloomfield

DOCTORS

Dr. Young Bin Bok
Dr. Steven Edlund*
Dr. Martin Goode
Dr. Alexandra Martella*
Dr. Christopher McWatters
Dr. Andrew Racek*
Dr. Michael Shapiro*
Dr. Dmitry Vodopyanov
Dr. Martha Zinderman

BOARD CERTIFIED
AMERICAN BOARD OF ENDODONTICS

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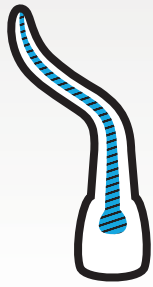
Treating anatomical aberrations requires thorough knowledge of expected anatomy and recognition of atypical variations.

Over the years, there have been many studies regarding tooth morphology and the internal anatomy of root canal systems. They have all demonstrated great variations and complexities in the pulp space as it travels from the crown to the apex. Common findings include extra roots and canals, recesses, fins, isthmuses, accessory canals and open apices. These anatomical aberrations may provide spaces for biofilms to reside and may contribute to persistent symptoms after endodontic therapy or possible treatment failure.

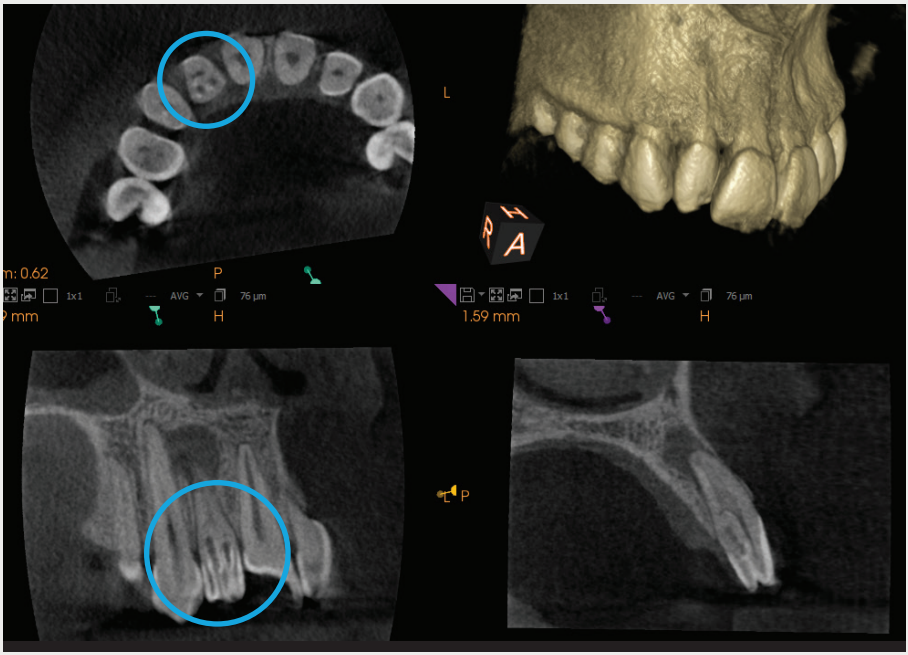
Some common findings include:

Mandibular molar with extra root

Mandibular bicuspid with one canal that divides into two



Maxillary lateral incisor with dilacerated root



Cone Beam Computed Technology (CBCT) – a 3-dimensional imaging technology that helps us make better diagnoses and treatment decisions – is a great adjunct to making an accurate diagnosis of atypical anatomy. We offer Cone Beam Computed Technology (CBCT) at all of our four locations.

If you'd like to hear more about the indications for and benefits of CBCT imaging, call (734) 261-7800 to schedule a time to talk with us.

Radiographs are frequently used to help interpret canal variations; however, even with multiple angles, anatomical variations may be difficult to detect with 2D evaluations. The use of cone beam computed tomography (CBCT) has become a viable adjunct for clinicians to detect and visualize the canal system prior to treatment. Molar and premolar teeth usually present the highest incidence of variation. However, as exhibited in the CBCT above, anterior teeth may also display atypical morphology. A thorough knowledge of expected anatomy and variations from the norm are essential when undertaking endodontic therapy to improve success.

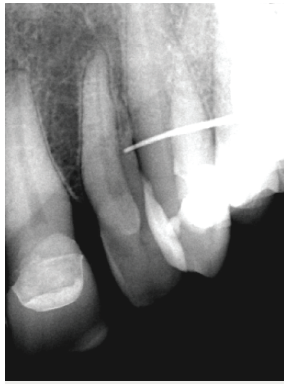
Maxillary lateral incisor with a second root.

TOOTH #10

DIAGNOSIS

Patient presented with a non-vital pulp and chronic suppurative apical periodontitis. The preoperative radiographs showed aberrant anatomy that suggestive of a dens evaginatus. A gutta percha cone in the sinus tract traced to the distal aspect of the root and possible second canal. The CBCT axial view confirmed the presence of an additional root in the apical third.

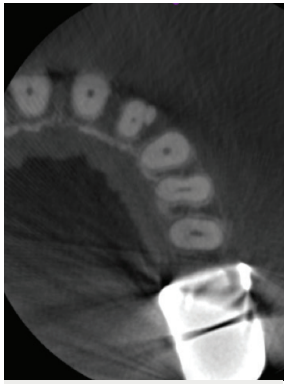
Pre-Op



Pre-Op

TREATMENT

Two canals were located and instrumented. The postoperative radiograph confirms the filling of two roots and multiple portals of exit. At a three-month follow-up, the sinus tract had completely healed and the tooth was asymptomatic.



CBCT

Completion

CASE 02

Mandibular bicuspid with two canals.

TOOTH #21

Pre-Op

CBCT

Completion

DIAGNOSIS

Patient's general dentist initiated treatment; but, was unable to negotiate canal beyond the coronal aspect. Clinical testing confirmed the presence of previously initiated treatment and symptomatic apical periodontitis. The CBCT frontal view showed evidence of two canals in the apical third.

TREATMENT

The lingual canal was located and instrumented. The buccal canal was not negotiable with hand or rotary files, so the Sonendo GentleWave procedure was used to augment cleaning and disinfection. The postoperative radiograph confirms that two canals and multiple portals of exit were cleaned and filled.

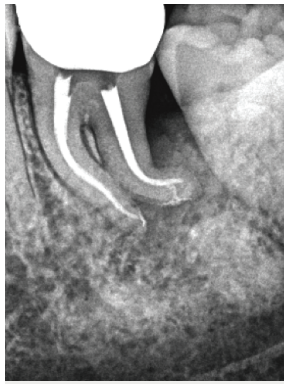
Mandibular molar with severely dilacerated root.

TOOTH #18

DIAGNOSIS

Patient presented with a non-vital pulp and chronic apical periodontitis. The pre-operative radiograph showed a radiolucent area surrounding the apical third of the root and advanced horizontal bone loss on the distal. The mesial root displayed a double curvature and there was a sharp dilaceration of the distal root with the canal exiting on the inferior aspect.

Pre-Op



Completion

TREATMENT

Three canals were located and instrumented. The postoperative radiograph displays the sharp dilaceration of the distal root and the inferior portal of exit that was cleaned and obturated.

Maxillary lateral incisor with dens in dente.

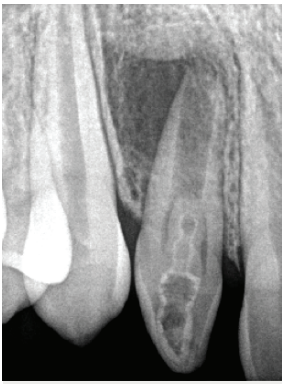
TOOTH #7

DIAGNOSIS

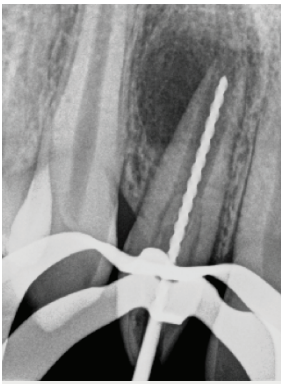
Fourteen-year-old patient presented with a non-vital pulp and symptomatic apical periodontitis. The preoperative radiograph displayed a periapical radiolucency associated with an incompletely formed root and dens in dente.

TREATMENT

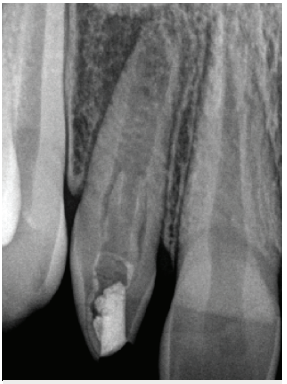
Access to the middle and apical portion of the root was obtained by making an opening through the dens in dente. The canal space was cleaned and disinfected and calcium hydroxide was placed to augment disinfection and aid in root end closure (apexification). After medication changes and observation for six months, it was determined that apexification was taking place and the periapical radiolucency was decreasing in size. The canal space was filled by placing a collagen barrier at the apex and then filling the canal space with a bioceramic root repair material and gutta percha.



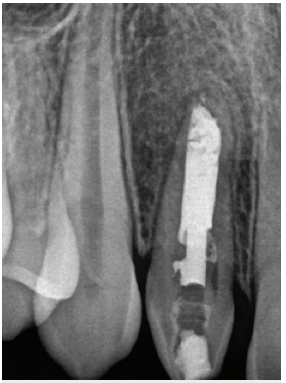
Pre-Op



Access through dens in dente



Interim medication change



Completion

Maxillary bicuspid with three canals.

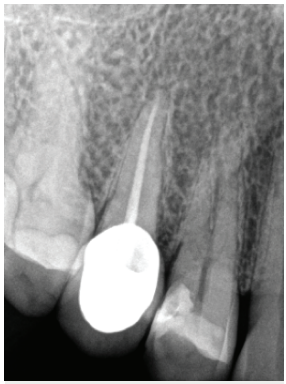
TOOTH #5

DIAGNOSIS

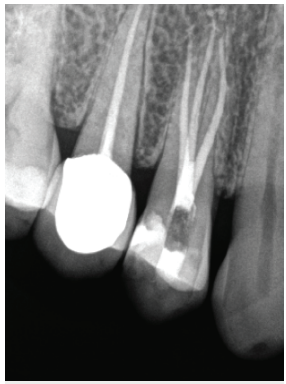
Patient presented with symptomatic irreversible pulpitis and symptomatic apical periodontitis. The preoperative radiograph displays internal anatomy with a single canal that divides into three canals in the coronal third of the root.

TREATMENT

After access opening, three canals were located and instrumented. The postoperative radiograph confirms the filling of three canals with multiple portals of exit.



Pre-Op



Completion

Maxillary molar with dilacerated root and canal exiting short of apex.

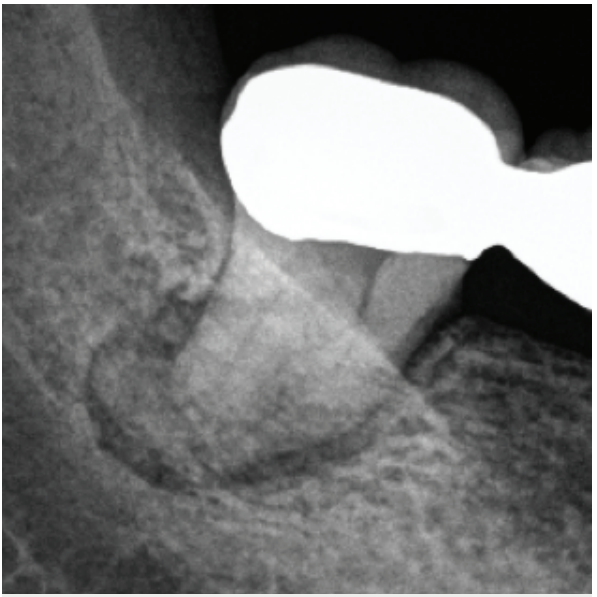
TOOTH #32

DIAGNOSIS

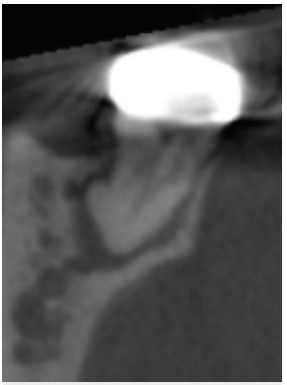
Patient presented with a non-vital pulp and symptomatic apical periodontitis. The preoperative radiograph displays an atypical root and canal configuration. The CBCT sagittal view shows that the mesiolingal and distal canals join and the mesiobuccal canal exits the root short of the root apex.

TREATMENT

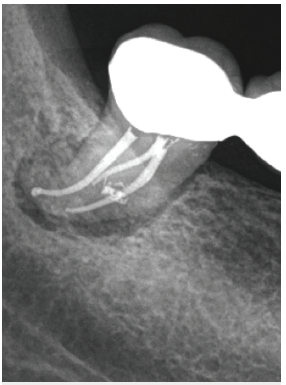
After access opening, three canals were located and instrumented. The postoperative radiograph confirms that the mesiobuccal and distal canals join and that there is an anastomosis between the mesial canals.



Pre-Op



CBCT



Completion

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.

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.

Visit **rootcanaldocs.com/portfolio** to see our best surgical and non-surgical cases, and to download past issues of our Portfolio series.