Rodrigo Cunha & Dr. Tom Shakleton - CAE Discussions Series #1: Would You Treat This Molar Endo Case?

Dr. O'Keefe: Hi, I'm John O'Keefe. Thank you for joining today's show. I'm delighted to welcome Dr. Rodrigo Cunha, an endodontist in Winnipeg and a member of the Executive Board of the Canadian Academy of Endodontics, and Dr. Tom Shackleton a general practitioner in Calgary who does a lot of endo in his practice. Tom is presenting a case today and Rodrigo and I are discussing it with him. Rodrigo is using as a frame of reference for his discussion, the assessment tool that was created by the CAE titled Case Classification According to Difficulty of Risk. This tool helps you to determine if a case can happily be treated in your own practice or whether you should seriously consider referring the patient to an endodontist. Let's join the discussion.

Dr. Shackleton: Hi, I'm Dr Tom Shackleton and I'm a general dentist in Calgary, Alberta. I'd like to share a case with you of a molar root canal that I completed my practice not too long ago. So here we go! A little bit about me. I'm a general dentist in my practice. I do have access to cone beam CT technology. I do use a surgical microscope. You can see one hanging behind me in that photo. I use ultrasonics often in cases and I guess looking at that photo, another thing about me is I do like pasta. So, this is a case history of a 60-year-old-male who presented to me with some pain in his lower right jaw. The history of his pain began about 10-months prior to my seeing him. He saw his dentists, I work in a large group practice one day a week, and he saw another dentist in the clinic and he reported to that dentist that he was having some pain in the lower right. Diagnostic tests at that time, when he saw this other dentist, were percussion and four-six was painful to percussion, other teeth were normal. They did some probing, and everything was less than four millimeters and a PA and bitewing radiograph showed no apparent pathology. They diagnosed him with a four-six distal lingual cusp fracture, and they suggested he have a full coverage crown. So, two, four, six was prepared for a crown, he was on a temporary for two weeks. They delivered the crown. There was no comment about him having persistent pain at that time. So, reading the chart notes, I couldn't tell if he felt better or worse or the same. But it was advised that RCT may be necessary. My inference was that he may have still been having persistent pain, but that was his presentation at that time. He did return to his dentist two days after the crown was delivered. He had a lower bruxism appliance. The appliance wasn't fitting appropriately, so, he had his tooth and the appliance adjusted and that seemed to alleviate some of his pain. And shortly after that time though, he took off to the U.S.--he goes down there for the winters. When I saw him, he reports that, you know, while he was away, he still had kind of ongoing persistent pain, and he just avoided chewing on that tooth. Nothing really blew up on him, but it just was nagging him, and he was aware of it. So, I saw him to evaluate this ongoing pain on this part of his face that he was experiencing. And

he mentioned, too that the pain was starting to radiate to his ear and that was causing him concern. He has a bit of a complex medical history. He has some hypertension. He had an aortic valve replacement in 2016 and he's a migraineur and his triggers are red wine and barometric changes. So, that's good. For me, it's not a stress related thing or an known medications or anything causes migraines to go off. He is on Warfarin. He did not know his dose and it wasn't recorded anywhere but his recent INR was 2.5. He reports monthly testing and he stays pretty stable at 2.5. About the highest he's ever been was about 2.8 but I did mention that with ongoing treatment we would like to know his most recent INR. He takes an anti-hypertensive (and) Baby Aspirin as well. So, you know, he's kind of doubly anticoagulated which is unusual and it is recommended that he take amoxicillin, two-grams, one hour prior to invasive procedures. And he has no allergies. And actually super nice guy.

Dr. Shackleton: Extraorally, we took a look. No obvious swelling, no facially asymmetries. There was no tenderness to palpation because he just complained of diffuse pain that was radiating to his ear. I was a little concerned--well, I mean, I think there's obviously a tooth component, but was there a joint component or any muscle pain or anything else going on that we'd certainly want to confirm or deny--but everything seemed really fine. No tenderness to help patient. His range of motion was good, actually, his range of motion was excellent. And there was no swelling or lymphadnopothy in his head and neck region. So, our clinical examination, this is the radiograph that we've taken at the original appointment 10-months prior to my seeing him, so, before the crown was prepared. All soft tissues intraorally look normal and the marginal tissues around the crown looked great. It was a very nice crown, well done, no obvious redness. There was a small swelling at the apex of two, four, six, was soft, fluctuant. It was a little uncomfortable when I poked at it. He didn't like it, but it didn't make him jump out of the chair. There was no obvious drainage and no ulceration was noted and the color was consistent with the surrounding tissues. All probes to that area were below four millimeters, actually has excellent hygiene. Four-four, four-five, four-seven. We're normal to percussion. Four-six was tender to percussion and for four-four, four-five and four-seven were vital and normal to cold, and six was not responsive. Oh, sorry, he responded, but it took a while. I had to leave the cold part there for a while. And then he said, "I think I'm kind of feeling that." And we repeated this several times and I'd go back to five and then back to six and five was instant, you know, severe pain that went away immediately. But every time I put it on the six and I'd leave it there, he'd say, "maybe I feel something." So, that was an unusual response for me. And the radiograph, I can't really see much on this radiograph, so, we requested a CBCT. And you can see from these images...so, the sagittal view shows

Dr. Cunha: So, let me interrupt you. Sorry. You said that you had a radiograph from 10-months ago, right?

Dr. Shackleton: Yep.

Dr. Cunha: Ok. So based on that radiograph, the patient did not have a crown at this point?

Dr. Shackleton: Correct, yes.

Dr. Cunha: This is what you have to work with. And you thought this wasn't enough--wasn't giving you enough information--that's why you decided to go with a three-dimensional image?

Dr. Shackleton: Yeah, I would say this not because I'm besmirtching my colleague, because I'm not, because none of us are perfect. I just had a few concerns about this radiograph. It is prior to the crown being placed; it was 10-months old. I don't see the apices of the seven. I barely see the apex of the five. I don't see the apex of the four. The angle is a little cockeyed. And, so I thought, you know what, there's a few things maybe going on here and also, he was the kind of fellow who, he just, he didn't like to mess around. So, I thought, well, I could take a PA and I'm probably gonna ask for a CBCT anyway, there's a crown on the tooth, why don't we just get the image that I thought would be the best image for him. So we elected to get the cone beam.

Dr. Cunha: As a general dentist that has access to this amazing technology, what is your guideline or which other cases where you decide to go with a scan or cases, do you have a protocol or policy or you just, depending on the case...how do you indicate this CBCT scan on your daily routine?

Dr. Shackleton: Well, I suppose the policy has changed a little bit. I used to go case by case. Now, if we're doing endo on a molar, pretty much all molars will get it. Certainly premolar is because they're very finicky. If something on a radiograph, if it's a young person, it's an anterior tooth, everything looks clear, wide open, distinct. I can trace the canal from, the pulp chamber all the way to the apex. It doesn't look funny. It doesn't look like there's any kind of curvature issues, I'll probably just stick with the good periapical if we have that or we obtain that. But if I have really any questions, if I see any calcifications, any kind of curvature, I'm worried about any kind of anatomical concerns, I'd probably rely on the CBCT more often than I don't, but typically molders premolar, multi-rooted teeth, I think it's invaluable.

Dr. Cunha: Great. Thank you.

Dr. O'Keefe: Does that fit with your sort of protocol, Rodrigo?

Dr. Shackleton: Yea, I'd like to know yours, for sure.

Dr. Cunha: Yes. It's interesting because we've been doing more and more and the interesting part of it is that we've been doing it for so long and we've been using this technology that now, we have always a question mark on our forehead. Like, what am I missing here when I don't have a scan? For surgeries, every case retreatment, every case or treatment, I fall a little bit...uh, it's a little bit close to what you do, uh, if it's a pretty straight forward tooth --and now comes the question, what is a straight forward tooth? We will start with a PA but you know what, we're getting pretty close to taking a CBCT scan, too in all our cases. Yeah. We're doing more and more as time goes by, for sure.

Dr. Shackleton: Yeah. And I think I always have the same question. So, I often will take a PA and I look and I think, well that everything looks straightforward, but you know, something in my brain is itchy. And so I think, well maybe let's just get a 3D scan and all of the sudden, oh well, you know, maybe there's vertical defect or something or there's some perio issue or something we didn't see.

Dr. Cunha: And that's what you just mentioned. Sometimes to get a good idea, you need to take a straight shot [inaudible] a distal [inaudible] shot. When you add all those radiographs, you might as well go straight with the CBCT scan. That's going to give you much more information.

Dr. Shackleton: Yeah. Thank you. So, we obtained the CBCT. Four-six has, if you look at the sagittal image, there's radiolucent atypical pathology on the distal root. It certainly, it almost starts to creeping into a little bit of a J-shape which made me a tiny bit uncomfortable, not super uncomfortable, but a little bit uncomfortable, worried about a crack or fracture. Again, the coronal view, we can see a pretty nice lesion. The thing I like about this technology is I see the mandibular canal is a safe distance away. I'm not worried about causing any issues there. And the axial views show where the infection has perforated buccal cortex. So, I think that gave us some pretty nice information. The thing I also love as it shows us number of canals, it shows location of canals it shows any curvature, you know, does it start as two and become one or, does it start as two, sort of, two to two? So, it really just gives us such invaluable information and especially because he had a crown on this tooth, you know, we thought well, if we're going to access it, I'd really like to know where everything is and where I should look and what do I expect to find? Which is why I just love that axial view because it's just the view we'll have. So, we did see that radiolucent [inaudible] pathology, again. Perforation, full coverage, crown four canals. And, so, our diagnosis was, four-six (46) pulp necrosis, even though he had some sort of vague response to cold, I just said, this is, you know, I went out on a limb and just said, this isn't a necrotic pulp with symptomatic apical periodontitis, but we were concerned about a possible root crack or fracture even though probes were normal. And the swelling was located right at the apex, just the radiographic image, it just made me a little bit concerned about a crack or fracture. And, so, we had a pretty lengthy conversation about that. And so we

did discuss the options of no treatment extraction, root canal. And again, really nice guy. He's Actually just the most pleasant guy, but he's very, you know, straight forward: "Hey, I don't want to do something and then I don't want to do a root canal if it's only gonna fail." He doesn't like to screw around, right? He's like, let's have some good definitive treatments, move forward, no problem. And he said, "Will root canal work?" And I said, "I'm not sure. Root canal is quite predictable in most cases." I said, "but in your case, um, you know, there's some complexities here. There's a crown. Your dentist did diagnose what they saw was a fracture." I said, "So my concern is, is there a fracture that is propagated down the route even though we're not really seeing clinical signs in terms of an isolated deep probe, but the radiograph certainly, you know, that's creeping up into the furcation." I was a little concerned about that. So, he said, "Well maybe I should just pull my tooth?" And I said, "Absolutely you can. That is an acceptable treatment option." So again, we had this very long conversation. Ultimately I told him the prognosis of this tooth is uncertain. I just, I really don't know how it will go until we get into the tooth and treat it. So, we elected to just get a second opinion. In this practice there's a periodontists, he's excellent...

Dr. Cunha: Tom, let me just jump in again.

Dr. Shackleton: Yes, please.

Dr. Cunha: Two important pieces of information here that you gave us and I think this is paramount. One, treatment options: I think that's gold. Giving the patient options. And even though sometimes we might not agree with an extraction as dentists, it is an option and the patients should be aware of it and should have the right to choose what works for him. The second thing that I think it's super important, that you had the conversation. We as specialists, we have this conversation all the time and we should all be talking to the patient is (about) prognosis. Yes! Are you giving me 100% assurance that it's going to work? No, I'm not. And discussing prognosis with the patient is extremely important for us to show them that we know what we're doing and give them the options based on the prognosis and for the patient. So, I think that discussing treatment options and giving the patient a reliable and objective prognosis is extremely important before we start any treatments. That was also something interesting--which we go back to the CTCM, when we have a three-dimensional limit, it allows us to give a more predictable treatment option and a better prognosis as well. So, yeah, but just those two comments regarding treatment options and prognosis that I think was great that you have this discussion and this should also be there as a lesson to us all: understanding that yeah, treatment option should be given and prognosis should be discussed is also great.

Dr. O'Keefe: Tom, can I ask you a question? You've mentioned a couple of times that this particular patient is a sort of a guy who's a sort of a very matter of fact guy who doesn't like to mess about it.

Dr. Shackleton: Yup.

Dr. O'Keefe: Did the personality of the patient have any impact on how you presented the options?

Dr. Shackleton: Well, I have this discussion with everybody regardless of their personality. I think the length of the conversation was a bit driven by his personality. Most people, they're pretty straight forward, but it's not like he was trying to extract a guarantee out me, I don't, I don't think that was what he was wanting. I think he just said, look, what's the most predictable thing, you know? And I said, well, I mean, you know, the most predictable thing is pulling your tooth and we know that that's gonna solve your problem. But you know, that doesn't also come without potential complications too. So, I mean, yeah, we can just start pulling people's teeth out but, I said, really, long-term root canal has a great track record of success. I feel confident that, that, uh, you know, we can access it, clean everything out. The only thing I was uncertain about is how the tooth will respond. So, we have this conversation with everybody, but again, the length I think was driven more by that he just wanted some, a little more concrete answers than I think I could give him.

Dr. O'Keefe: Right.

Dr. Cunha: So, we referred him to a periodontist who works in the clinic, which is very great for anyone to have hanging around. And they reviewed the options of removing the tooth. And again, he's a conservative guy and he supports endodontic treatment most of the time. And, so, he [inaudible] to have the same conversation. They said, yeah, look, it has a little bit of an uncertain prognosis, but really the best thing is why don't you just access the tooth, clean it all out and, and take a look. And he and I have been working together for several years. He knows how I do things and, and so if we see a crack, I would certainly clean everything out and close it up. And, he'd go see the periodontist and have the tooth removed and place an implant. So he came to me and again, we reviewed his--after seeing the periodontist, he came back to see me for treatment, but we spent some time and review the options again and discussed everything. So, if we look at the Canadian Academy of Endodontics Difficulty Assessment, you know, we looked at the diagnosis and I said this as a high risk because it was a little murky, you know, there could be a few things going on here. So I wasn't, it wasn't very straightforward. His medical history, certainly a high-risk being on not just one blood thinner, but two, one being Wafarin especially and also having a history of a valve replacement. So, we certainly want to make sure he was okay from that perspective. Again, it's a first or second molar, so high risk

crown, very high risk for canals, very high risk andI thought they were calcified, so very high risk. So, our risk was 23, and I think this is a Class Two.

Dr. O'Keefe: Yes, it's nearly at the top of the Class Two. But if [inaudible] was the upper limit of the Class Two.

Dr. Shackleton: Right. So, but--and this is why I have this picture--honestly, his access was, his opening was enormous. He was very compliant, no problem with the rubber dam. In terms of, of his deportment, he was cool as a cucumber, you know, he wasn't antsy, he wasn't fidgety. Otherwise, he was fine. So there was some of these things that, that did certainly catch our attention and we're certainly, right on our radar. But from a, you know, from a practitioner standpoint, he was really an ideal patient and once he made that...

Dr. Cunha: Let me ask you a question. You are an experienced clinician. Would you have attempted this treatment if you did not have a CBCT scan or a dental operating microscope in your practice? You think that makes a difference? So you would have no jumped in the same way?

New Speaker: No. I think, I was just thinking, if I was in the Northern tip of Greenland maybe, and there was nobody else around. Okay. But otherwise, no. I think, this case would have terrified me to approach without a microscope. I mean, I say that as somebody who, you know, uses a microscope for everything and I think dentists should use microscopes, really. It doesn't matter what you're doing, I guess, you know, if you're moving teeth, maybe you don't need a microscope, but maybe a fit tip gets left at the bottom of the, of the crypt--that's a separate discussion. But I think no. Without those two technologies, I would not have wanted to touch this case.

Dr. Cunha: Yeah, that's good that you mentioned, because we talk a lot with general dentists and sometimes they say, look, but I'm not a specialist. Why do I need a microscope? You do need a microscope. And it's funny because you've been using the microscope in you are the proof that, yeah, this technology makes a difference in your practice. Yes it does. I just wanted to know if looking at this very high risk, if you would attempt to do it without those pieces of technology that you have.

Dr. O'Keefe: Rodrigo, you're nearly making the case for a modification to the CAE classification: dentist factors.

Dr. Cunha: Well, maybe the use of technology.

Dr. O'Keefe: Have you got the tools do the job, right?

Dr. Cunha: The tools you have available, yeah. That's something that we could take in consideration as well. We're always trying to improve the classification, but yeah, that's, that's a good point, John. For sure.

Dr. Shackleton: So, he elected to proceed again so we reviewed everything. He was fine. We have a signed consent. We like people, to do, again just, and I let people know, look, this doesn't excuse me from doing my job. I still have to be a good dentist. I still am on my best behaviour. All this is saying is that we've had a conversation and you understand that I can't make you any promises at this point. They said, you know what, let's open the tooth up, clean all out and see what we find. So, we confirmed, he took his antibiotics an hour before. His last INR was 2.5 so we provide a local anesthetic, rubber dam. I'm just going to get on my soapbox for a second. I occasionally understand some of my colleagues don't use a rubber dam which makes my hair stand up on end. And I think to perform endodontic treatment and not use the rubber dam...well...there's some strong language I have, but it's really just below the standard of care. And I think you're doing yourself and your patient a disservice by not using a dam. By saying, well, I use Isolite. Well, great, that's not the standard. You're not protecting your patient. So, I'm a human, I sometimes drop things. Isolite isn't going to protect your patient if you drop a file or bleach or contamination of the tooth. So, okay, I'm going to get off my soapbox now, but I think rubber dam isolation is critical to success.

Dr. Shackleton: Treatment. We love to irrigate, irrigate, irrigate, and when we're finished doing that, we like to irrigate some more. So, we use this a round diamond too [inaudible] zirconia crown. So, a round diamond to get through that very tough outer shell. A little shoulder diamond to get into the tooth. It was necrotic, which is always a happy day. Pulp stones were noted so we were able to remove those. We did locate four canals. I like starting with the O6 C-file. It just, you know, I can find what I need and typically to get down what I need to. And we just hand filed so we hand file, irrigate, irrigated irrigate and I was able to instrument up to a 20. I like to use full strength bleach. And we determined our preliminary length with a RootZX apex locator after we had gotten up to the size 20. And...

Dr. Cunha: If you don't mind me asking, how did you remove the pulp stone? Did you use ultrasonic tips for that?

Dr. Shackleton: I had ultrasonics handy, but fortunately, I just, they flicked out with my endo explorer so I was able to flick those out. But yes, I love ultrasonics to get those guys out. I was happy to not have to--I mean I had to make my access a little larger than I ordinarily like to. We were concerned about a crack, so, and he did not want to remove the crown, and so we went through the crown, it was brand new crown for him--well, 10 months old--but he really didn't want to remove

the crown. And, so, our access was a little bit larger. But yeah, using the endo explorer, we're grateful they just sort of flicked out that way.

Dr. O'Keefe: So, Rodrigo, would there be cases where pulp stones wouldn't come out?

Dr. Cunha: There are cases where it's really attached to the furcation or the lateral walls of the canal so you need to put a little bit of an ultrasonic vibration every to pop out, yeah. There are cases where we go with the ultrasonics, for sure.

Dr. Shackleton: Yeah, and they're great. And it's nice and conservative, you know, as opposed to a round burr and, you know, things can happen. So, after we reached a 20, we instrumented with S1 And S2 ProTaper. I like to take a number 15 filing between, just to make sure nothing's clogged up, but our protocol is every time a file goes into a canal, we irrigate. So, we irrigate between files all the time. F1 ProTaper and everything, you know, was going pretty smoothly. And I think we, you know, we're pretty patient, pretty diligent, trying to get an initial nice glidepath in there before we take our rotaries in. And, so, we have used ultrasonics, activated our irrigant, we used 70% rinse with EDTA, left for about a minute and the activated that. Final rince the bleach and place calcium hydroxide in all canals as our medicaments. Cotton pellet and Cavit . And our post-op instructions were verbal and written. And I always give everybody my phone number if you have any problems, if this flares up, anything happens. If you're having pain, you can't manage, let me know. He asked about do I need to take an antibiotic? We said no. I mean, we prescribe antibiotics on occasion but we like there to be a really good indication. So, the example I like to give is people will say, well there's an infection. And I say yes, but if you have an infected sliver in your hand, what do you do? You pull the sliver out and the hand takes care of itself and it's a similar principle here. So, if we can get rid of the source of the infection, your body will typically heal itself. This is our image with the calcium hydroxide. So, we were happy with how that looked and we reappointed him four weeks from here.

Dr. Cunha: Let me just jump in again. Two things: One, do you always take a radiograph after you place calcium hydroxide as a medicament?

Dr. Shackleton: Yes.

Dr. Cunha: Because I think this is awesome. We do it as well because what we have to understand is the calcium hydroxide, it acts by contact. So, that's how it works. If it's not in contact with the bacteria, it's not going to work as you think it is. Everyone thinks it's going to increase the pH that much? No it doesn't. It has to be direct contact with the walls and with the bacteria so, that's good. It's a temporary filling so you really have to take it down there, otherwise it won't work. And the only way you can see is if you take a radiograph to examine if you actually filled the whole root canal system. So, that's good. The second thing is

the antibiotics. I think that was great that you did not give antibiotics and I liked the analogy where the whole cause is inside the canal, antibiotics is only a supplement. We only going to give it if you have any signs and symptoms of spread of infection. Otherwise there's no reason for us to give it. Unfortunately, among dentists we're seeing a rise in the number of antibiotics that's being prescribed, and that has to change. We actually have to flip that around and we have to go down as the physician have. Physicians have been prescribing less and less than antibiotics, but we see dentists prescribing more and more. So, I think that was a good call and it's good for us to raise a flag where the cause of all his symptoms is inside the canal. Go in, disinfect and remove the infection, his body will deal with the rest. I think that's the way that we should be thinking.

Dr. O'Keefe: Can I ask you a question of both of you? Let's say I'm taking that particular X-ray that you reckon that there wasn't enough calcium hydroxide will say it wasn't, it wasn't reaching the apex there. What would you do at that stage? Would you go in and put in more or would you just leave it?

Dr. Shackleton: I'll answer that. From my perspective, if, and this is one reason we do, sometimes I'll fill it and I, you know, I think looking in my microscope, yeah, that looks great. And we take a PA and then I realize, oh, I'm only halfway down. Yeah. I'll go in and I'll irrigate, we'll flush everything out, I'll re-instrument with my final file. I'll make sure I [inaudible] until, make sure--did I miss something or what's going on? And I, will a, yep, I'll run behind. And that makes everybody in my office grouchy, but what can you do? We're here to treat patients and I'll go in and do that.

Dr. Cunha: Okay. If you accept a piece of advice, I do exactly what you do, but I take the radiograph while I still have the rubber down. So, I fill it with calcium hydroxide, take the radiograph. If everything is okay, I'll seal the tooth. So, if it's not, if I still have to put more, everything inside so that I don't waste my time, I go back in, I just have to squirt more calcium hyrdoxide inside. And so, but the only advice is, do exactly what you're doing. Just the timing is different. Take the radiograph before you seal the tooth and you'll be able to fix it in no time.

Dr. Shackleton: Will you take a second radiograph after you've removed the dam?

Dr. Cunha: No.

Dr. Shackleton: Okay, so perfect. Well, I have something for my staff meeting tomorrow morning, so, perfect. Protocol change, everybody. So, he came back four weeks later. He was completely asymptomatic. He reported no pain following our visit. There was no more swelling. His tissues looked great. INR still holding strong. And so again, we just sort of reviewed where we're at and what we're planning on doing that day. And so again, we gave them some local anesthetic [inaudible] isolation, instrumented, and again activated irrigation like we did. Took a cone

film, as you can see from this cone film, it wasn't that great. So, I removed the gutta percha, again re-instrumented, just made sure we had a nice glide path, made sure there's nothing blocking me out. So, we, uh, re-irrigated re-instrumented, did a second cone fit and I was a little bit happier with this one. And, so we took everything out while we were preparing to fill because I was worried about persistent infection because it was a pretty big lesion. So, after we completed our irrigation and I dried everything out, as we were getting ready a minute or two passed, I took a final look under the microscope. I couldn't see anything percolating out of his canals, so, I was happy. And so we obturated. We use gutta-percha and BC sealer. I'm using it more and more these days. We used a system B single cone, calamus to back fill. I don't tend to go very far down when I'm using the BC sealer, probably a few millimeters, maybe a third, tops. Usually not very far. And we did a bonded restoration over there for a couple of reasons. And I said, you can go ahead and replace this crown, but he is not interested in replacing the crown. So, I just went ahead and repaired it. I wanted to make sure that we had a really good seal and that it was permanently restored. So, we just bonded a restoration in our access and this was our final root fill. And I was quite happy with that. Last I've talked to the patient, he's still doing fine. We'll follow him. We'll, we'll see him for recall visits, first at six months and make sure we have some nice radiographic evidence of healing. And we'll see him until things have either healed or not. But, so far so good. So, that is, that's my case.

Dr. Cunha: Well, two, two other comments that I think are extremely important. One is the importance of sealing those canals as soon as possible. The sooner you put a permanent filling on that tooth, the better the results. We know that those temporary fillings that we use, they leak and we don't want that. So, the root canal treatment ends when the filling is complete, when the permanent filling is in place. That was great that you could do it on the same visit. And the followup. Followup appointments are extremely important. I always make fun with everyone saying that it's the most humbling experience you can have is being able to do followups of your own cases. So, I don't usually do a followup as you, I don't do a followup before six months--four to six months--because there's not a lot we can see. So, I think it's, it's great that you have the followups in your protocol and that follow up the case for up to three to four years. Usually after one or two years, patients, especially if they're asymptomatic, they won't come back. I try to bring them back at least two or three times to assure that the patient is asymptomatic. And the treatment is successful, which in your case, I'm pretty positive it will be.

Dr. Shackleton: I hope so. I mean, I think, and again, we, every time we went into his tooth, we just kept looking and looking for any cracks. Couldn't see any, so, you know, we just took a very slow and methodical stepwise approach with this patient, didn't rush to completion. And I think we have a nice result and I'm, I'm, well so far I'm happy with it. But yes, it's true that I think whenever I talk to young dentists, I

say, you know, don't get cocky in this profession because a humbling experience is just waiting for you right around the corner. And so I think approaching these teeth with a great dose of humility is really the best way to go. Respect the tooth.

Dr. O'Keefe: Tom, what am I looking at there?

Dr. Shackleton: That is a little puff of my BC sealer. So, sometimes we'll have a little extrusion of sealer. I know, Herb Schilder used to love the puff, but it was not the BC sealer. It was usually something a little different. So, yeah, little extrusions of sealer. So, we do point this out to the patient and just say, there is a small, I just say there's a little bit of sealer that came out of your root tip. Often it leads to nothing, but we'll keep a close eye on that. So, we want to make sure that there's no long-term consequences of that.

Dr. Cunha: Today, we have enough evidence that there is no long-term consequence of having a little bit of sealer extrusion. There is a piece of literature showing that it can delay a little bit the healing. But you know what? You have to look at what's the pros and cons of maybe not having it? I mean, I always find that having that little puff, it assures to me that my [inaudible] wasn't blocked and everything was shaped accordingly. So, honestly, between you and I, I don't even mention to the patient anymore unless they ask. Sometimes they ask, oh what's that little puff there? But if they don't ask, I don't even mention it because for me it's just almost a routine. If I have a nice apical or [inaudible] proportion, I will have a little bit of sealer extrusion, for sure.

Dr. O'Keefe: Okay. And keeping the case on there, displayed. Can I just ask Rodrigo? Um, Rodrigo, when you see a classification like your Class II (Two), 23 units, that's really between Class II and Class III. Have you any thoughts about that? When it's close to the margin?

Dr. Cunha: That's a good question, John. That's why I asked Tom about the pieces of technology that he uses. For me, 23, it's a pretty risky case to attempt, but when we look at this case where he uses those pieces of technology and he has the experience he has, yes, it's totally doable. I think it goes according to the comfort zone of each one. If it was a recent grad, I would say, please don't even try it. I think it would be more beneficial for the patient, for this patient to be referred. But again, taking into consideration, the experience of the professional that was doing it and the knowledge that he has using these different pieces of technology. I think that makes a huge difference.

Dr. O'Keefe: Right. Tom, yourself, do you, I guess you exercise judgment, too. That's, that's the key thing isn't just you, you worked within your comfort zone, right?

Dr. Shackleton: Yup. Yeah. I think it's important for all of us to work within our comfort zone and to recognize what that comfort zone is. Um, you know, specifically with endodontics, I think. I, you know, I'll talk to young dentists and they'll say, well, how do you get better? And I say, well, I don't know, find a hundred extracted teeth and do a hundred accesses and clean them all out and fill them and just, just keep doing it and just, just do it again and again and again. And after you've gone through your hundred teeth and, you know, start to open, you know, maybe go to the edge of where your comfort is and see how other people do things. And I, I sometimes, you know, dentists want to watch somebody perform procedure X or Y and, and I think it's important that when we see somebody who's doing something, who's really good at it, they kind of make it look easy. I've seen a lot of golfers who make golf look pretty easy. And so basketball players who make basketball look pretty easy. But I think it's important to remember that yes, when we watch somebody do something, yeah, we can learn a lot. I think we can learn how to speak to patients, what to say, what not to say, how to phrase certain things. But I think nothing really, can displace experience. So, pull out those extracted teeth and learn canal complexity and learn how to use a microscope and, and embrace the technology. It's there just waiting for you. It's there wanting to be used. So, I think you'll be a better practitioner and you'll just see things you wouldn't otherwise see.

Dr. O'Keefe: Tom I have the best swing in the world when there's no ball there but...

Dr. Shackleton: Yea. Don't we all!

Dr. O'Keefe: And I suppose, you know, it's, uh, you know, any practitioner would do well to familiarize him or herself with the CAE Classification of the Degrees of Difficulty and Risk and check out the CAE website. Lots of great information on there. Rodrigo, you got standards of practice information. What part of the website should a practitioner look at particular to get some guidance?

Dr. Cunha: It's right that the initial, at the home page you can have on the upper side of the screen, you will find there the standard of practice document and inside that document you the Difficulty Assessment sheet as well.

Dr. O'Keefe: Right. And they should come back to Oasis and have a look at the session that you did with me and walking through this assessment sheet and explaining how to use it.

Dr. Cunha: Absolutely.

Dr. O'Keefe: Well, doctors, Tom Shackleton and Rodrigo Cunha, I want to thank you ever so much for taking time today to discuss this very interesting case and I just love

the interplay here between specialists and generalist about different aspects of the case. So again, thank you very much.

Dr. Cunha: Thank you, John. Good job.

Dr. Shackleton: Thanks Rodrigo. This was great.