Over the past few months there have been several threads asking about heat sensitivity and previously endodontically treated teeth. Terrorist_endodontist and Mark Dreyer have written that they have seen this often enough that they will sometimes include this in their comparative testing. So, the bottom line is that failing endodontic treatment may present with heat sensitivity. However, you gotta’ do thermal testing to determine which tooth is the real culprit and not just look at a film and equate heat sensitivity with failing root canal.

Here’s a recent case that clearly demonstrates the importance of doing sensibility/viability/vitality testing or whatever you want to call it. Let me give you some background information. This patient is a dental assistant in a nearby office. In December 2003, she came to my office with a toothache saying, “I believe it’s #19, although it could be #18.” After doing thermal testing, I determined #19 was the culprit with a diagnosis of irreversible pulpitis and normal periapical status. I complete treatment, patient’s symptoms resolved and everyone’s happy. Here are the films from that treatment.

Fast-forward to April 10, 2006. The doctor calls me and reports that his assistant—let’s call her “Partha” to maintain her anonymity—has been complaining of heat sensitivity. He tells me that Partha believes the offending tooth is #19, but that he feels it’s #18. When she comes in, it is apparent that he has been adjusting the occlusion of #18 without any improvement.

I ask Partha if she can point to a particular tooth, or does she just know it’s in the lower left. To me this is an often-overlooked point. It is equally important to know that the patient can’t pinpoint the offending tooth, just as it is to know when they can point to a particular tooth. Partha is honest enough with me to say that she can’t really tell, but that she feels it’s #19. Fair enough.

Now, it comes to endodontic diagnosis. It is important to remember that it is best to test the tooth using the same stimulus as what the patient reports. In this case, it’s heat. So, while cold testing may be of some value, it’s best to test with heat. So, I use gutta percha stopping and heat it up. Often textbooks mention that you should coat the teeth with Vaseline to prevent the stopping from sticking on the teeth, potentially prolonging the agony of the patient. It is also helpful to have some cold water handy to “cool the tooth down.”
Here’s the armamentarium I use for heat testing. The inset pictures show how I test teeth using the stopping and a Glick instrument for holding the stopping. The tooth is an acrylic model, so no teeth were damaged during this demonstration.

There’s an attachment you can get to use with your System B that has a reservoir to hold the stopping or plain ‘ole gutta percha.

When doing endodontic testing, it is important to test not only the offending tooth, but the two adjacent and contralateral teeth. In this particular situation, testing the contralateral won’t be particularly helpful, so I first test # 18. Remember this is the tooth the dentist thought was causing all the trouble. I too suspect # 18, not # 19. Surprisingly, this tooth tests normal, i.e., patient feels the heat and stops feeling heat when the stimulus is removed.

Now, some of you may recall that there has been a rash of threads regarding heat sensitivity in previously-treated teeth. So, I’m still wondering in the back of my mind if my endodontic treatment is failing. But being a big-headed endodontist, I say to myself, “Naw, it can’t possibly be MY ENDO.”

However, the last tooth I usually test during endodontic diagnosis is the suspected tooth. So, I move on. However, remember both # 19 and 20 have been endodontically-treated, so I jump to # 21. When I place the heat on the tooth she reports pain AND the pain lingers for more than 30 seconds. I ask Partha if the pain she is experiencing now is like what she has been having and she reports yes. She is nearly bowed over in disbelief. In fact, she repeats several times that she would have never believed it, she would have sworn it was # 19.

Here are the films. I’m showing two views because...well, I took two views. Also, I cut off the tooth but not the apex in one view and the other view doesn’t show the apex, but shows the tooth.

I thought if I put cold on it might help relieve the pain. Interestingly, she reported that it actually hurt more. So, as one of my teachers used to say, the take-home message here is two-fold.

1. Always, always confirm the patient’s chief complaint.

2. Pulpal pain can be poorly localized, therefore refer to # 1.

Incidentally, # 19 and 20 were non-responsive to heat.

rtatryn | Rod | Total Posts: 526 | Member Since: 12/19/05 | Location: Spokane, WA | Posted: 4/19/2006 5:11:02 PM | Post: 2 of 28

Great post Jordan, thank you. Great looking molar endo too. Just to clarify one point to anyone reading—heat sensitivity in an endodontically-treated tooth is indicative of a missed or untreated canal as opposed to “failing endo” in general. There may in fact be no radiographic evidence of endodontic failure, or the endo may have been recently performed, but still is the culprit.

acemo1 | Total Posts: 557 | Member Since: 10/21/03 | Posted: 4/19/2006 7:04:45 PM | Post: 4 of 28

Was the amalgam in # 21 fractured? Was the tooth cracked?
When I present cases I've done to my residents, they always ask which technique I used to obturate. And they were always amazed when I said lateral compaction. I don't exactly know why. I guess either because they can't believe lateral compaction could create that dense a fill, or that I was such a dinosaur [for] still using lateral compaction. While I'd like to think it was the former, it was probably the latter. Also, someone PM'd [private messaged] about how and why I use the stopping. The simple answer as to why I use the stopping is that's the way I was taught. I guess you could just use the Glick, but it's really hard keeping it in contact with the tooth. With the stopping it's very easy to see that you are applying heat to the tooth. The stopping is gutta percha with a different formulation. It is quite brittle and will almost literally snap when you bend it unlike regular gutta percha that is rubbery and flexible. To use it, I break off a small piece and heat up the Glick and place it on the end of the Glick instrument. Then, I heat up the stopping. It doesn't take much heat to heat up the stopping and it will sorta' slump when heated. It also gets quite hot. Just as I was typing I recalled that heat is much more damaging to the pulp than applying cold. So, one of the reasons I use stopping over a rubber point is that you are able to better control or limit the amount of heat applied to the tooth. [Posted: 4/19/2006 11:02:44 PM In response to post by Acemo]: “Was the amalgam in # 21 fractured? Was the tooth cracked?”

Partha sorta’ dropped in and just wanted me to diagnosis which tooth was the culprit, so I didn’t have time to explore all the options. The amalgam looked intact and I didn’t see an obvious crack. She did have some recession on this tooth and even more recession on # 22. When she reported the heat and pain immediately after I placed the stopping, I immediately thought that she didn’t need a root canal, but instead had dentinal hypersensitivity. However, when the pain lasted for more than 30 seconds, I made a diagnosis of irreversible pulpitis. Since there’s not an obvious etiology (caries or a fracture) I still didn’t dismiss dentinal hypersensitivity, granted an extreme case of it. In fact, I didn’t want to believe that the tooth was pulpally involved, so I applied Den-Mat’s...
desensitizing agent hoping that would decrease or eliminate her heat sensitivity. I spoke with the dentist about a week later and he told me Partha was still complaining of sensitivity. And despite being a dental assistant, she didn't want to start the root canal because she is going out of town in two weeks for vacation and doesn't want to get stuck out of town with a flair-up. Go figure.

 Jordan, nice teaching case here. How would you mimic the patient’s chief complaint, if they say sweet things bother it?

I use a sugar-water slurry mixed in a dappen dish and applied to the teeth with a Microbrush.

Thanks for sharing Jordan. What is your gut feeling on etiology? Hyperocclusion/parafunction? She’s taking one tooth at a time here and I just wonder if there is a preventative measure that could be taken? Interesting that it presents this way.

Is it routine to test ipsilateral tooth, opposing arch?

When you ask about preventative measures, are you talking about what appears to be a pattern of the patient needing a root canal first on # 20, then # 19, and now # 21? If so, my first thought is to stop working for this particular dentist. I’m not really sure of the etiology here for # 21. I know I preach determining the etiology before beginning treatment, but there's always an exception and this might be one. She clearly has lingering pain to heat. It also lingered for more than 30 seconds, so there’s not any doubt. By this I mean the lingering wasn’t in that gray area of five to 10 or 15 seconds. As far as testing the ipsilateral (or antagonist) tooth I believe this is a Tidwellism. Recent dental graduates of Baylor will know what I’m talking about. The reason you test the contralateral tooth is because this tooth serves as a control. In trying to determine what’s normal (or what’s not), you want a tooth that’s as close to the suspected tooth. Therefore, the contralateral tooth is a much better choice because of anatomy, but also because it has undergone similar “experiences” as the suspect tooth. I hope this last paragraph makes sense. Tidwell encouraged testing the antagonist to rule out referred pain. However, in the grand scheme of things, referred pain between arches is pretty low on the list. In other words, when you hear hoof beats, don’t think zebras. When a patient comes in with a toothache, I don’t immediately suspect referred pain from the opposite arch as a potential. The only time I even start thinking about referred pain from the opposite arch is when my testing in the suspected arch is inconclusive or I don't elicit pain/discomfort. In the example I showed, I guess you could consider it referred pain. Actually, technically it might be called referred pain. However, I think it would be more correct in saying that pulpal pain can be poorly localized. Perhaps a semantic difference, but a difference nonetheless.

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