Treatment of Sensitive Posterior Composites
A Townie discussion from www.dentaltown.com

ydriller
Posted: 7/19/2002 4:04:00 PM  Post 1 of 82

Please tell me how I should go about treating a patient who returns to me with a sensitive posterior composite I have recently placed, assuming my bonding technique and composite placement is correct and no evidence of a crack can be found. Should I wait and monitor the situation (as the sensitivity often resolves) or is it more prudent to remove the restoration immediately, place a temporary dressing and then monitor the patient?

dolemite
Posts: 515  Reg.: 6/21/2002
Posted: 7/21/2002 7:42:00 AM  Post 11 of 82

Sensitivity can be many things:

1) I recheck occlusion first. If it’s still sensitive, check occlusion again and give it a few weeks. We all know hyperocclusion is a big factor in post-op sensitivity. During a bonding visit where the mouth is open for extended periods it is sometimes difficult to get the occlusion perfected for various reasons. One might be the condyle of the joint is not fully seated after being translated forward for so long in an appointment. It doesn’t take much translation for the joint to disclude the molars which means if the occlusion is checked at that time then the molar will be high when the condyle reseats later and thus hyperocclusion. How many times have you checked at a second appointment and found what looks like a minor interference on the tooth, made adjustments and when the tooth is marked again, more teeth in the arch are contacting. Since this is the easiest thing to do on a tooth that you feel you bonded correctly, then do the easiest first.

2) Next if it doesn’t settle down, take out the restoration and temporize with something to settle it down. If it settles down, it means it is the way it was bonded and then you would need to re-bond but with improved technique. If I was sure it was my bonding being a problem I might just re-bond at this stage, but we are talking about diagnosing. If someone has done the bonding technique incorrectly and re-bonds it the same way, it makes sense they will get the same results—sensitivity. I am just suggesting temporization because you are restoring a different way. If it is sensitive after temporization, then it is not related to bonding because the bonding is removed. Also, once again always recheck occlusion.

3) If it doesn’t settle down soon you might have a nerve problem. I might add it is important as to what makes it sensitive. If cold then the temporization should work. If hot, you have a possible endo. If something while chewing (like bacon), then you have exposed dentin and may need to reseal.

There is a difference in a tooth nerve when it is beginning to be sensitive to heat. I have found for heat sensitivity the pain stays for a while after the stimulus. This is a very bad sign that usually indicates pathology in the nerve that is inflamed and/or infected. The heat causes this inflammation or infection to expand in a compressed area with the result being pain. A dead nerve is not cold sensitive because it can’t feel the cold. Cold sensitivity alone usually indicates there is at least some nerve tissue vital and in the earlier stages there will be recovery if the aggravation causing the response is removed.

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Concerning chewing: If your patient says his/her tooth is comfortable in general but hurts mainly when chewing something crispy like bacon, coarse bread, carrots, etc. it is often exposed dentin on the occlusal surface. This can happen a lot during final shaping of the tooth or occlusal adjustment when accidentally the enamel is removed and dentin exposed. Often if you rub an explorer around on the occlusal surface and hit the spot where the dentin is exposed the patient will be sensitive. Like any exposed dentin, it needs to be sealed again to be comfortable.

Hi Ydriller, the most likely cause of immediate post-op sensitivity in a bonded restorative scenario (absent pulp exposure) is a compromised bond, the greatest act of hubris I can commit is to assume that my original bonding was flawless and that I have a bite or idiopathic problem.

Add to this that a poorly bonded restoration has initiated the biochemical cascade of inflammation, of which pulpitic pain is the hallmark. Left in place this restoration has the greatest chance in ending in pulpal death. What is the importance of this statement? Only this: the longer one leaves such a defectively bonded restoration in place, the greater the chance the pulpitis will become irreversible and endodontic intervention become necessary. So, I get that filling out of there, admit the possibility of my own imperfection, and re-restore the tooth.

In my experience, few restorations left high are actually very sensitive, and those that are will respond immediately to adjustment. So, if I check the bite, it’s high, I adjust it and the tooth is still sensitive, it’s still most likely a bonding problem: leakage, “lift-off”, underpolymerization, contamination, etc.

Marshall, you make one attempt to adjust occlusion and then replace the restoration? What is the mode of pain production in hyperocclusion? It has nothing to do with exposed dentinal tubules, right? I was always under the impression pain from hyperocclusion was a result of overloading the PDL of that particular tooth (ergo, the pain in an endo tooth left high after pulpectomy or finished RCT). If the patient has traumatized that PDL and possibly intruded the tooth, an adjustment is not going to immediately relieve pain. The tooth is now in a position to allow the PDL to heal. I have found 48 hours is an average time it may take for the damage (bruising?) to heal. I have also found (on occasion) an additional high spot that needs adjustment once the tooth “springs back” to its original position. If two adjustments (and no obvious endo symptoms–spont pain, heat sensitivity, or lingering cold pain in a vital tooth) and 48 hours don’t bring relief, then I consider replacing the restoration. I don’t find the need to replace many restorations following this regimen (although I’m happy to if indicated). Patients really prefer a couple of 5-minute adjustments to starting over on the restoration.
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marshall_white_dmd
Newark, OH Posts: 4,218 Reg.: 8/14/2000

Mark, the notion that we ought to suspect hyperocclusion first in post-op sensitivity is sound, but absent immediate relief, my experience has been that these teeth are faultily bonded; this based upon my success in re-restoration in such cases. And that re-preparing and re-restoring the tooth is the most prudent and expeditious course to bring both relief and greater peace of mind regarding the presence of a sound and long-lasting restoration.

Occasionally, re-sealing the restoration will alleviate symptoms, but this in and of itself calls into question (at least in my mind) the very integrity of my bond throughout the intaglio of the preparation. So, again, I'd choose to replace the restoration rather than have an asymptomatic yet potentially aberrant restoration that could result in early failure. Anecdotally, this protocol brings virtually universal success.

Graeme Milicich

Ydriller, regarding pain from hyperocclusion or a failed bond, it is dead easy to assess. Both can have temp sensitivity so that is not a reliable indicator. Both report pain on chewing, but there is a difference. Hyperocclusion pain normally leads to PDL inflammation, whereas a failed bond does not.

The simple test is to take an instrument like a ball burnisher and do a “cracked cusp” test by pressing firmly all over the surface of your restoration. If the patient complains of pain on sudden release of pressure, you have a de-bond. Re-treatment is your only choice. If the tooth is tender to percussion or the patient reports a “bruised” feeling under the tooth, it might just be a high restoration.

The pain on release of pressure is exactly the same as from a cracked cusp and is the same etiology. In both cases there is a microgap and flexing of the microgap causes hydraulic movement of the odontoblast processes = pain on release of the pressure.

If the tooth is really hypersensitive, one sure fired way to get resolution if it is going to happen, is to place Fuji 9 into the tooth and leave it alone for a while. Do nothing fancy. If the tooth settles, you can overlay the GIC with composite at a later date. If it doesn’t settle, you had an irreversible pulpitis and you haven’t wasted a lot of time with fancy techniques and then have to turn around and rip it all out to do an endo.

john kanca
Middlebury, CT Posts: 2,199 Reg.: 2/11/2002

Mark, as you suggested, it does take 2-3 days for hyperocclusion discomfort to subside. To distinguish between a gap and a cusp fracture, use a Tooth-Slooth or a Fractfinder. Load the restoration and load the cusps. If there is pain on loading the restoration, replace it right away. If the pain originates on the cusp, there is a tooth fracture and coverage is indicated. If a gap is left unattended for weeks an irreversible pulpitis can ensue.

Hyperocclusion is distinguished from a gap under the restoration via occlusion. Without a food bolus, there is no discomfort with a gap. With hyperocclusion, there is discomfort on occlusion without a food bolus.
No one so far I believe has mentioned etiology due to cusp flexure. Ray Bertolotti showed me this technique so long ago (when I did get occasional post op pain) that I won’t mention the time, but...sectioning the restoration almost to the pulpal floor mesio-distally will alleviate the discomfort almost immediately. I haven’t had to do this in over ten years I guess. It goes to show you that as our technique and experience progresses, so does the end product of our work.

Horrido, that is the reason I mentioned the possibility of incrementally building the dentinal part of the restoration. Many posters are discussing techniques to minimize shrinkage in the enamel layer but are advocating a thick dentinal layer placed before curing. I understand that will not cause fx like one gets at the enamel surface, but could it cause a “pulling” stress between buccal and lingual cusps when it shrinks with polymerization? I’ve heard of the technique of which you speak, but haven’t had to use it. I do build the dentinal parts of my composite restorations incrementally (from DEJ on one side to the floor of the prep on the other side). It may take me a little longer but I like the results. I haven’t heard that it hurts anything to do it this way (the C-factor on each increment is reduced).