The MB2 Myth

A Townie discussion from www.dentaltown.com

Dr. Dave

I have rarely found and obturated a MB2 on upper first molars. Out of literally hundreds and perhaps thousands of such teeth, I have seen only a handful and yet have had near 100% success with such procedures. I really enjoy doing upper first molars because of their relative ease of access and straightforward simplicity.

I just don’t buy that 90% of all upper firsts have an entire extra canal that I have been missing for 15 years! Prove me wrong and I’ll look even harder.

Howard

For the last 15 years, I have obturated an MB2 to the apex about 30% of the time. Another 30% of the time I find an MB2 that can only be negotiated about a mm or two. The trick is using an access bur that has a right angle on it so you can “feel” when you drop through the roof of the pulp chamber. It is vital that the bur never hits the floor before you examine the morphology. All of the canals line the dark ring of the pulp floor. MB2s are usually at least 1/3 of the way to the palatal canal. I always wear 2.75x magnification loops. Do you wear loops? You really should. It is so much more fun to see everything so clearly.

The maxillary first molar is the #1 failed root canal in America, because of the missed MB2. The #2 failed root canals are the mandibular second molar because of a missed second canal in the distal root. I would recommend reading the latest 5th edition of Pathways to the Pulp by Stephen Cohen and Richard C. Burns. I have not read it yet, but I thought the 4th edition was so awesome, I can’t wait to order the 5th edition.

Marshall White

Hi Dave:

I believe Howard’s correct. Tom Jubach, an endodontist-contributor to Kit Weather’s newsletter Practical Endodontics, Vol. 10 No. 1, (2000), says this about ALL upper molars: “They all have four canals. We may not want to believe that, but they do in one respect. The MB root most often has two canals itself. They may be so close together or join in any number of ways, that we may have instrumented them without knowing it or missed them.” Personally, I think a lot of these canals are instrumented (at least in part) when we enter and enlarge the MB1 canal, simply because so many of these two MB canals will converge at some point in their course through the root. It seems many of us have enjoyed great success on first molars because of that anatomical fact. Kit Weathers and other endo lecturers will say, “It isn’t what we put into a canal, it’s what we take out that counts.” So if we remove at least part of the contents of an MB2 canal, even inadvertently, I think it improves the prognosis even though we cannot negotiate and extirpate all of its content. The simple fact is statistically the upper first molar has the greatest failure rate (a well-established and virtually incontrovertible fact) so we should be looking for MB2 canals and individually do our damnedest to advance the cause of modern dentistry. Like Howard, I find more of these than I ever did 5 years ago, since adopting the use of 2.75x loupes, caries dye, and a willingness to actually LOOK! Most of them cannot be negotiated to the apex and I doubt we’ll see massive failures in upper molars if we don’t look.

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In a previous post, I commented that I personally find MB2's about 70% of the time. Howard is absolutely right. It is very well documented that the most failed endo tooth is the upper first molar because of unfilled MB2's. I haven't kept statistics, so all this is just an estimate of my personal experience. Regarding when I do find an MB2, about one-third of the time I can clean and obturate to a completely unique apex. One-third of the time I can completely clean and obturate to an apex common with the MB canal (two distinct canals with one common apex), and one-third of the time, like Howard says, I can get into a distinct canal with no success in negotiating it past a millimeter or three.

I'm certain you've had lower molars where the two mesial canals end in one apex. Do you consider the tooth to have only one canal, or do you consider it to have two canals with a common apex. I consider the latter.

The point is that often those MB2s that are blocked off so well are mineralized so much that even if we do not get into them, everything is OK. On the ones that have a common apex, if you only get the MB, you may well have sealed the apex of both canals. Is it okay to seal the apex without cleaning the MB2? Probably much of the time it is. How much do you open your endo access? When you look with your mirror, can you see all canal orifices at the same time without having to move the mirror around? I first do like Howard says, and like to look at the natural anatomy of the floor of the chamber. This gives me a lead of whether or not there is an MB2. But sometimes, even though I see where it is, I can't get into it, so then I take my round bur and smooth things down, and often at that point I can get access to it. As far as showing x-rays, that's almost like saying, "wow, you guys say you deal with a lot of cracks. I don't believe it." We all know that cracks almost never show on a radiograph. Heck, it's hard enough to see a bona fide 'break' on an x-ray. With two mesiobuccal canals side by side, most often you can't see two separate canals very well. If you are cleaning and shaping well, and getting that 'funnel' shape, and since they superimpose on each other, it is rare that you can see two distinct canals on the film.

I for one cannot even guess the percentage of MB2 canals I have found in upper first molars. I do know that I find them often and always try to instrument them. If I start out with a 6K file and can work my way up I try to continue until obturating. I spend a lot of time trying to do it right, because if I can't then I don't feel guilty and can look the patient in the eye and say I gave it my best effort. If I cannot negotiate them, I don't sweat too much, but note it in the chart that I had a non-negotiable MB2 canal. Seems simple to me. As far as denying the existence of MB2 canals, I go along with what Howard and the others said. You really have to look. I have had all three canals ready to fill and then noticed the fourth canal and had to go through a lot of extra work because I had already gone through all of the files.

Sometimes I open up a 3/14 and see an absolutely perfect chamber floor, with a perfect three canal outline, where there is absolutely no doubt there is only 3 orifices. However, it may be true that in these cases, there is a 4th that branches off below the orifice. Who knows? All I can say is that 23 years ago I found very few MB2's (actually, back then we called them simply 'mesial' canals) maybe 10% of the time. Over the years, the more I find, the more I look for them. I poke around with a very sharp endo explorer and try to break through any thin coverings over any MB2. I use loops often. Sometimes I actually open my eyes (that's a joke). If I don't find
anything, I grind away along the pathway where it would be found, and then look with loops. The more diligently I look for them, damn, the more often I find ’em.

*yonnieb*
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posted 12-29-2001 06:18 PM

Just thought I’d throw in my two cents worth about 4th canals. I never found them until I started looking, after a few pts. came in with abscesses surrounding the M roots in teeth I had previously performed RCT/PC/PFM on and then I found them in about 60-70% of the upper 1st molars. And yes they can be a bitch to access, let alone navigate to length. I use steel #6 or C files after locating and widening the orifice if I can. Sometimes I will go thru ten or more of these before things loosen up—and I use a lot of EDTA in the pulp chamber as a lubricant. It definitely takes time to prepare these buggers, if you can at all. And I too will just mark it as a non-negotiable canal in the chart if I can’t finish it. I do a lot of endo in my practice and believe if you really look for these canals, you will find them. After that, may the force be with you.

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posted 01-13-2002 02:50 PM

Of course we don’t find them until we start looking, and I venture to say we don’t find them until we start seeing properly. Dave, you should get yourself the 4.5 Zeiss loupes. I refuse to look at anything without mine, including radiographs. I find MB2s almost all the time, to the point where I feel uneasy if I don’t find it. As to your point about 3 roots equals 3 canals, what about your mesial root of your lower first molars. Are you only treating one canal in those?

*Mark Dreyer*
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posted 01-17-2002 08:03 AM

I too question the 100% statement. Sometimes I open up a 3/14 and see an absolutely perfect chamber floor, with a perfect three-canal outline, where there is absolutely no doubt there are only 3 orifices. However, it could be true in these, a 4th branches off below the orifice. This is exactly how I find a number of the 4th canals...a common orifice and branching a bit apically. Usually if you carefully bend your K-files, you can scout around and find the additional orifice. Magnification helps a ton. One other thing helps. Use a size 6 file, and once you drop into the canal, fill the chamber with 17% EDTA. Then you will find that the file will often go to WL very nicely. I also have an M-4 handpiece, which greatly speeds up this process.

*jec*
Posts: 29
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posted 01-19-2002 12:20 AM

The presence of four canals is no longer a point of debate…it is a well-established fact. Clinically, most conscientious endodontists using a microscope will tell you they find them clinically 70-90% of the time. I routinely find and instrument them. And, contrary to one post, they are usually negotiable to the apex—albeit at times with many #6 files used to do so. In a young person the clinical presence of the MB2 comes very close to 100%. It gets harder to find in older people as it tends to calcify and get smaller with age. With regards to a fifth canal in the DB root—they will not find this because the shape of the DB root is round. The MB root is more like that of a first bicuspid. Some time you should section the buccal roots of an extracted upper first molar 1mm at time. The difference in the anatomy of the MB and DB root is dramatic and as clear as night and day. Why then have so many of your root canals in upper first molar worked? Because the MB1 and MB2 join approx 80% of the time. I have retreated many first molar cases that failed only on the MB root. They healed quite nicely after treating the MB2. I have also treated many MB roots with apical surgery (some of them my cases where I couldn’t negotiate the MB2): it is completely routine to find the MB2 during apical surgery. It is treated by preparing a retroprep that extends from the MB1 to the MB2.

This is a sample of the content rich posts found at www.dentaltown.com in the Endo Discussion Group - Search Words (typed exactly): MB2’s.