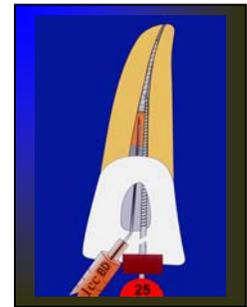# FILE STIFFENING
C. John Munce, D.D.S.

**Danny**--File Stiff'g is a powerful tool, and not for the timid operator.... It's scary to be injecting a resin deep into a canal.... But as long as you know your file tip is reliably impaled and won't come out during the injection process (it's really good to do a trial run with the file in place and the injecting device inserted and then withdrawn prior to the true injection) and you're confident that the tip is actually impaled within the calc'd canal contents or truly alongside a sep'd instr, then you can be confident that it will work. If the file comes loose during injection, this is not a good thing! But you can recover from this by just drilling the resin back out with 34mm long modified-shaft slow speed round burs under magnif'n--tedious, but not impossible. Also, if the file is not impaled where you think it is, this is also not a good thing--you can drive a file out the side of a root. So these parameters need to be carefully controlled with variably-angled radiogrs and an apex locator. However, if a "new canal" is created by this method out the side of the root, it will be a tiny canal that can be managed as any other canal, usually sealing it with GP & sealer. If such a case thereafter requires apical surgery, it should be born in mind that the case was probably a candidate for apical surgery anyway d/t the irretrievable sep'd instr or the otherwise impenetrable barrier--even prior to this procedure. This conversation should be conducted with the patient prior to initiating this procedure.... I'll be very interested in your experience with this process. *cjm*.



**Gustavo**--What I call File Stiffening (for lack of a better name) involves "impaling" the tip of a file into the "sweet spot" of a calcified canal or alongside a SI, and then injecting an autopolymerizing resin around the file from the depth of where it is impaled right up to the floor of the chamber, or to the occlusal surface of the access cavity, or even beyond the occlusal surface. As the resin begins to polymerize, the file is removed by reverse-rotation leaving a tiny dedicated channel behind that leads subsequent smaller-gage files to the exact





File blocked.

spot where the tip of the now-removed file was impaled.... These subsequent smaller files are far less inclined to bend b/c of the 360 degrees of resin that supports them. With RC Prep, and a "bayoneting" action of these files, the obstruction is often bypassed in minutes (sometimes seconds)! Once bypassed, the resin can be removed with decreasing-diameter slow speed round burs (#6, #4, #2, #1, etc). The trick for this method lies first of all in getting the resin to the depth of the canal where the tip of the file is impaled. This requires the right kind of resin and the right delivery device. If the obstruction is simply on the floor of the chamber such as in the frequent case of calc'd MB2 canals, I'll simply impale perhaps a #30K or #35K file in the MB2 orifice, and then fill the chamber with a non-bonded composite (I currently use Encore by Centrix, but any composite will suffice in this example)



up to the occlusal surface, or beyond for a greater effect.... This can be easily placed with



One sep'd instr bypassed by *File Stiffening*, the other removed w\ the BOA Constrictor.

Centrix Needle Tubes. But, if the obstruction is deep within the root, then I'll use autopolymerizing pit and fissure sealant (Delton by Dentsply) and inject it from the depth of the impaled file tip to the floor of the chamber using a 1cc tuberculin syringe. To load this syringe, I remove the plunger, and drop in 1 or 2 drops each of part A and Part B, reinsert the plunger, pump it a couple times, and then inject from the bottom out.... At early signs of polymerization, the file needs to be reverse-

rotated, and then removed.  Under some conditions, you might want to bond these resins, and under some, you wouldn't....  The selection of the right diameter of file for this procedure is important.  If you select a #10 file or smaller as the file to create this "pilot hole," then you can only use #6 and #8 as subsequent smaller files, so I'll typically select at least a #20 file, but larger is even better in many cases (up to perhaps a #35).  Selecting a larger file allows for a greater number of smaller-gage files that can be inserted into the tiny dedicated channel all the way to the "sweet spot."  Of course, the file selected needs to "stick" securely into the "sweet spot" so it won't be dislodged during the injection of the resin....  Wow--that's really quite a lot of words to describe a simple process, but I hope it still makes sense....  *cjm*.

> **The above is a condensation of an email thread between myself and RXROOTS subscribers Danny and Gustavo on the RXROOTS website.  The inquiries from Danny and Gustavo were regarding the methods and materials for performing *FILE STIFFENING* procedures for obstruction bypass.  C. John Munce.**