LANGLEY ENDODONTICS

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Healing Outcomes after Obturation with Resilon or Gutta Percha

Endodontic treatment has three objectives: remove bacteria and bacterial by-products from the root canal system; prevent bacterial re-contamination from the oral environment; and entomb any remaining viable bacteria within the system.

The classic endodontic triad of cleaning, shaping, and obturation have predictably achieved these goals over the years. For 50 years obturation of the root canal system with gutta percha (GP) and a variety of endodontic sealers has consistently resulted in healing rates in the range of 85%.

A new challenger to GP entered the endodontic world in the mid 2000's. Resilon, a thermoplastic, synthetic polymer-based root was developed. The concept behind Resilon (R) was the ability to create a monoblock where the Resilon point bonded to the resin sealer which in turn was bonded to the root dentin.

In a previous newsletter, we looked at apical leakage studies comparing GP and Resilon. The preponderance of literature did not support manufacturer's claims of superior sealing ability of the new Resilon/Epiphany filling material. Most found no difference in sealing ability between Resilon and GP.

Cotton et al, JOE July '08, took this one step further and asked whether the Resilon monoblock would improve the clinical outcomes when compared with GP/Kerr sealer. This prospective study was designed to limit the number of variable confounding most outcome studies.

276 teeth were cleaned, shaped, and obturated with either GP/ Kerr sealer or Resilon/Epiphany using the same protocol. 103 teeth returned for re-evaluation anywhere from 2-25 months and were included in the final sample. The outcomes were ranked as healed or non-healed based on presence or absence or symptoms and degree of periapical bony healing as determined radiographically by the PAI score.

The authors found a number of interesting results. Firstly, there was no significant difference in healing outcomes between teeth obturated with GP and Resilon. Without any substantial evidence that Resilon is superior to GP, it is hard for me to justify changing what has worked for 50 years. Why disrupt your treatment protocols and add the extra expense (Resilon 5 times the cost of GP)?

Of the teeth which were re-evaluated prior to 12 months, only 50% were judged healed. In the group that was re-evaluated between 12 and 25 months, 85.5% were healed. This has some practical applications for our practices. Firstly, don't wait till all the symptoms are gone and the periapical area is healed prior to restoring the tooth. It is too early to determine healing ability with absolute confidence. Minimally, place a permanent foundation restoration and clear destructive occlusal interferences. This will prevent coronal contamination and reduce the possibility of root fracture. Better yet, place a full coverage crown on the tooth. Yes there is some uncertainty and situations where you have to retreat through a recently placed crown but that is the world we live in, imperfect but pretty darned good.

Thirdly, the authors also found that teeth with lesions of endodontic origin (LEO) had a significantly reduced healing rate (76%) when compared to teeth without LEO's (100%) after 12 months. The take home message here is that we need to be clear with our patients, when their teeth have LEO's, that there is a possibility that a phase 2, surgical treatment may be needed to achieve healing. In difficult surgical locations such as lower second molars and palatal roots of maxillary molars this is even more critical, especially when the root canal systems are complex and extensive crown and bridge treatment is planned.

In the next newsletter I will talk about Outcome Comparisons Between Implants and Endodontically Treated Teeth

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