

Endodontics: Warm Root Canal Filling Techniques: Current Trends

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Received: October 05, 2015; **Published:** October 08, 2015

The prognosis of endodontically treated teeth depends not only on the treatment itself, but also on sealing the canal and minimizing the leakage of oral fluids and bacteria into periradicular tissues. The purpose of using root filling material is to completely fill the root canal as well as the accessory and lateral canals. Gutta-percha remained for a long time a material of choice to obturate the apical portion of the root canal with different types of sealers in post-restored teeth. Root fillings containing gutta-percha is the weak point in endodontic therapy, allowing micro leakage and not providing an adequate apical seal. Adhesive concepts in endodontics have been proposed to enhance the sealing ability of root fillings. Epiphany/Resilon (Pentron Clinical Technologies, Wallingford, CT) is developed to replace gutta-percha and traditional sealers for root canal obturation. Epiphany/Resilon (Pentron Clinical Technologies, Wallingford, CT) is a thermoplastic polymer based root canal filling material that contains bioactive glass and radiopaque fillers. The sealing capability of Resilon is attributed to the "mono-block" which is created by the Resilon obturators bond to the Epiphany sealer and in turn the Epiphany sealer adhering to the dentin walls. It performs like gutta-percha, has the same handling properties, and the master cones and accessory cones are in all ISO sizes available.

Other different materials and methods are available for root canal obturation. The cold lateral condensation technique is one of the most widely accepted obturation techniques. However, its disadvantage is the fact that gutta-percha cones do not adapt to canal walls, particularly in the presence of irregularities in the canal. To overcome these difficulties, thermo plasticized gutta-percha techniques have been introduced.

The Thermafil (Dentsply/Maillefer, Ballaigues, Switzerland) and GuttaMaster (VDW GmbH, Munich, Germany) Obturation System consist of the: Thermafil /GuttaMaster Obturators available in ISO sizes 20 to 60, verifier and oven.

Thermafil and GuttaMaster (VDW GmbH, Munich, Germany) obturators consist of plastic carriers coated with α -phase gutta-percha which are prepared for use with a portable oven. GUTTAFUSION® (VDW GmbH, Munich, Germany) is a new carrier obturation system. The obturator consists entirely of gutta-percha. On the inside, cross linked polymer chains give stability to the carrier. On the outside, the carrier is coated with flow able gutta-percha. The carrier helps to condense the heated, flow able gutta-percha in the whole root canal system.

Injected thermo plasticized gutta-percha can adapt more effectively to irregularities in the canal, thus replicating the root canal system. In the Injected Obturation System: Ultrafil (Hygienic, Ohio, USA) and Obtura II (Obtura Spartan, Ontario, Canada) the warm gutta-percha material is injected with a specific injector directly into the root canal to completely fill it.

BeeFill (VDW GmbH, Munich, Germany) is a new injected obturation technique with time-saving, clean and long-lasting 3-dimensional obturation of root canals.

Conclusion

Although cold lateral condensation is one of the most accepted canal obturation techniques, the gutta-percha does not adapt to the canal walls, especially in irregular canals.

Thermo plasticized root canal filling techniques are very efficient and convenient obturation methods, is more time-saving than lateral condensation.

Volume 2 Issue 5 October 2015

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