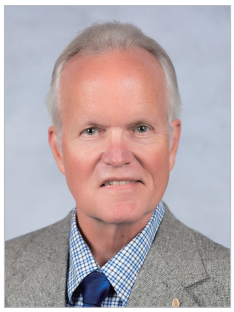
Current Considerations in Minimally Invasive Endodontics: Vital Pulp Therapy, Guided Access, and Enhanced Irrigation Technology



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New technology in endodontics and changing appreciation for the preservation of natural tooth structure during endodontic treatment has changed the way we practice root canal therapy in the past decade. Vital pulp therapy procedures, ranging from direct pulp cap to complete pulpotomy, have emerged as viable alternatives to traditional root canal treatment (complete pulp extirpation, canal disinfection, and obturation). The emerging recognition of VPT as an option in specific situations has become possible with a better understanding of pulp biology and biocompatible restorative materials (for example: calcium silicate cements and restorative materials).

Teeth with heavily calcified pulp canal spaces have always presented a challenge for clinicians and often render a tooth non-treatable. The growing acceptance and availability of CBCT imaging and 3D intraoral scans opens possibilities for custom guides to assist in the location of calcified or receded canals. A variation of this technology can also allow for the fabrication of custom surgical guides.

Complete canal debridement and disinfection has always been a weak link in root canal therapy. New devices allow for enhanced disinfection of the canal space with multi-sonic irrigation and/or laser-assisted irrigation. Bench top studies demonstrate improved canal cleanliness, although clinical outcomes studies to support the use of these devices is currently limited.