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New root canal obturation techniques: A review

Abdullah Khalid Al-Fehaid

PSMMC, Saudi Arabia

Root canal treatment is a vital dental procedure aimed at removing infected pulp tissue from within a tooth, thereby alleviating pain and preventing further complications. The success of this treatment hinges not only on effective cleaning and shaping of the canal system but also on the final obturation phase. This phase is crucial for sealing the root canal space, preventing reinfection, and ensuring long-term tooth preservation. Traditionally, gutta-percha has been the material of choice, used in conjunction with various sealers. Additionally, the incorporation of ultrasonic and sonic techniques enhances material delivery, ensuring thorough filling of intricate canal systems. As dental research continues to evolve, these new obturation methods may significantly impact clinical outcomes, leading to improved success rates in endodontic therapy. Understanding these developments is essential for dental practitioners aiming to provide the best care for their patients. Root canal obturation materials play a crucial role in sealing such as zinc oxide-eugenol or epoxy resin-based sealers, it provides a good seal.

Emerging alternatives include bioceramic materials, which are known for their excellent sealing ability and biological properties. These materials promote healing and can stimulate the regeneration of periapical tissues. Another promising option is thermoplasticized gutta-percha, which improves flowability and compaction within the canal.

MTA (Mineral Trioxide Aggregate) is also gaining popularity, especially for cases involving apical resorption or immature teeth, due to its ability to create a strong seal and support tissue

regeneration. Cold Lateral Condensation Warm Vertical Condensation Continuous Wave Technique Single Cone Technique. Successful obturation of root canals requires several key factors to ensure effective sealing and long-term treatment success. First, thorough cleaning and shaping of the canal system are essential to eliminate debris and bacteria. This process allows for optimal filling of the canal space. Next, the selection of appropriate materials is crucial; gutta-percha and bioceramic sealers are commonly used for their sealing capabilities and biocompatibility.

Effective technique is another vital requirement. Methods like warm vertical condensation or continuous wave techniques enhance the adaptability of the material to the canal walls, minimizing voids. Proper moisture control during the procedure helps prevent contamination and ensures that the sealers bond effectively. Additionally, the complete filling of all canal extensions, including lateral and accessory canals, is necessary to prevent reinfection. Heat-Activated Gutta-Percha Devices Ultrasonic Activators. Sonic Devices, Warm Vertical Condensation Systems, Thermoplastic Gutta-Percha Delivery Systems. Successful root canal obturation is essential for effective endodontic treatment and long-term tooth preservation. The choice of materials and techniques significantly impacts the sealing ability and overall success of the procedure. Advances in obturation methods, including bioceramic materials and thermoplastic techniques, offer improved outcomes for complex canal anatomies. Ongoing research and innovation will continue to enhance the effectiveness of these techniques.

Biography

Abdullah Khalid Al-Fehaid is a General Dentist at Prince Sultan Military Medical City Saudi Ministry of Defense, Riyadh