Successful restoration of the endodontically treated tooth continues to be one of the most challenging procedures in dentistry. This is largely because of the complexity of the process, a myriad of available treatment options and a confusing array of dental literature dealing with individual components of this multifaceted treatment equation.¹

Long-term retention of an endodontically treated tooth is dependent on the collective success of the tooth canal filling and coronal restoration. Put simply, if the root canal filling or the coronal restoration is inadequate, either is equally contributive to an unsuccessful outcome.² Therefore, the first step in developing an appropriate treatment plan for a tooth requiring root canal therapy is to determine if the tooth will be restorable. Factors that may influence this determination include: the amount of remaining coronal tooth structure after caries excavation and the ability to develop a 1.5- to 2-mm circumferential ferrule, periodontal health, occlusion, crown-to-root ratio, tooth location, number of adjacent teeth, requirement to use the tooth as an abutment for a fixed partial denture or removable partial denture and the presence of para-functional habits.³

If the tooth has been judged restorable and has received adequate root canal therapy, the next treatment-planning decision involves the need for a post and core, or just a crown build-up. A post or dowel has been historically placed to retain the foundational core and to add retention of the crown that would have normally been gained from coronal tooth structure.⁴ Determining factors at this stage include evaluating the height and thickness of remaining dentin after tooth preparation, the number of dentin...
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wells remaining and the final occlusal scheme. In clinical situations where there is little dentin remaining (less than 4 mm of the coronal tooth structure, but at least 2 mm dentin ferrule), the use of a post is indicated (e.g., DENTSPLY® Core and Post System including X.Post™).

With two or more walls remaining, or greater than one half of the coronal tooth structure remaining, the dentist may choose to forgo a post and simply use composite to place a crown build-up. In selecting the material best suited for a build-up material, dentists must consider the size and geometry of the preparation, as well as access to enable light transmission. In areas where light transmission is difficult or impossible, a dual or self-cure composite (like core.X™ flow) is indicated. However, in areas where the tooth can be isolated with a sectional or circumferential matrix and it can be accessed with a curing light, SDR® is an excellent material choice because of its cavity adaptation and bulk-filling properties.

Because SDR can be placed in 4-mm increments, large cavity forms can be restored in fewer procedural steps. In areas where the core build-up will be placed into function, SDR should be capped with a 2-mm layer of hybrid composite (like Ceram.X®). Also, because of its self-leveling handling and high radiopacity, SDR can make the process easier not only during placement but also when evaluating the restoration on postoperative radiographs.

In most cases, the last step in restoring the endodontically treated tooth involves the decision to place an indirect restoration to achieve cuspal or full coverage. In general, cuspal or full coverage is recommended to prevent fracture and increase long-term survival.

Learn more about how SDR can help simplify composite placement at www.dentsply.eu.

References


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