



Endo restorative considerations

Marketing hype vs. clinical reality

There are many factors that influence the long-term retention of critically essential teeth. Certainly, endodontic procedures pose treatment considerations when performing restorative dentistry. Each procedural step that comprises start-to-finish endodontic treatment should be aligned with the restorative goals. Properly performed, interdisciplinary treatment serves to fulfill the general public's expectation that dentists do no harm while doing good.

Those who have practiced dentistry over the years have noticed the remarkable advancements in technologies, instruments, and materials that have occurred within each dental discipline. These advancements are intended to improve the level of care our profession provides patients. Some of these innovations have changed the way we approach various aspects of our clinical work. This means that certain time-honored interdisciplinary treatment techniques have clinically evolved and been redefined.

The first endodontic procedural step that directly influences restorative treatment is preparing the access cavity. In general, the mechanical objectives are to create straight-line access to any given orifice and underlying canal system. Further, the axial walls of the access preparation should be flared, flattened, and finished. Finally, the internal triangles of dentin are eliminated to improve radicular access. Creating coronal and radicular access facilitates directing small-sized hand files through multiplanar curvatures and to length. The access preparation serves to influence all subsequent steps of endodontic treatment.

The second endodontic procedural step that directly influences restorative treatment is shaping the canal. The mechanical objectives for shaping a canal must balance the desire to disinfect and fill root canal systems with the structural preservation of coronal, cervical, and radicular dentin. Dr. Herb Schilder did just that nearly 40 years ago in his famous article entitled, "Cleaning and Shaping the Root Canal." In this article, he brilliantly described the five mechanical objectives for shaping canals that would be appropriate for any given root.

Recently, attention has refocused on how preparing access cavities and shaping canals directly impacts restoring endodontically treated teeth. Although this attention is clinically relevant, there is no need for opinions to be steeped in an avalanche of marketing hype. To support this assertion, dentists have recently been confronted by a misinformation campaign that reverently positions certain just-to-market access burs. What is claimed is these burs "act as a self-centering guide for straight-line access to canals."

This statement is simply foolish because, by definition, a self-centering bur must fit in an already predetermined and existing pilot hole. With zero evidence, it is further claimed these burs preserve peri-cervical dentin and prevent what is termed "run-off." Run-off is described as round burs that overzealously remove dentin, gouge, or potentially perforate. Virtually all dentists would agree it is the operator, not the bur, who makes the difference when cutting the access preparation.


The overall dimension of the finished canal preparation influences restorative results. Looking back over the decades, there were eras where the shifting shapes could be characterized

as too small or too big. When the shapes were underprepared, we compromised disinfection and the potential to fill root canal systems. On the contrary, when the shapes were overprepared, we invited root thinning, fractures, or strip perforations. The Holy Grail of endodontic canal preparation is not too small, not too big, just right.

Recently, the late Dr. Schilder, one of the greatest minds, clinicians, and endodontic educators our profession has ever witnessed, was attacked in absentia. In an astonishing published statement that completely misrepresented Schilder's classic article, the dental author wrote, "The big aggressive canal-flaring party is officially over." He is apparently unaware of the strong relationship that exists between general dentists and endodontists by further stating, "Restorative dentists can reclaim endodontics."*

In a recent dental publication, a CEO proclaimed that his company's recently launched file "really is unique because it has a patented variable taper that at the top of the file is much more conservative and allows for the preservation of cervical dentin to a higher degree than any file system on the market."* There is no scientific evidence to support this statement. For the record, the ProTaper® NiTi rotary file system came to market more than a decade ago, offering a unique, patented, and decreasing percentage tapered design over the active portion of a single Finishing file. In other words, what the CEO claimed as innovative is exactly what the ProTaper system brought to endodontics in 2001.

What the ProTaper development team recognized so many years ago is that a file with a decreasing percentage tapered design would conserve coronal and peri-cervical dentin and improve flexibility compared to a file of the same D0 diameter and apical one-third taper. For example, a 25/08 ProTaper Finishing file has a tip diameter of 0.25 mm and an 8% fixed taper from D1-D3. However, because the 25/08 ProTaper file has decreasing percentage tapers from D4-D16, the D16 diameter is 1.05 mm vs. a dangerous 1.53 mm if, in fact, this same file had a fixed taper of 8% over its entire active portion.

I have noticed that an increasing number of recently launched products are marketed through unsubstantiated claims or positioned as "new" discoveries. Clinicians need to make the critical distinction between this marketing hype and the clinical reality that predictably successful endo restorative treatment is achieved through knowledge, skill, and experience, combined with the integration of the most proven technologies and techniques into everyday practice. Keep this on your radar! 

*References available upon request.



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