Conventional endodontic therapy has suffered from the inability to consistently clean and disinfect the entire root canal system. While incremental improvements and modifications have been made, conventional techniques are largely unchanged from original endodontic ideology. We know that files do not clean canals. Yet, dental companies continue to market their new files with the idea that changes in flexibility and file shape will make outcomes more successful. There has also been a push to use multiple different types of irrigants to more effectively clean the canals.

However, current irrigation devices have proven to leave much of the bacteria, biofilm and smear layer behind. The theory being that certain bacteria are more resistant than others to differing forms of cleaning solutions. Studies have consistently shown that the classic combination of 5.25 percent NaOCl and 15 percent EDTA are highly effective cleaning agents, and alternative agents have yet to show a significant antimicrobial improvement.

In an attempt to more effectively eliminate bacteria, pulpal tissue and debris from the canal system, clinicians instrument the canals to a large enough size to ideally debride and irrigate all the walls of the canal system. Unfortunately, these techniques are not completely effective and may pose risks to the long-term survival of the tooth. Clinicians will never be able to instrument all the walls of the canal system. Attempts to do so generally lead to excessive weakening of the tooth and possible iatrogenic complications. Likewise, it is not our cleaning solutions that require improvement. It is our inability to effectively work the cleaning agents into the difficult-to-reach anatomy that is the problem. This combination of inadequate disinfection and excessive removal of tooth structure continues to lead to root canal failure.

Sonendo® has departed from conventional thought to develop new technology that dramatically improves cleaning of the root canal system and breaks past the barriers that have limited endodontic success. The company’s patented GentleWave™ handpiece generates and delivers sound energy with a broad spectrum of frequencies to detach tissue and biofilm from the entire root canal system. The mechanism of action is so effective that file instrumentation of the canals can be kept to a minimum to preserve dentin and overall tooth strength. This is one of the very few endodontic technologies designed specifically for our specialty and is not an adaptation of an existing one.

Clinicians should use the GentleWave system in a clinical setting to fully appreciate and believe the power of this new technology. A clinician has no idea what a fully cleaned tooth looks like until after the GentleWave system has been used. In the case below (Figs. 1-2b), separate apical radiolucencies were present at the apex of the palatal root as seen on the CBCT scan. Predictably cleaning an apical bifurcation like the one shown can be very difficult, if not impossible. After using the GentleWave system, the dentin gives off a clean luster due to the system’s ability to clean deep into dentinal tubules to remove stains and debris. The system’s enhanced ability to clean lateral canals and fins shows up as more
“My personal journey at LVI taught me the most cutting edge techniques in dentistry. It taught me how important it is to work on my business and most of all to love what I do and provide my patients with life changing dentistry.”

Dr. Conchi M. Sanchez-Garcia, Miami, FL

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obturated accessory anatomy on post-op radiographs. Obturation is more predictable, as can be seen in the post-op image. A clean and smooth flowing canal system allows obturation material to flow into eccentricities without micro debris blocking the flow of material. An ideal apical cleaning and preservation of the constriction allows obturation material to more effectively fill apical ramifications. Overall tooth strength was also kept to a maximum without the need to over-enlarge the canals. Most importantly, my excitement factor is off the charts in knowing I can predictably clean and obturate complex anatomy.

The patient can also tell the difference. The mechanism of action is very unassuming to the patient without any scary sounds or aggressive movements during treatment. Treatments can be compressed to shorter treatment times or single-visit appointments due to less instrumentation along with thorough disinfection of the canal system. Patients also notice less post-op pain due to a gentle mechanism of action and minimal remaining bacteria that can cause post-procedure pain. It has become common in my practice for patients to comment on the minimal level of post-op discomfort the day following the procedure. It is nice to have the peace of mind that when I treat the patients, they will feel better in a shorter period of time.

Again, Sonendo’s GentleWave Multisonic Ultra-cleaning™ technology has taken root canal treatment to that next level of three-dimensional cleaning for greater success. Once the results are seen clinically, it is hard to accept anything less. For more information, visit www.sonendo.com or contact info@sonendo.com.

Sonendo has grown from a concept in 2006 to its selective commercial release today. The device is FDA cleared.

References

about the author

Tyler F Baker, DDS, MS, received his DDS degree from Loma Linda University. He received an AEGD certificate and other awards while serving as a dentist in the United States Air Force. He returned to Loma Linda University, where he received a certificate in endodontics and a master’s degree. He has been published in the Journal of Endodontics. He currently practices endodontics in San Marcos, Calif. where he was voted one of San Diego Magazine’s Top Dentists.