RUDDLE ON The Radar

Microscopes in dentistry

HOW I SEE IT

Dr. Clifford Ruddle offers his view of the benefits of the dental operating microscope

One of the greatest advancements in the history of organized dentistry was the introduction of the dental operating microscope (DOM). This technology holds the unmistakable promise for improved clinical performance in virtually every interdisciplinary treatment procedure. The first microscope for dentistry, called the Dentiscope, was developed in 1978 by Drs. Jako and Apotheker in conjunction with Chayes Virginia, Inc. However, there was only isolated and sporadic acceptance of the DOM over the next decade.

My first introduction to a DOM occurred at the 1988 American Association of Endodontists (AAE) annual meeting in Anaheim, California. Dr. Noah Chivian demonstrated the advantages of magnification and lighting, utilizing the Chayes Dentiscope. At this meeting, I purchased a Dentiscope, which represented to me a logical visual progression that I believed would serve to enhance my clinical abilities, improve my documentation potential, and enhance my ability as a teacher.

Immediately, I began using the microscope, albeit rather awkwardly, and shortly thereafter began documenting my work by taking micro-photographic images of patients of record. Although the benefits of using a microscope to perform endodontic procedures were obvious, becoming proficient using microscopy was not easy during this period, as there were no educators, courses, or published articles describing how to integrate and use the DOM in everyday practice.

In November 1988, I was invited to speak at the first International Endodontic Surgical Symposium in San Francisco, organized by Dr. Robert Rosenberg, the Chairman of the Department of Endodontics at the University of California, San Francisco (UCSF). That particular meeting was memorable because, for the first time, I had the opportunity to show some surgical images I had taken through the microscope. Following my presentation, Dr. Gary Carr, an endodontist from San Diego, California, introduced himself to me and expressed intrigue about acquiring this technology.

On several occasions, in the months following my lecture, Gary and I got together in our respective San Diego and Santa Barbara practices to refine existing techniques utilizing the DOM. Gary and I worked on cadavers made available by the renowned San Diego-based gnathologist, Dr. Terry Tanaka. Gary invented a new root-end preparation technique using his recently developed ultrasonic surgical tips. The DOM began to drive new surgical armamentarium and methods for soft-tissue management, osteotomies, apicoectomies, crypt control, and suturing.

During this period, I recognized the need for and developed several devices, instruments, and techniques to more predictably improve outcomes in nonsurgical retreatment. Some of these nonsurgical advancements, coupled with Gary's innovative surgical contributions, served to greatly influence much of clinical endodontics. In 1989, through Advanced Endodontics, I began teaching the use of the microscope in all my training courses, including conventional treatment, and nonsurgical and surgical retreatment. To better disseminate all that was new in endodontics at this time, I built the world's first micro-simulation training lab in my Santa Barbara teaching center in 1990.

By 1995, there was growing awareness of and increasing interest in the DOM. As a result, the AAE arranged a 3-day curriculum that same year for the department chairpersons from the 51 post-graduate endodontic programs in North America. This symposium was entitled "Introduction to Endodontic Microscopy Workshop" and was held in Chicago. The AAE invited Drs. Gary Carr, Syngcuk Kim, Rich Rubinstein, and me to "teach the teachers."

At the end of this symposium, the AAE Chairs unanimously voted that all post-graduate endodontic programs would integrate the microscope into their teaching programs to begin the 1997 academic year, so that every post-doctoral endodontic resident would have clinical proficiency upon graduating in 1998. This vote was a game-changer and meant that all postgraduate endodontic residency programs would make microscopy training mandatory and in accordance with the standards of the Commission on Dental Accreditation (CODA).

Up to that point, only a few articles had been published reporting the use of the microscope to perform endodontic procedures. This changed in 1997 when *Dental Clinics of North America* published a volume on microscopes in endodontics. This book went a long way toward informing dental colleagues on a wide range of endodontic topics, including operatory design, chair positioning, the fundamentals of microendodontic instrumentation, and the connection between the DOM and the predictable long-term retention of critically essential teeth.

Although the acceptance of the DOM continues to be slower than expected, much clinical and scientific evidence exists to show the microscope is here to stay and will increasingly influence all interdisciplinary treatment procedures in the years ahead. Central to this success will be faculty training within the dental school environment, so dental students will have microscopy on their radar from the very beginning. I encourage everyone to enthusiastically embrace this technology as it will remarkably change the trajectory of your professional career. EP

Clifford J. Ruddle, DDS, FACD, FICD, is founder and Director of Advanced Endodontics (www.endoruddle.com), an international educational source, in Santa Barbara, California. Additionally, he maintains teaching positions at various dental schools. Dr. Ruddle can be reached at info@endoruddle.com.