Endodontics vs. Implants: A Modern Clinical Dilemma

DENTAL IMPLANTS are the most important advancement in dentistry in the 21st century. However, with an increase in the popularity of implants, endodontically treated teeth have been debated by some as inferior to implants in regard to long-term stability and retention. Furthermore, there has been a tendency to take the simplified approach of ‘extraction and implant,’ but this does not always prove to be as simple or ethical as some would like to believe. We should not forget that the ultimate goal of our profession is keeping one’s dentition in function throughout a lifetime.

Modern endodontics is fundamentally different from the past. Modern techniques, some developed within our own Endodontics Department, utilize the surgical operating microscope for better visualization and identification of canals, electrometric length measurement devices for accurate and objective canal length determination, rotary nickel-titanium (NiTi) instruments to prepare canals with ease and better negotiate curved canals, Piezo-ultrasonic instruments for root end preparation, improved disinfection protocols, and cone beam computer tomography for better and accurate diagnosis and treatment planning.

Endodontic therapy performed by a properly trained endodontist following all these advanced techniques guarantees over 90% positive long-term outcomes. Furthermore, failed endodontic cases can be predictably and successfully treated by using a new microsurgical approach of apical surgery, which is fundamentally different from the “apicoectomy” practiced and taught in the last century. We now call it “endodontic microsurgery.” The outcome of endodontic microsurgery of failed endodontic teeth with a persistent periapical lesion but minimum periodontic defects is well over 90% for long-term follow-ups.

How about Implants?
The survival rate of implants performed in many clinical centers supported by industries is extremely high, over 90%. However, this high survival rate does not reflect the everyday practice environment. First, in center studies, if the initial implant fails before loading, that case would not be counted as a failure. Survival is counted only after loading. Second, inclusion and exclusion criteria are so strict that results of such studies do not reflect the average population. If volunteers are smokers, have diabetes, or inferior bone quality, they are not included in a center study. Thus, actual success or survival of implants in the general population would not be 95-96%, but significantly lower, below 80%. If 95% or so is the true survival rate of implants, why do we see so many implant failures?

And while the loss of an implant would be downright failure, how about the significant loss of bone covering an implant or persistent peri-implantitis? Regardless, the implant is not a panacea.

How do the two compare?
Many studies show the comparison between endodontically treated teeth and implants. No statistically significant difference was found between dental implants and endodontically treated teeth over a period of six years. The same statement is reported in more recently published meta-analysis of the survival of single-tooth-restored dental implants versus restored endodontically treated teeth.

In addition, at the University of Minnesota, all specialists—oral surgeons, periodontists, and endodontists—compared the long-term outcome of a matched pair of endodontically treated teeth and single-tooth implants. Seven- to nine-year recalls showed a positive outcome of 74% in implants and 84% in endodontics. This type of matched pair, long-term study performed at a university without the support of industries provides more objective and non-biased results.

Both implant and endodontic therapy show great outcome rates if the treatments are appropriately chosen and rendered by well trained specialists. Both treatment options should be seen as complementing each other, not as a competition, and serve the overall goal in dentistry—providing care that supports the long-term health and benefit of the patient, being least invasive, and incorporating function, comfort, and esthetics. To achieve these goals, it is important for clinicians to be fully aware of the truth on the long-term outcome of both implants and endodontic therapy with an intention of maintaining natural teeth as long as possible.

Recent articles published in JADA raised an important issue. The results of the in-depth systematic review show “…implant survival rates do not exceed those of compromised but (continued on page 28)
SELECTED PUBLICATIONS
Recently published work by department researchers (indicated in bold).


MICROBIOLOGY

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Recently published work by department researchers (indicated in bold).


REFERENCES


