



Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology

EDITORIAL

Standing on our standards: Time for reflection

Right from the beginning, one of the first things any student should learn about his or her future profession or specialty is its main scope. As for endodontics, sometimes it seems that even many specialists have no knowledge of the essence of their specialty. Although this discussion may sound like an exclusive academic issue, actually the definition of the main scope of endodontics is crucial for clinical decision making and certainly for the survival of endodontics as the important dental specialty that it is.

Sometimes we are given the impression that endodontics basically serves to alleviate pain or allow for a tooth to have its crown properly restored. This is certainly a minimalist view of the specialty. If patients see endodontics like that, it is sad; but if general dentists and, still worse, specialists share that view, this might represent a disaster for the specialty.

Many authors, clinicians, and researchers have essentially defined endodontics as the clinical discipline involved with prevention and treatment of apical periodontitis.^{1,2} This definition incorporates numerous procedures and attributes that are well known by the dental community and actually emphasizes the great importance of the discipline.

“SURVIVING” UNDER LOW STANDARDS

Recently, because of a huge influence of industry and other political interests, implants have been considered as alternatives to endodontic treatment. This issue may be a major problem in industrialized countries, but in most developing countries, patients cannot afford implants as a substitute for teeth that could be saved by endodontic treatment. Also, it is difficult to understand why and how someone would convince his or her patients to change a restorable natural tooth for a “screw.” Implants are an excellent option for replacing teeth that were already extracted or that cannot be saved and have to be extracted because of periodontal disease, unrestorability, root fracture, and so on; however, it is

not the purpose of this commentary to go any further in this area. The main point here is another.

Because of the threat of implants, many concepts, parameters, or standards of successful endodontic therapy have been changed or adapted. One of these outcome parameters has been called “tooth survival.” If a root canal-treated tooth remains present in the oral cavity and functioning, even when associated with large apical periodontitis that is asymptomatic, some authors consider the case as successful if the outcome parameter is survival. Obviously, if a tooth does not “survive” after endodontic treatment and has to be extracted because of persistent or aggravated disease or compromising root fracture, this should be interpreted as a failure. On the other hand, a root canal-treated tooth that “survives” even in association with posttreatment disease cannot be categorized as a success, even if it is functional or esthetically satisfies the patient.

Tooth survival as a parameter of success basically means that endodontics serves to alleviate pain or provide conditions for the tooth to be coronally restored. Is this really what endodontics is about? What about promotion of health? What about apical periodontitis being considered as part of the oral infectious burden with potential systemic implications?³ What about the risks of spontaneous exacerbations? If survival is success, then only treated teeth that are symptomatic or need a new restoration represent an indication for retreatment or apical surgery. I project the following situation: I tell my patient that he or she needs initial endodontic treatment in a tooth with asymptomatic apical periodontitis. There is no question about that: a tooth with apical periodontitis is a clear indication for endodontic treatment. After a couple of years, if the lesion persists and survival is my parameter of success, how can I convince the patient that the lesion is no longer a problem? The only argument I would have is: endodontics serves to allow for the tooth to be restored, so there is no need for retreatment or surgery; but the disease is still there. The rationale for treating the persistent or emergent

posttreatment disease is the same as for performing initial endodontic treatment.

As endodontists, our main commitment should be promoting health, so in addition to being present and functional, the tooth and the adjacent periodontal tissues must be healthy after endodontic therapy. Health care professionals promote health, so a healthy tooth and supporting tissues is the ultimate goal to be pursued (success).

Honestly, it is difficult to accept that we have to lose our parameters to increase our success rates and then be competitive with other specialties. According to the Oxford dictionary of the English language, *successful* means “achieving your aims or what was intended.” If the main aims of endodontic treatment are to prevent apical periodontitis when it is absent or treat apical periodontitis when it is present, detection of signs (radiolucency, sinus tract, swelling) and/or symptoms (pain) of the disease in teeth with treated canals means that apical periodontitis emerged, persisted, or recurred. Essentially, this means failure. Again, a successful outcome for any health care professional should be absence of disease. Thus, for endodontists, success should be ultimately the absence of posttreatment apical periodontitis as revealed by the diagnostic method we use to detect it.

The “survival” parameter can be then regarded as a low standard. Now, it seems important to discuss another related aspect of endodontic outcome: the low success rate for the general population when criteria that are more rigid are used to define success.

STRUGGLING UNDER HIGH STANDARDS

Endodontic infections are best treated by endodontic treatment. Theoretically, considering the cumulative potential success rates of all modalities of endodontic treatment (initial treatment = 90%-95%,^{4,7} retreatment = 80%,^{4,8} and periradicular surgery = 90%^{9,10}), the clinician would have a more than 99% chances to save a tooth with preoperative apical periodontitis, restoring health, and thereby avoiding extraction.

University-based studies assessing the outcome of the initial endodontic treatment performed in controlled clinical environments demonstrate a success rate of about 90% to 95%.^{4,7} However, epidemiological cross-sectional studies performed in different countries reveal that the prevalence of apical periodontitis lesions in root canal-treated teeth may actually range from 30% to 65%.¹¹⁻²¹ If these cases are considered as treatment failures, the picture becomes considerably more alarming as it reflects the outcome of the treatment performed by general clinicians.

Although the huge majority of teeth with adequate root canal obturations are associated with healthy

periradicular tissues, less than one half of the inadequately treated teeth exhibit similar conditions.¹⁴ In other words, well-treated teeth have a success rate of about 85% to 95% of the cases, whereas poorly treated teeth have less than 40% to 50% success, which can be even lower in cases with poor coronal restoration. Therefore, it is quite evident that most cases of posttreatment disease are related to substandard treatment. Actually, substandard root canal treatment can be regarded as the most predictable risk factor for persistent or emergent apical periodontitis.²²

These results of treatment outcome related to general dentists as treatment providers project the urgent need for reflection and call for action. The main conclusions that can be drawn are that endodontic treatment is technically demanding and general dentists are in general not prepared to provide adequate endodontic care. One can envision 3 possible solutions:

1. The way endodontic treatment is taught in dental schools should be rethought, improved, and the time designated to training students increased. However, this might not be the main reason, as the problem is worldwide, regardless of the different endodontic curricula throughout the diverse dental schools.
2. Efforts should be directed toward studying, researching, and developing treatment protocols that are less technically demanding, are affordable, present a shorter learning curve, and, obviously, predictably offer good results.
3. Democratization of endodontic treatment provision should be put in check and an elitist approach might be the solution, i.e., only specialists should perform endodontic treatment.

Much has been discussed about issues such as single-versus 2-visit endodontic treatment, the ideal apical length and width of instrumentation, and many other controversial topics. These issues are actually extremely important for the development of endodontics as a science. However, until the problems raised in this commentary are solved, those discussions will become strictly academic and limited to small forums. The future of endodontics as the important dental specialty it is will certainly depend on how we address these issues and how we set and deal with our standards.

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