Dear Reader,

Prof Beena Rani Goel

_The single most important development that was a giant leap for endodontics is micro-computed tomography, which gives us a 3-D view. Without this technology, the basis for many endodontic procedures was just empirical, like enlarging the root canal three sizes beyond the first file that binds during hand instrumentation, or arbitrarily deciding the final apical size with tapered rotary use.

Prof Marco Versiani's root-canal anatomy project on micro-CT study guide has demystified many old concepts. Now we know that all root canals are curved, apical diameters are not as small as perceived, and root canals do not have large tapers.

Regenerative endodontics, though in the infant stage, can hold significant implications for the management of necrotic immature teeth. These treatment protocols can result in radiographic and clinical evidence of healing and subsequent root development. Tyler Lovelace *et al.* have demonstrated that the evoked-bleeding step in regenerative procedures triggers a significant accumulation of undifferentiated stem cells in the canal space, leading to the regeneration of pulpal tissues. Future developments may see wider application of these tissue-engineering principles, revolutionising the field of endodontics.

The use of lasers in endodontics may be common procedure soon with a number of applications in access preparation, root-canal shaping, and decontamination of the root-canal system. The improved technology has introduced endodontic fibres and tips of a calibre and flexibility that permit insertion up to 1 mm from the apex. Laterally emitting conical fibre tips were found to be safe under defined conditions for intra-canal irradiation without harmful thermal effects on the periodontal apparatus.

The EndoVac irrigation system (SybronEndo) is one of the best things that has happened to endodontics in recent years. While sodium hypochlorite significantly eliminates the biofilm associated with endodontic infections, it can cause catastrophic tissue damage when extruded. With EndoVac, fortunately, it can now be safely delivered to full working length. Research shows that EndoVac usage can result in a significant reduction of post-operative pain levels in comparison with conventional needle irrigation.

Micro-CT studies show that the apical thirds are not cleaned with tapered systems of small tip size. In addition, they showed that instruments with a flat widened tip determine apical diameter better than round tapered instruments. The coming years are bound to see an increased acceptance of LightSpeed LSX instruments (SybronEndo) to obtain biologically optimal preparations.

At a time when dental professionals have a choice between root-canal treatment and implant placement after extraction, it is heart-warming to see that recent developments in endodontics, if incorporated into the surgery, can maintain the tooth in a functional state for many years.

Yours faithfully,

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