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Editorial

The use of operating microscope in Endodontics

The endodontic procedures are frequently performed in areas of limited access and reduced vision. The use of magnification and better illumination can be extremely useful in these situations.

The use of magnification started in Medicine, in 1876, with the use of binocular loupes. The loupes were used in Dentistry with some limitation, as: weight, image distortion, small focus depth, discomfort, and fatigue. The first operating microscope (OM) was marketed in 1953. In 1977, Baumann, physician and dentist, proposed the OM use in Dentistry, highlighting its benefits. American researchers and dentists deeply studied clinical magnification and spread OM benefits by creating new techniques and instruments. In 1981, Apothecker and Jake produced the first OM specifically designed for the dentist. Only later, in 1992, Gary Carr published the first study on the many applications of OM in Endodontics, greatly improving the specialty. The study of Carr was the base for other authors to research about the use of OM in Dentistry.

The main advantages of OM use in Dentistry are: magnification of up to 20 times; illumination (three times more powerful than the chair light), ergonomics; documentations, and communication with the patient. Despite of the high cost of the OM and the required learning period to allow the OM correct use, the improvement of the working conditions and the final outcomes justifies its purchase.

The main OM advantages in Endodontics are: diagnosis and determination of vertical fractures and fissures; location and negotiation of atresic canals; better finishing of the coronal access; removal of fractured instruments; location of extra canals; treatment of trepanations, evaluation of the irrigation; preparation; obturation and coronal sealing; removal of the sealing material during retreatments; removal of intraradicular posts; and in periradicular surgeries (handling of soft tissues, osteotomy, lesion curettage, root resection, root end cavity preparation, and obturation).

Cone beam computed tomography (CBCT) is a great aid in the treatment with OM. CBCT is indicated as auxiliary method in the initial identification of the internal morphology of the canals, making easy the treatment of complicated cases maybe of difficulty resolution, without these auxiliary tools.

OM is now an indispensable tool to next-generation endodontic treatment. The endodontic practice with OM is increasingly common because of the improvement of the operative endodontic techniques, in which visual acuity is qualified and improved, resulting in safer and more accurate procedures.

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