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Endodontic Microsurgery

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Foreword

I was honored to be asked to write the foreword to Dr Enrique Merino's textbook, Endodontic Microsurgery. To my knowledge, it is the first comprehensive book on the subject, and this is certainly the right moment for publication. In short, this book gives the reader the current definitions of the surgical procedures that must be carried out to address endodontic problems and failures.

Although surgery has been used for centuries to solve endodontic problems and maintain teeth in the dental arch, the biological concepts, the technical procedures and the armamentarium have drastically evolved in the last 20 years. For example, apical surgery has long been performed by oral surgeons, with sometimes poor outcomes owing to lack of knowledge of the endodontic biological principles. Today, apical surgery must be regarded as an integral part of the endodontic field and a predictable treatment modality, owing to the introduction of new technological advancements coupled with refinements in soft and hard tissue management. Magnification through the use of the operating microscope, dedicated ultrasonic tips, new biomaterials for root-end filling, and guided bone regeneration have changed the outcome of surgical endodontics, which is now expected to be similar to orthograde treatment.

I have known Dr Merino for many years and I can bear witness to his passion for endodontics and periodontics. He was trained in both fields in renowned graduate programs and has lectured extensively

in his country and internationally. He is a sophisticated clinician with sound academic knowledge, as attests the exhaustive and up-to-date references available at the end of each chapter. On the other hand, the format of the book is of a high standard, well organized and easy for any clinician to read, whether a general practitioner or a specialist. The text is concise, with the addition of step-by-step procedures, clinical tips and the dedicated instrumentation used. The procedures are well described, with clear graphics and high-quality clinical illustrations. Finally, the content is comprehensive, involving all areas of microsurgery, including chapters on endo-perio relationships, treatment of bone defects and implantology.

Dr Merino must be congratulated for the enormous time spent in the preparation and writing of Endodontic Microsurgery. His book should find its place in the library of any dentist or specialist interested in microendodontics and surgery.

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Dedication

To my parents Antonio and Carmen, to whom I owe everything.

To Dr Herbert Schilder (Boston), who introduced me to modern endodontics more than 20 years ago.

To my "endodontic father", Dr Pierre Machtou (Paris), for infusing me with his love of endodontics and his great devotion to teaching.

To Dr Singcuk Kim (Philadelphia), who showed me the way to scientific endodontic microsurgery.

To Dr Guillermo Calleja and Dr Gilberto del Rosario (Madrid) for the SEM images of sutures.

To Dr Julio Galvez (Philadelphia) for his help in reviewing the final manuscript.

To my assistants Olga, Esperanza, MariAngeles and Begoña, for their help and care for me and my patients. To Jose Avelino and his lab team. To Gonzalo for his infographic work.

To Johannes Wolters and Thomas Pricker (Quintessence Verlag) for their confidence and patience with me.

Contents

Fig. 3-113 Standard tips (CT). The narrowest Slim Jim (SJ) tips should be used when dealing with fine apexes: mandibular incisors, premolars, etc.

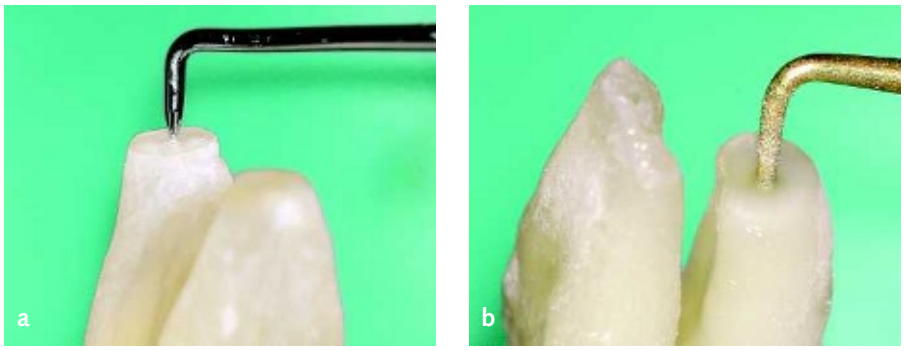

Fig. 3-114 *(top, right)* (a) The thinner the remaining dentin walls after apicoectomy, the thinner the microtip must be. This is a Slim Jim microtip on a maxillary premolar root. (b) The thicker the dentin walls, the thicker the microtip can be without producing microfractures. This is a ProUltra microtip on the distal root of a mandibular molar.

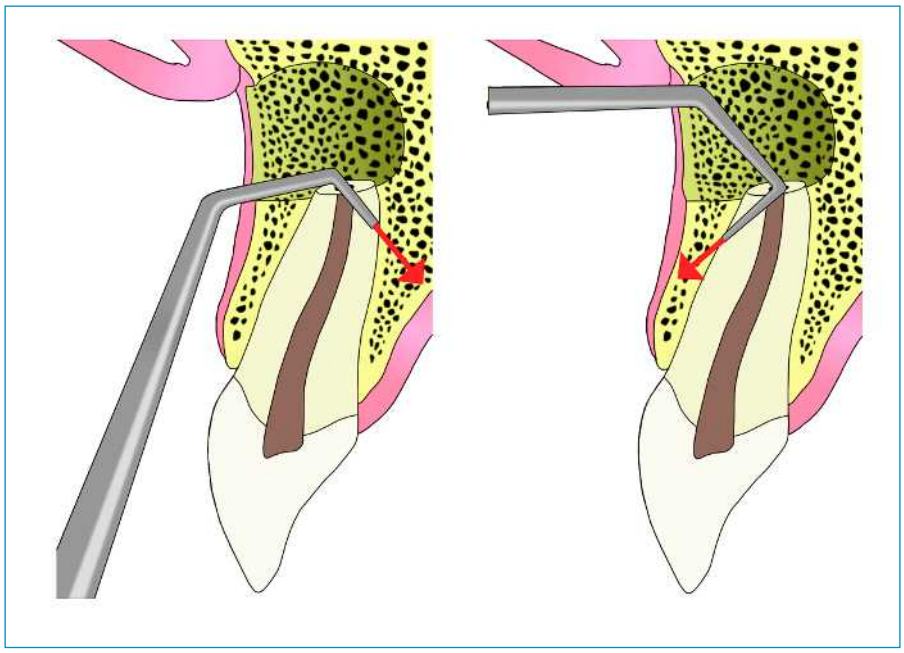

Fig. 3-115 Perforation of microcavity walls to the buccal surface can be sealed easily; but palatally, it is very difficult to seal (if noticed).

Fig. 3-116 A failing endo treatment on a mandibular right second premolar with an unremovable coronal obstacles is referred for treatment. Appearance of earlier treatment seems to be correct in terms of length and obturation quality. After raising the flap and resecting the apex, a C-shaped canal was uncovered, prepared using Slim Jim microtips, and obturated with superEBA cement.

"C-shaped" canal

Cases with "C-shaped" canal anatomy should be prepared totally (Fig. 3-116).

Facial burns

Care must be exercised at all times to ensure that the shaft of a hot ultrasonic tip does not come into contact with the lip, cheek, or facial tissues[72].

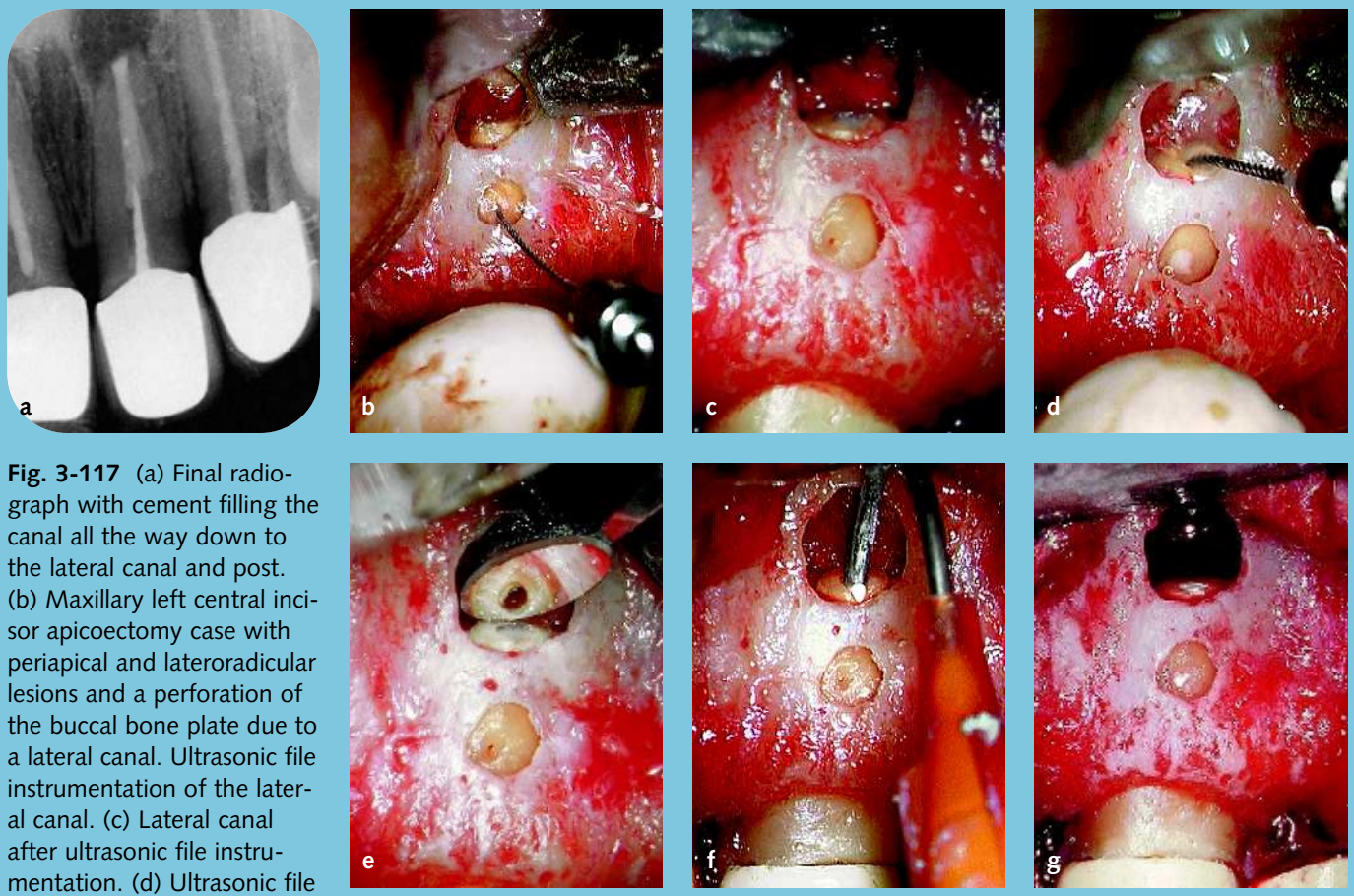

Fig. 3-117 (a) Final radiograph with cement filling the canal all the way down to the lateral canal and post. (b) Maxillary left central incisor apicoectomy case with periapical and lateroradicular lesions and a perforation of the buccal bone plate due to a lateral canal. Ultrasonic file instrumentation of the lateral canal. (c) Lateral canal after ultrasonic file instrumentation. (d) Ultrasonic file instrumentation of the main canal. Note how a milky secretion is exiting from the lateral canal. (e) The most difficult part of the canal to clean is the buccal wall, so a 70–80-degree buccal angulation file is advised. (f) Obturation of the canal by injection of superEBA cement with with a Centrix jeringe needle. (g) The main and lateral canals sealed.

Ultrasonic Files

Retrocavity depth should be 3 mm when the advisable previous nonsurgical retreatment has been done. If this cannot be done, and the cleanliness status of the root canal system is unknown, it will be necessary to make a deeper retrocavity by means of an ultrasonic file: sometimes all the canal length up to the irremovable radicular obstacle[73,74], post etc., or to the lateral canal that produces the bone lesion (Fig. 3-117).

The file size should be chosen to be neither too thin (vibration cavitation will not enlarge the canal) nor too thick (no vibration occurs). The file length should be chosen to prepare the canal all the way to the coronal obstacle, so most times a larger osteotomy window will be required (see Fig. 3-52).

Fig. 6-37 (a) This maxillary right lateral incisor presented with an apical fistula of 3 years evolution. (b) External dentinal resoption can be clearly seen on the radiograph. (c) A total buccal dehiscence is seen after raising the flap. (d) External dentinal resorption of the apical third. (e) to (g) Apicoectomy, ultrasound microcavity preparation, and superEBA obturation. (h) DFDBA chips were used to cover the root dehiscence all the way down. (i) A Guidor resorbable membrane covering the bone graft, horizontally 2–3 mm beyond bone defect limits and vertically to the height of the surrounding bone crest and 2–3 mm below the gingival margin of the flap. (j) Radiographic appearance after surgery. (k) Probing depth at the dehiscence site after 6 months of healing.

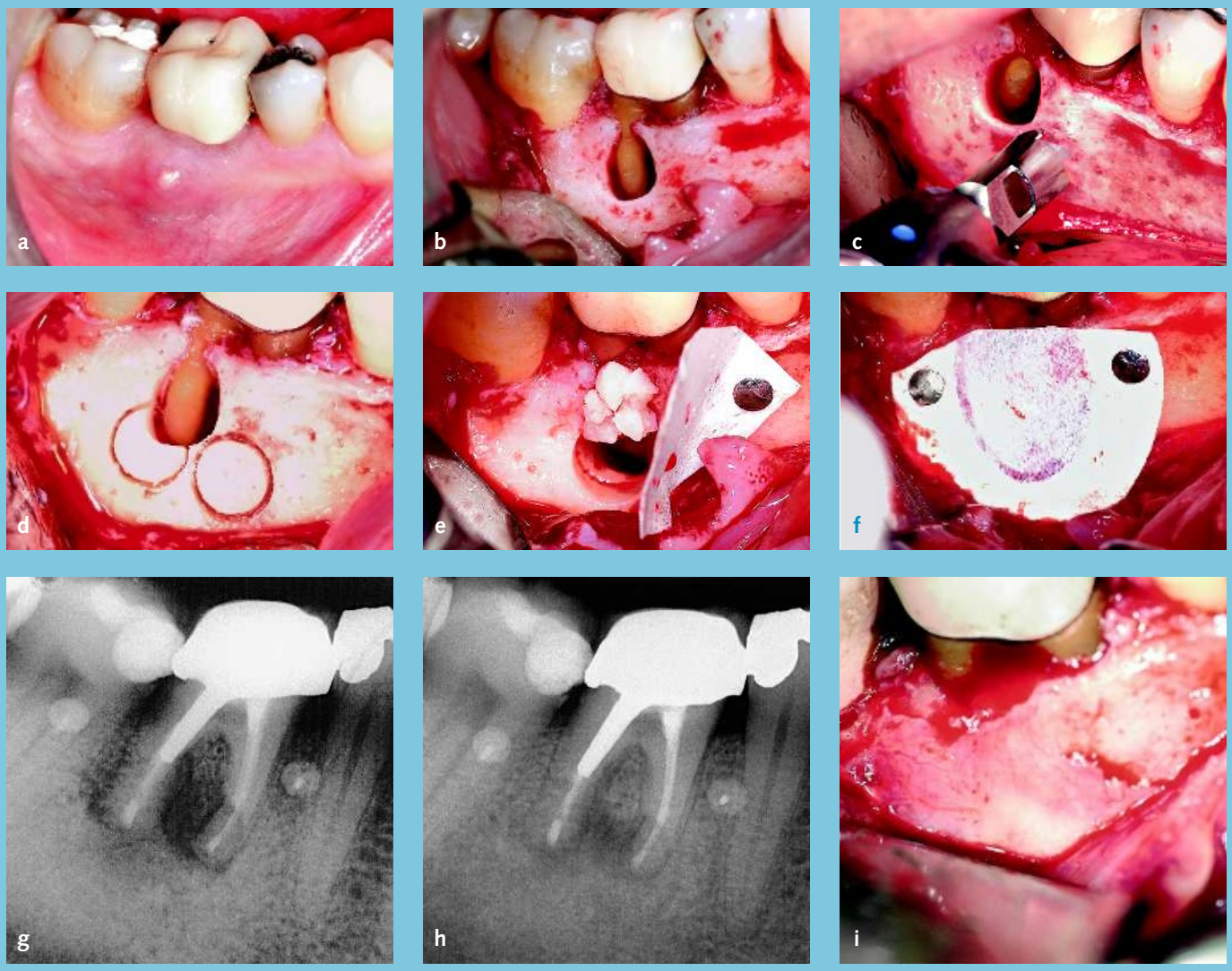

Fig. 6-38 (a) A mandibular right first molar with a cervical buccal fistula. (b) A total buccal distal root dehiscence is shown after flap raising. (c) and (d) A 5 mm diameter trephine is used to make osteotomy windows – it is fast and ergonomic (bone recovered from the trephine can be used as bone graft). (e) Bone taken in the trephine was particulated to serve to cover the root dehiscence and as a space maker underneath the non-resorbable membrane. The periapical lesion received no attention because it is an inhousing defect. (f) A GoreTex GT-4 is cervically trimmed to adapt to the bone crest and fixed mesially and distally by titanium tags (Frios). (g) Radiograph taken at the end of surgery. (h) Radiograph taken after 6 months of healing, where increased bone density of the area is usual. (i) No dehiscence is seen in the area after removal of titanium tags and membrane. (j) A centripetal vascular network was discovered from outside into the bone defect area. The soft, white, delicate tissue underneath the membrane and covering the regenerated area must not be removed at all.