

Contents

1 Microbial Biofilms in Endodontics	1
Luis E. Chávez de Paz	
2 Update in Root Canal Anatomy of Permanent Teeth Using Microcomputed Tomography	15
Marco A. Versiani, Jesus D. Pécora, and Manoel D. Sousa-Neto	
3 Syringe Irrigation: Blending Endodontics and Fluid Dynamics	45
Christos Boutsoukis and Lucas W.M. van der Sluis	
4 Research on Irrigation: Methods and Models	65
Ya Shen, Yuan Gao, James Lin, Jingzhi Ma, Zhejun Wang, and Markus Haapasalo	
5 Update of Endodontic Irrigating Solutions	99
Bettina Basrani and Gevik Malkhassian	
6 Complications of Endodontic Irrigation: Dental, Medical, and Legal	117
Gary Glassman	
7 The Role of the Patency File in Endodontic Therapy	137
Jorge Vera	
8 Manual Dynamic Activation (MDA) Technique	149
Pierre Machtou	
9 Apical Negative Pressure: Safety, Efficacy and Efficiency	157
Gary Glassman and Karine Charara	
10 Sonic and Ultrasonic Irrigation	173
John M. Nusstein	
11 Continuous Instrumentation and Irrigation: The Self-Adjusting File (SAF) System	199
Zvi Metzger and Anda Kfir	
12 Ozone Application in Endodontics	221
Zahed Mohammadi and Amir Azarpazhooh	

13 Irrigation of the Root Canal System by Laser Activation (LAI): PIPS Photon-Induced Photoacoustic Streaming	227
David E. Jaramillo	
14 Photodynamic Therapy for Root Canal Disinfection	237
Anil Kishen and Annie Shrestha	
15 Local Applications of Antibiotics and Antibiotic-Based Agents in Endodontics	253
Zahed Mohammadi and Paul V. Abbott	
16 Intracanal Medication	267
José F. Siqueira Jr. and Isabela N. Rôças	
17 Disinfection in Nonsurgical Retreatment Cases	285
Rodrigo Sanches Cunha and Carlos Eduardo da Silveira Bueno	
18 Irrigation in Regenerative Endodontic Procedures	301
Anibal R. Diogenes and Nikita B. Ruparel	
19 Conclusion and Final Remarks	313
Bettina Basrani	
Index	315