

Contents

Chapter 1

| | |
|--------------------|----|
| INTRODUCTION | 19 |
| References | 28 |

Chapter 2

| | |
|---|-----------|
| TRAUMA OF DENTAL AND PERIODONTAL TISSUES DURING TOOTH ISOLATION AND ALLERGIC REACTIONS TO THE RUBBER DAM | 31 |
| Allergic reactions to the rubber dam | 34 |
| Endodontic treatment in cases of patients with latex allergies | 36 |
| Prevention | 37 |
| References | 38 |

Chapter 3

| | |
|--|-----------|
| INADEQUATE – SMALL, OVERZEALOUS ENDODONTIC ACCESS CAVITY PREPARATION | 41 |
| Inadequate extension or overzealous tooth removal during endodontic access cavity preparation | 41 |
| Correction | 41 |
| Erroneous access to root canals through carious lesion | 46 |
| Unidentified-missed canal | 47 |
| Endodontic access cavity preparation of maxillary central incisor | 49 |
| Endodontic access cavity preparation of maxillary lateral incisor | 50 |
| Endodontic access cavity preparation of maxillary canine | 50 |
| Endodontic access cavity preparation of maxillary first premolar | 50 |
| Endodontic access cavity preparation of maxillary second premolar | 52 |
| Endodontic access cavity preparation of maxillary first molar | 52 |
| Endodontic access cavity preparation of maxillary second molar | 54 |
| Endodontic access cavity preparation of maxillary third molar | 54 |
| Endodontic access cavity preparation of mandibular incisors | 54 |
| Endodontic access cavity preparation of the mandibular canine | 56 |
| Endodontic access cavity preparation of the mandibular first premolar | 57 |
| Endodontic access cavity preparation of mandibular second premolar | 58 |
| Endodontic access cavity preparation of a mandibular first molar | 58 |
| Endodontic access cavity preparation of the mandibular second molar | 59 |
| Endodontic access cavity preparation of the mandibular third molar | 59 |
| Access cavity in teeth with a destroyed crown and / or calcified canals | 60 |
| Endodontic treatment in crowned teeth | 62 |
| By John Margelos, Efstratios Konstandoulakis, Aris Tripodakis and Theodoros Lambrianidis | |
| Problems related to endodontic treatment..... | 63 |
| Diagnostic difficulties | 64 |
| Difficulties in access cavity preparation | 66 |
| Difficulties in identification / recognition of canal orifices and instrumentation of the root canal | 67 |
| Sealing ability of temporary or / and permanent restoration | 68 |
| Problems related prosthetic resorption | 68 |
| Cracking or fracture of porcelain | 68 |
| Damage to the abutment | 69 |

| | |
|--|----|
| <i>Effect upon the retention and marginal seal of the prosthetic restoration</i> | 70 |
| References | 71 |

Chapter 4

| | |
|---|----|
| LEDGE FORMATION / CANAL BLOCKAGE | 75 |
| Ledge formation | 75 |
| <i>Causes</i> | 76 |
| <i>Correction</i> | 76 |
| <i>Prognosis</i> | 79 |
| <i>Prevention</i> | 79 |
| Canal blockage | 79 |
| <i>Causes</i> | 81 |
| <i>Correction</i> | 81 |
| <i>Prognosis</i> | 82 |
| <i>Prevention</i> | 83 |
| References | 83 |

Chapter 5

| | |
|--|-----|
| PERFORATION | 85 |
| I. Crown Perforation (lateral wall of the pulp chamber) | 86 |
| <i>Causes</i> | 86 |
| <i>Treatment</i> | 88 |
| II. Perforations of the floor of the pulp chamber (furcation perforations) | 89 |
| <i>Causes</i> | 89 |
| <i>Treatment</i> | 90 |
| <i>Techniques to minimise extrusion of material used to seal furcation perforations</i> | 95 |
| III. Root Perforation | 96 |
| <i>Causes</i> | 96 |
| <i>Diagnosis</i> | 99 |
| <i>Treatment</i> | 99 |
| <i>A. Conservative treatment</i> | 103 |
| <i>B. Surgival treatment</i> | 112 |
| IV. Perforation of the lateral wall of the root (strip perforations) | 119 |
| <i>Causes</i> | 119 |
| <i>Diagnosis</i> | 119 |
| <i>Treatment</i> | 119 |
| <i>Prevention</i> | 119 |
| V. Perforation - Enlargement of the apical constriction and foramen | 122 |
| <i>Treatment</i> | 122 |
| Treatment of perforation in cases were the root canal cannot be found or renegotiated | 123 |
| Materials for the reparation of perforations | 125 |
| <i>Prognosis of furcation and of root perforations</i> | 135 |
| <i>Prevention</i> | 138 |
| References | 138 |

Chapter 6

| | |
|---|-----|
| UNDER – INSTRUMENTATION AND OVER – INSTRUMENTATION | 145 |
| <i>Correction</i> | 145 |
| <i>Prevention</i> | 146 |
| <i>Design of root canal instrumentation</i> | 146 |
| <i>A. Study of the root canal morphology</i> | 147 |
| <i>B. Apical termination of instrumentation</i> | 147 |
| <i>C. Determination of instrumentation width.....</i> | 150 |

| | |
|--|-----|
| Choice of the instrumentation technique | 150 |
| Smear layer removal versus smear layer retention..... | 153 |
| References | 157 |

Chapter 7

| | |
|---|-----|
| IRRIGATION RELATED RISK..... | 163 |
| Extrusion into periapical tissues | 164 |
| <i>Causes of irrigant extrusion</i> | 164 |
| <i>a. Extrusion of sodium hypochlorite</i> | 164 |
| <i>Symptoms</i> | 165 |
| <i>Management</i> | 166 |
| <i>Prevention</i> | 166 |
| <i>c. Extrusion of Chlorhexidine</i> | 167 |
| <i>d. Extrusion of ethyl alcohol.....</i> | 167 |
| <i>e. Extrusion of Oxidative Potential water and Electro Chemically Activated water (ECA)</i> | 167 |
| <i>f. Extrusion of Chelating agents.....</i> | 168 |
| Leakage of irrigants into the gingiva and oral mucosa, gastrointestinal and respiratory tract..... | 168 |
| <i>Prevention</i> | 168 |
| Ocular chemical trauma | 168 |
| <i>Treatment</i> | 169 |
| <i>Prevention.....</i> | 169 |
| Allergic reactions | 169 |
| <i>Prevention- ManagementPrevention</i> | 169 |
| Increased concentration of irrigants in the environment | 169 |
| <i>Symptoms</i> | 170 |
| <i>Prevention.....</i> | 170 |
| References | 170 |

Chapter 8

| | |
|--|-----|
| ERRONEOUS LENGTH INSTRUMENTATION | 175 |
| Instrumentation beyond the foramen | 175 |
| <i>Management</i> | 176 |
| <i>a. Obturation with lateral compaction of gutta percha</i> | 177 |
| <i>b. Combination of master cone and injection of thermoplasticized gutta percha</i> | 177 |
| <i>c. The Trifecta technique</i> | 178 |
| <i>d. Thermoplasticized tip of master gutta-percha cone and lateral compaction</i> | 181 |
| <i>Apical plug.....</i> | 181 |
| <i>e₁. Apical plug with autogenous dentine chips</i> | 181 |
| <i>e₂ Apical plug with calcium hydroxide.....</i> | 182 |
| <i>e₃ Apical plug with various materials</i> | 182 |
| <i>Pain control</i> | 182 |
| Instrumentation short of the foramen | 183 |
| <i>Management</i> | 183 |
| <i>Prevention of instrumentation beyond and short of the foramen</i> | 183 |
| Length determination methods..... | 183 |
| <i>Radiographic length estimation method.....</i> | 183 |
| <i>Technique</i> | 185 |
| <i>Electronic root canal measurement.....</i> | 187 |

| | |
|---|-----|
| Evaluation of length determination methods | 189 |
| Reference..... | 192 |

Chapter 9

| | |
|---|-----|
| FRACTURED INSTRUMENT..... | 199 |
| <i>Causes of instrument fracture</i> | 199 |
| <i>Use of worn instruments</i> | 203 |
| <i>Inadequate endodontic access cavity preparation.....</i> | 203 |
| <i>Erroneous use of instruments</i> | 203 |
| <i>Manufacturing defect</i> | 205 |
| <i>Correction</i> | 205 |
| <i>Retrieval of the fragment</i> | 205 |
| <i>Chemical means.....</i> | 207 |
| <i>Mechanical means</i> | 210 |
| <i>Method using small sized instruments</i> | 214 |
| <i>The Masserann method</i> | 215 |
| <i>The Feldman and co-workers method.....</i> | 219 |
| <i>The Suter method</i> | 219 |
| <i>Johnson and Beatty method</i> | 219 |
| <i>Method using the canal-finder-system</i> | 219 |
| <i>The Fors and Berg method.....</i> | 219 |
| <i>The wire loop method</i> | 222 |
| <i>Method using ultrasounds</i> | 224 |
| <i>Evaluation of the methods using mechanical means for the removal of the fragment of instruments.....</i> | 226 |
| <i>Electrolytic method</i> | 226 |
| <i>Surgical removal of separated instruments</i> | 227 |
| <i>Prognosis</i> | 228 |
| <i>Prevention.....</i> | 237 |
| Assessment of fracture mechanism of endodontic files | |
| By Spiros Zinelis and John Margelos | 239 |
| References | 244 |

Chapter 10

| | |
|---|-----|
| OVERFILLING – INCOMPLETE FILLINGS..... | 249 |
| Extrusion of the filling material | 250 |
| <i>Treatment</i> | 258 |
| Underfilling of the root canal..... | 263 |
| <i>Treatment</i> | 270 |
| Problems relating to the removal of the filling material | |
| Non-invasive local aspergillus colonization of the maxillary sinus | |
| by Doz. Dr. Johann Beck-Mannagetta | |
| <i>Introduction.....</i> | 273 |
| <i>Presumptive concept of pathogenesis</i> | 273 |
| <i>Prophylactic measures.....</i> | 274 |
| <i>Epidemiology.....</i> | 275 |
| <i>Medicolegal implications</i> | 276 |
| <i>Treatment</i> | 277 |
| <i>Conclusion</i> | 277 |
| References | 277 |

Chapter 11

| | |
|---|-----|
| VERTICAL ROOT FRACTURES | 285 |
| Vertical root fractures | 285 |
| <i>Causative factors</i> | 287 |
| <i>Symptomatology</i> | 290 |
| <i>Diagnosis</i> | 291 |
| <i>Treatment</i> | 301 |
| <i>Prevention</i> | 307 |
| Application of Amelogenin (Emdogain) in the treatment of vertical fractures..... | 307 |
| By Geoge J. Siskos | |
| <i>Introduction</i> | 307 |
| <i>Treatment Protocol</i> | 309 |
| <i>Comments on the proposed treatment protocol</i> | 314 |
| Vertical root fractures in teeth restored with the use of a post | 315 |
| By Pavlos Garefis | |
| <i>Postendodontic rehabilitation as a causative factor of URFs</i> | 315 |
| <i>Factors reletive to the characteristics of the post</i> | 315 |
| <i>Biomechanical factors relating to the situotis of the post</i> | 315 |
| References | 317 |

Chapter 12

| | |
|--------------------------------|-----|
| EMPHYSEMA..... | 323 |
| <i>Causative factors</i> | 323 |
| <i>Diagnosis</i> | 324 |
| <i>Prevention</i> | 328 |
| <i>Treatment</i> | 328 |
| References | 333 |

Chapter 13

| | |
|--|-----|
| SWALLOWING OR ASPIRATION OF ENDODONTIC INSTRUMENTS..... | 337 |
| <i>Diagnosis – Symptomatology</i> | 337 |
| <i>Treatment</i> | 340 |
| <i>Prevention</i> | 341 |
| References | 342 |

| | |
|--------------------|-----|
| Index | 345 |
|--------------------|-----|