

CONTENTS

INTRODUCTION

The Historical Background of Periodontology, 1

Gerald Shklar and Fermin A. Carranza

PART 1 BIOLOGIC BASIS OF PERIODONTOLOGY

SECTION I NORMAL PERIODONTIUM, 9

1 Anatomy of the Periodontium, 9

Joseph P. Fiorellini and Panagiota G. Stathopoulou

2 Aging and the Periodontium, 40

Ian Needleman

SECTION II CLASSIFICATION AND EPIDEMIOLOGY OF PERIODONTAL DISEASES, 45

3 Classification of Diseases and Conditions Affecting the Periodontium, 45

James E. Hinrichs and Georgios Kotsakis

4 Fundamentals in the Methods of Periodontal Disease Epidemiology, 68

Philippe Hujuel

SECTION III ETIOLOGY OF PERIODONTAL DISEASES, 76

5 Periodontal Pathogenesis, 76

Philip M. Preshaw

6 Genetic Susceptibility to Periodontal Disease, 101

Scott R. Diehl, Chih-Hung Chou, Fengshen Kuo, Ching-Yu Huang, and Olga A. Korczeniewska

7 The Role of Dental Calculus and Other Local Predisposing Factors, 116

James E. Hinrichs and Vivek Thumbrigere Math

8 Biofilm and Periodontal Microbiology, 132

Wim Teughels, Christof Godts, Marc Quirynen, and Nick Jakubovics

9 Molecular Biology of Host-Microbe Interactions, 170

Carlos Rossa Jr. and Keith L. Kirkwood

10 Smoking and Periodontal Disease, 178

Philip M. Preshaw, Leandro Chambrone, Karen F. Novak

SECTION IV RELATIONSHIP BETWEEN PERIODONTAL DISEASE AND SYSTEMIC HEALTH, 186

11 Influence of Systemic Conditions, 186

Perry R. Klokkevold and Brian L. Mealey

12 Impact of Periodontal Infection on Systemic Health, 202

Brian L. Mealey and Perry R. Klokkevold

SECTION V GINGIVAL PATHOLOGY, 214

13 Defense Mechanisms of the Gingiva, 214

Jaime Bulkacz and Fermin A. Carranza

14 Gingival Inflammation, 219

Joseph P. Fiorellini, David M. Kim, and Panagiota G. Stathopoulou

15 Clinical Features of Gingivitis, 224

Joseph P. Fiorellini and Panagiota G. Stathopoulou

16 Gingival Enlargement, 232

Fermin A. Carranza and Eva L. Hogan

17 Acute Gingival Infections, 244

Perry R. Klokkevold and Fermin A. Carranza

18 Gingival Disease in Childhood, 252

Clarice S. Law, Daniela R. Silva, Donald F. Duperon, and Fermin A. Carranza

19 Desquamative Gingivitis, 261

Alfredo Aguirre, Jose Luis Tapia Vazquez, and Russell J. Nisengard

SECTION VI PERIODONTAL PATHOLOGY, 277

20 The Periodontal Pocket, 277

Fermin A. Carranza and Paulo M. Camargo

21 Bone Loss and Patterns of Bone Destruction, 290

Fermin A. Carranza, Paulo M. Camargo, and Henry H. Takei

22 Periodontal Response to External Forces, 300

Fermin A. Carranza

23 Chronic Periodontitis, 309

H. Dommisch and M. Kehschull

24 Necrotizing Ulcerative Periodontitis, 320

Perry R. Klokkevold and Fermin A. Carranza

25 Aggressive Periodontitis, 324

Moritz Kehschull and Henrik Dommisch

- 26 Pathology and Management of Periodontal Problems in Patients with Human Immunodeficiency Virus Infection, 335**
Terry D. Rees
- 27 Masticatory System Disorders that Influence the Periodontium, 345**
Michael J. McDevitt
- 28 Sleep-Disordered Breathing, 350**
Adrian Zacher and Michael McDevitt

PART 2 CLINICAL PERIODONTICS

SECTION I DIAGNOSIS, PROGNOSIS, AND TREATMENT PLAN, 357

- 29 Clinical Diagnosis, 357**
Henry H. Takei, Fermin A. Carranza, and Jonathan H. Do
- 30 Significance of Clinical and Biologic Information, 375**
Philippe P. Hujel
- 31 Radiographic Aids in the Diagnosis of Periodontal Disease, 378**
Sotirios Tetradiis, Sanjay Mallya, and Henry H. Takei
- 32 Clinical Risk Assessment, 391**
Karen F. Novak and M. John Novak
- 33 Determination of Prognosis, 394**
Karen F. Novak, Henry H. Takei, and Jonathan H. Do
- 34 Rationale for Periodontal Treatment, 404**
Fermin A. Carranza and Henry H. Takei
- 35 The Treatment Plan, 408**
Fermin A. Carranza and Henry H. Takei

SECTION II MANAGEMENT OF PATIENTS WITH SPECIAL NEEDS, 411

- 36 Conscious Sedation, 411**
Robert L. Merin and Perry R. Klokkevold
- 37 Periodontal Treatment of Medically Compromised Patients, 420**
Perry R. Klokkevold, Brian L. Mealey, and Joan Otomo-Corgel
- 38 Periodontal Therapy in the Female Patient, 437**
Joan Otomo-Corgel
- 39 Periodontal Treatment for Older Adults, 447**
Sue S. Spackman and Janet G. Bauer
- 40 Treatment of Aggressive and Atypical Forms of Periodontitis, 451**
Perry R. Klokkevold

SECTION III DIAGNOSIS AND TREATMENT OF PERIODONTAL EMERGENCIES, 460

- 41 Treatment of Acute Gingival Disease, 460**
Perry R. Klokkevold and Fermin A. Carranza

- 42 Treatment of Periodontal Abscess, 465**
Philip R. Melnick and Henry H. Takei
- 43 Diagnosis and Management of Endodontic-Periodontic Lesions, 470**
Kenneth C. Trabert and Mo K. Kang

SECTION IV NON-SURGICAL TREATMENT, 480

- 44 Phase I Periodontal Therapy, 480**
Dorothy A. Perry and Henry H. Takei
- 45 Plaque Biofilm Control for the Periodontal Patient, 485**
Dorothy A. Perry
- 46 Scaling and Root Planing, 494**
Anna M. Pattison and Gordon L. Pattison
- 47 Sonic and Ultrasonic Instrumentation and Irrigation, 507**
Carol A. Jahn
- 48 Anti-infective Therapy, 515**
Sebastian G. Ciancio and Angelo Mariotti
- 49 Host Modulation, 525**
Maria Emanuel Ryan and Ying Gu
- 50 Occlusal Evaluation and Therapy, 535**
Michael J. McDevitt
- 51 Adjunctive Role of Orthodontic Therapy, 542**
Vincent G. Kokich
- 51 SUPPLEMENT A. Pathologic Tooth Migration: A Case Report (online-only), e1**
Charbel Bou Serhal and Birgit Pelsmaekers
- 52 Breath Malodor, 544**
Marc Quirynen, Isabelle Laleman, Jesica Dadamio, Sophie De Geest, Betty Vandekerckhove, and Wim Teughels

SECTION V SURGICAL TREATMENT, 552

- 53 Phase II Periodontal Therapy, 552**
Fermin A. Carranza and Henry H. Takei
- 54 Periodontal and Periimplant Surgical Anatomy, 557**
Fermin A. Carranza and Perry R. Klokkevold
- 55 General Principles of Periodontal Surgery, 566**
Perry R. Klokkevold, Henry H. Takei, and Fermin A. Carranza
- 56 Gingival Surgical Techniques, 576**
Henry H. Takei, Fermin A. Carranza, and Kitetsu Shin
- 57 The Periodontal Flap, 582**
Henry H. Takei, Fermin A. Carranza, and Jonathan H. Do
- 58 Treatment of Gingival Enlargement, 587**
Paulo M. Camargo, Fermin A. Carranza, Flavia Q. Pirih, and Henry H. Takei

- 59** **The Flap Technique for Pocket Therapy, 593**
Henry Takei, Fermin A. Carranza, and Kitetsu Shin
- 60** **Resective Osseous Surgery, 604**
Thomas N. Sims
- 61** **Periodontal Regeneration and Reconstructive Surgery, 610**
Richard T. Kao, Henry H. Takei, David L. Cochran, and Marc L. Nevins
- 62** **Furcation Involvement and Treatment, 621**
Thomas N. Sims and Henry H. Takei
- 63** **Periodontal Plastic and Esthetic Surgery, 628**
Henry H. Takei, E. Todd Scheyer, Robert R. Azzi, Edward P. Allen, and Thomas J. Han
- 64** **Periodontal Microsurgery, 632**
Dennis A. Shanelic, Leonard S. Tibbets, Adriana McGregor, and J. David Cross
- 65** **Recent Advances in Surgical Therapy: Lasers in Periodontal Therapy, 645**
Richard T. Kao and Bobby Butler

SECTION VI PERIODONTAL-RESTORATIVE INTERRELATIONSHIPS, 649

- 66** **Preparation of the Periodontium for Restorative Dentistry, 649**
Philip R. Melnick
- 67** **Restorative Interrelationships, 652**
Frank M. Spear and Joseph P. Cooney
- 68** **Multidisciplinary Approach to Dental and Periodontal Problems, 658**
Dennis P. Tarnow and Mitchell J. Bloom

SECTION VII SUPPORTIVE CARE AND RESULTS OF PERIODONTAL TREATMENT, 667

- 69** **Supportive Periodontal Treatment, 667**
Robert L. Merin
- 70** **Results of Periodontal Treatment, 677**
Robert L. Merin

PART 3 ORAL IMPLANTOLOGY

SECTION I BIOLOGY, DIAGNOSIS, BIOMECHANICS AND TREATMENT PLAN, 684

- 71** **Periimplant Anatomy, Biology and Function, 684**
Joseph Fiorellini, Keisuke Wada, Panagiota Stathopoulou, and Perry R. Klokkevold
- 72** **Clinical Evaluation of the Implant Patient, 693**
Perry R. Klokkevold and David L. Cochran
- 73** **Diagnostic Imaging for the Implant Patient, 706**
Sotirios Tetradias, Sanjay Mallya, and Perry R. Klokkevold

- 74** **Biomechanics, Prosthetic Considerations, and Treatment Planning, 723**
Evelyn Chung, Ting-Ling Chang, and Perry R. Klokkevold

SECTION II SURGICAL PROCEDURES, 730

- 75** **Basic Implant Surgical Procedures, 730**
Perry R. Klokkevold
- 76** **Localized Bone Augmentation and Implant Site Development, 739**
Perry R. Klokkevold
- 77** **Advanced Implant Surgical Procedures, 750**
Istvan A. Urban, Perry R. Klokkevold, and David L. Cochran
- 78** **Esthetic Management of Difficult Cases (Minimally Invasive Approach), 764**
Thomas J. Han, Kwang-Bum Park, and Perry R. Klokkevold
- 79** **Technologic Advances in Implant Surgery: Dental Implant Microsurgery—Immediate Placement, 770**
Dennis Shanelic and Leonard S. Tibbets
- 80** **Technologic Advances in Implant Surgery: Piezoelectric Bone Surgery, 776**
Tomaso Vercellotti and Perry R. Klokkevold
- 81** **Technologic Advances in Implant Surgery: Computer-Assisted Implant Surgery, 786**
Daniel H. Etienne, Raymond R. Derycke, and Perry R. Klokkevold

SECTION III COMPLICATIONS, 792

- 82** **Implant-Related Complications and Failures, 792**
Stuart J. Froum, Perry R. Klokkevold, Sang Choon Cho, and Scott H. Froum

SECTION IV SUPPORTIVE CARE AND RESULTS OF IMPLANT TREATMENT, 805

- 83** **Supportive Implant Treatment, 805**
Jonathan H. Do and Perry R. Klokkevold
- 84** **Results of Implant Treatment, 813**
Perry R. Klokkevold

PART 4 SUPPLEMENTARY TOPICS (ONLINE-ONLY)

- 85** **Atlas of Periodontal Diseases, e9**
M. Cenk Haytac and Onur Ozcelik
- 86** **Introduction to Evidence-Based Decision-Making, e72**
Jane L. Forrest, Syrene A. Miller, Greg W. Miller, and Michael G. Newman

87 Assessing the Evidence, e82

Philippe P. Huj Joel

88 Electronic Dental Records and Decision Support Systems, e92

Thankam P. Thyvalikakath, Corey Stein, and Titus Schleyer

89 Locally Delivered, Controlled-Release Antimicrobials, e98

Richard D. Finkelman and Alan M. Polson

90 Locally Delivered, Controlled-Release Antimicrobials: Drug Development and Clinical Research, e123

Richard D. Finkelman and Alan M. Polson