


FOURTH EDITION



Cleft Palate and Craniofacial Conditions

A Comprehensive Guide to Clinical Management

ACCESS
CODE
INSIDE



NAVIGATE²
ADVANTAGE ACCESS™

Ann W. Kummer

CONTENTS



Preface ix

Key to Phonetic Symbols xiii

About the Author xiv

Contributors xv

Reviewers xvii

PART 1: NORMAL AND ABNORMAL CRANIOFACIAL STRUCTURES 1

| | |
|---|----|
| CHAPTER 1 Anatomy and Physiology | 3 |
| Craniofacial Structures | 4 |
| Intraoral Structures | 9 |
| Pharyngeal Structures | 14 |
| Velopharyngeal Valve | 16 |
| Variations in | |
| Velopharyngeal Closure | 21 |
| Subsystems of Speech: Putting It All Together | 26 |
| Summary | 29 |
| For Review and Discussion | 30 |
| References | 30 |
| Credits | 34 |
| CHAPTER 2 Genetics and | |
| Patterns of Inheritance | 35 |
| Cell Anatomy | 36 |
| Deoxyribonucleic Acid and Genes | 36 |
| Chromosomes | 38 |
| Mendelian Inheritance | 41 |
| Non-Mendelian Inheritance | 47 |
| Summary | 48 |
| For Review and Discussion | 48 |
| References | 49 |
| Credits | 50 |

| | |
|---|-----|
| CHAPTER 3 Clefts of the Lip and Palate | 51 |
| Embryological Development | 52 |
| Causes of Clefts | 53 |
| Types and Classification of Clefts | 54 |
| Clefts of the Primary Palate | 55 |
| Clefts of the Secondary Palate | 60 |
| Submucous Cleft Palate | 65 |
| Facial Clefts | 68 |
| Incidence of Clefts | 70 |
| Summary | 72 |
| For Review and Discussion | 72 |
| References | 73 |
| Credits | 76 |
| CHAPTER 4 Dysmorphology and | |
| Craniofacial Syndromes | 77 |
| Dysmorphology | 78 |
| Craniofacial Syndromes and Conditions | 82 |
| Craniosynostosis Syndromes | 98 |
| The Genetics Evaluation | 100 |
| Summary | 104 |
| For Review and Discussion | 104 |
| References | 104 |
| Credits | 108 |
| Appendix 4A | 109 |
| CHAPTER 5 Facial, Oral, and | |
| Pharyngeal Anomalies | 119 |
| The Ear | 120 |
| Facial Structures | 126 |
| Oral Cavity | 129 |
| Tonsils and Adenoids | 135 |
| Laryngeal Anomalies | 138 |
| Upper Airway Obstruction | 139 |

Summary 143
 For Review and Discussion 143
 References 144
 Credits 148

CHAPTER 6 Dental Anomalies 149
 Normal Dentition and Dental Occlusion .. 152
 Dental Anomalies 154
 Normal Skeletal Occlusion and
 Skeletal Malocclusion..... 162
 Dental Development and
 Stages of Treatment 165
 The Role of Speech Therapy 181
 Summary 182
 For Review and Discussion 182
 References 183
 Credits 189

**PART 2: FUNCTIONAL EFFECTS
 OF CLEFTS AND CRANIOFACIAL
 CONDITIONS 191**

CHAPTER 7 Early Feeding Problems 193
 Infant Feeding and Early Development ... 194
 Anatomy and Physiology
 Relevant to Infant Feeding 195
 Feeding Problems Caused by Clefts and
 Other Craniofacial Conditions 198
 Feeding Modifications and
 Facilitation Techniques 201
 Assessment and Management
 of Complex Feeding Problems 212
 Summary 214
 For Review and Discussion 214
 References 215
 Credits 218
 Appendix 7A 219
 Appendix 7B 221

**CHAPTER 8 Developmental Aspects:
 Speech, Language, and Cognition 225**
 Prerequisites for Normal Development ... 226

**Development in Children with Clefts and
 Craniofacial Syndromes 230**
 Summary 233
 For Review and Discussion 233
 References 234
 Credits 238

CHAPTER 9 Psychosocial Aspects 239
 Family Issues 240
 School Issues 243
 Societal Issues 247
 Behavior and Psychiatric Issues 249
 Summary 252
 For Review and Discussion 253
 References 253
 Credits 258

**CHAPTER 10 Speech/Resonance Disorders
 and Velopharyngeal Dysfunction..... 259**
 Voice, Resonance, and Airflow 260
 Resonance Disorders 262
 Types of Velopharyngeal Dysfunction 266
 Effects of Velopharyngeal Insufficiency
 Incompetence on Speech 268
 Causes of Velopharyngeal Dysfunction ... 276
 Summary 286
 For Review and Discussion 286
 References 287
 Credits 293

**PART 3: ASSESSMENT PROCEDURES:
 SPEECH, RESONANCE, AND
 VELOPHARYNGEAL FUNCTION 295**

**CHAPTER 11 Speech and Resonance
 Assessment..... 297**
 Timetable for Assessment 298
 The Diagnostic Interview 299
 Language Screening 299
 Speech Assessment 302
 Speech Samples 303
 What to Evaluate 306

| | | | |
|---|-----|---|------------|
| Supplemental Evaluation Procedures | 310 | Appendix 14B | 395 |
| Differential Diagnosis of Cause | 315 | CHAPTER 15 Videofluoroscopy | 399 |
| Follow-Up | 320 | History of Radiography for VPI | 400 |
| Summary | 321 | Preparation of the Patient | 402 |
| For Review and Discussion | 322 | Videofluoroscopy Procedure | 402 |
| References | 322 | Interpretation | 406 |
| Credits | 324 | Reporting the Results | 410 |
| CHAPTER 12 Orofacial Examination | 325 | Advantages and Limitations of | |
| General Methodology | 326 | Videofluoroscopy | 411 |
| Important Observations | 330 | Summary | 413 |
| Infection Control during | | For Review and Discussion | 414 |
| the Examination | 346 | References | 414 |
| Summary | 349 | Credits | 416 |
| For Review and Discussion | 350 | CHAPTER 16 Nasopharyngoscopy | 417 |
| References | 350 | History of Endoscopy for VPI | 418 |
| Credits | 352 | Nasopharyngoscopy Overview | 419 |
| CHAPTER 13 Overview of | | Equipment | 420 |
| Instrumental Procedures | 353 | Preparation of the Patient | 422 |
| Indirect Procedures | 354 | Nasopharyngoscopy Procedure | 425 |
| Direct Procedures | 357 | Interpretation | 429 |
| Imaging for Research | 362 | Reporting the Results | 436 |
| Summary | 363 | Cleaning and Storing the Endoscope | 439 |
| For Review and Discussion | 363 | Advantages and Limitations of | |
| References | 364 | Nasopharyngoscopy | 440 |
| Credits | 365 | Summary | 441 |
| CHAPTER 14 Nasometry | 367 | For Review and Discussion | 441 |
| Nasometry and Its Clinical Uses | 368 | References | 441 |
| Equipment | 369 | Credits | 446 |
| Nasometric Procedures | 370 | Appendix 16A | 447 |
| Nasometric Results | 379 | Appendix 16B | 449 |
| Interpretation of | | PART 4: TREATMENT PROCEDURES: | |
| Nasometric Results | 381 | SPEECH, RESONANCE, AND | |
| Use in Treatment | 386 | VELOPHARYNGEAL DYSFUNCTION | 451 |
| Summary | 389 | CHAPTER 17 Surgical Management | 453 |
| For Review and Discussion | 390 | Cleft Lip Repair | 454 |
| References | 390 | Cleft Palate Repair | 457 |
| Credits | 393 | Surgery for Velopharyngeal Insufficiency/ Incompetence (VPI) | 461 |
| Appendix 14A | 394 | | |

viii Contents

| | |
|---|------------|
| Alveolar Bone Grafting..... | 472 |
| Oronasal Fistula Repair..... | 474 |
| Maxillary Advancement..... | 475 |
| Summary..... | 485 |
| For Review and Discussion..... | 486 |
| References..... | 487 |
| Credits..... | 494 |
| CHAPTER 18 Prosthetic Management ... | 495 |
| Prosthetic Devices..... | 496 |
| Speech Appliances..... | 500 |
| Advantages and Disadvantages of Prosthetic Management..... | 508 |
| Prosthetic Management and Speech Therapy..... | 509 |
| Summary..... | 509 |
| For Review and Discussion..... | 510 |
| References..... | 510 |
| Credits..... | 513 |
| CHAPTER 19 Speech Therapy..... | 515 |
| Timetable for Intervention and Goals..... | 516 |
| Speech Therapy versus Physical Management..... | 518 |
| Biofeedback for Nasality..... | 521 |
| Speech Therapy Techniques..... | 526 |
| Other Treatment Methods..... | 530 |
| Motor Learning and Motor Memory..... | 531 |
| The Ultimate Goal..... | 533 |
| Summary..... | 533 |
| For Review and Discussion..... | 534 |

| | |
|-------------------|-----|
| References..... | 534 |
| Credits..... | 538 |
| Appendix 19A..... | 539 |

PART 5: INTERDISCIPLINARY CARE 549

| | |
|---|------------|
| CHAPTER 20 The Team Approach..... | 551 |
| Need for Team Management..... | 552 |
| Characteristics of Teams..... | 553 |
| Team Interactions..... | 559 |
| Resources for Services..... | 560 |
| Summary..... | 562 |
| For Review and Discussion..... | 563 |
| References..... | 563 |
| Credits..... | 564 |
| CHAPTER 21 Cleft Care in Developing Countries..... | 565 |
| Clefts in Developing Countries..... | 566 |
| International Cleft Care..... | 567 |
| The Role of the Speech-Language Pathologist on a Mission Trip..... | 568 |
| Cleft Lip/Palate Surgical Missions..... | 570 |
| Preparing for International Travel..... | 577 |
| Summary..... | 579 |
| For Review and Discussion..... | 580 |
| References..... | 580 |
| Credits..... | 582 |
| Glossary..... | 583 |
| Index..... | 605 |

FOURTH EDITION

Cleft Palate and Craniofacial Conditions

A Comprehensive Guide to Clinical Management

Ann W. Kummer

Cleft Palate and Craniofacial Conditions: A Comprehensive Guide to Clinical Management, Fourth Edition is ideal for the graduate course on cleft palate and craniofacial conditions, or as a source book for healthcare professionals who provide services in this area. Updated with full-color illustrations and photos, the *Fourth Edition* of this best-selling title has been reorganized to improve clarity and flow, with new references and information reflecting the most current research in the field. Key features such as **Case Studies** help the learner understand how to apply key information in a clinical setting, while **Speech Notes** highlight how anomalies and surgeries affect speech and resonance.

As the most comprehensive text in the market, *Cleft Palate and Craniofacial Conditions* answers the questions of *when, what, why*, and most importantly *how* when ensuring evaluation results in an accurate diagnosis. Authored by an experienced clinician and instructor, this text goes beyond the classroom, serving as a practical “how-to” guide as well as a source of didactic and theoretical information.

NEW AND KEY FEATURES OF THE FOURTH EDITION

- 295 **Clinical Videos** illustrate speech samples, evaluation techniques, and speech therapy techniques
- **New full-color design** includes nearly 700 photos and illustrations
- A complete glossary of over 550 defined terms
- Information is summarized in tables for easy learning, including tables of terms for normal and abnormal craniofacial, oral, dental, and pharyngeal structures and anomalies
- A robust pedagogy includes chapter outlines, illustrations, Case Studies, Speech Notes, definitions, and Discussion Questions
- **Cleft Notes** are provided for each chapter, providing basic summaries in a table format
- Over 20 **Handouts** on a variety of topics are available for students; designed as a parent-facing document, these act as an effective teaching tool for both students and professionals



DYNAMIC TECHNOLOGY SOLUTION

Cleft Palate and Craniofacial Conditions: A Comprehensive Guide to Clinical Management, Fourth Edition includes access to Navigate 2 online learning materials including a comprehensive and interactive eBook, assessments, videos, learning analytics reporting tools, and more.

INSTRUCTOR RESOURCES

Instructor Resources include a Test Bank, all chapters in PowerPoint format, Handouts, and Instructor Cleft Notes.

ACCESS
CODE
INSIDE



NAVIGATE 2
ADVANTAGE ACCESS™

- Mobile-Ready Course Materials
- eBook with Interactive Tools

Individual Access Codes are available at www.jblearning.com, bookstores, and retailers everywhere.