

Contents

Foreword *xi*
Preface *xiii*
Contributors *xv*

SECTION I. SCIENTIFIC FOUNDATIONS

- 1. Developmental Anatomy of the Temporal Bone and Skull Base 3**
Aina Julianna Gulya, MD, FACS
- 2. Anatomy of the Temporal Bone and Skull Base 29**
Aina Julianna Gulya, MD, FACS
- 3. Acoustics and Mechanics of the Middle Ear 49**
*Saumil N. Merchant, MD /
John J. Rosowski, PhD*
- 4. Auditory Physiology: Inner Ear 73**
*Veronika Starlinger, MD / Kinuko Masaki, PhD /
Stefan Heller, PhD*
- 5. Neurophysiology: The Central Auditory System 85**
Bradford J. May, PhD / Charles Limb, MD
- 6. Vestibular Physiology and Disorders of the Labyrinth 113**
*Timothy E. Hullar, MD, FACS /
Nathan C. Page, MD / Lloyd B. Minor, MD, FACS*
- 7. Genetics in Otology and Neurotology 137**
*Anil K. Lalwani, MD /
Anand N. Mhatre, PhD*
- 8. Tumor Biology 151**
*D. Bradley Welling, MD, PhD, FACS /
Mark D. Packer, MD*

SECTION II. CLINICAL EVALUATION AND REHABILITATION

- 9. Clinical Diagnosis 171**
*Matthew R. O'Malley, MD /
David S. Haynes, MD*
- 10. Audiologic Evaluation of Otologic/Neurotologic Disease 189**
Brad A. Stach, PhD
- 11. Vestibular Testing 223**
*Dennis I. Bojrab, MD /
Sanjay A. Bhansali, MD, FACS /
Travis J. Pfannenstiel, MD / B. Maya Kato, MD*
- 12. Endoscopic Diagnosis and Surgery of Eustachian Tube Dysfunction 245**
*Dennis S. Poe, MD, FACS /
Quinton Gopen, MD*
- 13. Imaging of the Temporal Bone 255**
*Galdino E. Valvassori, MD /
Masoud Hemmati, MD*
- 14. Hearing Aids 281**
*Brad A. Stach, PhD /
Virginia Ramachandran, AuD*
- 15. Tinnitus 293**
*Elina Kari, MD / Douglas E. Mattox, MD /
Pawel J. Jastreboff, PhD, ScD, MBA*
- 16. Vestibular Rehabilitation 307**
Michael C. Schubert, PT, PhD

SECTION III. FUNDAMENTALS OF OTOLOGIC AND NEUROTOLOGIC SURGERY

- 17. Principles of Temporal Bone and Skull Base Surgery 319**
*Roberto A. Cueva, MD, FACS /
C. Gary Jackson, MD, FACS*
- 18. Lasers in Otolaryngology 331**
S. George Lesinski, MD
- 19. Neurophysiologic Monitoring in Otolaryngologic/Neurotologic Surgery 349**
*Roberto A. Cueva, MD, FACS /
Gayle E. Hicks, PhD, DABNM*
- 20. Endoscope-Assisted Ear Surgery 359**
Dennis S. Poe, MD, FACS
- 21. Image-Guided Systems in Neurotology/Skull Base Surgery 369**
M. Miles Goldsmith, MD, FACS

SECTION IV. SURGERY OF THE EXTERNAL EAR

- 22. Diseases of the Auricle, External Auditory Canal, and Tympanic Membrane 379**
*Stephanie Moody Antonio, MD /
Barry Strasnick, MD, FACS*
- 23. Surgery for Cancer of the External Ear 397**
Keith A. Casper, MD / Myles Pensak, MD, FACS
- 24. Surgery for Congenital Aural Atresia 413**
*Bradley W. Kesser, MD /
Robert A. Jahrsdoerfer, MD*

SECTION V. SURGERY OF THE TYMPANOMASTOID COMPARTMENT

- 25. Pathology and Clinical Course of the Inflammatory Diseases of the Middle Ear 425**
Quinton Gopen, MD
- 26. Aural Complications of Otitis Media 437**
*Arvind Kumar, MD, FRCS /
Richard Wiet, MD, FACS*
- 27. Intracranial Complications of Otitis Media 451**
*Samuel C. Levine, MD, FACS /
Chris De Souza, MD, FACS /
Michael J. Shinnars, MD*
- 28. Tympanoplasty: Tympanic Membrane Repair 465**
Aristides Athanasiadis-Sismanis, MD, FACS
- 29. Ossicular Chain Reconstruction 489**
*Aristides Athanasiadis-Sismanis, MD, FACS /
Dennis S. Poe, MD, FACS*
- 30. Canal-Wall-Up Mastoidectomy 501**
David S. Haynes, MD / Justin Wittkopf, MD
- 31. Open Cavity Mastoid Operations 515**
John F. Kveton, MD, FACS
- 32. Surgery for Otosclerosis 529**
*Ophir Handzel, MD, LLB /
Michael J. McKenna, MD*
- 33. Implantable Middle Ear and Bone Conduction Hearing Devices 547**
*Charles C. Della Santina, MD, PhD /
Lawrence R. Lustig, MD*

SECTION VI. SURGERY OF THE INNER EAR

- 34. Surgical Treatment of Peripheral Vestibular Disorders 563**
Benjamin T. Crane, MD, PhD / John P. Carey, MD / Lloyd B. Minor, MD, FACS
- 35. Cochlear Implants in Adults and Children 583**
Peter S. Roland, MD

SECTION VII. SURGERY OF THE INTERNAL AUDITORY CANAL/ CEREBELLOPONTINE ANGLE/ PETROUS APEX

- 36. Surgery of the Facial Nerve 619**
Bruce J. Gantz, MD / Samuel P. Gubbels, MD / Ravi N. Samy, MD
- 37. Vestibular Schwannoma 643**
Mark D. Packer, MD / D. Bradley Welling, MD, PhD, FACS
- 38. Auditory Brainstem Implant 685**
Steven R. Otto, MA / Derald E. Brackmann, MD / William E. Hitselberger, MD / Elizabeth H. Toh, MD / Robert V. Shannon, PhD / Lendra M. Friesen, MS
- 39. Stereotactic Radiosurgery and Radiotherapy for Temporal Bone Tumors 697**
P. Ashley Wackym, MD, FACS, FAAP / Christina L. Runge-Samuelson, MD, PhD / David R. Friedland, MD, PhD
- 40. Surgery for Cystic Lesions of the Petrous Apex 711**
Gordon B. Hughes, MD / Joung Lee, MD / Paul M. Ruggieri, MD / Martin J. Citardi, MD

SECTION VIII. SURGERY OF THE SKULL BASE

- 41. Surgery for Benign Tumors of the Temporal Bone 729**
C. Gary Jackson, MD, FACS / John P. Leonetti, MD / Sam J. Marz, MD
- 42. Surgery for Malignant Lesions 751**
Keith A. Casper, MD / Myles Pensak, MD, FACS
- 43. Prevention and Management of Cerebrospinal Fluid Leaks 765**
Roberto A. Cueva, MD, FACS / Christopher J. Danner, MD

Appendix: Surgical Anatomy of the Temporal Bone and Dissection Guide 771

Dennis I. Bojrab, MD / Ben J. Balough, MD / Benjamin T. Crane, MD, PhD

Index 791