

CONTENTS

Contributors *vii*

Preface *xi*

List of Universal Abbreviations *xvii*

SECTION I

BASIC PRINCIPLES

SECTION EDITOR: William E. Brant

- 1 Diagnostic Imaging Methods 2
William E. Brant

SECTION II

NEURORADIOLOGY

SECTION EDITORS: Erik H. L. Gaensler and Jerome A. Barakos

- 2 Introduction to Brain Imaging 28
Govind Mukundan and David J. Seidenwurm
- 3 Craniofacial Trauma 49
Alisa D. Gean, Tuong H. Le, and Christopher A. Mutch
- 4 Cerebrovascular Disease 77
Howard A. Rowley
- 5 Central Nervous System Neoplasms
and Tumor-Like Masses 109
Robert Y. Shih and Kelly K. Koeller
- 6 Central Nervous System Infections 138
Nathaniel A. Chuang and Walter L. Olsen
- 7 White Matter and Neurodegenerative Diseases . . . 172
Jerome A. Barakos and Derk D. Purcell
- 8 Head and Neck Imaging 198
Jerome A. Barakos and Derk D. Purcell
- 9 Spine Imaging 225
Erik H. L. Gaensler, Derk D. Purcell, and Alyssa T. Watanabe

SECTION III

CHEST

SECTION EDITOR: Jeffrey S. Klein

- 10 Methods of Examination, Normal Anatomy, and
Radiographic Findings of Chest Disease 264
Judy K. Tam and Jeffrey S. Klein
- 11 Mediastinum and Hila 310
Jeffrey S. Klein
- 12 Pulmonary Vascular Disease 344
Curtis E. Green and Jeffrey S. Klein
- 13 Pulmonary Neoplasms and
Neoplastic-like Conditions 361
Jeffrey S. Klein
- 14 Pulmonary Infection 394
Jeffrey S. Klein

- 15 Diffuse Lung Disease 418
Curtis E. Green and Jeffrey S. Klein
- 16 Airways Disease and Emphysema 455
Vivek Kalia and Jeffrey S. Klein
- 17 Pleura, Chest Wall, Diaphragm, and
Miscellaneous Chest Disorders 475
Jeffrey S. Klein

SECTION IV

BREAST RADIOLOGY

SECTION EDITOR: Brandi T. Nicholson

- 18 Normal Anatomy and Histopathology 510
Carrie M. Rochman, Jonathan V. Nguyen, and Brandi T. Nicholson
- 19 Imaging the Screening Patient 528
Jonathan V. Nguyen, Carrie M. Rochman, and Brandi T. Nicholson
- 20 Imaging the Diagnostic Patient 542
Jonathan V. Nguyen, Carrie M. Rochman,
and Brandi T. Nicholson
- 21 Breast Imaging Reporting and Data System 555
Carrie M. Rochman, Jonathan V. Nguyen and Brandi T. Nicholson
- 22 Breast Magnetic Resonance Imaging 576
Brandi T. Nicholson, Carrie M. Rochman,
and Jonathan V. Nguyen
- 23 Image-Guided Breast Procedures 598
Brandi T. Nicholson, Carrie M. Rochman,
and Jonathan V. Nguyen

SECTION V

CARDIAC RADIOLOGY

SECTION EDITOR: Seth Kligerman

- 24 Introduction to Cardiac Anatomy,
Physiology, and Imaging Techniques 622
Kate Hanneman and Seth Kligerman
- 25 Coronary Artery Anomalies and Disease 643
Seth Kligerman
- 26 Cardiac Masses 680
Jay S. Leb and Seth Kligerman
- 27 Valvular Disease 701
Albert Hsiao and Kate Hanneman
- 28 Nonischemic Cardiomyopathies 722
Elizabeth Weihe and Seth Kligerman
- 29 Imaging of the Pericardium 737
Seth Kligerman
- 30 Thoracic Aorta 763
Kathleen Jacobs, Michael J. Horowitz, and Seth Kligerman

SECTION VI

VASCULAR AND INTERVENTIONAL RADIOLOGY

SECTION EDITORS: Juan C. Camacho and Akhilesh K. Sista

- 31 Medications in Interventional Radiology 796
Ricardo Tadayoshi Barbosa Yamada, Jonathan David Perry,
Heather Hartung, and Marcelo Guimaraes
- 32A Basics of Angiography and Arterial Disease –
(Angiography) 805
Louis G. Martin
- 32B Peripheral Arterial Disease 818
Stephen Bracewell, Carl Gunnar Forsberg, Ricardo Tadayoshi
Barbosa Yamada, Claudio Schonholz, and Marcelo Guimaraes
- 33 Central Venous Catheters 832
Clayton Li and Divya Sridhar
- 34 Chronic Venous Disease and Deep
Vein Thrombosis 839
Amish Patel, Bedros Taslakian, and Akhilesh K. Sista
- 35 Pulmonary Embolism 851
Bedros Taslakian, Amish Patel, and Akhilesh K. Sista
- 36A Gastrointestinal Interventions 868
Meredith McDermott
- 36B Genitourinary Interventions 890
Cash Jeremy Horn
- 37A Portal Hypertension 902
Eric T. Aaltonen
- 37B Interventional Radiology in the Diagnosis and
Management of Post Liver and Kidney
Transplant Complications 915
Peter A. Harri, Pardeep K. Mittal, and Juan C. Camacho
- 38 Image-Guided Needle Biopsies and
Personalized Medicine 935
Anobel Tamrazi, Aishwarya Gulati, and Vibhor Wadhwa
- 39 Interventional Management of Hepatic
Malignancies: General Concepts From
Anatomy to Practice 950
Sarah H. Allgeier, Nima Kokabi, and Juan C. Camacho

SECTION VII

GASTROINTESTINAL TRACT

SECTION EDITOR: William E. Brant

- 40 Abdomen and Pelvis 972
William E. Brant and Jennifer Pohl
- 41 Liver, Biliary Tree, and Gallbladder 991
William E. Brant and Jennifer Pohl
- 42 Pancreas and Spleen 1019
William E. Brant and Jennifer Pohl
- 43 Pharynx and Esophagus 1034
William E. Brant
- 44 Stomach and Duodenum 1052
William E. Brant
- 45 Mesenteric Small Bowel 1065
William E. Brant
- 46 Colon and Appendix 1080
William E. Brant

SECTION VIII

GENITOURINARY TRACT

SECTION EDITOR: William E. Brant

- 47 Adrenal Glands and Kidneys 1096
William E. Brant
- 48 Pelvicalyceal System, Ureters, Bladder,
and Urethra 1117
William E. Brant
- 49 Genital Tract—CT, MR, and Radiographic
Imaging 1136
William E. Brant

SECTION IX

ULTRASONOGRAPHY

SECTION EDITOR: William E. Brant

- 50 Abdomen Ultrasound 1156
William E. Brant
- 51 Genital Tract and Bladder Ultrasound 1182
William E. Brant
- 52 Obstetric Ultrasound 1206
William E. Brant
- 53 Chest, Thyroid, Parathyroid, and Neonatal
Brain Ultrasound 1234
William E. Brant
- 54 Vascular Ultrasound 1252
William E. Brant

SECTION X

MUSCULOSKELETAL RADIOLOGY

SECTION EDITORS: Clyde A. Helms and Emily N. Vinson

- 55 Benign Lucent Bone Lesions 1278
Clyde A. Helms and Emily N. Vinson
- 56 Malignant Bone and Soft Tissue Tumors 1298
Clyde A. Helms and Emily N. Vinson
- 57 Skeletal Trauma 1313
Clyde A. Helms and Emily N. Vinson
- 58 Arthritis 1342
Clyde A. Helms and Emily N. Vinson
- 59 Metabolic Bone Disease 1366
Clyde A. Helms and Emily N. Vinson
- 60 Skeletal “Don’t Touch” Lesions 1377
Clyde A. Helms and Emily N. Vinson
- 61 Miscellaneous Bone Lesions 1388
Clyde A. Helms and Emily N. Vinson
- 62 Magnetic Resonance Imaging of the Knee 1396
Clyde A. Helms and Emily N. Vinson
- 63 Magnetic Resonance Imaging of the Shoulder 1408
Clyde A. Helms and Emily N. Vinson
- 64 Magnetic Resonance Imaging of the
Foot and Ankle 1416
Clyde A. Helms and Emily N. Vinson

SECTION XI

PEDIATRIC RADIOLOGY

SECTION EDITORS: Andrew T. Trout and Alan S. Brody

- 65 Imaging Children—What You Need to Know . . . 1428
Andrew T. Trout and Alan S. Brody
- 66 Pediatric Neuroradiology 1432
Usha D. Nagaraj, Blaise V. Jones, and Camilla E. Lindan
- 67 Pediatric Chest 1459
Alan S. Brody
- 68 Congenital and Pediatric Heart Disease 1482
Robert J. Fleck, Jr.
- 69 Abdomen 1495
Ethan A. Smith and Andrew T. Trout
- 70 Pediatric MSK 1531
Nancy A. Chauvin and Asef Khwaja

SECTION XII

NUCLEAR RADIOLOGY

SECTION EDITOR: Brett J. Mollard

- 71A Introduction to Nuclear Medicine 1576
Brett J. Mollard

- 71B Essential Science of Nuclear Medicine 1581
Brett J. Mollard
- 72A Gastrointestinal, Liver–Spleen, and
Hepatobiliary Scintigraphy 1600
Bradley Fehrenbach
- 72B Pulmonary Scintigraphy 1612
Bradley Fehrenbach
- 72C Skeletal System Scintigraphy 1629
Brett J. Mollard
- 72D Endocrine Gland Scintigraphy 1642
Marc G. Cote and Brett J. Mollard
- 73 Cardiovascular System Scintigraphy 1657
Arpit Gandhi
- 74 Nuclear Brain Imaging 1669
Jason J. Bailey and Richard K. J. Brown
- 75 Scintigraphic Diagnosis of Inflammation
and Infection 1680
Jeffrey P. Lin
- 76 Positron Emission Tomography 1692
Robert R. Flavell and Spencer Behr

Index I-1