

CONTENTS

PREFACE, ix

LIST OF SECTION EDITORS, x

LIST OF CONTRIBUTORS, xi

VOLUME 1

SECTION A

PRINCIPLES OF IMAGING TECHNIQUES AND GENERAL ISSUES, 1

Section Editors: Cornelia M. Schaefer-Prokop • Adrian K. Dixon

- 1 MEDICAL PHYSICS: RADIATION RISKS, 3
Jacob Geleijns • Denis Tack
- 2 INTRAVASCULAR CONTRAST MEDIA FOR RADIOGRAPHY, CT, MRI AND ULTRASOUND, 26
Henrik S. Thomsen • Peter Reimer
- 3 ULTRASOUND, 52
David O. Cosgrove • Robert J. Eckersley • Christopher J. Harvey • Adrian Lim
- 4 COMPUTED TOMOGRAPHY, 76
Ahtley S. Shaw • Mathias Prokop
- 5 MAGNETIC RESONANCE IMAGING, 90
Iain D. Wilkinson • Martin J. Graves
- 6 RADIONUCLIDE AND HYBRID IMAGING, 115
Brian F. Hutton • Djilda Segerman • Kenneth A. Miles
- 7 FUNCTIONAL, PHYSIOLOGICAL AND MOLECULAR IMAGING, 135
Martin J.K. Blomley¹ • Kenneth A. Miles • David O. Cosgrove

SECTION B

THE CHEST AND CARDIOVASCULAR SYSTEM, 147

Section Editors: Cornelia M. Schaefer-Prokop • Adrian K. Dixon

- 8 TECHNIQUES IN THORACIC IMAGING, 149
Arjun Nair • Zelena A. Aziz • David M. Hansell
- 9 THE NORMAL CHEST, 162
Simon P.G. Padley • Katharina Marten-Engelke • Christoph Engelke
- 10 THE CHEST WALL, PLEURA, DIAPHRAGM AND INTERVENTION, 184
Johnny A. Verschakelen • Fergus Gleeson

- 11 THE MEDIASTINUM, INCLUDING THE PERICARDIUM, 209
Nadeem Parkar • Cylen Javidan-Nejad • Sanjeev Bhalla • Simon P.G. Padley
- 12 PULMONARY INFECTION IN ADULTS, 246
Tomás Franquet
- 13 AIRWAY DISEASE AND CHRONIC AIRWAY OBSTRUCTION, 267
Philippe A. Grenier • Catherine Beigelman-Aubry
- 14 PULMONARY LOBAR COLLAPSE: ESSENTIAL CONSIDERATIONS, 298
Susan J. Copley
- 15 PULMONARY NEOPLASMS, 313
Simon P.G. Padley • Olga Lazoura
- 16 HIGH-RESOLUTION COMPUTED TOMOGRAPHY OF INTERSTITIAL AND OCCUPATIONAL LUNG DISEASE, 341
Nicola Sverzellati • Zelena A. Aziz • David M. Hansell
- 17 THORACIC TRAUMA AND RELATED TOPICS, 363
John H. Reynolds • Hefin Jones
- 18 AIRSPACE DISEASES, 384
Nicola Sverzellati • Sujal R. Desai
- 19 CARDIAC ANATOMY AND IMAGING TECHNIQUES, 399
Hans-Marc J. Siebelink • Jos J.M. Westenberg • Lucia J.M. Kroft • Albert de Roos
- 20 CONGENITAL HEART DISEASE: GENERAL PRINCIPLES AND IMAGING, 423
Andrew M. Taylor • Michael A. Quail
- 21 NON-ISCHAEMIC ACQUIRED HEART DISEASE, 447
Luigi Natale • Agostino Meduri
- 22 ISCHAEMIC HEART DISEASE, 501
Jan Bogaert
- 23 PULMONARY CIRCULATION AND PULMONARY THROMBOEMBOLISM, 531
Irene J.C. Hartmann • Cornelia M. Schaefer-Prokop
- 24 THE THORACIC AORTA: DIAGNOSTIC ASPECTS, 553
Rossella Fattori • Luigi Lovato

SECTION C**ABDOMINAL IMAGING, 591**

Section Editors: Michael M. Maher •
Adrian K. Dixon

- 25 **CURRENT STATUS OF IMAGING OF THE GASTROINTESTINAL TRACT: IMAGING TECHNIQUES AND RADIATION ISSUES, 593**
Iain D. Morrison • Patrick McLaughlin • Michael M. Maher
- 26 **THE OESOPHAGUS, 610**
Edmund M. Godfrey • Alan H. Freeman
- 27 **THE STOMACH, 627**
Dina F. Caroline • Chandra Dass • Omar Agosto
- 28 **THE DUODENUM AND SMALL INTESTINE, 653**
Nicholas Gourtsoyiannis • Panos Prassopoulos •
Maria Daskalogiannaki • Patrick McLaughlin •
Michael M. Maher
- 29 **THE LARGE BOWEL, 678**
Stuart A. Taylor • Andrew Plumb
- 30 **IMAGING OF THE PERITONEUM, MESENTERY AND OMENTUM, 704**
Nicholas Gourtsoyiannis • Panos Prassopoulos •
Maria Daskalogiannaki
- 31 **THE LIVER AND SPLEEN, 722**
David J. Lomas • Lorenzo Mannelli
- 32 **THE BILIARY SYSTEM, 777**
Robert N. Gibson • Thomas Sutherland
- 33 **THE PANCREAS, 803**
Wolfgang Schima • E. Jane Adam • Robert A. Morgan
- 34 **COMMON URORADIOLOGICAL REFERRALS: HAEMATURIA, LOIN PAIN, RENAL FAILURE AND INFECTION, 832**
Owen J. O'Connor • Tarek El-Diasty •
Mohamed Abou El-Ghar • Michael M. Maher
- 35 **THE URINARY TRACT: OVERVIEW OF ANATOMY, TECHNIQUES AND RADIATION ISSUES, 859**
Owen J. O'Connor • Michael M. Maher
- 36 **RENAL MASSES: IMAGING AND BIOPSY, 881**
Giles Rottenberg • Zaid Viney
- 37 **RENAL TRANSPLANTATION: IMAGING, 894**
Giles Rottenberg • Allan C. Andi
- 38 **UROTHELIAL CELL CANCER, UPPER TRACT AND LOWER TRACT, 905**
Nigel C. Cowan • Richard H. Cohan
- 39 **PROSTATE, 931**
Joyce G.R. Bomers • Leonardo Kayat Bittencourt •
Geert Villeirs • Jelle O. Barentsz
- 40 **MALE GENITOURINARY TRACT, 944**
Nadeem Shaida • Lol Berman
- 41 **GYNAECOLOGICAL CANCER, 957**
Evis Sala • Susan Freeman • Susan M. Ascher • Hedvig Hricak

- 42 **BENIGN GYNAECOLOGICAL DISEASE, 972**
Sue J. Barter • Fleur Kilburn-Toppin
- 43 **GENITOURINARY TRACT TRAUMA, 993**
Lisa A. Miller • Stuart E. Mirvis
- 44 **ADRENAL IMAGING, 1008**
Anju Sahdev • Rodney H. Reznick

VOLUME 2**SECTION D****THE MUSCULOSKELETAL SYSTEM, 1035**

Section Editors: Andrew J. Grainger •
Philip O'Connor

- 45 **IMAGING TECHNIQUES AND FUNDAMENTAL OBSERVATIONS FOR THE MUSCULOSKELETAL SYSTEM, 1037**
Philip W.P. Bearcroft • Melanie A. Hopper
- 46 **INTERNAL DERANGEMENTS OF JOINTS: UPPER AND LOWER LIMBS, 1060**
Robert S.D. Campbell • Andrew J. Dunn •
Eugene McNally • Ahmed Daghir
- 47 **BONE TUMOURS (1): BENIGN TUMOURS AND TUMOUR-LIKE LESIONS OF BONE, 1089**
Asif Saifuddin
- 48 **BONE TUMOURS (2): MALIGNANT BONE TUMOURS, 1113**
A. Mark Davies • Steven L.J. James • Asif Saifuddin
- 49 **SOFT TISSUE TUMOURS, 1132**
Paul O'Donnell
- 50 **METABOLIC AND ENDOCRINE SKELETAL DISEASE, 1153**
Thomas M. Link • Judith E. Adams
- 51 **ARTHRITIS, 1186**
Andrew J. Grainger • Philip O'Connor
- 52 **APPENDICULAR AND PELVIC TRAUMA, 1211**
Nigel Raby • Philip M. Hughes • James Ricketts
- 53 **BONE, JOINT AND SPINAL INFECTION, 1241**
Balashanmugam Rajashanker • Richard W. Whitehouse

SECTION E**THE SPINE, 1277**

Section Editors: Jonathan H. Gillard •
H. Rolf Jäger

- 54 **IMAGING TECHNIQUES AND ANATOMY, 1279**
Thomas Van Thielen • Luc van den Hauwe •
Johan W. Van Goethem • Paul M. Parizel
- 55 **DEGENERATIVE DISEASE OF THE SPINE, 1295**
Paul M. Parizel • Thomas Van Thielen •
Luc van den Hauwe • Johan W. Van Goethem

- 56 **SPINAL TUMOURS**, 1316
Luc van den Hauwe • Johan W. van Goethem •
Danielle Balériaux • Arthur M. De Schepper†
- 57 **NON-TUMOURAL SPINAL CORD LESIONS**, 1345
Farah Alobeidi • Majda M. Thurnher • H. Rolf Jäger
- 58 **POSTOPERATIVE SPINE**, 1364
Tomasz Matys • Nasim Sheikh-Bahaei • Jonathan H. Gillard
- 59 **SPINAL TRAUMA**, 1374
James J. Rankine

SECTION F NEUROIMAGING, 1391

Section Editors: H. Rolf Jäger •
Jonathan H. Gillard

- 60 **OVERVIEW OF ANATOMY, PATHOLOGY AND
TECHNIQUES; ASPECTS RELATED TO TRAUMA**, 1393
Joti Jonathan Bhattacharya • Kirsten Forbes •
Peter Zampakis • David J. Bowden • John M. Stevens
- 61 **BENIGN AND MALIGNANT INTRACRANIAL TUMOURS
IN ADULTS**, 1428
Ruchi Kabra • Caroline Micallef • H. Rolf Jäger
- 62 **NEUROVASCULAR DISEASES**, 1456
Amrish Mehta • Brynmor P. Jones
- 63 **INTRACRANIAL INFECTIONS**, 1497
Daniel J. Scoffings • Julia Frühwald-Pallamar •
Majda M. Thurnher • H. Rolf Jäger
- 64 **INFLAMMATORY AND METABOLIC DISEASE**, 1514
Alex Rovira • Pia C. Sundgren • Massimo Gallucci
- 65 **NEURODEGENERATIVE DISEASES AND
EPILEPSY**, 1544
Beatriz Gomez Anson • Frederik Barkhof
- 66 **ORBIT**, 1556
Stefanie C. Thust • Katherine Miszkil • Indran Davagnanam
- 67 **ENT, NECK AND DENTAL RADIOLOGY**, 1590
Timothy Beale • Jackie Brown • John Rout

SECTION G ONCOLOGICAL IMAGING, 1649

Section Editors: Vicky Goh • Andreas Adam

- 68 **PRINCIPLES OF ONCOLOGICAL IMAGING**, 1651
David MacVicar • Vicky Goh
- 69 **THE BREAST**, 1664
Jonathan J. James • A. Robin M. Wilson • Andrew J. Evans
- 70 **RETICULOENDOTHELIAL DISORDERS:
LYMPHOMA**, 1690
Sarah J. Vinnicombe • Norbert Avril • Rodney H. Reznick
- 71 **BONE MARROW DISORDERS: HAEMATOLOGICAL
NEOPLASMS**, 1717
Asif Saifuddin

- 72 **BONE MARROW DISORDERS: MISCELLANEOUS**, 1728
Asif Saifuddin
- 73 **IMAGING FOR RADIOTHERAPY PLANNING**, 1737
Peter Hoskin • Roberto Alonzi
- 74 **FUNCTIONAL AND MOLECULAR IMAGING FOR
PERSONALISED MEDICINE IN ONCOLOGY**, 1755
Ferdia A. Gallagher • Avnesh S. Thakor • Eva M. Serrao •
Vicky Goh

SECTION H PAEDIATRIC IMAGING, 1769

Section Editors: Catherine M. Owens •
Jonathan H. Gillard

- 75 **CHALLENGES AND OVERVIEW OF SPECIAL FEATURES
AND TECHNIQUES**, 1771
Catherine M. Owens • Carolyn Young • Øystein E. Olsen
- 76 **THE NEONATAL AND PAEDIATRIC CHEST**, 1778
Veronica Donoghue • Tom A. Watson •
Pilar Garcia-Peña • Catherine M. Owens
- 77 **PAEDIATRIC ABDOMINAL IMAGING**, 1804
Anne Paterson • Øystein E. Olsen • Lil-Sofie Ording Müller
- 78 **IMAGING OF THE KIDNEYS, URINARY TRACT AND
PELVIS IN CHILDREN**, 1848
Owen Arthurs • Marina Easty • Michael Riccabona
- 79 **SKELETAL RADIOLOGY IN CHILDREN:
NON-TRAUMATIC AND NON-MALIGNANT**, 1891
Amaka C. Offiah
- 80 **PAEDIATRIC MUSCULOSKELETAL TRAUMA AND
THE RADIOLOGY OF NON-ACCIDENTAL INJURY
AND PAEDIATRIC FRACTURES**, 1931
Karen Rosendahl • Jean-François Chateil • Karl Johnson
- 81 **BONE TUMOURS AND NEUROBLASTOMA IN
CHILDREN**, 1961
Paul Humphries • Claudio Granata
- 82 **PAEDIATRIC NEURORADIOLOGY**, 1978
Maria I. Argyropoulou • Andrea Rossi • Roxana S. Gunny •
W.K. 'Kling' Chong

SECTION I INTERVENTIONAL RADIOLOGY, 2043

Section Editors: Anna-Maria Belli •
Michael J. Lee • Andreas Adam

- 83 **BASIC CLINICAL REQUIREMENTS OF INTERVENTIONAL
RADIOLOGY**, 2045
Jim Reekers
- 84 **ANGIOGRAPHY: PRINCIPLES, TECHNIQUES AND
COMPLICATIONS**, 2049
James E. Jackson • James F.M. Meaney
- 85 **AORTIC INTERVENTION**, 2065
Christopher J. Hammond • Anthony A. Nicholson

- 86 PERIPHERAL VASCULAR DISEASE INTERVENTION, 2084
Robert A. Morgan • Anna-Maria Belli • Joo-Young Chun
- 87 IMAGE-GUIDED BIOPSY AND ABLATION TECHNIQUES, 2100
David J. Breen • Elizabeth E. Rutherford • Beth Shepherd
- 88 IMAGE-GUIDED DRAINAGE TECHNIQUES, 2115
Michael M. Maher • Owen J. O'Connor
- 89 HEPATOBILIARY INTERVENTION, 2129
Aoife N. Keeling • Bhaskar Ganai • Michael J. Lee

- 90 VASCULAR GENITOURINARY TRACT INTERVENTION, 2145
Jonathan G. Moss • Reddi Prasad Yadavalli
- 91 NON-VASCULAR GENITOURINARY TRACT INTERVENTION, 2165
Uday Patel • Lakshmi Ratnam
- 92 VENOUS ACCESS AND INTERVENTIONS, 2186
Anthony Watkinson • Richard J. Morse
- 93 SPINAL INTERVENTIONS, 2192
Konstantinos Katsanos • Tarun Sabharwal

SUBJECT INDEX, II

SECTION I
INTERVENTIONAL RADIOLOGY

- 82 ASBESTIC INTERVENTIONS, 2005
- 83 BASIC CLINICAL REQUISITES OF INTERVENTIONAL RADIOLOGY, 2042
- 84 AMBROSCARY PRINCIPLES, TECHNIQUES AND COMPLICATIONS, 2077
- 85
- 86
- 87
- 88
- 89
- 90
- 91
- 92
- 93

SECTION F
NEUROIMAGING

- 60 Overview of Anatomic Pathology and Diagnostic Accuracy of MRI
- 61 Brain and Spinal Cord Pathology
- 62 Neurovascular Disease
- 63 Intracranial Pathology
- 64 Inflammatory and Metabolic Diseases
- 65 Neurodegenerative Diseases
- 66
- 67 ENT, Head and Neck Pathology
- 68
- 69
- 70
- 71
- 72
- 73
- 74
- 75
- 76
- 77
- 78
- 79
- 80
- 81
- 82
- 83
- 84
- 85
- 86
- 87
- 88
- 89
- 90
- 91
- 92
- 93