

# Contents

|  |     |
|--|-----|
| <b>Basic Principles</b> .....  | 1   |
| 1 Classification and Safety of Microbubble-Based Contrast Agents<br>EMILIO QUAIA .....   | 3   |
| 2 Physical Basis and Principles of Action of Microbubble-Based Contrast Agents<br>EMILIO QUAIA .....   | 15  |
| 3 Characterization and Design of Microbubble-Based Contrast Agents<br>Suitable for Diagnostic Imaging<br>ELEANOR STRIDE .....  | 31  |
| 4 Contrast Specific Imaging Techniques: Technical Point of View<br>THOMAS ANTHONY WHITTINGHAM .....  | 43  |
| 5 Contrast-Specific Imaging Techniques: Methodological Point of View<br>EMILIO QUAIA and ALESSANDRO PALUMBO .....  | 71  |
| 6 Biological Effects of Microbubble-Based Ultrasound Contrast Agents<br>DIANE DALECKI .....  | 77  |
| <b>Vascular Applications</b> .....   | 87  |
| 7 Cerebral Vessels<br>GIUSEPPE CARUSO, GIUSEPPE SALVAGGIO, FORTUNATO SORRENTINO,<br>GIUSEPPE BRANCATELLI, ANTONIO NICOSIA, GIUSEPPE BELLISSIMA,<br>and ROBERTO LAGALLA .....                                 | 89  |
| 8 Carotid Arteries<br>EMILIO QUAIA, FABIO POZZI MUCELLI, and ANTONIO CALGARO .....   | 101 |
| 9 Detection of Endoleak after Endovascular Abdominal Aortic Aneurysm Repair<br>EMILIO QUAIA .....  | 111 |
| 10 Renal Arteries<br>EMILIO QUAIA .....  | 117 |
| <b>Abdominal Applications: Liver and Spleen</b> .....  | 123 |
| 11 Characterization of Focal Liver Lesions<br>EMILIO QUAIA, MIRKO D'ONOFRIO, TOMMASO V. BARLOTTA,<br>ALESSANDRO PALUMBO, MASSIMO MIDIRI, FABRIZIO CALLIADA,<br>SANDRO ROSSI, and ROBERTO POZZI MUCELLI ..... | 125 |

|  |  |            |
|--|--|------------|
| 12   | Detection of Focal Liver Lesions<br>EMILIO QUAIA, MAJA UKMAR, and MARIA COVA .....   | 167        |
| 13   | Guidance and Assessment of Interventional Therapy in Liver<br>RICCARDO LENCIONI and DANIA CIONI .....  | 187        |
| 14   | Applications of Ultrasound Microbubbles in the Spleen<br>CHRISTOPHER J. HARVEY, ADRIAN K. P. LIM, MADELINE LYNCH,<br>MARTIN J. K. BLOMLEY, and DAVID O. COSGROVE ..... | 205        |
| <b>Abdominal Applications: Kidneys .....</b> |  | <b>221</b> |
| 15   | Characterization and Detection of Renal Tumours<br>EMILIO QUAIA .....  | 223        |
| 16   | Detection of Renal Perfusion Defects<br>EMILIO QUAIA and SALVATORE SIRACUSANO .....  | 245        |
| 17   | Quantitative Analysis of Renal Perfusion at Contrast-Enhanced US<br>EMILIO QUAIA .....   | 255        |
| <b>Cardiac Applications .....</b>            |  | <b>265</b> |
| 18   | Assessment of Regional Myocardial Blood Flow<br>SAUL KALVAITIS and KEVIN WEI .....   | 267        |
| 19   | Assessment of Myocardial Blood Volume<br>KEVIN WEI .....   | 277        |
| <b>Special Topics .....</b>                  |  | <b>293</b> |
| 20   | Abdominal Trauma<br>EMILIO QUAIA .....   | 295        |
| 21   | Breast<br>GIORGIO RIZZATTO, ROBERTA CHERSEVANI, and GITA RALLEIGH .....  | 301        |
| 22   | Lymph Nodes<br>LEOPOLDO RUBALTELLI, ALBERTO TREGNAGHI, and ROBERTO STRAMARE .....  | 315        |
| 23   | Female Pelvis<br>ANTONIA CARLA TESTA, ERIKA FRUSCELLA, GABRIELLA FERRANDINA,<br>MARINELLA MALAGGESE, GIOVANNI SCAMBIA, CATERINA EXACOSTOS,<br>and EMILIO QUAIA .....   | 323        |
| 24   | Vesicoureteral Reflux<br>EMILIO QUAIA .....  | 331        |
| 25   | Pancreatic Pathology<br>MIRKO D'ONOFRIO, GIULIA ZAMBONI, ROBERTO MALAGÒ, ENRICO MARTONE,<br>MASSIMO FALCONI, PAOLA CAPELLI, and GIANCARLO MANSUETO .....               | 335        |

|    |   |            |
|----|---|------------|
| 26 | Intestinal Pathology<br>GIOVANNI MACONI and GABRIELE BIANCHI PORRO . . . . .  | 349        |
| 27 | Contrast-Enhanced Ultrasound of the Prostate<br>ROBERT J. RAMEY . . . . .   | 359        |
| 28 | Contrast-Enhanced Ultrasound in Rheumatic Joints Diseases<br>ANDREA KLAUSER . . . . .   | 365        |
|    | <b>Research Perspectives . . . . .</b>  | <b>381</b> |
| 29 | Quantitative Analysis of Parenchymal Flow at Contrast-Enhanced US<br>DAVID O. COSGROVE, ROBERT J. ECKERSLEY, and MARTIN J. K. BLOMLEY . . . . . | 383        |
| 30 | Therapeutic Application of Microbubble-Based Agents<br>HAI-DONG LIANG, MARTIN J. K. BLOMLEY, and DAVID O. COSGROVE . . . . .                    | 393        |
|    | Subject Index . . . . .   | 403        |
|    | List of Contributors . . . . .  | 407        |



<http://www.springer.com/978-3-540-40740-9>

Contrast Media in Ultrasonography  
Basic Principles and Clinical Applications  
Quaia, E. (Ed.)  
2005, XIII, 413 p., Hardcover  
ISBN: 978-3-540-40740-9