

# Contents

---

## Technique

<b>1</b>	<b>Multislice CT: Current Technology and Future Developments</b> .....	<b>3</b>
	STEFAN ULZHEIMER and THOMAS FLOHR	
<b>2</b>	<b>Dynamic Volume CT with 320-Detector Rows: Technology and Clinical Applications</b> .....	<b>25</b>
	PATRIK ROGALLA	
<b>3</b>	<b>3D Imaging with Flat-Detector C-Arm Systems</b> .....	<b>33</b>
	NORBERT STROBEL, OLIVER MEISSNER, JAN BOESE, THOMAS BRUNNER, BENNO HEIGL, MARTIN HOHEISEL, GÜNTER LAURITSCH, MARKUS NAGEL, MARCUS PFISTER, ERNST-PETER RÜHRNSCHOPF, BERNHARD SCHOLZ, BERND SCHREIBER, MARTIN SPAHN, MICHAEL ZELLERHOFF and KLAUS KLINGENBECK-REGN	
<b>4</b>	<b>Radiation Exposure and Protection in Multislice CT</b> .....	<b>53</b>
	CHRISTOPH HOESCHEN, DIETER REGULLA, MARIA ZANKL, HELMUT SCHLATTL and GUNNAR BRIX	
<b>5</b>	<b>Dual-Energy CT–Technical Background</b> .....	<b>65</b>
	THORSTEN R. C. JOHNSON	
<b>6</b>	<b>Radiation Dose in Multislice Cardiac CT</b> .....	<b>75</b>
	ULRICH SAUERESSIG and THORSTEN A. BLEY	
<b>7</b>	<b>Radiation Risks Associated with CT Screening Procedures</b> .....	<b>83</b>
	ELKE A. NEKOLLA, JÜRGEN GRIEBEL and GUNNAR BRIX	
<b>8</b>	<b>Contrast Agent Application and Protocols</b> .....	<b>97</b>
	MARTIN H. K. HOFFMANN	

---

## Neuro / Ear-Nose-Throat

- 9 **Cerebral Perfusion CT: Technique and Clinical Applications** ..... 111  
MAX WINTERMARK
- 10 **MDCT in Neuro-Vascular Imaging** ..... 123  
DOMINIK MORHARD and BIRGIT ERTL-WAGNER
- 11 **Anatomy and Pathology of the Temporal Bone** ..... 137  
SABRINA KÖSLING, KERSTIN NEUMANN and CURD BEHRMANN
- 12 **Pathologies of the Orbit** ..... 147  
ULLRICH G. MUELLER-LISSE and JUERGEN LUTZ
- 13 **Dental CT: Pathologic Findings in the Teeth and Jaws** ..... 163  
BERNHARD SOMMER
- 14 **Anatomy and Corresponding Oncological Imaging of the Neck** ..... 177  
JUERGEN LUTZ, ULLRICH G. MUELLER-LISSE and LORENZ JÄGER

## Cardiovascular Imaging

- 15 **Noninvasive Coronary Artery Imaging** ..... 193  
HATEM ALKADHI and PAUL STOLZMANN
- 16 **Technical Innovations in Cardiac and Coronary MSCT** ..... 207  
MARTIN H. K. HOFFMANN
- 17 **Assessment of Coronary Artery Stents by Coronary CT Angiography** 225  
DAVID MAINTZ and HARALD SEIFARTH
- 18 **Acute Chest Pain** ..... 233  
JOACHIM-ERNST WILDBERGER
- 19 **The Role of Cardiac Computed Tomography in Cardiac Surgery** ..... 239  
ALEXANDER LEMBCKE
- 20 **New Indications for Cardiac CT** ..... 253  
KONSTANTIN NIKOLAOU
- 21 **Complementary Role of Cardiac CT and MRI** ..... 269  
BERND J. WINTERSPERGER
-

---

<b>22</b>	<b>Complementary Roles of Coronary CT and Myocardial Perfusion SPECT</b> .....	285
	MARCUS HACKER	
<b>23</b>	<b>CTA of the Aorta by MDCT</b> .....	297
	WIELAND H. SOMMER, DANIEL THEISEN and BERND J. WINTERSPERGER	
<b>24</b>	<b>CTA of the Spinal Arteries</b> .....	311
	HENDRIK VON TENGG-KOBLIGK, TIM F. WEBER and DITTMAR BÖCKLER	
<b>25</b>	<b>Lower-Extremity CTA</b> .....	321
	DOMINIK FLEISCHMANN	

## Lung

<b>26</b>	<b>Interstitial Lung Diseases</b> .....	333
	CHRISTINA MUELLER-MANG, CHRISTINA PLANK, HELMUT RINGL, ALBERT DIRISAMER and CHRISTIAN HEROLD	
<b>27</b>	<b>Pneumonia</b> .....	357
	CLAUS PETER HEUSSEL	
<b>28</b>	<b>CT of the Airways</b> .....	377
	HANS-ULRICH KAUCZOR, MICHAEL OWSIJEWITSCH and JULIA LEY-ZAPOROZHAN	

## Oncology

<b>29</b>	<b>Liver Tumors</b> .....	393
	CHRISTOPH J. ZECH	
<b>30</b>	<b>MDCT of Pancreatic Tumors</b> .....	407
	WOLFGANG SCHIMA, CLAUS KÖLBLINGER and AHMED BA-SSALAMAH	
<b>31</b>	<b>Imaging of Colorectal Tumors with Multidetector Row CT</b> .....	423
	ANDREA LAGHI, FRANCO IAFRATE and CESARE HASSAN	
<b>32</b>	<b>Urogenital Tumors</b> .....	443
	PETER HALLSCHEIDT	
<b>33</b>	<b>PET-CT in Oncology</b> .....	455
	GERALD ANTOCH	

---

<b>34</b>	<b>PET and PET-CT in Neuroendocrine Tumors</b> .....	471
	GABRIELE PÖPPERL	
<b>35</b>	<b>Role of MDCT in Bone Tumors, Metastases, and Myeloma</b> .....	481
	ANDREA BAUR-MELNYK and MAXIMILIAN F. REISER	
<b>36</b>	<b>Dual Energy CT: Initial Description of Clinical Applications in the Abdomen</b> .....	495
	ANNO GRASER and MICHAEL MACARI	

## **Intervention**

<b>37</b>	<b>CT-Guided Biopsy and Drainage</b> .....	511
	CHRISTOPH G. TRUMM and RALF-THORSTEN HOFFMANN	
<b>38</b>	<b>Vertebroplasty</b> .....	535
	TOBIAS F. JAKOBS	
<b>39</b>	<b>CT-Guided Tumor Ablation</b> .....	551
	RALF-THORSTEN HOFFMANN, TOBIAS F. JAKOBS, CHRISTOPH TRUMM and MAXIMILIAN F. REISER	
<b>40</b>	<b>Rotational C-Arm-Based CT in Diagnostic and Interventional Neuroradiology</b> .....	559
	ARND DOERFLER, GREGOR RICHTER and WILLI KALENDER	
<b>41</b>	<b>Abdominal Intervention with C-Arm CT</b> .....	579
	CHRISTOPH BECKER	

## **Trauma Imaging / Acute Care**

<b>42</b>	<b>CT Management of Multisystem Trauma</b> .....	587
	MARKUS KÖRNER and ULRICH LINSENMAIER	
	<b>Subject Index</b> .....	599
	<b>List of Contributors</b> .....	615

---