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Series Editor’s Foreword by

A. L. Baert

With 455 Figures in 818 Separate Illustrations, 51 in Color and 29 Tables
I am delighted to introduce a new volume in our series “Medical Radiology” devoted to the clinical applications of spiral CT for study of diseases of the abdomen.

Since the introduction of Spiral CT by W. Kalender a few years ago the technique has matured rapidly and has already found widespread applications in all areas of the body. Spiral CT has now attained a high level of sophistication, which requires from radiologists appropriate knowledge and skills in order optimally to exploit the numerous diagnostic potentials of this modality.

Notwithstanding the considerable progress achieved in abdominal MR due to the recent successful introduction of fast sequences and specific contrast media, CT still plays a major role in daily management of many abdominal conditions and many radiologists devote a considerable amount of their clinical time to this technique.

I would like to congratulate the editors for their excellent efforts in producing this comprehensive and up-to-date overview of abdominal spiral CT applications. They have been very successful in securing the collaboration of so many leading experts in the field, from both Europe and the USA.

This splendid volume will be of benefit to all radiologists eager to remain on the cutting edge of abdominal CT as well as to gastroenterologists and to abdominal surgeons who are interested to learn more about the fascinating possibilities for better diagnostic and therapeutic management of their patients.

As responsible series editor I sincerely hope that this volume – like earlier volumes – will be well received by our colleagues in the different fields of medicine involved.

Leuven

Albert L. Baert
Preface

Until the mid-1990s, the impressive, relentless progress of MRI had led many of us to believe that the days of abdominal CT were numbered. This feeling was made even stronger by the emerging concept of "interventional MRI", which gave the impression that one of the major achievements of CT, namely the guidance of diagnostic and therapeutic interventions, could soon be challenged.

Such pessimism about CT was a big mistake!

Indeed, the future of CT now appears brighter than ever. The advent of the slip-ring technology and the accelerating progress of information technology have laid the foundations for spiral data acquisition, which has allowed the move from slow, step-by-step scanning to fast, volumetric scanning. Highly optimised CT imaging protocols, based on a better understanding of the pharmacodynamics of iodinated contrast media, have resulted in greatly improved imaging of organs such as the liver, kidney and pancreas.

For the study of the aorta and its branches, the inferior vena cava and the portal circulation, powerful workstations can now calculate within a short time two- and three-dimensional reformatted images of exquisite quality from data acquired in the phase of maximal vessel enhancement and during a single breath-hold, a guarantee for high contrast and absence of respiratory misregistration artefacts. In many applications CT angiography has the advantage over MR angiography, and the respective roles of the two techniques still need to be clarified.

Virtual endoscopy provides completely new perspectives for imaging of tubular structures, including the gastrointestinal tract, and could have a major socio-economic impact if its potential in the secondary prevention of colonic carcinoma can be established by clinical studies.

Despite strong competition from US and MRI, CT remains the most informative and comprehensive modality for abdominal imaging in many clinical situations, especially in acutely ill patients and trauma victims and in perioperative situations. Most probably, the privileged role of CT will remain unchanged in the future and will even be strengthened by the breakthrough of multi-array detectors and perhaps also the introduction of tissue-specific contrast media in clinical practice.

All the new achievements in CT technology have led to a revival of CT as a field of exciting research and academic interest, besides its task as the workhorse in daily radiological practice. This is reflected in the large number of highly original publications on spiral CT in the recent literature.

It takes a highly competent team of radiologists and technologists to master state-of-the-art CT. Being in charge of a CT examination no longer just involves deciding whether or not to inject intravenous contrast material. The imaging protocol has to be tailored very precisely to the clinical question one has to answer and to the patient's condition, by adequate selection of scanning and contrast injection parameters. Furthermore, the sophisticated techniques of image reformatting require both familiarity with dedicated workstations and profound knowledge of the clinicians' requirements.

The daily work of the CT team is in no way less complex or challenging than that of the MRI team and requires constant adaptation to the rapidly changing computer environment, very close contact with the referring clinicians and, last but not least, hard work.
In this book, contributions from many leading radiologists and scientists in Europe and the United States have been collected to give a clinically oriented overview of state-of-the-art spiral CT of the abdomen.

We would like to thank all of them for their enthusiasm and excellent work. This book will be a great help to radiologists and technicians involved in the daily use of spiral CT as the prime imaging modality for the abdomen. For clinicians who are interested in abdominal imaging it may serve as a reference work on the capabilities of state-of-the-art CT in this field.

A final word of gratitude to the series editors of Medical Radiology, and to Professor A.L. Baert in particular, for their trust and patience, and to Ursula N. Davis, Janet Dodsworth, and Kurt Teichmann for their great help and professional spirit.

Geneva

François Terrier
Christoph D. Becker
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