Modern medicine is characterized by a high degree of specialization on the one hand and by problem-oriented multidisciplinary cooperation on the other. In the medical field, this concentration of expertise from different authorities, which applies to diagnostic as well as to therapeutic management, is a rather new way of approaching a problem.

Evaluation of the real-time image by the physician in charge and the possibility of repeating the examination without endangering or straining the patient render ultrasonography a particularly attractive investigation.

Preoperative, intraoperative, postoperative, and interventional application has promoted this universally available method to an integral component of the physical examination in many disciplines in which the ultrasound machine has gained a role equivalent to that of the stethoscope.

Specific qualifications and ongoing training are indispensable in order that experience as well as technical innovations will flow into the diagnostic cycle.

We are accordingly supporting our colleagues in the systematic constitution of ultrasound in our specialty. All physicians should acquire the competence to perform sonographic examinations in the sphere of their specialty so that they can use ultrasound as a basic diagnostic tool.

For many years, Dr Mantke and Dr Peitz have been promulgating excellent knowledge of ultrasound and extensive experience in the teaching of sonographic techniques. With this book they have succeeded in elaborating a systematic presentation of ultrasound applications in surgical disciplines. A wide range of excellent imaging material illustrates the theoretical basic knowledge and certainly benefits the reader.

We hope and expect that this cooperative work will find ready acceptance in medical practice.

Hans Lippert, MD
Professor
Head of the Clinical Department of General, Visceral, and Vascular Surgery
Otto von Guericke University
Magdeburg, Germany

P. Malferttheiner, MD
Professor
Head of the Clinical Department of Gastroenterology and Hepatology
Otto von Guericke University
Magdeburg, Germany
Preface

Many readers may ask "Why yet another book on ultrasound?" The answer appears obvious to us: an up-to-date teaching book on ultrasound, comprehensive and yet compact, oriented toward the surgical specialties and focusing on the major topics in surgery is in demand. The ranking of ultrasound among the investigations for surgical diseases has been steadily rising. The reasons are a high diagnostic yield in the first line, combined with availability at almost any time and place, lack of risks, and low cost.

Establishing diagnoses of surgical diseases and deciding on indications for surgical interventions are tasks inherent to the duties of the surgeon, which he or she often fulfills in cooperation with colleagues from related nonsurgical disciplines. The cooperative concept is reflected in the selection of the co-authors for this book. A major part of the text has arisen from interdisciplinary cooperation between surgeons and, for example, endocrinologists, gastroenterologists, gynecologists, orthopedists, and urologists. In most surgical pathologies, sonographic techniques can make substantial contributions along the diagnostic pathway. This applies in particular to surgical emergencies, where ultrasound proves valuable, for example, in the assessment of blunt abdominal trauma and of bowel obstruction, and in the diagnostic confirmation or elimination of cardiac tamponade and of pleural effusions. The debate about which clinical medical disciplines should and may practice diagnostic ultrasound that has been going on for years has in fact long been decided by the reality: the person who is in charge of the patient performs the sonographic examination. Of course that person will ask for guidance and help from the most experienced colleague from his or her institution.

For good reasons, sonographic diagnostic techniques have been incorporated into the logbook of the general surgical trainee and into specialized surgical training programs. In the same way, the formation of a surgical section of the German Society of Ultrasound in Medicine (Deutsche Gesellschaft für Ultraschall in der Medizin [DEGUM]) and the foundation of a Surgical Working Group for Endoscopy and Ultrasound (Chirurgische Arbeitsgemeinschaft Endoskopie und Ultraschall [CAE]) within the German Association of Surgery underline the importance of sonographic examinations in the surgical field.

Ultrasound machines for B-mode and Doppler sonography are nowadays available in every surgical hospital department and in many outpatient clinics and surgeries. Color Doppler ultrasound and its refinements, such as power Doppler ultrasound, are frequently also present or are being shared by members of different disciplines. Miniaturization of ultrasound computers has made possible the construction of portable machines that can be used at the patient's bedside, in the emergency room, or at the site of an accident. Newer technical developments like tissue harmonic imaging and contrast harmonic imaging as well as panoramic and three-dimensional reconstructions are promising to amplify diagnostic possibilities considerably.

The intention of this book is to present surgically relevant knowledge of sonography in a quickly comprehensible and practically oriented form. For this purpose, all sections have been uniformly divided into three units consisting of "Relevant Basic Information," "Sonographic Criteria," and "Consequences for Surgical Treatment." The existing guidelines of the German Association of Surgery have been integrated into the corresponding chapters.

Despite all established surgical standards, every patient requires individual therapeutic decisions. Taking this into account, any book can only be used for basic guidance. The knowledge imparted is founded on numerous publications, the most important of which are listed at the end of the book to enable the reader to gain deeper insight into the matter.

Interpretation of static ultrasound images proves difficult for the unskilled observer. For this reason, each photograph has been accompanied by an explanatory schematic drawing. Sonography does, however, provide and thrive on moving pictures, rendered possible by the process of real-time imaging. The dynamics result on one hand from the examination course itself, with free selection of imaging planes, on the other from the registration of mobile body functions, in particular of the blood flow. Because of these dynamic conditions, the learning of sonography—examination technique as well as image and sound interpretation—requires multiple practical exercises under the guidance of a colleague qualified for training. Practical skills are acquired during daily work as well as from the courses of surgical and radiological colleges. This book has been conceived to provide the necessary theoretical foundation for the resident and fellow in training as much as for the qualified surgeon.

We are particularly indebted to the Directors of our Departments, Professor H. Lippert and Professor P. Malferttheiner, without whose help and generous support the investment of time would not have been tolerable, as much as to our wives Marita Mantke and Lucia Clara Peitz and our children, who had to sacrifice many night and weekend hours with their husbands and fathers. We also express our gratitude to Thomas Scherb MD, Marion Ueckert, Susanne Ristea, and Claudia Güner for the German edition, to Clifford Bergman, Annie Hollins, and Dietrich Herrmann for the English edition, and to the entire team of the Thieme publishing group for their excellent professional support.

Finally, we apologize for any errors that might remain despite the most careful proofreading, and we would sincerely appreciate any constructive critical comment on this book.

René Mantke, Ulrich Peitz