

Foreword

This current volume on *Clinical Chest Ultrasound: From the ICU to the Bronchoscopy Suite* is the 37th in the series, and the 10th since I took over as Editor-in-Chief. For this celebratory 10th volume I wanted to have an unusual topic, but one that would perfectly reflect the spirit of *Progress in Respiratory Research*. When talking to potential guest editors for the book John Beamis, a friend and well-known interventional pulmonologist from Boston, came up with the brilliant idea to choose ultrasound as the topic and to cover all aspects of its use in the chest that might be of interest to pulmonologists and intensivists. The above title was born. The next step was to find guest editors who would be willing to do this book together with me, and bring the necessary knowledge to cover every angle of this new imaging tool. I was delighted that we could get the support of John Beamis for the introductory section, Paul Mayo for the intensive care unit part, Felix Herth for the endoscopic ultrasound section, and Teruomi Miyazawa for the therapeutic procedures, while I covered the transthoracic applications.

A book on imagery tools should include as many illustrations as possible without overdoing it and becoming an atlas, which was clearly not our aim. We therefore made use of the electronic option to put a number of pictures and more importantly all video clips on a special on-line repository open to the purchaser of the book. We hope that this feature will be attractive to the reader especially since these illustrations can also be downloaded for personal use.

The final product should meet the very high standards of the book series, which — by the way — has seen two of its latest volumes receive a ‘highly commended’ award in the BMA Book Competition! In the future we will continue to produce about one book a year about any important aspect of chest medicine. But while waiting for upcoming volumes, get this one and enjoy it!

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Preface

The use of ultrasound in medicine began during and shortly after the 2nd World War in various centres around the world. The work of Dr. Karl Theodore Dussik in Austria in 1942 on transmission ultrasound investigation of the brain is the first published work on medical ultrasonics.

From the mid-1960s onwards, the advent of commercially available systems allowed the wider dissemination of the art. Rapid technological advances in electronics and piezoelectric materials provided further improvements from bistable to greyscale images and from still images to real-time moving images. The technical advances at this time led to a rapid growth in the applications to which ultrasound could be put. The development of Doppler ultrasound had been progressing alongside the imaging technology but the fusing of the two technologies in Duplex scanning and the subsequent development of colour Doppler imaging provided even more scope for investigating the circulation and blood supply to organs, tumours, etc. The advent of the microchip in the 1970s and subsequent exponential increases in processing power have allowed faster and more powerful systems incorporating digital beamforming, more enhancement of the signal and new ways of interpreting and displaying data, such as power Doppler and 3-dimensional imaging.

Ultrasound has received increasing interest from chest physicians in recent years. Modern ultrasound devices are user-friendly, inexpensive, lightweight and portable, which makes them suitable for outpatient settings as well as bedside investigation of the severely ill.

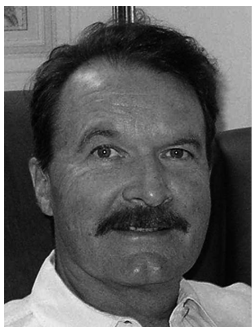
In case of parabrachial lesions, for instance, the view during bronchoscopy is limited to the inner surface, whereas the addition of endobronchial ultrasound systems allows the inspection of structures surrounding the airways.

The various applications of chest ultrasound are set to become practical and essential tools for the pulmonologist in the near future.

However, the medical use of ultrasound remains highly operator dependent in spite of advances in technology, and the interests of the patient are best served by the provision of an ultrasound service which offers the maximum clinical benefit and optimal use of resources, i.e. with appropriately trained personnel using equipment of appropriate quality. Therefore, an adequate level of training in ultrasound is essential for the provision of a safe and effective ultrasound service.

Five different sections of the current volume in the *Progress in Respiratory Research* cover the basics of the technique, the indication and limitations of transthoracic ultrasound, the critical care applications, the endoscopic ultrasound applications, as well as the use of ultrasound in therapeutic procedures. One of the aims was to compile a book, covering all aspects of chest ultrasound ranging from important topics for a beginner to complex applications for the expert.

All chapters were written by leading experts in their respective field, and all have — true to the spirit of the book series — included the latest literature references. All chapters are richly illustrated: for most of them online video examples are available.



Chris T. Bolliger



Felix J.F. Herth



Paul H. Mayo



Teruomi Miyazawa



John F. Beamis

We hope the readers will find this volume a helpful tool in their daily use of chest ultrasound.

We, the volume editors, are grateful to S. Karger Publisher, and more specifically to Mr. T. Nold, Mr. S. Sessler, and Mrs. L. Haas who have been extremely supportive in getting the book published. A big thank you also goes to all the authors for the high quality of their input.

In summary, this first-ever comprehensive overview of all areas of chest ultrasonography is a timely book, and should become a must for all specialists active in the field. It will be very useful to novices and experts alike.

*Chris T. Bolliger, Felix J.F. Herth, Paul H. Mayo,
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