Diagnostic Ultrasound

Text and Cases

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To Sunny
and to
Marc, Jennifer, and Jeffrey
Dennis A. Sarti

To my family, which has
provided so much support
for so long.
W. Frederick Sample

In Memoriam

W. FREDERICK SAMPLE, M.D.,

for his many contributions
to diagnostic ultrasound

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Foreword

The concept of writing a textbook enters your thoughts fleetingly at first and gradually builds. You discuss the project with others who have accomplished the task and hear, "It was very rewarding, but I'll never do it again." You become cautious but optimistic, for the others all survived. Naively, you make a decision to undertake the project. The mental commitment occurs early on. You have no idea of the time commitment necessary until you are too far along to turn back. It is only at this point that you can decide intelligently whether or not to undertake the project. Alas, it is too late.

Diagnostic ultrasound has undergone numerous recent advances that have consistently and often dramatically improved image quality. This has created difficulties in textbook writing. The time frame necessary from when a case is scanned initially to when it appears in print can be as long as two to three years. This presents a dilemma for the practicing ultrasonographer whose current images are of much better quality and are more informative than those in the textbooks. Information becomes outdated by the time it reaches those for whom it was intended.

However, there has been little change in B-scan image quality since the development of the gray scale. Recent research has been oriented toward a digital scan converter and real-time image improvement. Although the digital scan converter has increased system stability, it has not improved image quality dramatically, if at all. Realtime images presently do not compare with high quality B-scan images. Therefore, the time appears right for an extensive, well-illustrated text in the field.

When developing the groundwork or format for a textbook, an author tries to orient his or her material toward a specific audience. Those who are in most need at the present time for such a book are the practicing ultrasonographers and radiologists who have had no formal training in this specific area. Also, the expanding field of radiology will shortly confront its residents with ultrasonography at the board examinations. It is toward these two groups that this text is specifically oriented with the hope that others, such as medical students, technologists, and referring physicians, may also benefit from it.

Much of the design format for this text came from the suggestions of practicing radiologists who visited the UCLA Ultrasound Laboratory for one- to two-week intervals to acquire further training. While visiting, they often asked to peruse a teaching file or some other organized

form of case material. With these requests in mind, we decided to develop this text as an ultrasound teaching file.

The textbook chapters are divided according to organ systems. Each chapter contains two major sections: written text and case material. The written text describes technique, normal anatomy, and pathological states. The initial section of each chapter is primarily the work of the various outstanding contributors, with minor changes by the editors.

The second section of each chapter is comprised of case material compiled and discussed by the editors. Most of the images were obtained from the diagnostic laboratory of the UCLA School of Medicine in Westwood, California, with some from the Harbor General Hospital Campus in Torrance, California. A few of the images were obtained from outside laboratories and will be so noted in the text.

Since diagnostic ultrasound is a visual field, the case material section has been given great attention. The editors have maintained strict control of, and responsibility for, this section for two reasons: (1) the teaching file approach necessitates a uniform presentation; and (2) image quality and extensive labeling are, therefore, more consistent.

Each of the 1192 figures in the text is abundantly labeled. The decision to maintain extensive labeling was both intentional and time-consuming and was accomplished because we felt that the beginning and intermediate ultrasonographer can learn a great deal of anatomy from these images, through the labeling, in addition to the obvious pathology for which each case was presented.

As a project such as this reaches completion, it becomes obvious that the efforts and energies of many individuals are responsible for the end result. Most of the images in this text were performed by, or with the assistance of, technologists who are intelligent, highly motivated, and extremely independent. The excellent technical skills of the following individuals were invaluable in compiling the cases: Gerta Awender, Bob Clark, Fred Gardner, Rosemary Glenny, Janel Parker, Pamela Scarlett, and Kathleen Weber.

Since the text contains a large number of images, photography plays an extremely important role. We have been fortunate to have the assistance of Kim Willis who worked long hours under adverse conditions to accomplish what at many times must have seemed an insurmountable task. Lastly and most importantly, we wish to express a special thanks to Jean Slater who provided the secretarial assistance necessary in this endeavor. In addition to her other duties, which are burdensome, she found the time and energy to complete this project; and she was there to give encouragement at the numerous low points along the way.

Dennis A. Sarti
W. Frederick Sample