
Preface

Echocardiography is a widely used imaging modality for the assessment of patients with heart disease. It is versatile and can be performed at the bedside to promptly provide reliable anatomic and functional information useful for the management of the patient. It involves no ionizing radiation and is therefore ideally suited for serial studies in the follow-up of patients with chronic heart diseases.

There have been many technological advances in echocardiography, resulting in an improvement in image quality and new insights into cardiac mechanics. New indices such as tissue velocities, torsion, strain, and strain rate open new avenues to assess global and regional myocardial performance. Real-time three-dimensional echocardiography has recently become a reality and provides unique anatomic perspectives unobtainable heretofore. Further technological improvement will likely ensure that three-dimensional echocardiography becomes an integral part of the echocardiographic examination. In order to fully appreciate and utilize these advances, it is crucial to have an in-depth understanding of the cardiac anatomy, which is the basis of echocardiography. For instance, mitral valve repair is now the surgical method of choice for the treatment of patients with degenerative mitral valve disease and severe mitral regurgitation. Repair is also increasingly used for other etiologies of mitral regurgitation. An excellent understanding of the mitral valvular and subvalvular anatomy is a prerequisite to the selection of appropriate patients and the detection of complications associated with the surgical repair.

The aim of this book is to provide a systematic approach in the clinical application of echocardiography, which is based on a comprehensive understanding of cardiac anatomy and pathology. We have included many three-dimensional echocardiographic images to highlight normal and abnormal findings, as well as numerous pathologic images to provide anatomic correlates of the echocardiographic findings. All the images are carefully selected to illustrate the key findings of the conditions under discussion. There are a total of 680 figures, many of which are composites of two to six images covering a wide spectrum of cardiac diseases, and therefore the book can serve very well as an atlas and should be useful to sonographers, cardiology trainees, internists, and cardiologists.

The book is divided into three sections. The first section discusses the cardiac anatomy and normal variants, which need to be appreciated and differentiated from abnormal findings. The ability to obtain optimal images requires an understanding of the orientation of the heart in the thorax and its effect on the acoustic windows. The impact of aging on cardiac structure and function is also included in this section. The second section covers diseases that affect various cardiac structures such as the valves, the myocardium, and the pericardium. The last section of the book examines specific

clinical settings in which echocardiography plays a pivotal role in the differential diagnosis and clinical management. One example is the role of echocardiography in the patient suspected to have had an embolic event due to a cardiac source. An analysis of the data linking the known cardiac sources to embolism is presented. Ample examples that incorporate echocardiographic images with pathologic correlations are included in every chapter. Regular dialogue and frequent review between the pathologist and the echocardiographer are invaluable, and we have been fortunate to have a close working relationship. The book is evidence of the success of this collaborative approach.

We owe a huge debt to our patients who are the source of the clinical materials in the book. Our sincere gratitude goes to our families who sustain us, our colleagues who support us, and our students who motivate and inspire us. The sonographers, pathology technicians, and pathologist assistants at our institute deserve recognition for their dedication and expertise, as most of the images are the product of their hard work. We also like to thank Donna Justus for her expert secretarial support and tireless enthusiasm. Any errors and omissions are our own failing and hopefully will be corrected in the subsequent edition.

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