

SEVENTH EDITION

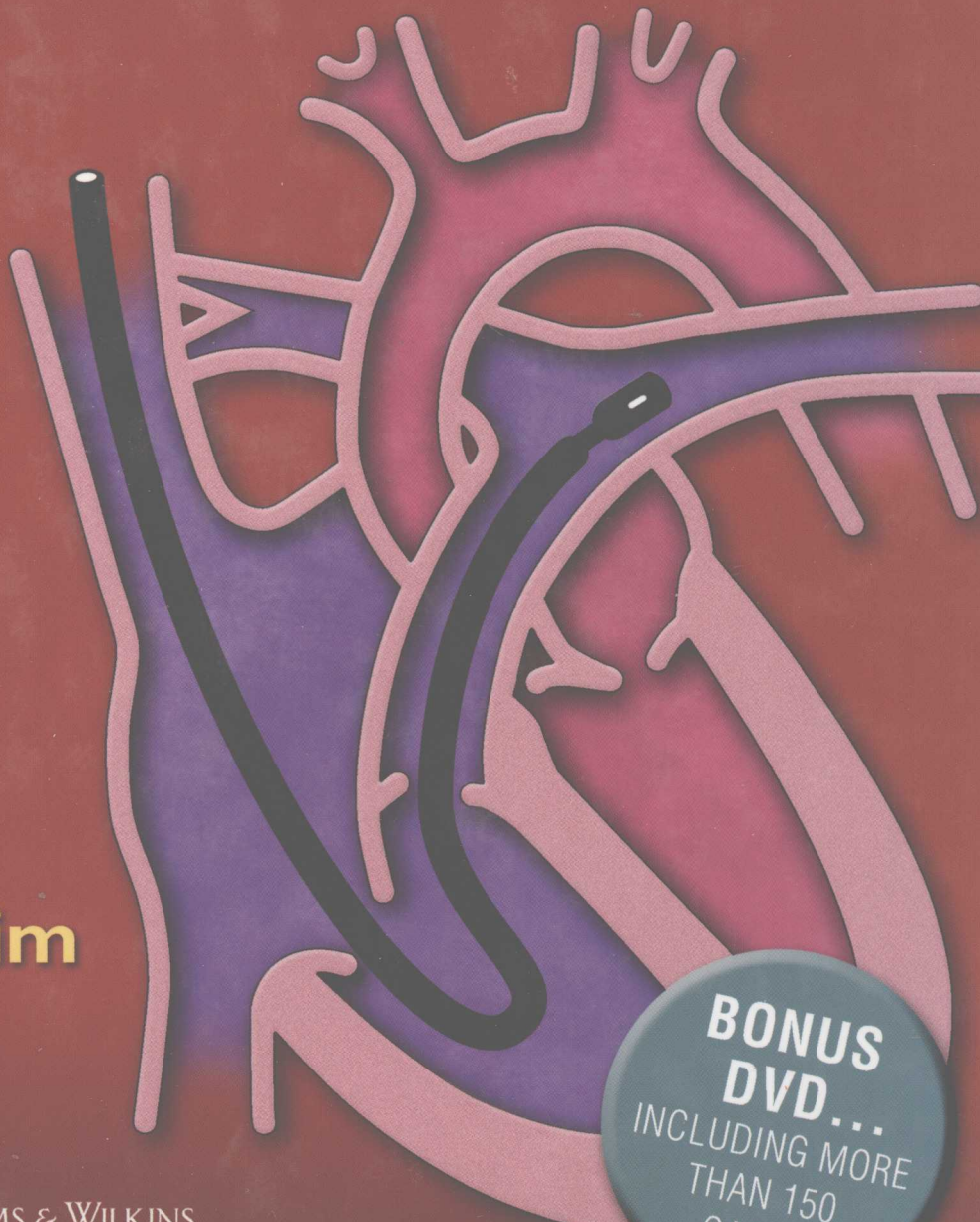
GROSSMAN'S

Cardiac Catheterization, Angiography, and Intervention

Donald S. Baim



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GROSSMAN'S

Cardiac Catheterization, Angiography, and Intervention

David S. Goss



Grossman's Cardiac Catheterization, Angiography, and Intervention

SEVENTH EDITION

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Grossman's Cardiac Catheterization, Angiography, and Intervention

SEVENTH EDITION

To my friend, mentor, and colleague—Bill Grossman—recognizing his vision and persistence in creating and then sustaining this textbook over the past 25 years.

And to my wife and children, for bearing with me over the many months of night and weekend work that were required to create this seventh edition.

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Preface to the 7th Edition

This seventh edition of Grossman's *Cardiac Catheterization, Angiography, and Intervention* represents a major milestone in the history of this text: After 30 years of brilliantly shaping this book since the publication of the first edition of *Cardiac Catheterization and Angiography* in 1974, William Grossman has stepped down as its coeditor. His legacy, however, remains clear in the title of the book, in the content of the hemodynamic chapters, and hopefully in a lucid style that always seeks to balance theory and evidence-based medicine with practical technical tips.

The basic structure of recent editions has been retained, with sections devoted to general principles, basic techniques, hemodynamic principles, angiographic techniques, evaluation of cardiac function, special catheter techniques, interventional techniques, and profiles of specific disorders. But in accord with the major and ongoing shifts from the use of the cardiac catheter as a purely diagnostic tool to an important therapeutic tool, the emphasis in this 7th edition of Grossman's has been shifted even further toward interventional techniques.

The returning reader will find many major enhancements throughout this edition. Some examples are the updated treatment of digital x-ray systems and radiation biology, the enhanced treatment of complications and adjunctive pharmacology, the fuller discussion of percutaneous radial artery approach to left heart catheterization, and the strengthened treatment of both pediatric and adult congenital heart disease. Several chapters have been recast, including those relating to pulmonary angiography and pulmonary embolism, endomyocardial biopsy, circulatory assist devices, as well as profile chapters on coronary artery disease, cardiomyopathy and heart failure. In addition, the interventional section has been totally revamped as pertains to atherectomy, thrombectomy, and distal embolic protection devices; bare metal and drug-eluting stents; percutaneous valve therapies (including new approaches to catheter-based reduction of mitral regurgitation and percutaneous valve replacement for aortic stenosis); and the interventional treatment of pediatric and adult congenital heart disease. The coverage of peripheral vascular disease has continued in three chapters devoted to the head-to-foot review of diagnostic methods, interventional techniques, and case examples.

These represent only a few of the most prominent changes introduced in an attempt to capture the major progress made in this field since the publication of the sixth edition in 2000. We have also revised and expanded the companion DVD-ROM compared with that of the previous

edition—it now includes more than 150 digital cases that show a full spectrum of normal anatomy, anatomic variations, diagnostic and interventional procedures, and a variety of complications. This companion DVD-ROM also includes more than 20 animations that illustrate the principle of action of various invasive and interventional devices. These materials are an important supplement and significant extension of the printed text, and are intentionally encoded in unprotected standard media formats to enable their extraction for use in teaching materials or presentations.

The growing clinical use and rapid evolution of interventional techniques, and the ongoing introduction of important new methods all underscore the importance of providing a comprehensive, balanced, and up-to-date resource in this field. It is my sincere hope that this text will be one such resource, and prove valuable to both new entrants to invasive and interventional cardiology (Fellows and new catheterization laboratory staff) and to the more than 10,000 practitioners of this specialty worldwide. Because the pace of development in this area is continuing to accelerate, readers are encouraged to monitor new publications and trial results frequently or keep abreast of new developments in this area through such resources as Up-to-date www.uptodate.com/index.asp.

Even while working to provide the latest current information, I have tried not to lose the incremental (layer on layer) historical flavor and theoretical background (including approaches that were tried and abandoned) that have been such an integral part of this textbook. I believe that this context adds significantly to the reader's overall understanding and can be particularly valuable as discarded procedures reenter mainstream practice (e.g., trans-septal puncture)! Most important, I hope that my efforts and those of the contributing authors to describe the scope and depth of invasive and interventional cardiology will translate into the better patient care, as invariably stems from an improved understanding on the part of those who perform and interpret cardiac catheterization procedures.

Beyond the list of contributing authors, I wish to thank my many colleagues across the country and throughout the world whose shared experiences have been woven into much of the material contained in the book, as well as several generations of our Cardiology Fellows for their questions and research efforts that have led to many of the principles and techniques described throughout this book.

Donald S. Baim, M.D.
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Preface to the DVD Companion to Grossman's 7th Edition

The previous (6th) edition of this text included a companion CD-ROM that contained roughly 40 full-motion cases illustrating various types of coronary anomalies, interventional procedures, and complications. At that time, most cases were captured onto 35 mm cine film and then transferred to electronic media. During the past 5 years, virtually all cardiac catheterization laboratories have converted from 35 mm film to DICOM-standard digital recording (as discussed in Chapter 2), which allows far easier and higher-quality image migration into secondary (i.e., non-DICOM) electronic formats. There has also been progressive penetration of DVD-ROM technology, with its 8-fold greater memory capacity than the traditional CD-ROM.

For the current (7th) edition of *Grossman's*, we have taken advantage of both of those technologic advances, to provide a companion DVD-ROM that contains more than 150 cases covering an even-broader range of classic findings, specific procedures (including percutaneous valve and other new therapies), anomalies, and complications. We have also revised the presentation format to the now prevalent electronic slide show containing imbedded movies. Most cases conclude with a summary of important teaching points, and references to the particular chapters in the printed textbook.

The cases were generally performed by one of us (DSB or JJP) unless otherwise noted.

We cannot predict how you may choose to view these cases—some readers may find it most useful to review the clusters of these cases that pertain to certain chapters of the printed book as they read them, other readers may wish to review specific case examples related to actual procedures that they have just or are about to perform, while some very experienced operators (or those preparing for certifying exams) may choose to use them as a series of “unknowns” to test their ability to recognize various findings. Either way, we can assure you of 2 things: 1) there are procedures, findings, and complications that even the most experienced operators have never encountered, and 2) failure to delve into these case examples will limit the overall educational benefit provided by the 7th edition!

Please feel free to transfer any of the case examples from the DVD to your own computer for use in educational formats such as cath lab teaching conferences or presentations at meetings, as long as you acknowledge their source.

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