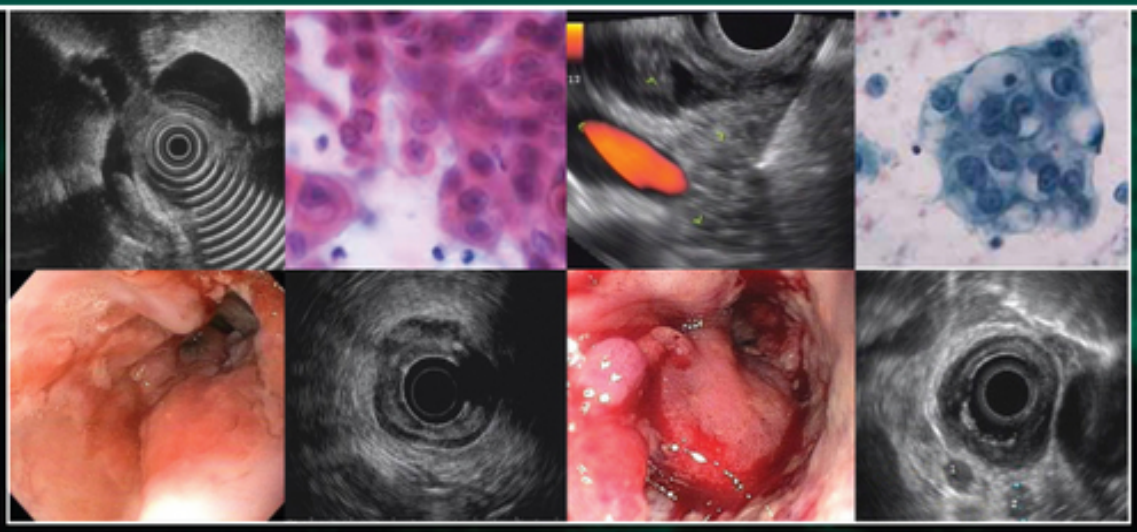
Atlas of Endoscopic Ultrasonography



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with website

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Table of Contents

Part 4: How to Section

We dedicate this to our families whose support and love allowed us to create this atlas.

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Preface

Learning to perform and interpret endoscopic ultrasound (EUS) requires both didactic learning and repetitive exposure to images. We presented detailed aspects of the didactic part of learning in the Gress and Savides textbook *Endoscopic Ultrasonography*. The purpose of this atlas is to allow aspiring endosonographers to visualize numerous examples of images and videos as they improve their pattern recognition of pathologic conditions. Additionally, expert authors have been asked to write a brief, less than 1000 words narrative without references, about the important concepts related to their topics.

This atlas will be of interest not only to those learning EUS, but also those who already perform EUS and want to quickly update their daily use of EUS in terms of diagnosis and therapy. Additionally, the images and videos are in a form which can be easily downloaded from the accompanying DVD in order to give presentations to others.

We are lucky to have added two expert teachers of endosonography, Brenna Bounds and John Deutsch. They bring expertise in EUS video training to the project, as well as contributing significantly from their collections. Without them, this project would not have been possible.

Our contributors are either the “first-generation” pioneers of endosonograpy or “second-generation” protégés of those pioneers. Their collective experience in applying endoscopic ultrasonography in the management of gastrointestinal diseases is unsurpassed. A tremendous amount of effort on the part of each individual author has led to this new atlas. We are deeply grateful to them for their outstanding collaboration.

Frank G. Gress

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Part 1: Normal EUS Anatomy
1

Normal Human Anatomy

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Introduction

The Visible Human Project at the University of Colorado has generated large volumes of human anatomy data. The original information is captured by slowly abrading away frozen human cadavers in a transaxial manner and capturing the anatomy by digital imaging. The digital data is compiled and then over the years is manipulated by scientists at the University's Center for Human Simulation to allow access to identified cross sections in any plane as well as to models which can be lifted from the data set. Details regarding the Visible Human Project and its applications to gastroenterology and endosonography have been previously described.

This atlas is fortunate to be able to use the interactive anatomy resources developed by Vic Spitzer, Karl Reinig, David Rubenstein, and others to create movies that help explain what takes place during endoscopic ultrasound (EUS) evaluations. Since EUS is a "real-time" examination, it seems reasonable to present this section primarily as "real-

time” videos. The videos can be viewed over and over, allowing endosonographers to look not only at the highlighted structures, but also at structures they might visualize during EUS that are not specifically identified on the selected video.

This chapter uses the terms “radial array orientation” to describe planar anatomy which would be found perpendicular to a line going through the digestive tract (as would be generated by a radial array echoendoscope, Figure 1.1) and “linear array orientation” for planar anatomy generated parallel to a line going through the digestive tract (as would be generated by a linear array echoendoscope, Figure 1.2).

Figure 1.1 Visible Human Model of esophagus, stomach, and duodenum. The green circle shows a plane perpendicular to the axis and is similar to a plane developed during radial array endosonography.