
Preface

Imaging is central to the diagnosis and management of patients with known or suspected pulmonary disease. Advances in imaging technology, particularly computerized tomography (CT), have broadened our understanding of pulmonary disease and have changed how we care for our patients.

Chest radiography remains the most commonly performed medical imaging examination because it is widely available, relatively inexpensive, uses very low doses of ionizing radiation, and often can answer the clinical question at hand. Radiography has been enhanced by the transition from film-screen to digital imaging and the subsequent electronic distribution of images and radiologic reports. Newer technologies such as dual-energy radiography and computer-aided detection (CAD) can further enhance the utility of radiography.

The impact that CT has had on our understanding of pulmonary disease cannot be summarized in this brief introduction. CT has become a standard component of assessing respiratory tract disease. With current scanner technology, volumetric high-resolution CT (HRCT) images can readily be generated from routine chest CT scans at the time of imaging with little or no change in acquisition parameters. In fact, some institutions, such as mine, routinely generate thin-section images with all chest CT scans performed. CT pulmonary angiography has changed the paradigm for evaluating patients with suspected pulmonary thromboembolic disease, providing more definitive diagnosis and frequently identifying other causes of patients' presenting signs and symptoms. CT is also used to guide transthoracic needle biopsies.

The utility of magnetic resonance (MR) imaging for pulmonary disease has been relatively limited not only because of technical limitations but also because of overshadowing by the rapid growth in CT technology and applications. However, MR imaging techniques currently under development show promise for evaluation of the lungs. Furthermore, the ability to integrate cardiac and pulmonary imaging with a single MR imaging examination has the potential to revolutionize how we think about the intimate relationship between the heart and lungs.

While we can expect many exciting developments in pulmonary imaging in the future, one still needs to understand how imaging available

today fits into the evaluation of our patients. This text aims to provide a clinically oriented approach to imaging the lungs and is by no means a comprehensive thoracic imaging text. Rather, the authors focus on specific clinical problems such as pulmonary thromboembolic disease, hemoptysis, or lung cancer, and they discuss the utility of imaging in addition to illustrating the imaging findings commonly encountered. It is my hope that the novice reader will find this text a useful introduction to how imaging fits into the evaluation of patients with known or suspected pulmonary disease. Additionally, more experienced readers may benefit from the focused approach to specific clinical problems or patient care settings and better understand the imaging tools available to improve care for their patients.

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