tor expression is induced by cigarette smoke and is commonly abundant on airway epithelial cells in early pulmonary Langerhans cell histiocytosis lesions, but not elsewhere in lung biopsies of uninvolved tissue in the same patient—but this may be an epiphenomenon.

Another fascinating chapter describes new information about lymphangioleiomyomatosis, which occurs clinically as a sporadic disease in which histologically benign-appearing smooth-muscle cells infiltrate all structures throughout the lungs and result in cystic changes and disabling pleural effusions. There is no explanation at present for the cystic changes. Since symptomatic lymphangioleiomyomatosis occurs solely in women during the third to fifth decade of life, empirical antagonism of estrogen action with progestins is the usual therapy tried. Its success is unproven. Perhaps this is not surprising, since lymphangioleiomyomatosis usually worsens during pregnancy, a progestational hormonal state.

In their chapter, Henske and McCormack describe the new but incomplete understanding that lymphangioleiomyomatosis is related to tuberous sclerosis, an autosomal dominantly inherited disease of benign tumors in multiple organs. Thirty to forty percent of tuberous sclerosis patients have identifiable (but usually asymptomatic and rarely progressive) areas of lymphangioleiomyomatosis in their lungs. While tuberous sclerosis complex occurs in men and women, lymphangioleiomyomatosis is found solely in women. Moreover, the current conventional wisdom is that pulmonary lymphangioleiomyomatosis represents metastasis of histologically benign smooth-muscle cells to the lung—but only in women. Why? There are 2 theories: the particular smooth-muscle cell that participates is found solely in women (this seems unlikely); or (the more favored explanation) the hormonal milieu of young adult women favors metastasis through the thoracic duct. Lymphangioleiomyomatosis cells migrate up the thoracic duct into the internal jugular vein and are distributed throughout both lungs by the pulmonary arteries.

As for other links of lymphangioleiomyomatosis to tuberous sclerosis: 80% of tuberous sclerosis cases result from a de novo mutation in one of 2 genes, leading (most often) to angiolipomas in both kidneys, and possibly to large benign tumors ("tubers") in the brain and angiofibromas on the face. Angiolipomas's cell of origin is a somewhat immature smooth-muscle cell indistinguishable from those found in the lungs of affected lymphangioleiomyomatosis patients. The most exciting news about lymphangioleiomyomatosis is that, as in tuberous sclerosis complex, the mammalian target of rapamycin (mTOR) is over-expressed. In tuberous sclerosis this is due to a mutation in TSC1 or TSC2. Failure of inhibition of mTOR results in exuberant protein synthesis and cell proliferation in numerous cell types. Rapamycin (sirolimus), a potent immunosuppressive drug used after organ transplant, has now been tested in clinical trials in lymphangioleiomyomatosis patients and the results were promising, but without the stunning success of, for example, Gleevec in chronic myelogenous leukemia.

Some of the other chapters were less appealing to me. However, a great strength of this collection is that the writing is by experts and quite good: what is known is there in black-and-white text, diagrams, tables, color photomicrographs, reproduced computed tomography slices, and plain radiographs. This stands in contrast to reviews one finds too often these days, in which a junior author presents what resembles a book report with a senior author's name attached.

Most of this book's chapters are around 20 pages and include what you'd expect: disease epidemiology; available evidence on mechanism, including human and animal studies; clinical information on presentation, diagnosis, management, and prognosis; and abundant references. From Hermansky-Pudlak syndrome to cystic fibrosis, this compendium summarizes nearly all the uncommon lung diseases. For interested readers who prefer that approach to searching PubMed for a recent review (possibly of iffy quality), this would be a good book to have. However, since so much information about disease mechanism is a "work in progress," and where little is known, this book's authors resort to describing complex animal experiments that may be of dubious relevance in the long term, this book may not be a good choice for everyone in the field. Moreover, it does not pretend to be a clinically useful guide.

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Thoracic Imaging. Michael Galanski MD. *Direct Diagnosis in Radiology* series. Stuttgart: Thieme. 2010. First published in German. Soft cover, 368 pages, $59.95.

The *Direct Diagnosis in Radiology* series comprises 12 pocket-sized books covering the main diagnostic imaging subspecialties. These texts cover the essential diagnoses a practicing radiologist should be aware of, in a well organized way, and are ideal for quick reference during a busy work day.

Thoracic Imaging is a 368-page soft cover-book, divided into 13 chapters, which covers the most commonly encountered disorders in chest radiology. The text follows the standard format of the series, including a brief definition (epidemiology, etiology, pathophysiology, pathogenesis) of each included disease; descriptions of imaging signs (modality of choice, radiographic, computed tomography, and magnetic resonance imaging findings, pathognomonic findings); review of clinical aspects (typical presentation, therapeutic options, course and prognosis, and "what does the clinician want to know"); and discussion of differential diagnosis. Each section is rounded out with tips, pitfalls, and selected references for those seeking a more in-depth review.

The authors hail from Germany, and in fact the book was first published in German and later translated to English, which explains the subtle differences in terminology from what is commonly used in the United States. However, this does not detract from what is overall a very successful attempt to provide an easily accessible, comprehensive review of more common diseases in thoracic radiology, leaving the more esoteric conditions for other more detailed texts. Throughout the text, the writing is clear and concise, and sections are bulleted and highly structured. Perhaps most importantly for the radiologists who will be referencing this book, an appropriately large number of high-quality diagnostic images illustrate the key findings within each section.

The opening chapter is dedicated to congenital disorders, including arteriovenous malformation, shunt, scimitar syndrome, pulmonary sequestration, pulmonary artery hypoplasia and atresia, and bronchial atresia. The disease processes are outlined in a

very factual and understandable manner, and relatively well illustrated with clear radiographs and computed tomograms. For the most part the text is comprehensive while remaining succinct. The section on shunt is somewhat limited, not unexpectedly, as this is a large topic and shunt has a wide range of causes and imaging findings. Echocardiography and magnetic resonance imaging are noted to be the modalities of choice for imaging, although only radiograph cases are provided within the section. Additional congenital processes, such as cystic adenomatoid malformation and congenital lobar emphysema, are excluded from the chapter.

Chapter 2 covers disorders of the airways and is appropriately longer, as this is a broad category with many diseases that radiologists regularly encounter. Sections cover hypertransradiant hemithorax, bronchiectasis, bronchiolitis, bronchiolitis obliterans, chronic bronchitis, cystic fibrosis, pulmonary emphysema, atelectasis, rounded atelectasis, middle-lobe syndrome, immotile cilia/Kartagener syndrome, and foreign-body aspiration. The trend of more thorough reviews of topics most often encountered in daily radiology practice continues in the next 10 chapters, with a relatively extensive discussion of infections, immune disorders, disorders of uncertain etiology, bronchopulmonary neoplasms, and mediastinal disorders. Coverage of occupational diseases, idiopathic interstitial pneumonia, collagen diseases and vasculitis, and disorders of the pulmonary circulatory system, chest wall, and pleura is less comprehensive but more than adequate for a pocket reference. Essential facts are included without the clutter of detailed discussion. Illustrative cases and images continue to be well selected for each chapter.

The final chapter is reserved for discussion of sequelae of therapy, including drug reaction, radiation reaction, reperfusion edema, bronchiolitis obliterans syndrome, engraftment syndrome, central venous catheters, cardiac pacemaker, parenchymal calcification, and pulmonary calcinosis. Included in the section on central venous catheter there is a simple illustration that nicely demonstrates the potential intravenous pathways that a catheter (when placed correctly or incorrectly) may follow on chest radiograph. Iatrogenic processes are frequently encountered by radiologists but often excluded from reference books, making this chapter particularly useful.

Thoracic Imaging provides a thorough review of the essential facts of common diseases in thoracic radiology for a very affordable $59.95. Its small size allows for convenient storage in a lab coat pocket, small bag, or drawer. The print and image quality is excellent, and the binding is sturdy. Overall, this text is an excellent reference for general radiologists and trainees, and may be equally valuable to pulmonologists and other clinicians with an interest in chest imaging.

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