Diagnosis of Medical Lung Diseases Using a Low Power Approach

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Every histologic examination of a slide begins with pickingup the slide. Sometimes, considerable informationcan be gleaned from looking at the slide before putting it on the stage of the microscope. In the case of wedge biopsies of lung, because the normal lung contains air and is relatively clear on a slide, disease patterns can be apparentat shirt-sleeve magnification (holding a slide over a white sleeve) and may provide useful information for an initial differential diagnosis. The usefulness of this approach is the subject of my talk. It deals with lung specimens obtained by thoracoscopy or thoracotomy where sufficient tissue (approximately 1 cm^2 or greater) is available for such observation. It is based on light microscopyand staining with hematoxylin-eosin. This talk divides medical lung disease into chronic and acute, where the temporality is determined first by clinical circumstances and then confirmed by histopathology. The low-power patterns of various lung diseases overlap, sometimes greatly. Nevertheless, classic examples of chronic disease can be sorted as linear, lobular filling, nodular dispersed, nodular lymphangitic, or cystic patterns at shirt-sleeve or low-power magnification. Classic examples of acute disease generally produce a solidifying pattern at shirt-sleeve or low-power magnification, which can be followed by a determination as to whether alveolar filling is principally fibrotic or principally fluid or cells at higher magnification. This talk gives a simple system for the categorization of medical lung disease by this approach, with an emphasis on the most common diseases to be encountered in a general surgical pathology practice. In our experience, this system also proves useful in arriving at some therapeutic decisions.

Table. Medical Lung Disease: The Big Picture on the Glass Slide*

Chronic disease

- Linear (interstitial, eg, UIP; Rx ineffective)
- Lobular filling (eg, DIP/RBILD; Rx cessation of smoking)
- Nodular dispersed (bronchiolar, eg, BOOP, aspiration, EG; Rx variably effective)
- Nodular lymphangitic (eg, sarcoid; Rx variable depending on degree of scarring)
- Cystic (eg, LAM, EG; Rx variable depending on degree of scarring)

Acute disease

- Floridly fibrotic consolidation (eg, DAD; Rx ineffective unless etiology determined)
- Fluid and cellular consolidation (eg, hemorrhage, edema, infections, eosinophilic pneumonia; Rx variable but potentially effective)

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* UIP indicates usual interstitial pneumonitis; Rx, therapy; DIP, desquamative interstitial pneumonitis; RBILD, respiratory bronchiolitis–associated interstitial lung disease; BOOP, bronchiolitis obliterans–organizing pneumonia; EG, eosinophilic granuloma (Langerhans cell histiocytosis); LAM, lymphangioleiomyomatosis; and DAD, diffuse alveolar damage.