When confronted with complex forms of lung disease, the chest physician’s initial evaluation must be both broad and dynamic. In most circumstances, the diagnosis is at least initially elusive, and a final judgment requires an expansive and ongoing clinical assessment that includes multiple investigations. Eventually, these multiple pieces of information need to be, like a puzzle, placed into the correct context for the entire picture to be clear. These investigations and their interpretation often require the expertise of multiple physician disciplines. This requirement for diverse interdisciplinary collaboration requires close collaboration and communication between multiple physicians, particularly the chest physician, radiologist, and pathologist.

For example, in the investigation of diffuse or interstitial lung disease (ILD), the importance of a comprehensive history cannot be overestimated; however, both the chest-imaging pattern seen on high-resolution computed tomography (HRCT) and the histopathologic pattern seen on surgical lung biopsy (SLB) add critical diagnostic and prognostic information. Therefore the clinical features, HRCT, and SLB all play essential roles. The result of SLB is frequently assumed to provide the most definitive diagnostic and prognostic information in diffuse lung disease. However, its interpretation is subject to significant intraobserver and interobserver variability, and not all biopsies can be definitively classified. Correspondingly, while recent advances in HRCT scanning technology and interpretation have paid clear diagnostic and prognostic dividends, similar limitations exist: intraobserver and interobserver variability and the common presence of nonspecific patterns.

Recognizing the limitations inherent in our individual disciplines, the American Thoracic and European Respiratory Societies recommend a dynamic and integrated diagnostic process in diffuse lung disease with clinicians, radiologists, and pathologists all exchanging information. Such an approach has been shown to lead to changes in the final diagnosis when compared with decisions made by individual physicians acting in isolation.

This confirms the commonly held belief that a radiologist or pathologist is at a disadvantage if asked to interpret an HRCT or lung biopsy without the relevant clinical history such as symptomatic presentation, exposures, smoking status, and associated diseases. The requirement for collaborative communication goes both ways; once a pathologist has recognized a histologic pattern such as nonspecific interstitial pneumonia (NSIP), the clinician may need to further investigate the potential causes, including exposures that could lead to hypersensitivity pneumonitis, laboratory or clinical features of collagen vascular disease, and medication or toxin exposure. The rapid and frequent sharing of clinically relevant information to optimize diagnosis is essential now and is likely to increase in importance in the future as new imaging and laboratory-based diagnostic techniques are created.

A basic requirement for this type of interdisciplinary interaction is a common language for communication. If we are all speaking different languages, how can we effectively communicate? What makes this more challenging is that despite almost identical training up to the time of residency, chest physicians, pathologists, and radiologists speak superficially similar but different languages. This often results in a poor understanding of shared information, particularly in written communication. An example of how this can occur is illustrated in the classification of the ILD. Liebow and Carrington’s long experience with surgical lung biopsies led them to notice certain repeating histologic patterns. In 1969, they gave specific names to these patterns. For biopsies with extensive fibrosis and extreme field-to-field variation, microscopic honeycombing and fibroblast foci, they coined the term usual interstitial pneumonia (UIP), and for biopsies characterized by widespread accumulation of cells (initially assumed to be shed epithelial cells), they coined the term desquamative interstitial pneumonia. Although later work in desquamative interstitial pneumonia showed these cells to be macrophages, the term was already entrenched in the language of pathologists.
and has been resistant to change. In an extension of this classification scheme, one of Liebow’s colleagues, Anna Luise Katzenstein, noticed that some of the biopsies she was seeing did not fit into any of the earlier described patterns of inflammation and fibrosis. She christened the pattern NSIP.11 Like the earlier categories, this pattern has become part of the working language of the pathologists.

Taking a lead from the lung cancer paradigm in which the results of the biopsy became the diagnosis, chest clinicians began to incorporate these pathologic terms into their lexicon and these histologic patterns, almost imperceptibly, became clinical diseases. If patients had a SLB pattern of NSIP fibrosis, they had a disease NSIP. These pathologic patterns became the clinical disease by associating the terms with demographic, prognostic, and therapeutic observations gleaned from practice. “Patients with NSIP do better than patients with UIP.” “Patients with NSIP often have co-existing collagen vascular diseases.” But all is not well. “The pathologist called the biopsy NSIP, but they did not get better with immunosuppression and died in a year. I think it was really UIP.” What has happened is that while the pathologist is using the words UIP and NSIP to describe a pattern, the clinician is talking about the diseases with expected clinical behavior. Neither side understands the confusion because the common verbiage disguises the shifting semantic. To paraphrase how Winston Churchill described the United States and Great Britain, “Two great countries separated by a common language.” Now enter Radiology.

With HRCT, the radiologists are relative newcomers to the classification of ILD. Like their pathology colleagues, radiologists describe imaging patterns with a well-defined lexicon,12 although at a much larger scale than that typically used by pathologists. Features seen under the microscope often have no clear radiologic correlate. For example, fibroblast foci are rarely much larger than 0.1 mm whereas the resolution of HRCT is 0.5 to 1.0 mm. More confusingly, the term ‘honeycomb cysts’ is found in the language of both the pathologists and radiologists. However, this feature is not the same at both scales. The ‘microscopic’ honeycomb cysts on most wedge biopsies are typically as small as 0.3 to 0.5 mm. For the radiologist, clustered honeycomb cysts range from 2 to 1.0 cm or larger. Although trained radiologists and pathologists can both deliver confident diagnosis of a UIP pattern, these are not in fact the same patterns seen in different scales, though both are well-associated with the clinical disease of idiopathic pulmonary fibrosis.

Although the addition of sophisticated chest imaging helps enormously in the reliable diagnosis of ILD, especially in populations not well suited to biopsy, our problem with language has become worse. There are now 3 groups of people using the same vocabulary to articulate different information. It is this incomplete or even misleading transfer of information between disciplines that limits our ability to fully collaborate in the care of complex patients. Recognizing this confusion is the first step in rectifying it. A structured method of communication between disciplines, one that conveys the important information in an understandable and consistent manner, is the path to better patient care.

REFERENCES