Overlooked Role of Histopathology in Evaluations for Occupational/Environmental Exposures

To the Editor:

We read with interest the article by Culver and colleagues (1) describing the relevance, use, and attributes of idiopathic pulmonary fibrosis (IPF) patient registries and the subsequent correspondence by Nett and colleagues (2), who rightly point out the added importance of collecting environmental and occupational exposure data. In addition to acknowledging the utility of such data collection, Culver and Kim, in their reply (3) to Nett and colleagues, also emphasize the hurdles in the evaluation of a proper environmental/occupational history.

On the basis of our environmental pathology experience, we want to bring up the importance of histologic evaluation in independently supplementing and confirming the environmental/occupational investigation in cases of interstitial lung disease in general and IPF in particular. Light microscopic evaluation and characterization of dust burden is an easy and underused tool in the hands of pathologists, whose reports can highlight the presence of dust that differs from background dust accumulation in lungs. Currently, there is no requirement (or even mention) of these minimal additional observations that pathologists can record in the American Thoracic Society/European Respiratory Society guidelines for diagnosis of IPF (4), which suggest only doing an iron stain when there is a positive history of asbestos exposure and ruling out obvious pneumoconiosis. We have seen many lung tissues over the years in which an evident environmental/occupational etiology has been considered neither by the clinician nor by the pathologist, hence misclassifying cases as "idiopathic" (i.e., IPF).

We propose at least minimal criteria for dust characterization for pathologists to follow in their evaluation of biopsies in which IPF is within the differential diagnosis:

1. Examine iron-stained sections in every case to search for asbestos bodies. Asbestosis is still frequently underdiagnosed by pathologists.
2. Record the examination of the lung tissue sections using bright-field and adequate polarized light microscopy, describing the presence, abundance, and types of dust particles observed by light microscopy (e.g., silica, silicates, iron oxides, and welding type fumes). It is important to point out that current digital pathology slide imaging platforms do not routinely support polarized light imaging, so microscopic examination of actual glass slides must be included in any optimal pathologic review.

Such specific light microscopic evaluation and descriptions can assist the clinician in considering further exposure history investigation and additional testing of the patient and tissues. It is not currently practical to routinely require further analysis, such as by electron microscopy/microanalysis, but such analyses can often reveal evidence of yet additional exposure to materials such as metals and fibers, which are not recognized routinely by light microscopy.

The percentage of cases with tissue biopsies in the registries as noted (1) was low (13–35%). We presume that these were cases with a difficult diagnosis, and further analysis (as outlined above) would be extremely valuable. In every case, identifiable exposures may not be causative; however, in routine diagnosis as well as in patient registries, we believe this is information that would be readily available for further exploration/correlation. If reinforced by the clinicians, reporting dust burden could become a standard of care in lung tissue histopathology. Searching for information about potential etiology is fundamental to the goal of primary prevention. ■

Author disclosures are available with the text of this letter at www.atsjournals.org.

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Reply to Sanyal *et al.*

From the Authors:

We agree with Dr. Sanyal and colleagues that a careful histologic evaluation of biopsy specimens, when available, is a key aspect of accurately parsing the causes of interstitial fibrosis, and in cases of idiopathic pulmonary fibrosis (IPF) it may also identify

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