The Phenomenon of Adventitious Sporulation

To the Editor

We recently described distinctive morphologic features that often can be found in histologic sections of tissue infected by species of *Fusarium, Paecilomyces*, or *Acremonium*. We are pleased that Drs Watts and Chandler agree with our observations, and we thank them for discussing the potential pitfalls that we had noted.

As with many of the mycoses, the causative species of these infections can vary in their in vivo morphology, and certainly it is possible to reach an erroneous conclusion in a given case. However, we wish to clarify some points that have been raised. First, electron microscopy is not needed to unequivocally recognize phialides formed by species of *Fusarium, Paecilomyces*, or *Acremonium*. Such distinctions are made routinely in the microbiology laboratory when cultures are positive, and these distinctions can be made from histologic sections as well. Second, the inability to always distinguish between species of these 3 genera in tissue does not detract from the utility of being able to presumptively distinguish them collectively from *Aspergillus* species under the circumstances described. Third, *Aspergillus* species have been shown to form spores in vivo under said circumstances: *A. carneus* (1 case of human pulmonary infection) and *A. terreus* (numerous cases). As we pointed out, a review of adventitious sporulation by this agent is underway. *A. terreus* is a well-documented cause of aspergillosis but is rare compared to *A. fumigatus* and *A. flavus*. Moreover, the morphology of these *A. terreus* spores differs from those of the other genera under discussion by a combination of their more uniform size, their consistently globose to subglobose shape, and their formation from the parent hypha by a typically very short and narrow extension. Thus, we suggest it is reasonable to provisionally identify probable *Fusarium sp P. lilacinus* if the conditions and morphologies we outlined are clearly present. Although we consider the described forms to be adventitious, our findings suggest that they are not atypical but instead are an integral part of the disease process. Lastly, it is not our intention that expectations for narrow diagnoses of fungal infections now be placed upon the surgical pathology laboratory. Our findings are presented in order to stimulate interest in the phenomenon of adventitious sporulation, and with hope that the cumulative experience of many individuals will reinforce or refine the preliminary conclusions regarding provisional differential diagnosis of these increasingly common infections.