Fiberoptic Bronchoscopy
Enhancing the Diagnostic Yield

During the past quarter century, the flexible fiberoptic bronchoscope has facilitated numerous significant advances in our understanding of the pathogenesis of pulmonary diseases and has afforded the opportunity to improve the safety and efficacy of the diagnostic approach to parenchymal infiltrates and solid lesions. It is often of particular prognostic and therapeutic importance to make a specific histopathologic diagnosis when pulmonary neoplasm occurs in patients who are not candidates for surgical resection.

In this issue of CHEST (see page 620), Chechani provides new information that is helpful in delineating the relative importance of various bronchoscopic sampling modalities for the diagnosis of parenchymal lung lesions that do not have visible endobronchial manifestations. In particular, the diagnostic yield of a relatively new sampling modality, fluoroscopically guided *peripheral* transbronchial needle aspiration (Sofcor needle; Microvasive Inc; Watertown, MA) has been carefully documented and contrasted with the yield of standard forceps transbronchial biopsy, bronchial brushings for cytologic study, and bronchial washings. In this article, the importance of applying a sequential approach in the sampling of peripheral lesions is emphasized, with the goal of maximizing diagnostic yield.

After bronchoscopic inspection of the airways, the author proceeded to do the following: (1) establish that the first sampling instrument (most often the cytology brush) reached the lesion using biplane fluoroscopy, confirming that the brush "stayed with the lesion" during rotation of the C-arm; (2) following brush sampling with standard transbronchial forceps biopsy, attempting to obtain up to four specimens for histopathologic examination; and (3) perform transbronchial needle aspiration (Sofcor) as the final sampling modality, with preparation of slides for cytologic examination and submission of tissue cores (if obtained) for histopathologic examination.

Overall diagnostic yield was 73%, a very favorable yield in comparison to many previous series. All sampling modalities were employed in 65% of the procedures; nonperformance of a sampling technique was attributable to difficulty with localization of the lesion, postsample bleeding, or patient instability. In this series of 51 bronchoscopies in 49 patients, analysis of the instances in which only one of the several sampling modalities was positive revealed that this occurred 12 times (3 brushings, 6 transbronchial forceps biopsies, 3 transbronchial needle aspirates); however, there was no instance in which bronchial washing was the sole diagnostic sample. Similar observations regarding the rarity (≤5%) with which the diagnosis of lung cancer is established solely by cytologic analysis of bronchial washings recently have been published.

The relative yield for each of the aforementioned sampling modalities has been correlated with the size, border characteristics, and segmental location of the lesion being sampled. As one would expect, an increasing diagnostic yield was noted with increasing lesion diameter (≤2 cm, 54% yield; 2.1 to 3.0 cm, 60% yield; 3.1 to 4.0 cm, 73% yield; 4.1 to 5.0 cm, 82% yield; ≥5.1 cm, 87% yield), however, the overall success rate and that for lesions ≤2.0 cm was notably higher than in previous series. Indeed, some authors have excluded lesions smaller than 2 cm. Diagnostic yield was lower for lesions located in the apical segments of upper lobes or basal segments of lower lobes. With respect to "border characteristics," positive diagnoses were more frequently established in fuzzy-bordered lesions (83%) than in sharp bordered lesions (54%) by all three techniques, however, the transbronchial needle aspirate (Sofcor) was the only positive sample in some of these patients, highlighting the utility of this diagnostic modality. This finding regarding the influence of border characteristics on diagnostic yield is similar to the observation of Bellmunt et al that positive cytologic diagnoses were more frequently obtained by bronchoalveolar lavage from primary lung carcinomas presenting with an infiltrative (ie, fuzzy bordered) pattern than with a nodular appearance.

Thus, transbronchial needle aspiration appears to be an important addition to the diagnostic sampling armamentarium employed during flexible fiberoptic bronchoscopy for peripherally located lesions. The combined yield of brushings, transbronchial forceps biopsy, and transbronchial needle aspirates (Sofcor) is quite impressive and should be reassessed when data derived from more widespread use of the technique...
Guidelines in Need of Guidance

Acute asthma is a common medical emergency because it afflicts about 5% of the American population. Coupled to this is the acceptably high morbidity, and seemingly escalating rise in mortality over the past 2 decades. Of the recognized risk factors, maybe the most important is the lack of appreciation of the severity of an attack by the patient, as well as the attending physician. Various clinical and laboratory measures are currently used to assess asthma severity but unfortunately there is no agreed on “gold standard” to dictate the recognition and management of such a condition.

In appreciation of this increasing prevalence, morbidity and mortality, in 1991 a set of guidelines for the assessment of the severity and management of asthma was published. These National Asthma Education and Prevention Program (NAEPP) guidelines mainly addressed three aspects of asthma management: (1) asthma is more than just a bronchospastic disease; (2) it is an inflammatory disorder, so anti-inflammatory agents should be used early in the course of treatment; and (3) all patients with asthma should be assessed by some objective measure of lung function.

In this issue of CHEST, Emerman et al (see page 708) report the results of a survey conducted to assess the concordance between emergency physician practice and the NAEPP guidelines. The result of the survey showed that most emergency room (ER) physicians who responded to the survey use β-agonists and corticosteroids at least as often as recommended. Only a minority of ER physicians, 42%, obtained pre- and posttreatment pulmonary function tests (PFTs), but only 16% actually utilized the PFTs as part of the patient’s disposition decision. The authors also point out that, for a disease as asthma which is so prevalent, the response rate by ER physicians to the questionnaire was disappointingly low. Of those who did respond, most were board certified or eligible in Emergency Medicine (EM). The results, however, might have been different if the authors were able to obtain a response from more physicians who were not board certified or prepared in EM. It is possible that such physicians are more likely to be less compliant with the recommended guidelines.

Measures need to be taken to disseminate effectively any practice guidelines. As such, limited access to or lack of knowledge of NAEPP guidelines could explain such a poor outcome in this survey. Indeed only 25% of respondents reported receiving information regarding asthma management from the NAEPP guidelines. This is inspite of the fact that NAEPP guidelines certainly meet the current standard of care for asthmatic patients. Those physicians taking care of asthmatic patients need not only be aware, but also should follow such guidelines. Furthermore, hospitals should develop policies as to how to evaluate resident’s and physician’s compliance with these guidelines, and to hold them accountable if such guidelines are not followed.

Finally, one very important fact from the study needs to be highlighted. Only a disturbingly small number of physicians, 13%, obtained pre- and posttreatment PFTs and utilized the results as part of the patient’s disposition. Studies have supported the use of PFTs (peak expiratory flow rate [PEFR] and FEV1), in assessment of the severity of asthma and utilizing the result in predicting the patient’s outcome. Knowledge of PFTs can change the decision of eventual disposition in these patients. Acknowledging that even an experienced physician could be inaccurate in establishing accurately the severity of acute asthma, there should be some objective measurement of lung function as part of the evaluation of acute asthma in conjunction with clinical findings. Indeed only 44% of physicians evaluated were able to estimate the severity of an asthma attack within 20% of the actual measured PEFR. Physicians should furthermore not rely on wheezing as a measurement of the severity of asthma, as a study showed that by the time wheezing is heard using a stethoscope, PEFR has already decreased 25% or more. The unnecessary delay in instituting more aggressive therapy would be avoided by obtaining PFTs earlier in the course of the evaluation and management of asthma.

In conclusion, this study really demonstrates that physicians need to be better acquainted with the basics of asthma pathophysiology. Only then maybe we can