Correspondence
Correspondance

PERCUTANEOUS FINE-NEEDLE ASPIRATION BIOPSY FOR LUNG MASSES

We were disappointed by the article "Does percutaneous fine-needle aspiration biopsy aid in the diagnosis and surgical management of lung masses" (*Can J Surg* 1999;42 (4):297-301) by Odell and Reid. We had a number of concerns relating to this article.

Over a 5½-year period only 129 patients underwent needle biopsy. This is only 23 patients per year, which is not a significant number. It would be important to know how many patients had thoracotomy without prior diagnosis during the same period and how many of these patients were proven to have benign disease, and what was the operative morbidity and mortality in this group of patients at the authors' centre.

The title of the paper refers to percutaneous fine-needle aspiration biopsy (pFNAB) of lung masses. Then why were mediastinal masses and mesothelioma included in the final analysis?

The authors report an unusually high complication rate from pFNAB. The 2 major complications were pneumothoraces (often small and seldom requiring hospitalization or chest-tube drainage) and hemoptysis (rarely, if ever, serious). The complication rate depends mainly on the experience of the radiologists and the presence of underlying emphysema, not only on the size of the lung lesion. What was the size of these lesions resulting in complications? How many needle passes were made in order to obtain appropriate specimens? The authors indicated this in the abstract but failed to report and discuss the findings. Furthermore, what gauge of needle was used and how was it related to the complication rate? The finding of a hematoma in the lung parenchyma at the site of needle biopsy cannot be considered a complication unless it required a therapeutic intervention. Moreover, some of the complications reported, such as recurrent laryngeal injury and cereberovascular accident, cannot be related to pFNAB.

We would like to know the exact number of patients in whom pFNAB provided a positive diagnosis of malignant disease, a positive diagnosis of benign disease and no diagnosis. In the last group, what was the follow-up and if thoracotomy was undertaken to make a diagnosis, what was the complication rate and the cost of doing a diagnostic thoracotomy or thoractomy with video-assisted thoracic surgery (VATS)? What was the length of hospital stay for these patients (at an average cost of Can$780 / d)?

The following are some of our statistics.

Between 1989 and 1994 (5 years) we performed 1424 pFNABs of the lung and followed up our patients with negative or unsatisfactory results (470 pFNABs) for 5 to 10 years. Our diagnostic accuracy was 86.6%. Our true negative rate was 15.4% (219 of 1424). Our false-negative rate was 10.1% (144 of 1424). Of the 1424 patients, 85 (6.0%) were lost to follow-up.

Between November 1997 and April 1999, we carried out a prospective study of our complication rate in 506 consecutive pFNABs. Our pneumothorax rate was 22.9% and our chest-tube insertion rate was 6.9%. Only 1.6% of patients were admitted to hospital. Two (0.4%) patients had a large-bore (28 French) tube inserted; the remainder had an 8 French catheter attached to a Heimlich valve inserted by us (the radiologist), and most of these were managed as outpatients. The cost of the 8 French catheter and Heimlich valve kit is about Can$90.

In the same study, we performed a core needle biopsy, using an automated biopsy gun, when a benign lesion was suspected but not proven by pFNAB. A specific benign diagnosis was established in 22 (45%) of 49 patients whose pFNAB was negative for malignancy (a benign diagnosis had been established on previous pFNAB in 10 of 44 of these patients). All of these patients might have undergone an unnecessary thoracotomy because of a benign diagnosis.

Odell and Reid failed to report whether a second pFNAB was done when the first gave a negative or unsatisfactory result and a diagnosis of malignant disease was highly suspected. In our prospective study, 19 patients had a repeat FNAB after a negative FNAB and the second one was positive for malignancy.

The authors quote multiple pleural punctures as a cause for the increased rate of pneumothorax in their study, but we routinely do 2 or more pleural punctures for each biopsy and have a much lower rate of pneumothorax. Also, in reviewing the current literature on FNAB of the lung over the last 18 years, the rates of pneumothorax and chest-tube insertion range from 19% to 44% and 1.6% to 14.3% respectively. The rates in Odell and Reid's paper of 54.7% and 20.7%, respectively, exceed all rates in the current literature. This reflects poorly on the centre publishing the article and should not be taken as the usual complication rate.

We perform 500 pFNABs annually for the evaluation of thoracic disease. Today, either thoracotomy and biopsy or lobectomy and expensive biopsy with VATS to diagnose a lung nodule are unacceptable. In our centre during the last 10 years, a thoracotomy to establish a diagnosis has been necessary only once or twice a year.

In summary, pFNAB of the lung is a safe, accurate diagnostic procedure when performed by an experienced operator. It helps in planning treatment and avoids unnecessary thoraco-

tomy or biopsy with VATS, both of which are expensive and associated with morbidity and mortality. Symptomatic pneumothorax, if it occurs, is usually managed on an outpatient basis. If hemoptysis should occur, it is seldom serious and lasts less than 12 hours. Core needle biopsy using an automatic biopsy gun, will often provide a specific diagnosis, especially when the lesion is thought to be benign.

Donna E. Maziak, MD CM
Farid Shamji, MD
Department of Thoracic Surgery

Carole Dennie, MD
Fred Matzinger, MD
Department of Diagnostic Imaging

Garth Perkins, MD
Department of Pathology
University of Ottawa
The Ottawa Hospital — Civic Site
Ottawa, Ont.