revealed extensive endobronchial tumor involving the carina and almost totally occluding the right and left mainstem bronchi. Acute respiratory failure ensued immediately following bronchoscopy and endobronchial biopsies, prompting intubation and mechanical ventilation. Emergent radiotherapy was instituted. The biopsy specimens revealed small cell lung carcinoma. The tumor responded well to 2,500 cGy delivered over four days; the patient was successfully weaned from mechanical ventilation and extubated. Chemotherapy was then begun using cisplatin and etoposide.

In August, 1989 the patient developed symptoms and signs of a right lower lobe pneumonia which responded quickly to intravenous antibiotic therapy. She was again admitted to the hospital in September, 1989 because of dyspnea and cough.

Her physical examination was remarkable for ronchi heard in the right lower lung field. Chest x-ray examination showed prominent lung markings in the right lower lobe. A barium contrast x-ray film of the esophagus (Fig 1)—shown in the right anterior oblique projection—demonstrated a fistula between the esophagus and right lower lobe bronchus. Esophagoscopy revealed no intraluminal tumor, and the fistula could not be identified. The patient was treated with a percutaneous gastrostomy tube for feeding and cytotoxic therapy has continued.

Our patient differs from previously reported patients in that she developed a bronchoesophageal fistula while responding to a combination of radiotherapy and chemotherapy for SCLC. Although we postulate that direct extension of SCLC from the lung into the esophagus occurred and that a fistula formed with shrinkage of the tumor in response to combined modality therapy, we were unable to visualize any tumor by esophagoscopy. Esophageal wall necrosis caused by a bulky tumor pressing on, stretching and displacing the esophagus may have also been a contributing factor for the fistula formation.

Since these fistulae are impossible to prevent, and morbidity and mortality are almost always associated with pulmonary infections resulting from aspiration of esophageal contents, the clinician must maintain a high index of suspicion in order to properly diagnose and treat this complication of lung cancer.

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Cytologic Diagnosis in Bronchoalveolar Lavage Specimens

A Diagnostic Technique for Lung Neoplasms with a Peripheral Location

To the Editor:

The analysis of BAL (bronchoalveolar lavage) cytologic specimens has been found diagnostically useful in primary lung lymphomas and in the diagnosis of parenchymal lung involvement in Hodgkin's disease and mycosis fungoides. Few workers have analysed the diagnostic sensitivity in peripheral lung carcinoma. The sensitivity achieved in peripheral lesions that cannot be visualized through the bronchoscope has been 60 percent in one report and 35 percent in another study. We have tried to determine if the diagnostic yield of the bronchial washing and post-bronchoscopy sputum was increased by the addition of BAL cytologic analysis in a group of 30 patients with primary lung carcinoma in whom the endobronchial lesion could not be visualized through the bronchoscope. Twenty-six patients were men and four women, mean age was 45 years with a range of 36 to 75 years. All had a Karnofsky's index exceeding 80 percent. Radiologically, 26 patients showed a peripherically-located node or mass and four had an infiltrative pattern of involvement. Eleven had epidermoid carcinomas, 11 adenocarcinomas, six small cell and two with mixed histology. The analysis of BAL specimens revealed malignant cells in eight patients (26 percent), while bronchial washing was positive in 12 patients (40 percent). In the remaining 14 patients, the diagnosis was reached by complementary techniques or by surgery. The diagnostic sensitivity, with the combined use of bronchial washings and post-bronchoscopy sputum, was 40 percent. Since in four patients the diagnosis of malignancy was reached exclusively by analysis of BAL specimens, analysis with all three procedures obtains an overall sensitivity of 53 percent. The addition of BAL does not significantly increases diagnostic sensitivity obtained with the combined use of bronchial washing plus post-bronchoscopy sputum (p>0.05).

Because of the small number of patients, we did not find differences in BAL positivity in relation to histologic diagnosis. In contrast, it is interesting that three of four patients with infiltrative patterns were positive on BAL analysis, and two of them positive exclusively by this diagnostic method. By contrast, only five of 26 patients with nodular radiologic lesions had a positive diagnostic test. Our results are similar to those reported by Sineway et al. Baglin and coworkers found neoplastic cell in nine of 11 BAL

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To the Editor:

The patients described by Koval and Curley and Russchen et al are examples of a very rare complication of chemotherapy, with or without radiotherapy, in a common and chemosensitive tumor. During the first IASLC workshop on small cell lung cancer in 1981, this complication was not reported. Actually, the patient described by Russchen et al is the first patient in a series of over 500 patients treated in one institution who developed this complication during induction chemotherapy.

This is remarkable because small cell lung cancer is, in the majority of patients, centrally located with mediastinal lymph node metastases. Regarding the low incidence of fistula formation, we believe it is not justified to routinely perform esophagoscopy in patients with small cell lung cancer. Neither is preventive placement of a celestin tube indicated.

We agree with Koval and Curley that clinicians treating these patients must be aware of this complication, especially in patients developing infections in the basal lung parts during chemotherapy.
specimens from patients with lung cancer and diffuse infiltrative patterns. This method seems also to be helpful for the diagnosis of bronchoalveolar carcinoma. We concluded that the addition of BAL cytologic examinations in peripheral lung lesions might occasionally increase the diagnostic yield of bronchoscopy and spare some patients unnecessary invasive procedures. This diagnostic technique seems especially indicated in lung cancer with an infiltrative x-ray pattern.

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Chickenpox and Pneumothorax

To the Editor:

A 35-year-old woman with chickenpox presented with the sudden onset of right chest pain and dyspnea. Four days before admission, she developed fever, malaise and a diffuse red macular rash. The rash rapidly progressed from macules to papules, vesicles, pustules and crust formation. There was no history of trauma, obstructive pulmonary disease or previous dyspnea. She had a 10 pack/year smoking history.

Respirations were 28 per min. The characteristic lesions of chickenpox covered the skin. Right lung field breath sounds were decreased, the remainder of the physical examination was normal. The only laboratory abnormality was a white blood cell count of 7.8 c/dl with 47 percent banded forms. Chest x-ray examination showed a 40 percent right tension pneumothorax. There was no radiographic evidence of pneumonia or chronic obstructive pulmonary disease. Electrocardiogram was normal.

A chest tube was inserted and placed to closed water sealed suction. Chest x-ray film showed full reexpansion of the right lung. An air leak was present and persisted after ten days of continuous suction. On hospital day 11, open thoracotomy with excision of apical blebs and pleurectomy was done. The patient was discharged on hospital day 20. Pathologic examination of the excised pulmonary tissue demonstrated multinucleated giant cell infiltration (Fig).

Varicella zoster infection produces a multinucleated giant cell inflammatory tissue reaction. In our patient, inflammation of a pulmonary bleb resulted in pneumothorax. To our knowledge, this complication of chickenpox has never been documented. If a patient with chickenpox develops sudden shortness of breath or chest pain, a spontaneous pneumothorax should be ruled out by immediate chest x-ray examination. Clinical suspicion for pneumothorax should be especially high if the patient is a tall young man, elderly, a smoker or has a previous history of spontaneous pneumothorax. Physicians need to be aware of this potentially fatal pulmonary event and should include it as yet another possible complication of chickenpox.

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Pleural Fluid Acidosis in the Malignant Variant of Benign Pleural Mesothelioma

To the Editor:

Pleural effusions associated with benign pleural mesothelioma (BPM) are unusual, with the description of fluid pH limited to one patient with a value of 7.50. We wish to report a case where pH of