centesis yielded 2,000 ml of bloody fluid which was positive for malignant mesothelial cells. Needle biopsy of the pleura confirmed the diagnosis of malignant mesothelioma. On bronchoscopy the right side was normal, but a lesion in the left upper lobe was found which yielded the diagnosis of small cell carcinoma of lung.

Treatment with chemotherapy and radiation resulted in resolution of the small cell carcinoma, but right-sided pleural effusion became recurrent, requiring three separate chest tube insertions and sclerosis with tetracycline. Thereafter, the patient developed a loculated effusion in the right lower chest requiring biweekly thoracentesis for relief of intrathoracic pressure and dyspnea.

A Tenckhoff catheter was inserted under general anesthesia. The "peritoneal" end of the catheter was inserted into the loculated pleural space. The catheter was tunneled subcutaneously and the outer end brought through the skin on the anterior lower chest wall. The patient was taught to drain the catheter at home using sterile technique whenever he felt increased pressure in the chest. Patient remained symptom-free by drawing the effusion every third or fourth day. At the time of the patient's death four months later, the catheter had remained patent and functioning.

Repeated thoracentesis and/or closed thoracotomy drainage and instillation of sclerosing agent are effective treatments in the majority of patients with malignant effusions. Recently, the use of pleuro-peritoneal shunt has been recommended for recurrent effusions. In all such approaches the underlying idea is to evacuate the effusion and achieve symphysis between the parietal and visceral pleura.

In chronic loculated effusions there is no symphysis between the parietal and visceral pleurae. None can be achieved short of decortication, a formidable procedure in patients with short life expectancy. Similarly, thoracentesis or closed thoracotomy tube insertion can not obliterate the unyielding pleural pocket; hence, recurrence of effusion is always the case.

Since there is no risk of pneumothorax, such effusions can be drained to the outside without cumbersome water seal drainage, thus freeing the patient for normal activities.

Indwelling catheters always carry the risk of migrating infection to the draining cavity. The use of a Tenckhoff catheter in the peritoneal cavity has not resulted in any significant subcutaneous or deep infection. The dacron cuffs, by causing localized fibrosis along the passage of the catheter, prevent migration of infection along the route of the catheter. This relative lack of infection has also been observed in the use of indwelling vascular access catheters.

The Tenckhoff catheter, though meant to be used for chronic peritoneal dialysis, can be used for ongoing drainage of loculated pleural effusions in symptomatic patients.

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Diagnostic Value of Carcinoembryonic Antigen in Bronchoalveolar Lavage Fluid of Peripheral Lung Cancer

To the Editor:

Previous studies have shown that serum levels of carcinoembryonic antigen (CEA) lacked diagnostic value in lung cancer. With the aim of improving the sensitivity of the assay, several authors have proposed its determination in bronchoalveolar lavage (BAL) fluid.

With that purpose, we have determined CEA levels in serum and BAL fluid of 28 normal volunteers (17 smokers and 11 nonsmokers) and ten patients with a primary lung tumor (solitary nodule), not visible endoscopically (five adenocarcinomas, four epidermoid carcinomas and one undifferentiated). BAL was performed in the affected lung segment and in the middle lobe in normal volunteers, instilling 150 ml of warmed saline solution in three aliquots. After centrifugation (20 min 500 x g), the supernatant was frozen at -20° C until analysis. CEA was measured by monoclonal ELISA procedure (sensitivity 0.5 ng/ml) and albumin by radial immunodiffusion using commercial plates. CEA concentrations in BAL were expressed as ng CEA/mg albumin. The "U" of Mann-Whitney was used in statistical analysis. Results, expressed as mean ± SD, are shown in Table 1.

There was no significant difference in either serum or lavage CEA level between smokers and nonsmokers; therefore, we grouped all together as a control group. BAL and serum CEA levels were significantly higher in patients with a lung tumor than in the control group. Using 1,000 ng CEA/mg albumin as the cutting point in BAL fluid, and 5 ng/ml for serum CEA as the upper limit of normal, we analyzed these two assays in terms of sensitivity, specificity and predictive value.

CEA level in BAL fluid had sensitivity of 60 percent and specificity of 90 percent. In serum these figures were 50 and 96 percent. Positive and negative predictive values were 85 and 87 percent in BAL fluid; in serum they were 83 and 84 percent, respectively.

We conclude that assay of CEA in BAL yields similar results to serum assay. Although it may be clinically useful as an adjunctive diagnostic test in peripheral lung tumors, by itself it is of little diagnostic value owing to its low sensitivity.

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Table 1 — Carcinoembryonic Antigen Levels

<table>
<thead>
<tr>
<th>BAL (ng CEA/mg alb)</th>
<th>Serum (ng/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neoplasia</td>
<td>4195 ± 4145</td>
</tr>
<tr>
<td>Control subjects</td>
<td>257 ± 367*</td>
</tr>
</tbody>
</table>

*p<0.01; **p<0.05
Communications

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Chest Roentgenograms

To the Editor:

One sometimes gets the impression, when reading papers published in Chest and other medical journals, that techniques for chest radiography are internationally standardized and that a chest radiograph from one institution is precisely comparable with those from all other locations.1 Regrettably, however, there is a yet no universally accepted "optimal" technique for chest radiography and there is considerable variation in the quality of radiographs from one department of radiology to another.2

The quality (ability of a radiograph to demonstrate abnormalities of various kinds) is dependent on many factors—including but not restricted to—beam energy (kVp), screen–film combination, and use of a grid and its type.2 In a scientific paper making reference to chest radiography, it is as important to specify the technical parameters, as it is to indicate the stain that was used to prepare the microscopic slide. This is especially important when a paper discusses the ability (or lack of it) of a radiographic examination to detect an abnormality.

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2 Trout ED, Jacobson G, Moore RT. Analysis of the rejection rate of chest roentgenograms obtained during the coal mine "black lung" program. Radiology 1987; 109:25-27

Endobronchial Metastasis From Hurthle Cell Thyroid Carcinoma

To the Editor:

The lungs are a frequent site for distant metastases from well-differentiated thyroid carcinomas. The majority of the metastases are parenchymal. A few reports of endobronchial metastases from thyroid carcinoma have been reported, none of which were of Hurthle cell type. We report a patient with Hurthle cell thyroid carcinoma and endobronchial lung metastases.

A 55-year-old smoker underwent total thyroidectomy and radioactive iodine ablation for Hurthle cell carcinoma of thyroid gland. After the operation he was treated daily with 0.15 mg of L-thyroxine and followed at regular intervals. Three years later routine chest x-ray examination showed a mass in the right upper lobe. Six months later another mass was seen near the left hilum. Physical examination on admission revealed a neck scar from previous thyroidectomy and decreased air entrance to the right upper lobe. The remainder of the physical examination, including lymph nodes, was unremarkable. Total body radioactive iodine scan was unrevealing. Fiberoptic bronchoscopic examination showed a protruding lesion in the right upper lobe orifice. It was smooth, white, and easily friable. The remaining right and left bronchial trees appeared normal up to subsegmental level. Bronchial biopsies were performed from the lesion. Histology was consistent with metastases from the Hurthle cell thyroid carcinoma. The nature of the left hilar mass was determined by an open lung biopsy that revealed similar histology.

Endobronchial metastases of major airways are infrequent and occurred in only 2 percent of patients who died of solid tumors of various tissues. The most common origin of endobronchial metastases are carcinomas of breast, kidney and colorectum. Endobronchial metastases from Hurthle cell thyroid carcinoma has never been described before and is, as far as we know, the first published report.

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Erratum

To the Editor:

It has come to my attention that there is a significant error in the paper, "The Value of the New TNM Staging System for Lung Cancer" (Chest 1989; 96: 49s). In Table 6 on page 49S, the subsets in stage II are listed as T1 N1 M0 and T2 N0 M0. The subsets should have been listed as T1 N1 M0 and T2 N1 M0.

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