may be extremely important since it is speculated that severe early acute rejection as well as recurrent bouts of rejection and infection may lead to a higher rate of development of irreversible bronchiolitis obliterans. The lung lesion in sarcoidosis is characterized by an intense alveolitis mediated by activated T cells and mononuclear phagocytes. Increased expression of interleukin 2 (IL-2) and IL-2 receptors have also been noted in serum and bronchoalveolar lavage fluids in patients with active sarcoidosis. In addition, augmented levels of soluble IL-2 receptors have been demonstrated in patients without sarcoidosis with lung, heart-lung, or hepatic allograft rejection. Thus, allograft rejection and evolution of sarcoid granulomas may share common immunopathogenetic mechanisms.

Limited data are available regarding the development of sarcoid granulomata in liver, heart, and kidney transplants. Casavilla et al recently described nine patients with sarcoidosis who underwent orthotopic liver transplantation; three patients died of complications, but overall patient and graft survival was similar to patients without sarcoidosis undergoing hepatic transplantation. In addition, there was no evidence of recurrent sarcoidosis in any patient over a follow-up period of 6.3 years. The authors speculated that the doses of immunosuppressive medications used to prevent organ rejection were adequate to prevent reactivation or further progression of sarcoidosis. A dearth of reports have been published regarding long-term outcome following cardiac transplantation for sarcoidosis. Valentine et al described three patients who had cardiac transplantation for myocardial sarcoidosis. One patient died of infectious complications 3.5 years post-transplantation; no granulomata were noted at necropsy. The other two patients were alive at 16 and 20 months post-transplantation without clinical evidence for recurrent disease. Recurrent granulomatous inflammatory changes associated with graft impairment occurred in one patient following renal transplantation. In three other reports of renal transplantation, there was no clinical evidence of recurrence of sarcoidosis in the transplanted kidney. However, one patient at 3 months post-transplant developed optic neuritis secondary to sarcoidosis which responded to high-dose prednisone therapy. Recurrence of disease can therefore be seen, albeit rarely. Long-term follow-up is scanty.

In summary, recurrent sarcoid-like granulomata were observed in the lung allografts in both of our patients with sarcoidosis following lung transplantation. However, only one patient had clinical symptoms and radiographic abnormalities associated with these histologic lesions. To our knowledge, our case is the first report of recurrence of clinical symptoms and radiographic changes of sarcoidosis following lung transplantation. Prompt clinical and radiographic improvement was noted following intensification of corticosteroid therapy. On the basis of our experience and that of others, we believe that lung transplantation remains the only viable life-saving option for patients with end-stage sarcoidosis. However, close clinical, radiographic, and histologic follow-up will be imperative to determine the ultimate efficacy of lung transplantation for patients with end-stage sarcoidosis.

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Endobronchial Metastasis From Giant Cell Tumor of Bone*

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A young woman presented with cough, dyspnea on exertion, and weight loss. A chest roentgenogram revealed collapse of the left lung. On doing fiberoptic bronchos-
copy, a growth was found in the left main bronchus. Cytologic examination and sections from cell block revealed that it was a metastatic growth from a giant cell tumor (GCT) of the bone. To the best of our knowledge, this is the first report of endobronchial metastasis from a GCT of the bone. (Chest 1994; 106:1599-1601)

GCT=giant cell tumor

Endobronchial metastasis is much less common than other patterns of metastatic tumors. The most common extrathoracic tumors associated with endobronchial metastasis are renal, breast, and colorectal carcinomas.1 The others include melanoma, tumors of the thyroid, ovary, testis, uterus, pancreas, prostate, cervix, and adrenal glands, and various sarcomas.

We report a case of left lung collapse due to a growth in the left main bronchus. The microscopic examination proved it to be a secondary tumor from a giant cell tumor (GCT) of the bone. We believe that this is the first case report of endobronchial metastasis from a GCT of the bone.

CASE REPORT

A 36-year-old woman was admitted to the hospital with the complaints of cough, dyspnea on exertion, fever, and weight loss for the previous 5 months. There was a history of slight hemoptysis for 4 months.

Five years before this problem occurred, patient had pain and swelling in the left foot, just below the lateral malleolus, which on excision biopsy had proved to be a GCT of the bone. She underwent a below-the-knee amputation with curative intent.

On examination, the patient was dyspneic and pale. The amputation stump was normal. There was tachypnea and tachycardia. Examination of the respiratory system revealed reduced movements of the chest wall, absent air entry, and dullness on percussion on the left side. Apex beat was shifted to the left side. The remainder of the physical examination was normal.

Laboratory investigation results were normal except for anemia. A radiograph of the chest (Fig 1) showed complete opacification of the left hemithorax with elevation of the left dome of the diaphragm. Since the radiograph was suggestive of collapse, fiberoptic bronchoscopy was done. The vocal cords, carina, and right bronchial tree were normal. The left main bronchus was obstructed by a grayish vascular growth. Brushings were taken from the growth, and a cytologic examination was done. A biopsy was not done for technical reasons.

Cytologic examination and sections from the cell block (Fig 2) showed richly cellular smears. There were dispersed multinucleate giant cells containing acidophilic cytoplasm and six to ten oval vesicular nuclei, in a background of clumps of plump spindle cells. These contained indistinct cytoplasm and oval vesicular nuclei that were identical to those in the giant cells. There was no pleomorphism. These features are characteristic of a GCT of the bone. The review of the pathologic material from the original specimen obtained 5 years previously confirmed that this new lesion was similar and was most likely the same kind of tumor.

The patient was referred to an oncologist for further management but was unavailable for follow-up.

DISCUSSION

King and Castleman2 were the first to emphasize the frequency with which metastatic disease involves the bronchi. Rosenblatt et al3 reported a very high incidence of tumor involvement of the bronchi, but this included even the microscopic invasion of the bronchial wall.

Braman and Whitcomb,4 in their retrospective analysis of autopsies, found that a metastatic carcinoma to a major airway that mimics a primary bronchogenic carcinoma occurs in up to 2 percent of patients who are known to have a primary, extrapulmonary neoplasm. They reviewed the literature from 1932 to 1972 and found 33 cases which fulfilled similar criteria. They added five cases of their own. None of the 38 was from a GCT of the bone. Fifteen (39 percent) had primary malignancy in the kidneys, while 7 (18 percent) had tumors of the colon or rectum. Three (8 percent) had primary testicular tumors. Primary tumors in the ovary or thyroid gland, melanoma, adrenal tumor, and fibrosarcoma were responsible in 2 cases (5 percent) each. Prostate, pancreas, and uterus tumors were the primary neoplasms, with 1 occurrence each (3 percent) in these cases.

Shepherd4 reviewed 90 patients who had pulmonary metastatic disease. Twenty-five had an endobronchial metastasis. The primary sites included large intestine,

Figure 1. Chest roentgenogram showing complete opacification of the left hemithorax with elevation of the left dome of diaphragm.

Figure 2. Cell block section showing scattered multinucleate giant cells amidst plump spindle cells (hematoxylin-eosin, original magnification X200).
breast, cervix, uterus, and bladder, and melanoma also was found.

In the French-language literature, Milleron et al\(^5\) described 29 patients with endobronchial metastases. They had primary malignancies in diverse sites, such as the region of the ear, nose, and throat, the colorectal region, mammary gland, or the bladder.

From the other point of view, Bertoni et al\(^6\) in a review of 97 patients with a benign primary GCT of the bone, reported 7 who had histologically proved metastases to the lungs. None of them had endobronchial lesions.

In a recent large series on a benign GCT of the bone with pulmonary metastases, Tubbs et al\(^7\) reviewed records of 475 patients with a GCT diagnosed at the Mayo Clinic, Rochester, Minn, before 1990. Thirteen (3 percent) of the 475 patients had histologically proved benign pulmonary metastases, but none of these neoplasms were located within the bronchi. The mean interval from the diagnosis of the primary bone tumor to the onset of pulmonary metastases was 8.8 years, with a maximum of 10.7 years. None of the 13 patients had pulmonary symptoms before metastatic nodules were detected, unlike our patient who came to the hospital with respiratory symptoms.

In the majority of cases of endobronchial metastases reported earlier,\(^1\)\(^-\)\(^3\) clinical manifestations of the presence of a primary extrathoracic tumor antedated the diagnosis of the bronchial metastasis. Our patient had the primary malignancy 3 years before the endobronchial metastasis developed. The secondary tumors were indistinguishable from primary bronchogenic carcinoma in most of the cases clinically, radiologically, or endoscopically. Cough, hemoptysis, and shortness of breath were the most common symptoms.

The lesion needs to be differentiated from a primary central bronchogenic carcinoma and other endobronchial lesions, such as bronchial carcinoid and mucopidermoid tumors. The diagnosis usually is suggested by clinical evidence of an antecedant extrapulmonary primary tumor and confirmed by histologic studies of the bronchoscopic biopsy specimen.

This report illustrates the importance of bronchoscopy in patients with a history of extrapulmonary malignancy who have pulmonary manifestations.

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REFERENCES

Recurrent Syncope for Over a Decade due to Idiopathic Ventricular Fibrillation* 

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A 35-year-old man had a history of recurrent syncope for more than a decade. During a witnessed episode, an ambulatory electrocardiographic recording showed ventricular flutter/fibrillation that lasted for 21/2 minutes and terminated spontaneously without adverse neurologic sequelae. No structural heart disease and no possible etiologic factor for the ventricular tachyarrhythmia was found. The patient received an automatic implantable cardioverter defibrillator. Review of the literature suggests that the automatic implantable cardioverter defibrillator is a valid option in idiopathic ventricular fibrillation in young individuals to avoid the potential risk of recurrent cardiac arrest.

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VF=ventricular fibrillation

Key words: automatic implantable cardioverter defibrillator; idiopathic ventricular fibrillation; programmed electrical stimulation; syncope

Syncope episodes in young individuals without heart disease are rarely due to ventricular fibrillation (VF). Ambulatory monitoring in these cases is rarely helpful due to infrequency of the attacks. We report herein a case of recurrent syncope for over 10 years due to idiopathic ventricular flutter-fibrillation first documented by Holter monitoring, lasting 2 min and 30 s, and resolving spontaneously.

CASE REPORT

A 35-year-old black man was referred to the Brooklyn Veterans Administration Medical Center for syncopal attacks after repeated unrewarding neurologic workup that included multiple electroencephalograms and two head computed tomographic (CT) scans.

For 10 years the patient was treated with phenytoin (Dilantin) in therapeutic dosage that he took regularly except during the period between 1983 to 1986 while serving in the Army in his effort to avoid medical restrictions. The syncopal episodes were often preceded by numbness of legs, diaphoresis, dizziness, and shortness of breath and were always associated with palpitations.

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