have been considered essential for the diagnosis. In our patient, this rare cardiac tumor was detected before surgery by noninvasive techniques. The one-dimensional echocardiogram was useful in excluding a pericardial effusion and in suggesting an intracavitary mass in the area of the tricuspid valve; however, the radionuclidic studies provided a noninvasive angiographic definition of the tumor, and the scan with thallium suggested an infiltrative process. To our knowledge, this is the first reported case of a malignant myocardial tumor recognized by such combined noninvasive techniques.

REFERENCES

Rhizopus Lung Abscess in Renal Transplant Patient Successfully Treated by Lobectomy*

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A 46-year-old man with diabetes mellitus and cadaveric kidney transplant, maintained on a regimen of prednisone and azathioprine, developed a necrotizing pneumonia. The abscess cavity became secondarily infected with Rhizopus and was cured by surgical resection. Secondary invasion of an abscess cavity by Rhizopus and the successful surgical treatment of pulmonary phycomycosis in an Immunosuppressed patient have not previously been reported.

Pulmonary phycomycosis continues to be an almost uniformly fatal disease in the compromised host. Since antemortem diagnosis is rare, all published series deal almost entirely with patients who were found to have pulmonary phycomycosis at autopsy. The organism is difficult to culture from sputum, and the physician is often reluctant to subject the patient to invasive diagnostic procedures. Even when the diagnosis is made antemortem, treatment has usually been ineffectual. Only three patients with compromised immune states have been reported with successful treatment of pulmonary phycomycosis. All were treated with amphotericin B. We describe a diabetic patient with cadaveric kidney transplant, currently receiving immunosuppressive treatment, who developed necrotizing bacterial pneumonia with abscess formation. The abscess cavity became secondarily infected with Rhizopus arrhizus. Fiberoptic bronchoscopic biopsy specimens demonstrated invasion of the cavity wall by the Rhizopus, and the patient was successfully treated with surgical resection of the involved lobe. Secondary infection of an abscess cavity by Rhizopus has not previously been reported.

CASE HISTORY

A 46-year-old black man had been maintained on a daily regimen of prednisone, 25 mg, and azathioprine, 50 mg, since he underwent cadaveric kidney transplant in September 1977. Elevated blood sugar levels were noted following the institution of steroids, and the diabetes was controlled with diet and NPH insulin. On Dec 23, 1977, the patient was admitted to Mount Sinai Hospital with a two-week history of productive cough and progressive fatigue. He was febrile to 38.4°F (101°F). Examination of the chest disclosed bilateral ronchi. The BUN value was 38 mg/100 ml, and creatinine value was 2.3 mg/100 ml. Chest x-ray film was normal, and sputum culture grew normal flora. The patient was treated with ampicillin, became afebrile, and was discharged on Jan 4, 1978. Four days later, fever returned to a level of 38.9°C

Figure 1. Day 12, right lower lobe consolidation with air fluid level.

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started was pneumonia, and genogram developed. Four antimicrobials were administered: oxacillin, clindamycin and tobramycin were discontinued and clindamycin was continued. Chest roentgenogram showed clearing of the lung fields and a decrease in the size of the right lower lobe abscess (Fig 1). On day 15, oxacillin was discontinued and clindamycin therapy was continued. The patient continued febrile, and on day 23, clindamycin and tobramycin were discontinued and clindamycin was continued. Four days later, the patient showed marked clinical improvement and became afebrile.

Repeat chest roentgenogram showed no increase in the size of the right lower lobe pneumonia, but there was further expansion of the central cavity (Fig 2), and on day 36, fiberoptic bronchoscopy and biopsy were performed. Rhizopus was cultured from the bronchial washings but the biopsy specimen showed normal bronchial mucosa and normal lung tissue. Clinical improvement continued with the patient receiving chloramphenicol.

By discharge on day 54, the patient no longer had sputum, and there was definite roentgenographic clearing of the pneumonia and decrease in the size of the cavity. Four days after discharge, while still receiving oral chloramphenicol, the patient developed a low grade fever with shaking chills and cough productive of white tenacious sputum. Admission chest roentgenogram was unchanged from the previous one. Fiberoptic bronchoscopy was again performed, and biopsy specimen showed invasion of the cavity wall by Rhizopus. Therapy was started with amphotericin B. After four days of treatment (total dosage 42 mg), a right lower lobe lobectomy was performed. A subpleural abscess cavity, 4.5 x 5 ml, was found lined by yellowish purulent exudate with invasion of the cavity wall by Rhizopus and from which Rhizopus was cultured. Postoperatively, the patient was treated with amphotericin B for two days (total dosage 40 mg); however, because of the risk to the transplanted kidney, it was then discontinued. The postoperative course was uneventful, and the patient continues free of any evidence of Rhizopus infection seven months after discharge from the hospital.

**DISCUSSION**

Eight patients have previously been reported with successful treatment of pulmonary phycomycosis. Four patients were treated with surgical resection, three of whom received amphotericin B and one patient with both surgical resection and amphotericin B. Only three of these patients were immunocompromised (one patient with agammaglobulinemia, one with chronic lymphocytic leukemia receiving adrenocorticosteroids and one with acute lymphoblastic leukemia); all were treated with amphotericin B. Because of the need to maintain our patient on immunosuppressive treatment and his precarious renal status, it was decided to attempt a surgical cure rather than continue amphotericin B. The total dose of amphotericin B received was probably insufficient to have any therapeutic effect, and successful outcome may be ascribed to the lobectomy.

Although the minimal inhibitory concentrations of amphotericin B against the Rhizopus was not studied, it is doubtful that adequate levels of amphotericin B could have been obtained throughout the large abscess cavity. Indeed, pulmonary phycomycosis may be refractory to treatment with amphotericin B because Rhizopus infects the surrounding lung parenchyma by invading the adjacent blood vessels making delivery of adequate levels of amphotericin B to the infected tissue unlikely.

Phycomycetes are ubiquitous saprophytes. Antecedent lesions, such as burns and fractures, that become devitalized and necrotic often serve as the portal of entry of the fungus. The necrotic contents of the abscess cavity may have provided a similar suitable environment for infection by the Rhizopus once colonization had occurred.

Autopsy studies of immunocompromised patients with pulmonary phycomycosis usually show widespread involvement of the lung parenchyma, and often such widespread infection begins, on roentgenographic examination, as localized disease. Little is known of the mechanisms of resistance to this infection, particularly which immune factors enable some patients to localize this usually disseminated infection. In the three reported immunosuppressed patients who were treated successfully with amphotericin B, clinical response coincided with reduction in the level of steroids and other immunosuppressive drugs, and improvement in the patient’s hematologic status and success cannot be attributed with confidence entirely to the amphotericin B.

In treating patients with pulmonary phycomycosis, steroids and other immunosuppressive therapy should be reduced when possible. When the area of infection cannot be resected in its entirety, amphotericin B should be administered. In some patients, however, in whom the disease is localized, surgical resection is the treatment of choice.

**REFERENCES**


**RHIZOPUS LUNG ABSCESS**

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![Figure 2: Day 35, increase in size of central cavity with air fluid level.](http://journal.publications.chestnet.org/pdfaccess.ashx?url=/data/journals/chest/21096/ on 04/18/2017)
Endobronchial Lipoma Causing Unilateral Absence of Pulmonary Perfusion


Endobronchial lipoma is a slowly growing benign neoplasm of the large bronchi, which, if left untreated, has a significant morbidity and mortality. Endobronchial lipoma is still rare, with only 50 reported cases in the English literature, including the following case. This case illustrates the sequel of main-stem occlusion of the airway due to this tumor and, to our knowledge, represents the first reported case of unilateral absence of pulmonary perfusion due to an endobronchial lipoma. Proposed mechanisms for unilateral absence of perfusion due to an endobronchial lipoma are discussed.

Lipomas, in general, represent a common benign neoplasm. Paradoxically, endobronchial lipomas have remained rare, with only 49 previously reported cases in the English literature. They are predominantly located within the large bronchi and, therefore, are endoscopically visible. Peripheral lipomas within the smaller bronchi are extremely rare, since fat tends to diminish in the bronchial wall with each bifurcation. Because of their central location, obstruction of the airway and distal suppuration are quite common.

The purpose of this report is to add another case to the English literature and to emphasize the influence of obstruction of the airway on the pulmonary perfusion scan. To our knowledge this represents the first reported case of complete absence of pulmonary perfusion due to an endobronchial lipoma.

CASE REPORT

A 70-year-old white man was initially admitted to our hospital in 1971 for evaluation of a complaint of hemoptysis. Chest x-ray films during that admission were all reported to be within normal limits, but a pulmonary perfusion scan was performed showing complete absence of perfusion to the entire left lung (Fig 1). Bronchoscopic examination was performed and revealed an encapsulated tumor present within the left lower lobe. Biopsy revealed squamous metaplasia. Surgery was recommended but was refused by the patient. Expiratory chest x-ray films were not obtained in 1971, and a pulmonary ventilation scan was not performed.

After a 6½-year hiatus, the patient came to the emergency room, complaining of hemoptysis and a cough chronically productive of mucopurulent secretions. The hemoptysis had occurred on a daily basis for the last six weeks prior to this second hospitalization. Chest x-ray films taken on admission showed atelectasis and cystic degeneration of the left lung. Fiberoptic bronchoscopic examination performed on the first day of hospitalization revealed an encapsulated tumor totally occluding the left main-stem bronchus. With respiratory activity, there appeared to be movement of the tumor, suggesting a stalk. Biopsies of the lesion were consistent with squamous metaplasia. Exploratory thoracotomy was performed on the sixth day of hospitalization, and a polypoid tumor originating from the left lower lobe with extension into the left main-stem bronchus was noted (Fig 2). The lung distal to the tumor was totally necrotic, and a left-sided pneumonectomy was performed. Histologic findings were consistent with an endobronchial lipoma, and the postoperative course was uneventful.

DISCUSSION

Endobronchial lipomas are centrally located benign neoplasms, most commonly occurring in elderly men. The clinical signs and symptoms are due to obstruction

Figure 1. Pulmonary perfusion scan performed in 1971, showing complete absence of perfusion to left lung.