Pulmonary Mucormycosis: Another Cure*

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Pulmonary mucormycosis in an ill patient with poorly controlled chronic lymphocytic leukemia was diagnosed with open lung biopsy without excision. He improved on medical management and became ambulatory. At autopsy one year later, no residual mucormycosis was present. Better control of leukemia and more specific antimicrobial therapy are discussed as potentially important factors in patient management.

When pulmonary mucormycosis develops in a patient with hematologic disease, the outcome is usually fatal.1 Only one patient, a 12-year-old boy with agammaglobulinemia, has been apparently cured with vigorous medical management without surgery.2 A patient with chronic lymphocytic leukemia who was treated without surgical excision and cured of his mucormycosis is described below.

CASE REPORT

A 65-year-old retired salesman was admitted to Duke University Hospital with fever and progressive weakness; pneumonia was present on chest x-ray film, with infiltrates present at both bases and the right upper lobe. He had had chronic lymphocytic leukemia for ten years, and with the recent appearance of autoimmune hemolytic anemia, he had been receiving prednisone alone for six months at daily doses progressively accelerated to 100 mg. His peripheral white blood cell count was 85,000/cu mm and 90 percent of the cells were large abnormal lymphocytes; the marrow abounded with these same lymphocytes. The hematocrit was 27.0 percent, reticulocyte count 8.6 percent, and platelet count 60,000/cu mm. On admission, the daily dosage of prednisone was moderately reduced, and cyclophosphamide and vincristine were administered intravenously.

Chemical diabetes was present on admission with a fasting blood sugar of 180 mg percent, stabilizing between 110 and 130 mg percent without insulin treatment. No ketonuria was present. He had smoked one pack of cigarettes per day for 30 years.

His sputum and a blood culture grew Pseudomonas, but in spite of therapy with cephalothin, carbenicillin, and gentamicin, his respiratory function deteriorated and he required use of a respirator for adequate oxygen exchange. The basilar infiltrates gradually cleared, but the infiltration of the right upper lobe became denser and extended to include the right hilum, which was now enlarged.

His blood picture improved. His WBC count fell to 22,700 cells/cu mm and included a population of 20 percent mature polymorphonuclear cells. Results of bronchoscopy and arteriography did not explain the cause of the densities in the right upper lobe, but an open lung biopsy demonstrated a poorly circumscribed mass approximately 7 cm in diameter. From this mass, a small biopsy showed hyphae filling the pulmonary vessels (Fig 1a, b).

Antifungal therapy with amphotericin B was started. There was definite clinical improvement, and as an ambulatory outpatient, he completed this therapy to a total dose of 2,100 mg. His chest x-ray film showed complete clearing with the exception of an oblong opacity in the right upper lobe which measured 2 cm in its longest diameter. In February, 1975, while still receiving oral systemic chemotherapy for leukemia, he again developed Pseudomonas pneumonia and expired. Multiple sections of the pulmonary parenchyma showed no remaining hyphae.

DISCUSSION

Pulmonary mucormycosis is a rare, usually fatal entity, and usually is associated with leukemia or lymphoma.1 Two patients with hematologic disease have been cured. One, a 12-year-old boy with agammaglobulinemia, was treated with amphotericin B, gamma globulin injections, and vigorous pulmonary support.2 The second, a 63-year-old man with lymphocytic leukemia (labelled acute, but probably chronic) responded initially to withdrawal of prednisone and chlorambucil and the addition of amphotericin B;3 however, later surgical excision was...

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92 THOMAS W. HAUCH

CHEST, 72: 1, JULY, 1977
required. The hematologic details of this second case are not given. Four survivors of pulmonary mucormycosis have been reported, but in none of these was the underlying illness hematologic and in all, complete surgical resection was performed.

Many factors acting in concert in this patient may have set the stage for fungal infections in general, including the presence of cigarette lung disease, chronic antibiotic treatment, and circulating immunologically abnormal blood. In a large series of leukemic patients with mucormycosis, granulocytopenia, high dose prednisone therapy and hyperglycemia were prevalent. No one of these particular parameters could be suggested as more important than the other two, and all three were present in this case.

Amphotericin B was selected as a potentially useful antibiotic because some strains of mucormycosis have been sensitive to it in vitro. While this drug is often used alone or as an adjunct to surgery in the rhinocerebral form of mucormycosis, no consistent clinical responses are noted. This may reflect irreversible host debilitation usually associated with diabetes. Alternatively, the drugs may fail to penetrate the infected tissue because the nourishing arteries are thrombosed and occluded by the proliferating hyphae. This same mechanism may ultimately limit the usefulness of 5-fluorocytosine, although some strains of Mucor are sensitive to this antibiotic. This patient’s recovery, then, cannot be attributed with assurance to the amphotericin B therapy.

That the blood disease could be better controlled was most important in this patient. An aggressive supportive course with respiratory care, around-the-clock nursing, blood products, and antibiotics was elected. In pursuit of a specific tissue diagnosis, open lung biopsy was performed. This encouraged the completion of a full course of amphotericin B, a potentially nephrotoxic drug, and discouraged therapy with other antibiotics. Finally, with better control of his blood disease and with attenuated steroid doses, his immune defenses may have improved. At best, it is difficult to evaluate the relative importance of these therapeutic maneuvers, but with this patient, we recognize that pulmonary mucormycosis can be cured with prudent medical management without surgical resection.

REFERENCES

CARDIAC TAMponade

Cardiac Tamponade with Nonhemorrhagic Pericardial Fluid Complicating Dressler’s Syndrome*

Franklin T. Tew, M.D.; John A. Mantle, M.D., F.C.C.P.; Richard O. Russell, Jr., F.C.C.P.; and Charles E. Rackley, M.D., F.C.C.P.

A 39-year-old man developed cardiac tamponade with Dressler’s syndrome four weeks after an inferior myocardial infarction. Treatment of the tamponade by pericardioentesis on two occasions produced serous fluid. The pericardial effusion cleared with short-term therapy with corticosteroids and the prolonged use of indomethacin.

The postmyocardial infarction syndrome, or Dressler’s syndrome, has been recognized since Dressler’s reports in 1955 and 1956. Pericardial fluid obtained at autopsy or at pericardioentesis in patients with Dressler’s syndrome has varied from serous to hemorrhagic. Dressler reported that one patient with the syndrome who was receiving anticoagulant drugs died with hemorrhagic tamponade. A second patient, who was not receiving anticoagulant drugs, may have been developing cardiac tamponade but improved symptomatically following withdrawal of 30 ml of “intensely hemorrhagic fluid” by pericardioentesis.

We have seen a patient at the University of Alabama Medical Center in Birmingham who had cardiac tamponade six weeks after an inferior myocardial infarction. Although the patient was receiving an anticoagulant drug, the pericardial fluid was serous in appearance. We believe that he represents the first reported patient with cardiac tamponade as a result of the postmyocardial infarction syndrome with nonhemorrhagic pericardial fluid.

CASE REPORT

A 39-year-old white man had smoked 2½ packs of cigarettes per day for 20 years and had a family history of premature coronary arterial disease. On July 2, 1975, he experienced the onset of acute chest pain, and an electrocardiogram in his local hospital’s emergency room showed an inferior myocardial infarction. The patient suffered a cardiorespiratory arrest but was successfully resuscitated. On July 19, after an uncomplicated course of hospitalization, he was discharged on a regimen of dapsone, digoxin for possible con...