Cutaneous Blastomycosis as a Complication of Transthoracic Needle Aspiration*


A patient with an ill defined density in the left upper lobe underwent transthoracic needle aspiration. A diagnosis of Blastomyces dermatitidis was made from the aspiration. The patient later returned with a cutaneous ulcer at the site of needle aspiration. B dermatitidis was subsequently recovered from the skin lesion.

Infectious complications of transthoracic needle aspiration are rarely reported. The case described herein, to the best of our knowledge, the first report of cutaneous blastomycosis occurring because of needle track implantation after transthoracic needle aspiration. Prompt healing of the cutaneous lesion occurred with administration of amphotericin B.

CASE REPORT

A 54-year-old black man presented to the otorhinolaryngology service with a three-month history of a non-tender right neck mass. The patient denied hoarseness, cough, fever, chills, night sweats or weight loss. Past medical history was significant for a 50 pack-year history of smoking, chronic obstructive lung disease, and alcohol abuse with several previous admissions for pneumonia.

On admission, the patient was afebrile and appeared chronically ill. Several non-tender, freely moveable lymph nodes were present on examination of the neck. Lung examination revealed bilateral end-expiratory wheezes without rales, rhonchi, or evidence of consolidation.

The chest roentgenogram revealed a new ill-defined 2 x 1.5 cm soft tissue density in the left upper lobe without cavitation or calcification (Fig 1). The patient underwent rigid direct laryngoscopy and rigid direct esophagoscopy without identification of significant abnormalities. Excisional biopsy of a cervical lymph node revealed metastatic poorly differentiated squamous cell carcinoma. Cultures of the lymph node were negative for fungi and Mycobacterium tuberculosis. Computerized tomographic scan-directed transthoracic needle aspiration was performed using a 20 gauge thin-walled needle. The cell block and smears revealed numerous thick-walled single budding yeast forms characteristic of Blastomyces dermatitidis. Scattered multinucleated giant cells containing budding yeasts were seen, but no malignant cells were identified. Although serum immunodiffusion studies were negative for the A precipitin to Blastomyces, cultures confirmed the presence of B dermatitidis. Therapy was begun with amphotericin B, but due to vague upper torso pain associated with the first dose, the patient refused further therapy. Therapy with ketoconazole, 400 mg orally every day, was begun. The patient was discharged and scheduled to begin radiotherapy for squamous cell carcinoma of the right neck node with an undetermined primary source. Other medications continued after discharge from the hospital including cimetidine, 300 mg for symptoms of esophageal reflux, and prednisone 5 mg in tapering doses for reversible airway obstruction.

The patient was readmitted to the hospital 12 days later with complaints of left pleuritic chest pain, a productive cough, fever, night sweats, and a nonhealing lesion on the left back at the site of the transthoracic needle aspiration. The patient also reported that he had not been taking his medication as prescribed. On admission, his temperature was 38.5°C. Skin examination revealed a 2 cm indurated draining wound at the site of the needle aspiration on the left mid-back (Fig 2). Lung examination revealed rales in the left upper lung field and marked splinting.

Chest roentgenogram demonstrated a 5 cm soft-tissue density in the left upper lobe, a definite progression from the previous findings on x-ray films (Fig 3). Expectorated sputum and scrapings of the back wound revealed budding yeasts with refractile walls resembling Blastomyces. The cultures of both sputum and the back lesion grew B dermatitidis. Serum immunodiffusion studies were now positive for the A precipitin band to Blastomyces antigen.

The patient was treated with amphotericin B, which he tolerated well, to a total dose of 1,500 mg. He had resolution of symptoms and chest x-ray film abnormalities with prompt healing of his back lesion. He has also completed radiotherapy to the left neck for squamous cell carcinoma. In the one year follow-up, there has been no recurrence of blastomycosis or squamous cell carcinoma.

DISCUSSION

Transthoracic needle aspiration has become a frequently used procedure for the diagnosis of acute and chronic pulmonary disease. Pneumothorax and minor hemoptysis are well known complications. A few isolated cases of needle track implantation with cancer cells have been reported, but

*From the Medical Service, Veterans Administration Medical Center and Department of Medicine, University of Mississippi Medical Center, Jackson.
Reprint requests: Dr. Carter, VA Medical Center, Jackson, MS 38216

FIGURE 1. X-ray film shows vague soft tissue density in the left upper lobe.
Infections complications of transthoracic needle aspiration are rare. In Sinner's review of the procedure, the development of empyema is reported in two patients. Sappington and Favorite reviewed 60 cases of lobar pneumonia from the preantibiotic era and found that empyema developed in 5.3 percent of their patients undergoing lung puncture, which was comparable to a series of cases not having lung puncture. In the antibiotic era, empyema has not been reported during needle biopsy of pneumonias.

In aspiration of tuberculous lesions, there has been no report of needle track implantation or spread of infection. Biopsy aspirations in opportunistic infections with Pneumocystis, Aspergillus and Nocardia have not led to infectious complications. Neither has needle aspiration of coccidiodal lung nodules produced spread of infection or needle track implantation.

We consider this case of needle track implantation with B. dermatitidis an infectious complication of transthoracic needle aspiration. This complication probably could have been avoided if the patient had taken ketoconazole as prescribed. In any event, there was complete healing of the ulcer located at the site of the needle aspiration with administration of amphotericin B. Failure of ketoconazole to control the pulmonary infection and to prevent needle track implantation of the skin is probably related to the patient's failure to take his medications or may be related to poor adsorption of the drug. Therapy with cimetidine may result in subtherapeutic ketoconazole blood levels by decreasing gastric acidity which is necessary for optimal absorption of the drug.

With the increasing usage of transthoracic needle aspiration, clinicians should be aware of the potential for implantation of infectious material along the needle track. In the case reported, the early recognition of this complication allowed immediate therapeutic intervention.

REFERENCES