Actinomycosis of the Lung
Coexisting with Pulmonary Tuberculosis*

Report of a Case

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INTRODUCTION
The number of lesions that mimic actinomycosis of the lung is extensive. One should be constantly aware of the possibilities and use all available means to establish a diagnosis. The earlier specific treatment is instituted, the greater the chance for cure. A case of actinomycosis of the lung complicating pulmonary tuberculosis is reported.

CASE REPORT
A 35-year-old Negro was admitted to the Veterans Administration Hospital, Castle Point, New York on September 13, 1961 for continuation of treatment of pulmonary tuberculosis. The disease was first detected in November, 1956 when he was treated for injuries sustained in an automobile accident. The tuberculosis was treated with antituberculosis drugs. Sputum was positive from November, 1956 until January, 1957 after which it was consistently negative. He was gainfully employed until April, 1961 when he developed cough, chest pain and weight loss. X-ray films showed an infraclavicular infiltrate in the right lung. Sputum cultures dated June 20, 1961 and September 19, 1961 were reported positive for acid-fast bacilli. All other smears and cultures during this period were negative. At the time of this admission, x-ray showed a dense lesion with an area of rarefaction in the posterior segment of the right upper lobe (Fig. 1). Sputum cultured for pyogens showed staphylococci and streptococci. Broad spectrum antibiotics were given. However, the lesion progressed and surgical intervention was considered. A bloody purulent sputum and the clinical course suggested chronic lung abscess, neoplastic lesions or fungus infection, superimposed on tuberculosis.

On December 11, 1961, resection of the apical and posterior segments of the right upper lobe was done. The gross visible disease was limited to these segments. During resection, an abscess containing foul pus was broken into, but the resection was otherwise not difficult. There was no gross evidence of neoplasm. The pathologic examination of the excised specimen revealed a bronchiectatic cavity with chronic inflammation of a non-specific character. There was no microscopic evidence of tuberculosis or tumor. Culture of pus from the abscess showed gram positive and negative rods, streptococci and diphtheroids. Postoperatively, staphcillin and penicillin were given. He did well clinically for the ensuing six weeks.

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Figure 1: Admission chest x-ray film on September 14, 1961 showed a dense lesion with an area of rarefaction in the posterior segment of the right upper lobe.
Figure 2: Chest x-ray film on July 16, 1962 prior to second operation, showed extensive consolidation of the right upper lobe with numerous large areas of rarefactions.

Figure 3: Actinomycosis bovis: Gram stain of smear from thioglycolate medium showing tangled branching hyphae with rough characteristics.

Figure 4: Chest x-ray film April 3, 1963 showed complete clearance of the lesion and the right lung is well expanded.
Three tooth extractions were done: January 18, February 6, and February 12. Between January 20 and July 16, 1962 he had recurring episodes of fever which subsided after a period of bloody expectoration (Fig. 2). Cultures were done repeatedly for pyogens and appropriate antibiotics were given, including sulfadiazine, but no penicillin. The residual postoperative density enlarged and showed excavation. Further surgical exploration was decided upon in the hope that the diseased area could be resected. 

At operation on July 20, 1962, there was inflammatory consolidation of the posterior portion of the large anterior segment and the upper one-third of the superior segment of the lower lobe, with multiple cavities in the anterior segment and a large abscess pocket in the superior segment of the lower lobe.

Consideration was given to three courses of action:

1. Pneumonectomy.
2. Attempt to resect the diseased areas by cutting across adjacent tissue.
3. Drainage of abscess.

Pneumonectomy was excluded because of the poor pulmonary reserve and the inflammatory reaction was so extensive that massive blood loss was feared.

Segmental resection was considered unwise because of the risk of spreading infection in the transected tissue planes. Tube drainage was therefore provided after partial excision of abscess walls to create free drainage of all involved areas.

Immediately after surgery, treatment with achromycin, chloromycetin, and gantrisin was started.

On August 13, 1962, a verbal report of actinomycosis (Fig. 3) from the microbiology laboratory, led to continuation of penicillin, which had been started August 8, 1962, up to September 29, 1962. X-ray studies of the involved area indicated progressive healing. The bronchial component of the fistula closed by mid-October 1962. On October 23, 1962, reconfirmation of diagnosis of actinomycosis by culture led to a one month intensive penicillin course (1.2 million units twice a day for 30 days). The drain was removed from the residual sinus on November 8, 1962 and the wound healed. The patient remained well and gained weight from a low of 140 pounds on August 26, 1962 to 178 pounds on discharge on April 4, 1963 (Fig. 5).

**DISCUSSION**

In this case, appropriate therapy following the relatively early diagnosis of actinomycosis permitted cure of this disease in a patient who also had inactive pulmonary tuberculosis. The presence of actinomycosis did not influence unfavorably the course of the pulmonary tuberculosis. An acute lung abscess which fails to yield positive cultures for tuberculosis should lead to consideration of the possibility of fungus infection and anaerobic culture should be included in requests for sputum cultures.

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**FETAL PHONOCARDIOGRAPHY**

Two fetal phonocardiograms were made with the usual technique, recording simultaneously the fetal sounds and the maternal electrocardiogram. Five fetal areas were detected in the mother's abdomen and also two maternal murmurs. It was proved that each of the areas recorded belonged to a different fetus. The maternal murmurs originated in the uterine arteries and were due to increased blood flow and velocity. The conclusion was that the five fetuses were alive and that their hearts were normal.

The five infants were born prematurely. Despite this, a second phonocardiogram done in each case three days after birth disclosed normal hearts. The infants are living and well.