A Case of Tuberculous Thoracic Aortitis with Massive Hemoptyysis Resulting from Rupture of Involved Aorta into Lung*

JUN FUJII, M.D., HIROSHI TSUKAGOSHI, M.D., TOSHIJI MOZAI, M.D., and RIICHIRO MIKAMI, M.D., F.C.C.P.
Tokyo, Japan

It is generally accepted that tuberculous lesions are rarely found in the wall of the aorta. Wettland and Scott (1956) reported a case of tuberculous false aneurysm of the aorta with rupture into the bronchus. According to their study, tuberculous aortic perforation into the respiratory tract had only occurred in four previously published cases. Prior (1955) also reported a case with tuberculous periaortitis from caseous lymphadenitis resulting in rupture of the aorta into the left main bronchus. Such a case has never been reported in Japanese literature. The present report is of a case of tuberculous thoracic aortitis. The patient died of massive hemoptyysis which resulted from the rupture of involved aorta into the right lung.

Case: F.T., a married woman, 28 years old. History: She had been quite well and tuberculin cutaneous test had been negative until she married in 1949 when she was 21 years old. She had pleuritis and endometritis tuberculosa at the age of 22 years. After treatment with streptomycin and para-aminosalycylic acid for about two years, she gradually recovered. However, endometritis tuberculosa relapsed when she was 25. Chest x-ray film at that time revealed no tuberculous lesion in the lung. Since then, under treatment with antituberculosis chemotherapy, she remained well until July 3, 1956, when she complained of sudden severe pain in the lower abdomen. A diagnosis of acute appendicitis was made by a surgeon and appendectomy was performed on the same date. In the excised appendix, slight inflammation was found. After the operation, continuous fever developed and her body temperature rose to 40°C on July 14. Since liver abscess was suspected, laparotomy was performed again by the

FIGURE 1: Chest x-ray film, showing a diffuse shadow in the lower portion of the right lung and abnormal elevation of the right leaf of the diaphragm.

*Tokyo University, School of Medicine, Okinaka’s Clinic
same surgeon on July 22. However, no liver abscess was found at the operation, but several tubercles were observed on the surface of peritoneum. Liver and spleen were slightly enlarged. The second operation was an exploratory one. Thereafter, the remittent high fever lasted until September 15, although she had been treated with chloramphenicol and isoniazid. Second chest x-ray film on August 23 revealed no tuberculous lesion. About the end of September, her body temperature dropped to 37°C. spontaneously. A week before admission, she noticed chest pain. She coughed abruptly and expectorated bloody sputum.

She was admitted on October 11, 1956 complaining of hemoptysis, cough and chest pain. Physical examination revealed a well-nourished woman in spite of long-standing fever; body temperature was 38.8°C., blood pressure 120/80, pulse rate 120 with regular rhythm, no jaundice and no abnormal enlargement of lymph nodes. Her tongue and pharynx were normal. On chest examination the lung-liver border was at the fifth rib and abnormal dullness was found over the lower part on the right side of the chest. Respiratory movement of the diaphragm was not observed on the same side. There were no rales. Cardiac dullness was normal, and x-ray film of the chest revealed a diffuse shadow in the lower portion of the right lung and abnormal elevation of the right leaf of the diaphragm, which was considered to be pleural scarring (Fig. 1). No other abnormal shadow was found. On abdominal examination, operative scars were found in the right upper and right lower abdomen, where tenderness was demonstrated. There were no ascites. The liver edge was not palpable because of operative scars. The spleen was slightly palpable. No other abnormality was found in the abdomen. There was no pitting edema. Neurologic examination was normal. Laboratory data: urinalysis revealed + for protein, a few erythrocytes and leukocytes in sediment, occult bleeding test in feces was +++ positive. Blood examination revealed slight anemia (hemoglobin 72 per cent and erythrocyte count 3,410,000) and neutrophilia (adult neutrophiles 78 per cent and band-form 17 per cent), with leukocytosis (leukocyte count 5800). Blood sedimentation rate was 100 mm. per hour. Results of electro-photometric analysis of serum protein were as follows: total protein 6.8 g./dl. albumin 43 per cent, globulin 57 per cent. Serum cholesterol 315 per cent, 332 per cent, 348 per cent, serum sugar 85 mg./100 cc. Wassermann and Pott's reactions for syphilis were negative. Cultures of blood were sterile on two occasions. No acid-fast bacillus was demonstrated in smears of bloody sputum microscopically. However, three weeks after her death, three colonies of tubercle bacilli were detected in one month's culture of sputum. Widal's reaction was negative. Bromsulphalein retention was 12.5 per cent after 30 minutes. There were no abnormal findings in ocular fundi.

FIGURE 2: Schema of autopsy findings, showing rupture of aorta into right lung and miliary tuberculosis in abdominal organs.
Course: A diagnosis of chronic septicemia of unknown origin was suspected from the results of clinical examination and laboratory data and she was treated symptomatically. On October 23, 1956, massive hemoptysis took place suddenly and she expired on the same date because of suffocation probably due to aspiration of blood. Necropsy was carried out two hours after death.

Necropsy findings (Fig. 2): Rupture of the thoracic aorta was detected at the site just above the diaphragm. The diameter of the perforation was about 2 mm. The perforation opened into the lower lobe of the right lung through the adhesive pleura and the right lower lung was damaged and filled with coagulated blood. Caseous lymph nodes were found in the periaortic tissue (Fig. 3). Aneurysmatic change of the aorta was not observed. Microscopic examination revealed caseous degeneration in the ruptured portion of the aorta. Although the primary focus for tuberculous infection was found in the upper part of the left lung, no other lesion was found in the lung. Milliary tubercles were observed in some abdominal organs including liver, spleen and kidney. There were numerous tubercles on the surface of the peritoneum too.

Comments: In this case, a diagnosis of chronic sepsis of unknown origin was suspected because of the long-standing remittent fever following the laparotomy, hypergammaglobulinemia, acceleration of blood sedimentation rate and enlargement of spleen, although blood cultures remained always sterile. Since several tubercles had been detected on the surface of the peritoneum at laparotomy, milliary tuberculosis was also suspected as the diagnosis. However, no tuberculous lesion was found in the lung radiologically and high remittent fever did not respond to specific chemotherapy for tuberculosis. These were against making a diagnosis of tuberculosis. The cause of lethal hemoptysis was undetermined clinically and the rupture of tuberculous aorta was never suspected.

Necropsy revealed that this was a case of tuberculosis with multiple lesions. In addition to the initial pulmonary infection, she had suffered from pleuritis, peritonitis or endometritis and died from suffocation caused by massive hemoptysis which resulted from the perforation of tuberculous aortic wall. Although numerous cases with hemoptysis due to aortic rupture have been reported, only a few were due to rupture of tuberculous aortitis. The most common cause of lethal hemoptysis due to rupture of the aorta is syphilitic or arteriosclerotic aneurysm. A few cases of rupture of aorta with tuberculous aortitis have been reported. According to Wettland and Scott, aortic tuberculosis may be classified into two types pathogenetically. One is a bacterial embolization to the intima or the vasa vasorum of the aorta. The other is direct spreading of a tuberculous process from the vicinity of the aorta to the aortic wall. The case reported here seems to belong to the latter. Milliary tubercles found in some organs supplied by the abdominal aorta at necropsy might be formed as a sequel to invasion of tubercle bacilli, which were derived from the lesions of the aortic wall, into the arterial blood.

REFERENCES