Primary Cavitary Tuberculosis in an Infant

To the Editor:

Primary cavitary tuberculosis in the first months of life is rarely seen, but it should be considered among other causes of lung abscess in infancy. The diagnosis of TB as the etiology for cavitary lung disease in a five-month-old infant was proven by positive cultures.

Case Report

A five-month-old boy presented with distressing cough and failure to thrive since age one month. At age four months, bronchopneumonia was diagnosed in another hospital. He deteriorated despite parenteral administration of tobramycin and cephalothin, and developed a left pneumothorax.

On admission, he was extremely ill with severe dyspnea and cyanosis. Examination of the lungs revealed dullness, decreased air entry and crepitations, predominantly on the left. White blood cell count was 26,000/cu mm with 32 percent neutrophiles, 6 percent bands, 58 percent lymphocytes. BUN, electrolytes, liver function tests and CSF were within normal limits. PPD skin test was negative. Arterial blood gas levels were: O₂ tension 30 mm Hg; O₂ saturation 51 percent; CO₂ tension 45 mm Hg, bicarbonate 22.5 mEq/L; pH 7.32.

Chest film demonstrated the trachea in midline and a narrowed left bronchus (Fig 1). There was opacification of the left lung without demarcation of the pleural cavity, two longitudinal translucent areas without fluid level, and air bronchogram in right lung.

A pleural puncture was performed resulting in only 2 ml of straw-colored exudate. Gram and Ziehl-Nielsen stains of the fluid gave negative results. Due to the unsuccessful drainage, thoracotomy was performed and a drain was inserted through which a few milliliters of caseous material was obtained. The sample contained many acid-fast bacilli.

Further confirmation of the etiology was established by positive cultures for TB and guinea pig inoculation of pleural and gastric aspirates. Cultures for TB of blood, sputum, CSF and urine were negative. Isoniazid, rifampicin and streptomycin were prescribed.

Postoperatively, there was a gradual deterioration, with increased dyspnea, decreased air entry to the right lung and increase in the arterial CO₂ tension. X-ray examination demonstrated further extension of the opacification of the right lung. This deterioration, combined with the development of congestive heart failure, led to his death on the 9th day of hospitalization.

On autopsy, the lungs showed a primary complex in left lung with hilar lymphadenopathy and local extension and caviation, with fibrocaseous tuberculosis. There was pneumonia involving the whole left lung and pleurae. Miliary tuberculosis deposits were seen in the right lung. No extrathoracic involvement was found. A pulmonary TB focus, sputum-positive on direct smear, was found in a neighbor who was a frequent visitor in the baby’s home.

Discussion

The rarity of cavitary tuberculosis in children, especially in infants, has become apparent in a few clinical studies. In a large series of 1049 children from Highwood Hospital,1 not one clear instance was found. Among 297 children at the Mulago Hospital in Kampala,2 cavitations were found in 12 patients, of whom only one was less than two years of age. During more than ten years of observation at Cook County Children’s Hospital, University of Illinois Hospital and Community Tuberculosis centers in Chicago2 only two cases of cavitary tuberculosis were found in children under the age of six months. Only one patient had a positive culture.

Since primary tuberculosis is usually considered a non-cavitary disease, diagnostic procedures for tuberculosis may be neglected and other bacteria such as staphylococci, streptococci, etc may be considered as possible pathogens causing the lesion.

The prognosis of cavitary tuberculosis in infants is very poor.2 In the case presented here, TB was not considered during the first four months of the disease, and this was an additional factor in the fatal outcome. Cavitary pulmonary lesions in infants and children should therefore suggest tuberculosis. The disease should be considered in the differential diagnosis whenever pneumonia is persistently progressive and unresponsive to antibiotic therapy.

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References