ESOPHAGEAL TUBERCULOSIS IN AN HIV-INFECTED CHILD

Pannee VISRUTARATNA, MD, Wittanee NA CHIANGMAI, MD

ABSTRACT

We describe an unusual case, a young girl with perinatal infection of HIV who presented with chronic dry cough. Mediastinal lymphadenopathy and left pleural effusion were noted on her chest film. Esophagography revealed a fistula between the esophagus and the left main bronchus. Barium in the left thoracostomy tube was also seen after esophagography. Gastric washings were positive for acid fast bacilli. Treatment with antituberculous drugs was successful, and a follow-up chest film showed smaller mediastinal lymph nodes and no left pleural effusion.

INTRODUCTION

Around the world, tuberculosis (TB) has emer-ged as the most common opportunistic infection in patients with human immunodeficiency virus (HIV). Not only are increasing instances of TB seen in these patients but the disease is more virulent. TB of the esophagus has been reported in patients with advanced pulmonary TB, patients with miliary TB, and also in children with primary TB infection.[1] Since the advent of drugs to combat TB effectively, esophageal involvement with TB has been rare. However, with the acquired immunodeficiency syndrome (AIDS) epidemic, an increase in the incidence of thoracic and extrathoracic mycobacterial disease has been observed. We describe an HIV-infected child with an esopha-gobronchial fistula and a bron-chopleural fistula resulting from TB.

CASE REPORT

A 1-year-9-month-old girl presented with a dry cough which had persisted for 1 month. She had received antibiotics, antitussives and a bronchodilator from another hospital. However, she still had a severe cough and dyspnea. She had contacted HIV perinatally. On physical examination she had subcostal retraction. Respirations were 58/min, pulse was 140/min, and her temperature was 38 degrees Celsius. She was cachectic. Oral thrush and pale conjunctiva were noted. Breathing sounds were not as loud as usual and rhonchi were heard in the left lower lung. The liver was palpable 3 cm below the right costal margin.

A chest film on admission (Fig 1) showed widening of the mediastinum because of enlarged lymph nodes and left pleural effusion. Left pleurocentesis produced milky fluid, which contained 1057 mg/dl of triglycerides, 4.7 g/dl of proteins, 112 g/dl of sugar and 343 units/L of LDH. There were 3250 cells/cu.mm.. 90% of these were lymphocytes and 10% were neutrophils. Gram stain was negative. A smear for acid-fast bacilli was negative. Turbidity remained after addition of a few drops of 10% KOH, which indicated that the fluid had no chyle. Intercostal drainage (ICD) was performed on the left chest. A sample of the type of milk she usually drank was analyzed. Its chemical composition was similar to that of the pleural fluid. A green syrup was dripped into her nasogastric (NG) tube; a green fluid was seen in the ICD tube. Esophagography was done by injecting barium into the NG tube with its tip at the mid thoracic esophagus. This showed a fistula

Department of Radiology, Faculty of Medicine, Chiang Mai University, Chiang Mai 50200 Thailand.

between the esophagus and the left main bronchus (Fig 2). We could not demonstrate a fistula between the left main bronchus and pleural cavity, although barium sulfate was seen in the ICD tube.

Gastric washings for acid-fast bacilli were positive. The patient received antituberculous drugs and underwent gastrostomy for feeding. After 2 months the ICD tube was removed because there was no more pleural fluid. She was finally discharged after a 2 1/2 month stay. A follow-up chest film (Fig 3) showed smaller mediastinal lymph nodes and no left pleural effusion.

DISCUSSION

Esophageal TB is rare and has been found in only 1% of cases presenting with TB.[1] Most esophageal TB patients present with dysphagia. Rubinstein et al,[2] proposed four mechanisms for the spread of mycobacteria to the esophagus:. Infection of a pre-existing esophageal mucosal lesion by swallowed tuberculous sputum;.[2] Extension from pharyngeal or laryngeal TB;.[3] Extension from caseating mediastinal or hilar nodes or a TB spine;.[4] Involvement in the course of miliary tuberculosis. The most likely mechanism for our patient is that mycobacteria invaded her esophagus from adjacent mediastinal lymph nodes. Mycobacteria can spread to the esophagus by transmural inflammation from infected and often necrotic mediastinal lymph nodes, with associated fistulas and formation of sinuses.

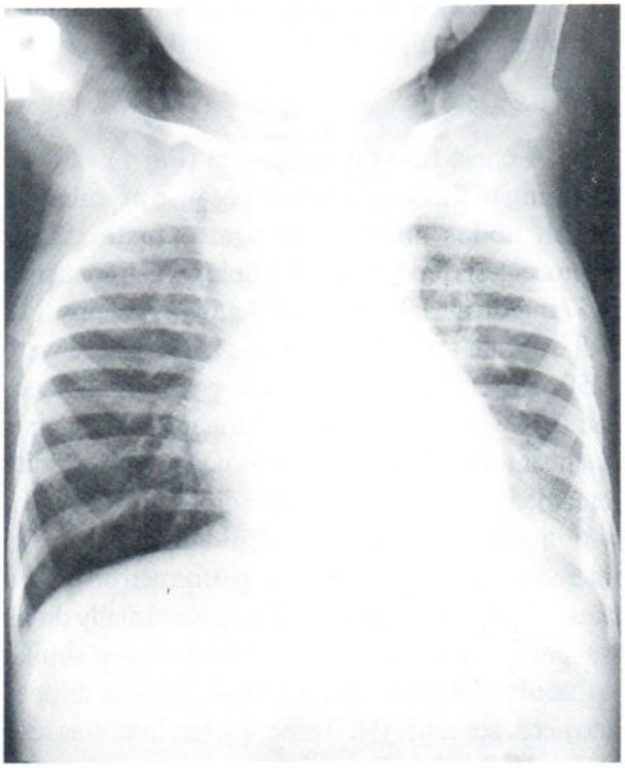

Fig .1 Chest film shows widening of the mediastinum from enlarged lymph nodes, left pleural effusion, and infiltration of the left lower lobe.

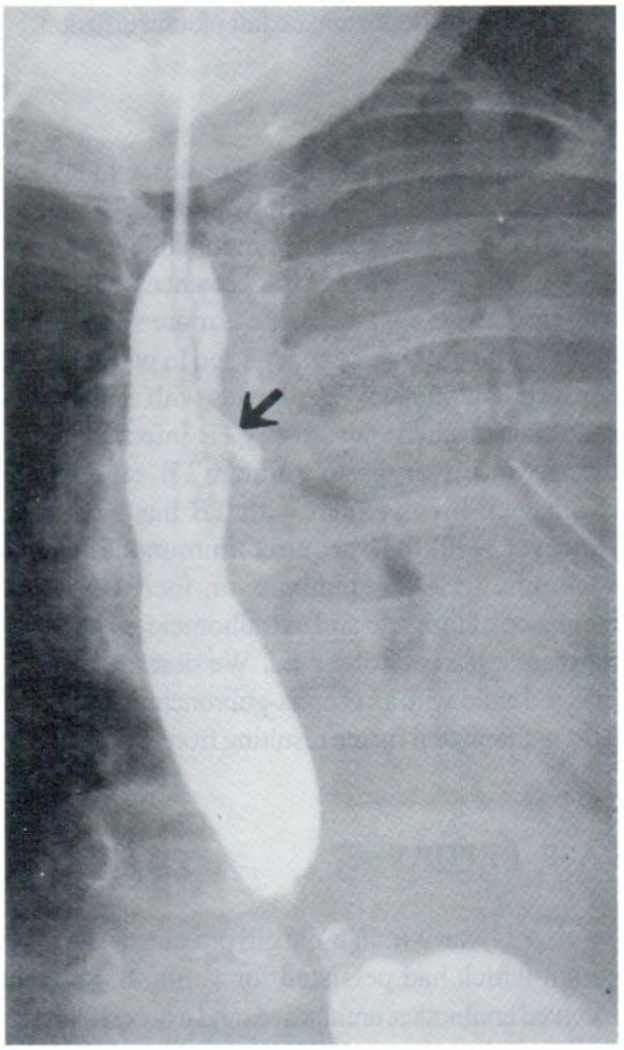

Fig. 2 Esophagogram shows a fistula (arrow) between the esophagus and the left main bron chus, ICD tube in the left chest ,and opacification of the left hemithorax.

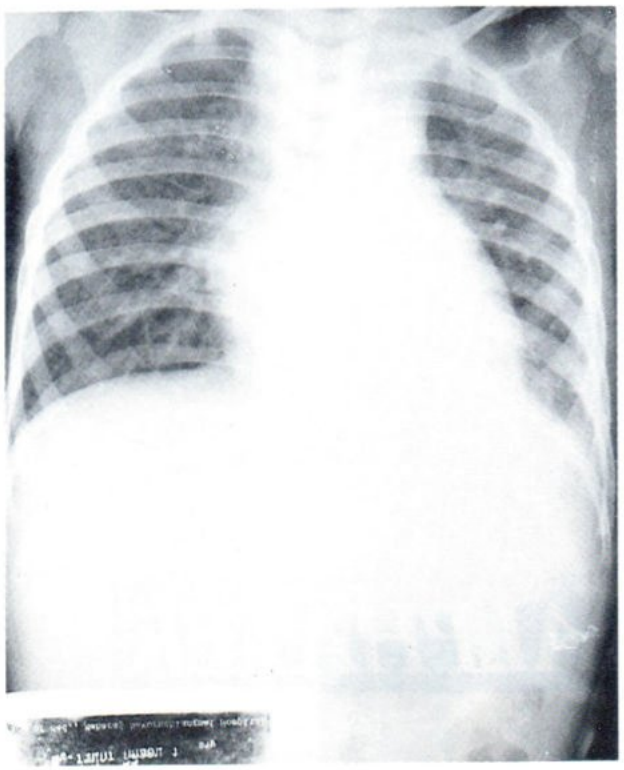

Fig. 3 A follow-up chest film shows smaller mediastinal lymph nodes, with no left pleural effusion or infiltration of the left lower lobe.

Fistulas between the tracheobronchial tree and the esophagus caused by tuberculosis are rare; usually they are associated with extensive pulmonary and/or mediastinal infection.[3] They usually involve the right main bronchus.

Mycobacterial esophagitis in patients with AIDS has been reported.[4,5] Almost all the reported cases were infected by *M. tuberculosis*. Only one patient was infected by *M. avium* and this infection was disseminated.[4] An esophagogram of patients with mycobacterial esophagitis may show deviation of the esophagus by enlarged lymph nodes, narrowing of the lumen, ulceration through the esophageal wall, or a fistula into the trachea or the mediastinum.

Most cases of *M. avium-intracellulare* infection are disseminated with normal chest films.[6] Occasionally a case may have hilar and mediastinal lymphadenopathy, parenchymal opacities, nodules, or even diffuse fine nodular infiltrations. However, most infection is largely extrapulmonary. Although our patient's gastric washings were not cultured for TB, we believe that she was infected with *M. tuberculosis* because TB is endemic to northern Thailand and she responded to antituberculous drugs.

Although a tracheoesophageal fistula is an unusual complication of TB, if there is an HIV-infected patient with tracheoesophageal fistula and enlarged mediastinal lymph nodes, a diagnosis of esophageal TB should be considered. If diagnosed early, TB infection and the complicating fistula may be treated effectively with antituberculous drugs. Most importantly, spread of the disease to other patients and health care personnel should be prevented.

REFERENCES

1. Dow CJ. Oesophageal tuberculosis: four cases. Gut 1981;22:234-236.
2. Rubinstein BM, Pastrana T, Jacobson HG. Tuberculosis of the esophagus. Radiology 1958; 70:401-403.
3. Wingley FM, Murray HW, Mann RB, et al. Unusual manifestation of tuberculosis : TE fistula. Am J Med 1976;60:310-314.
4. De Silva R , Stoopack PM, Raufman JP. Esophageal fistulas associated with mycobacterial infection in patients at risk for AIDS. Radiology 1990;175:449-453.
5. Goodman P, Pinero SS, Rance RM, et al. Mycobacterial esophagitis in AIDS. Gastrointest Radiol 1989;14:103-105.
6. Grattan-Smith D, Harrison LF, Singleton EB. Radiology of AIDS in the pediatric patient. Curr Probl Diagn Radiol 1992;21:79-109.