
BILATERAL PLEURAL EFFUSION IN PARAGONIMIASIS A CASE REPORT

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ABSTRACT

A 14-year-old boy was admitted with chest pain, low grade fever and a productive cough for about 2 months. The chest film showed bilateral pleural effusion. The Significant laboratory finding was eosinophilia, 22% in peripheral blood and 49% in pleural fluid. The images of ultrasonogram and computed tomography revealed unexplained exudative bilateral pleural effusion, bizarre appearance and a questionable moving organism. Finally the operation was done and a living parasite of *Paragonimus heterotremus* was found.

Keywords : *Paragonimus*, pleural effusion, eosinophilia, ultrasonogram, computed tomography

INTRODUCTION

Paragonimiasis is a parasitic disease caused by the trematode, *Paragonimus* sp. Human infection occurs by ingestion of raw or incompletely cooked freshwater crab or crayfish infected with the metacercaria. Paragonimiasis is endemic in certain areas of East and Southeast Asia. Several case reports of paragonimiasis in Indo-Chinese refugees in North America have been published. The first reported case in Thailand was a patient from Lomsak district, Petchabun province (Promas, 1928). Six species of *Paragonimus* have been reported in Thailand. *P. heterotremus* has been postulated to be the main cause of human paragonimiasis in Thailand. There are two form of Paragonimiasis, pulmonary and ectopic. Pleural lesions are uncommon. A case of pleural paragonimus is reported.

CASE REPORT

A 14-year-old boy from Petchabun province of Thailand complaining of persistent chest pain and a productive cough for about 2 months. This was the third hospital admission. Physical examination and chest radiograph confirmed bilateral pleural effusion. Head and neck examination revealed no adenopathy. No evidence of subcutaneous swelling. The white cell count was 7,500 with 22% eosinophil; hemoglobin was 13.4 g/100 ml, and the hematocrit was 40%. Stool examination was negative for parasite. Pleural fluid analysis was compatible with an exudative fluid with 49% eosinophil; the sediment consisted of neutrophils, lymphocytes and histiocytes. Chest x-ray showed bilateral pleural effusion (Fig. 1). Additional imaging of ultrasonogram and computed tomography

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showed bizarre appearance of pleural fluid containing folded strings like echos (Fig. 2, 3). Due to unresolving of bilateral pleural effusion, finally an operation was performed. The operative findings revealed bilateral turbid yellow fluid 500 cc on the left and 300 cc on the right with fibrinous exudative material. One living adult worm of paragonimus was found on the left side. Both fluid and fibrinous exudative material were surrounded by thickened pseudocyst wall completely. This pseudocyst located in subpulmonic space (Fig 4).

The surgeon removed the parasite, and cyst wall completely to encourage lung expansion. After the operation, the patient recovered unevenfully. The patient received combine medical treatment of praziquantel 25 mg/kg/dose for 3 days.

DISCUSSION

Paragonimiasis is endemic in Asia (China, Korea, Taiwan, Japan and Thailand), Africa and South America. There is a high rate of infection following ingestion of contaminated water or raw crab or crayfish infected with metacercaria. The cyst wall of the metacercaria is digested by the host and the larvae penetrates the intestine, ingesting host tissue as it passes through the peritoneal cavity, diaphragm and pleura into the lungs over a period of approximately four weeks. The larvae develop to be adult flukes in cystic cavities formed around the flukes within the lungs.

The characteristics of clinical manifestations are chronic cough and hemoptysis although the patients are still healthy and without debility.

The diagnosis of paragonimiasis is made either by detecting eggs in the sputum, stool, fluid from bronchoscopic lavage, or biopsy specimens, or by a positive anti-Paragonimus antibody test (detection band of 31.5 kDa antigenic component,

ELISA with sensitivity and specificity about 100% and 99% respectively). Egg detection rates have been reported to be 28-38%. Otherwise high level of gamma globulin can be used in diagnosis of Paragonimus.

No specific change in radiological finding is observed. The appearance of pulmonary lesions on radiographs varies with the stage of infection and the surrounding tissue reaction. During the process of pleural penetration by juvenile worms, pleural effusion or pneumothorax is seen, and during the process of larval migration within the lung, patchy migrating air-space consolidation appears. The initial finding is patchy air-space consolidation due to hemorrhagic pneumonia caused by the migrating worm. At this stage, pleural effusion or pneumothorax is frequently seen. The cyst form is supposed to be ischemic infarction after obstruction of an arteriole or a vein by a worm or by eggs. Peripheral linear shadow 2-4 mm thick and 3-4 cm long extending from the pleural surface suggest worm migration tracks or peripheral atelectasis caused by obstruction of small airways by the worm. Such linear opacities are most commonly and clearly seen in patients with pleural effusion.

The prevalence of pleural effusion in patients with pleuropulmonary paragonimiasis varies from 2.9-54%. Chest x-ray was found to be normal in 7% (Benjapong 1984) to 14% (Walker 1955). The tomographic study showed lung lesion in 100% (Benjapong 1984). Change of pulmonary lesions and unexplained bilateral pleural effusions were findings suggestive of paragonimiasis, especially in endemic areas.

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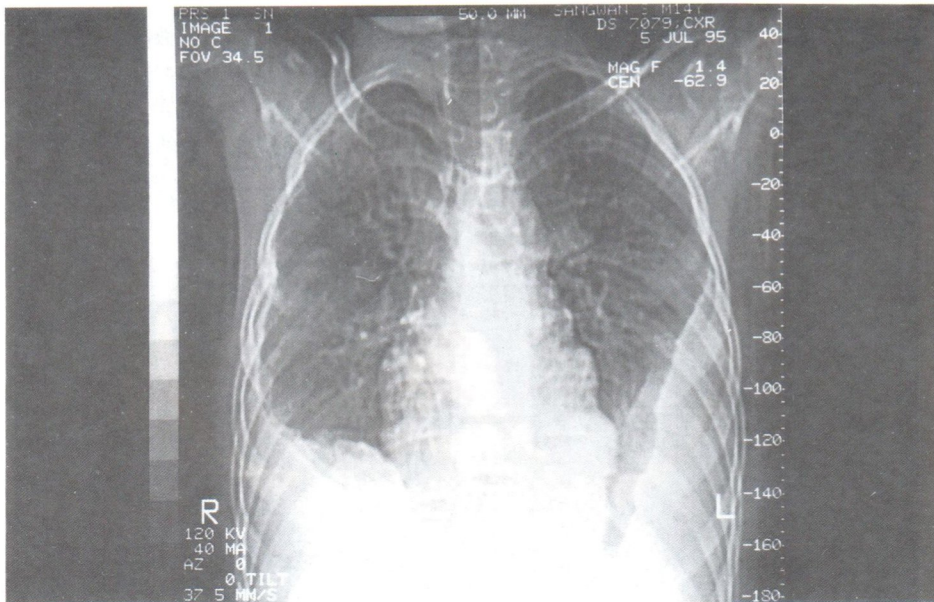


Fig. 1 Chest radiograph shows bilateral pleural effusion

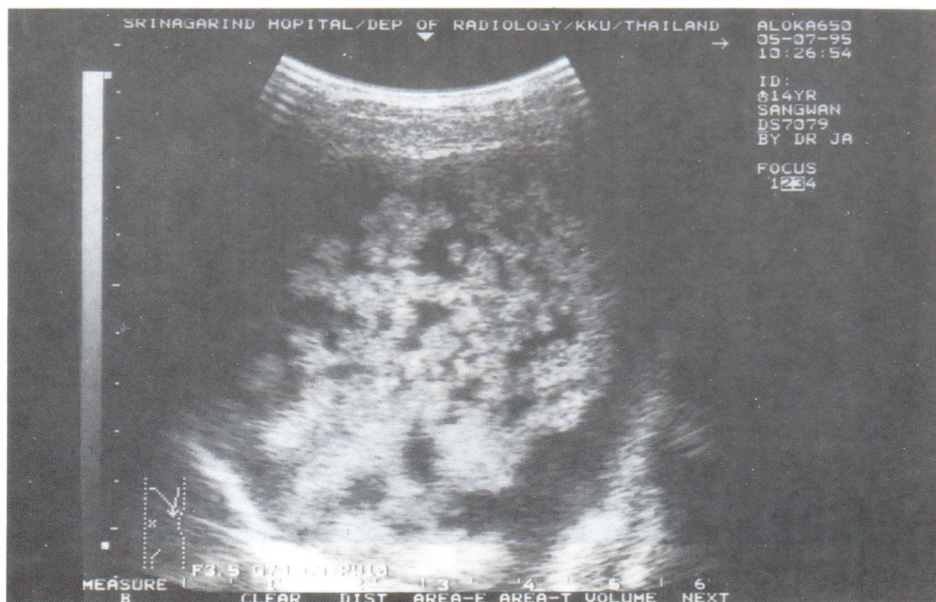
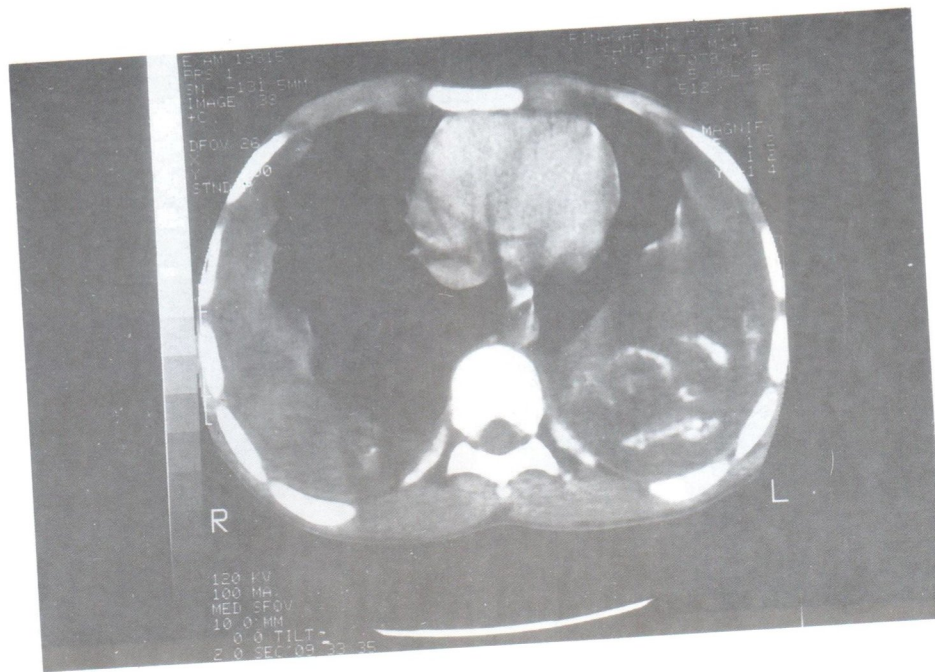
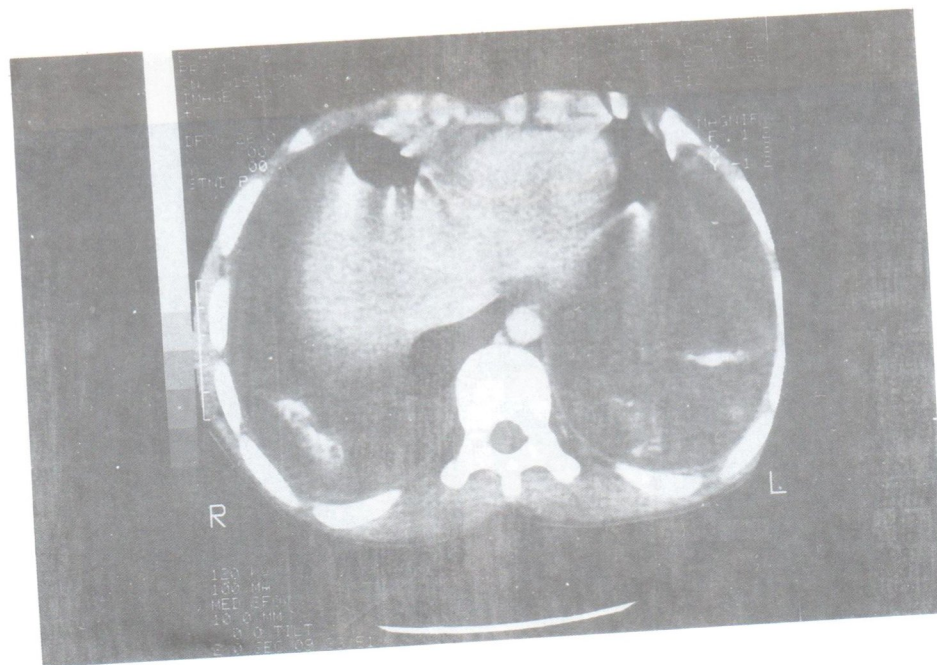


Fig 2 Ultrasonograms demonstrate floating echo bands within pleural fluid

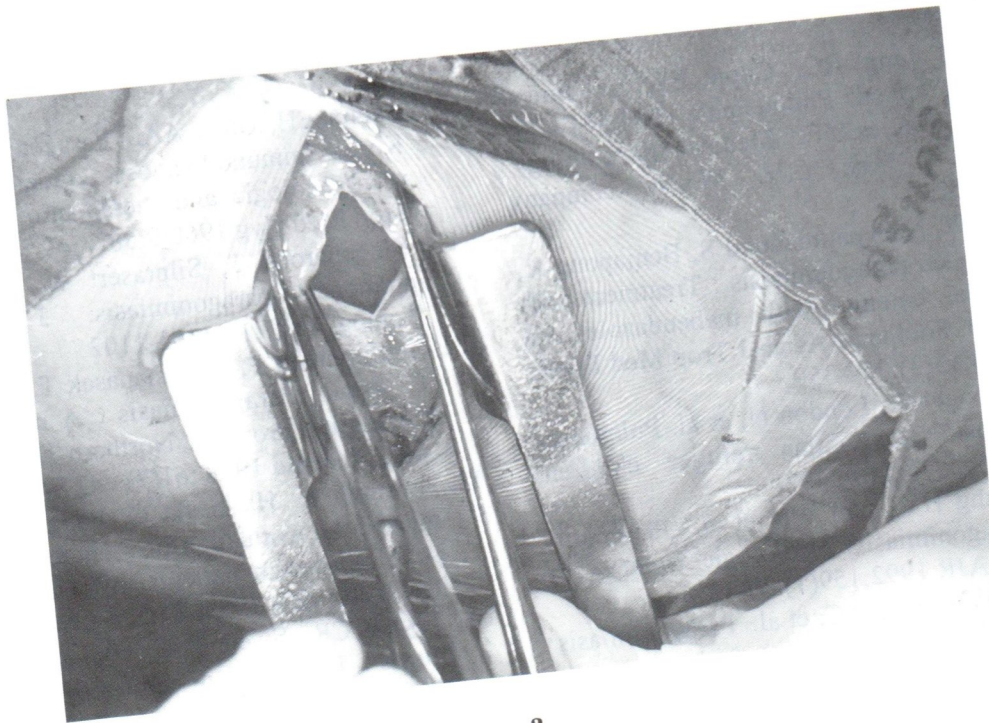


a

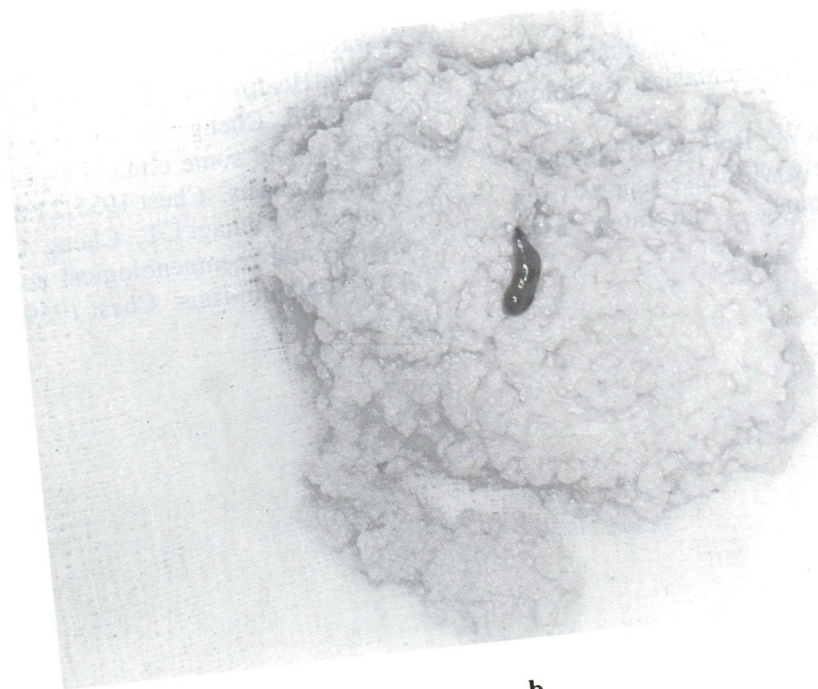


b

Fig. 3 a,b CT scan shows high attenuation bands in bilateral pleural fluid.



a



b

Fig 4 a. Subpulmonic pseudocyst on the left side containing turbid yellow fluid.
b. Adult worm of paragonimus lying on plenty of yellowish fibrinous exudative material

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