

Hydatid Cyst of the Lung : A Case Report

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A case of a woman who presented with persistent non-productive cough due to cystic mass at the lower lobe of the right lung proven to be an acquired infective cyst due to *Echinococcus granulosus* was reported. She was successfully treated by thoracotomy and excision. This patient has never been abroad, an indication that this disease existed in Thailand. With clinical symptoms and signs of respiratory tract disease and the finding of cystic mass on x-ray examination, hydatid cyst of the lung should be included in the differential diagnoses.

Echinococcosis is caused by the adult tapeworm *Echinococcus granulosus*.^{5,6} The parasite is about 3 to 6 mm. in length. It attached itself to the mucosa of the small intestine of its hosts, the dog, wolf, and other carnivorous animals. The ova are discharged in feces. They are ingested by intermediary hosts such as sheep, cattles, hogs, or human. In man, the disease is usually acquired from an infected dog, frequently a sheep dog. The definitive host becomes infected by eating the entrails of the infected intermediary host.

The ova of *Echinococcus granulosus* are passed free as gravid proglottids in the dog feces, when swallowed by the intermediary host, the six-hooked embryo is liberated in the duodenum and penetrates the

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duodenal wall until it reaches the venules. Those embryos that are not filtered by the liver may reach the lungs, and only a few will go through the pulmonary circulation to the left side of the heart and then into the arterial circulation. The embryos that survive will develop into hydatid cysts containing numerous scolices representing a future head of the adult tapeworm.

The cysts present an outer laminated elastic layer and an inner germinal layer. They enlarge gradually for several months and attain a diameter of 10 to 20 cm. Abundant clear fluid is contained within the cysts. The germinal layer develops numerous papillae, which become pedunculated vesicles (brood capsules) containing scolices.

The tapeworm *Echinococcus multilocularis* produce multilocular or alveolar cysts in the intermediate host (man and other animals). Cysts of echinococcosis occur more frequently in the liver or in the lung. Approximately 70 per cent of primary *echinococcus* cysts were found in the liver, and four out of every five of these were in the right lobe.¹

CASE REPORT

A 32 year-old Thai woman was referred from Rachaburi Province on November 5, 1979 with non-productive cough for

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1 month prior to her admission. Initially she visited the provincial private clinic with the symptom of fever and cough. Later on her fever disappeared but her cough still persisted. Chest x-ray was taken and this showed a mass over the right lower lobe of the lung (Figure 1). She was referred for further investigation and treatment.

She was born in Samutsakorn Province. At the age of 18 years she married a Pakistani (Pathan), then moved to Rachaburi Province for cattle and sheep farming. They also kept several dogs for house protection. There was no significant abnormal findings on physical examination. The WBC was 9500 with eosinophil 2%, PMN 70% and lymphocytes 28%. The stools examination revealed no parasitic ovum. Liver scan was normal.

The operation was carried out on November 8, 1979 at St. Louis Hospital. A subpleural mass of about 10 cm. in diameter was found at the right lower lobe. Excision of the cystic mass including small amount of normal lung tissue was performed without technical difficulty. Her postoperative course was uneventful and she was discharged from the hospital on her 9th postoperative day.

Pathology

The gross formalin[°]fixed specimen consisted of a thin wall cystic mass measuring 10x9x8 cm. (Figure 2). The external surface was greyish white and smooth. The cyst contained clear watery fluid. The internal surface of the cyst was coated with laminated soft greyish white tissue which loosely adhered to the wall and was easily detached (Figure 3).

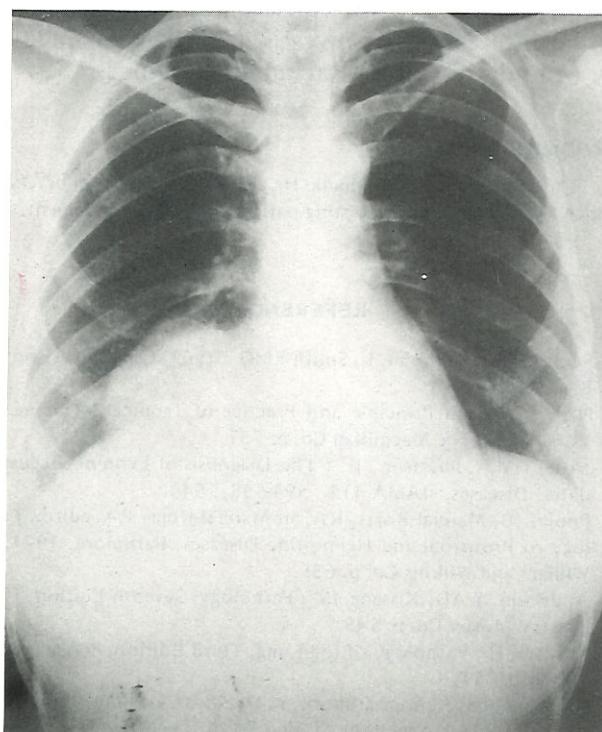


Fig. 1 Chest x-ray showing a well-defined mass over the right lower lobe of the lung.

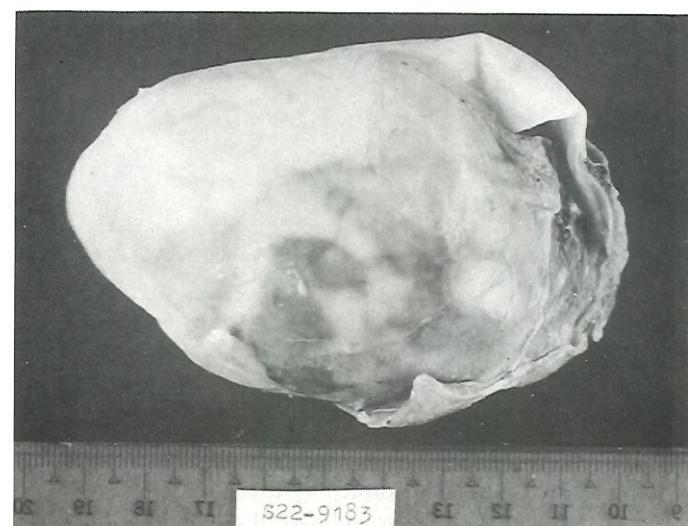


Fig. 2 Showing a large oval-shaped cyst greyish white smooth external surface.

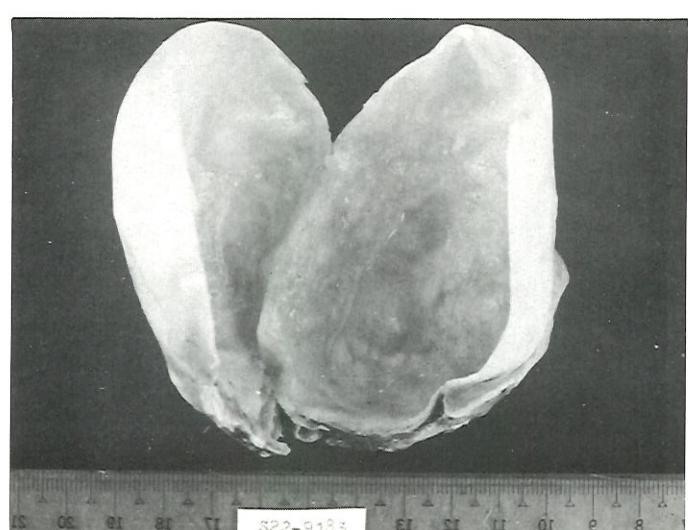


Fig. 3 Bisection through the cyst, showing a thin wall which is less than 0.1 cm. The internal surface is coated with laminated soft greyish white tissue, loosely adhered to the wall.

Microscopically (Figure 4) the outermost layer of the cyst was the host fibrocollagenous tissue showing minimal chronic inflammation. The parasitic portion was composed of inner layer of syncytial cells, resting on thick layer of a cellular loose matrix. Hydatid sands with scolices of a parasite identified as *Echinococcus granulosus* were often noted (Figure 5). The adjacent lung tissue displays atelectatic change.

DISCUSSION

It has been estimated that approximately 25 per cent of people infected with *Echinococcus* go through life without any symptoms referable to the tapeworm.²



Fig. 4 Sections through the wall of a hydatid cyst. (H & E X 50)
 a. The fibrous layer formed by the host,
 b. The laminated layer and part of the parasite,
 c. The thin germinal layer from which are arising brood capsules containing scolices,
 d. A parasitic scolex.

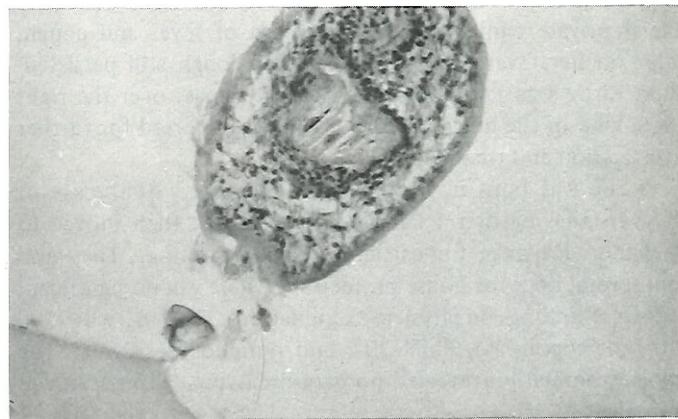


Fig. 6 A scolex is clearly seen with hooks in the center. (H & E X 400).

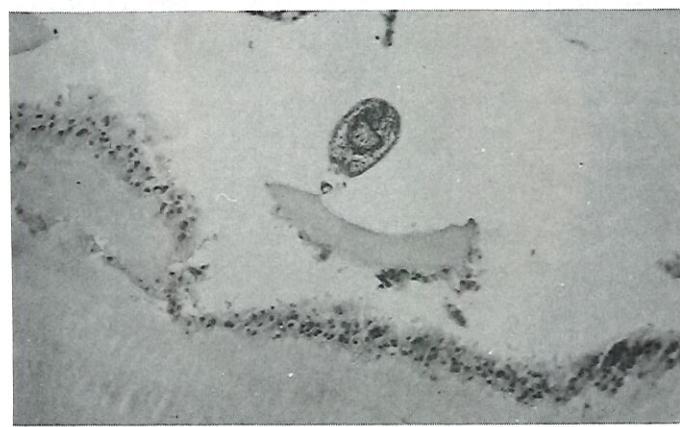


Fig. 5 Germinal layer and a scolex are better visualized. (H & E X 100).

Symptoms may take a long time to develop, for the disease progresses rather slowly. The cyst may become secondarily infected, suppurated and produce the clinical picture of hepatic abscess. Some of the cysts may collapse and undergo fibrosis and not infrequently became calcified. When the alveolar type of hydatid cyst develops in the liver, the gross appearance resembles that of a malignant tumor. The hydatid fluid when liberated into the circulation give rise to pronounced eosinophilia. There may be allergic manifestation such as urticaria, angioneurotic edema. Diffuse implantation in the peritoneal or pleural cavities may develop after rupture of the subpleural or subperitoneal cysts.

Eosinophilia was present in 25 per cent of cases. The complement fixation test in the serum was positive in 85 per cent of patients with hydatid

disease. The precipitin test was positive in 65 per cent and the intradermal cutaneous test in 90 per cent of the cases.³ A positive reaction to antigens from other tapeworms (cross reaction) was also noted.⁴ Diagnosis depends on the finding of scolices after aspiration or excision of the cysts.⁵

The hydatid cyst of the lung is quite rare and unusual event in this country. Only two cases were recorded. The first was a patient from India reported by Muntarbhorn in 1952.⁷ Na-Songkla presented a Thai native with hydatid cyst of the lung at the Annual Meeting of the Thai Society of Chest Diseases in 1978.⁸

In our reported case, the patient was from an area where they did a lot of cattle and sheep farming. It will be interesting to investigate into the epidemiology of hydatid cyst in Rachaburi Province.

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