Pulmonary sparganosis mansoni: A case report

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Abstract. Pulmonary sparganosis mansoni is uncommon in general clinical practice, but prevalent in endemic foci. Pulmonary sparganosis mansoni shares some clinical and radiologic similarities that mimic other common pulmonary pathogens. Delayed diagnosis of pulmonary sparganosis mansoni can pose a significant hazard to the patient. Indeed, a history of ingesting uncooked stone cracks in endemic areas is strongly suggestive of the possibility of pulmonary sparganosis mansoni. We report a case of a 43-year-old male peasant infested with pulmonary sparganosis mansoni who had been misdiagnosed with pulmonary tuberculosis.

INTRODUCTION

Some folk customs and rumours state that the consumption of raw mud fish and/or the blood of snakes or cattle can cure certain diseases, but infestation of parasites occur. There have been case reports involving ocular sparganosis (Subudhi et al., 2006) and cutaneous sparganosis (Griffin et al., 1996), but there are very few reports involving pulmonary sparganosis mansoni (Iwatani et al., 2006). Recently, we managed a patient with pulmonary sparganosis mansoni who was referred to our hospital for evaluation from the local Anhua County People’s Hospital because of a diagnostic dilemma.

CASE REPORT

A 43-year-old peasant was admitted to the local Anhua County Peoples’ Hospital for evaluation of fever, chest pain, and a non-productive cough of 1 month duration. He had remittent fevers since August with no obvious precipitating factors. The fever peaked in the afternoon, and reached 38.8°C. He had few episodes of chills and remitted the next morning with marked perspiration. The bilateral chest pain worsened with deep inspiration and paroxysmal non-productive cough. He presented to the local County Peoples Hospital on 16 August 2010. The WBC count was 17.9x10^9, (neutrophils, 29.9%; and eosinophils, 9.24%) and the ESR was 27 mm/h. The CXR showed the left upper and right inferior lobes to be foci of infection, and the right thoracic cavity had small amounts of fluid. A lung CT demonstrated infection in the inferior lobes bilaterally with pleural thickening and adhesions. Serial anti-TB IgM antibody titers were positive (immuno-serological examinations by ELISA). He received 2nd and 3rd generation cephalosporins for 6 weeks with no symptomatic response, and subsequently received a combination of 4 anti-TB medications for 40 days and was unresponsive. He had chest pain and the fevers worsened. There was some migratory swelling in the abdomen and perineum in the past month. The perineal swelling enlarged slowly. He was then referred to our hospital for further evaluation on 26 November 2010. The initial parasite profiles revealed repeated positive results of anti-sparganum
antibodies by a multiple-dot ELISA of the serum. He was admitted with a suspected parasitic infestation. His general condition was good. He was not given a BCG vaccination previously, and he did not have a history of contact with TB patients. On physical examination, the axillary temperature was 38.1°C and there were multiple palpable abdominal and inguinal subcutaneous soft nodules (3x3cm²). While both lower lobes of the lungs had diminished respiration sounds, there were no obvious rales. On admission, the WBC was 24.3x10⁹/L (eosinophils, 65%) and the ESR was 51 mm/h. A sputum examination for TB was negative, but the PPD skin test was positive. A pulmonary CT demonstrated a left upper cusp segment, a right upper anterior segment, inferior lobe patches bilaterally, streaks of increased density shadows with blurred boundaries, patent bronchi, no tracheostenosis, and no mediastinal lymphadenopathy was noted (Figure 1). The pulmonary pathology was considered to result from an infection, possibly a parasitic infestation, but TB was not excluded. An abdominal B ultrasonography revealed splenomegaly, multiple abdominal subcutaneous nodules, and bilateral inguinal lymphadenopathy. Because the peripheral leucocyte and eosinophil counts were elevated, a bone marrow biopsy was performed. The bone marrow smear revealed active proliferation and a hyperactive granulocytic series, but a diminished erythrocytic series and increased eosinophils. The peripheral blood smear showed a marked increase in eosinophils. A biopsy of an inguinal mass revealed a milk-white thread worm, 1.8 cm in length, intertwining naturally and wiggling freely, which was identified as a stage two Sparganum mansoni in the laboratory of the Department of Parasitology at Xiangya Medical College of Central-south University (Fig. 2). Further investigation of the patient history revealed that he had ingested fresh snake blood twice in the past 6 months to treat post-traumatic arthralgias, and ingested several raw stone crabs. Of note, there are local rumours suggesting that fresh snake blood can treat arthralgias and raw crabs can heal bone injuries. He was admitted and received Pyquiton (1.8 g po tid for 3 days) beginning on 28 November 2010, and his fever, cough, and chest pain were relieved rapidly. He was discharged on 3 December 2010. The abdominal subcutaneous masses and intumescent lymphadenopathy resolved 2 weeks after discharge, as confirmed during the first follow-up on 20 December 2010. A CXR at a local hospital showed the lesion in the lung had resolved. He had a CT scan at our hospital which confirmed that the foci of infection had resolved (Figure 3).

DISCUSSION

The CXR and CT scan findings of the patient described herein were similar to the findings obtained from patients with pulmonary infections, including TB (Figure 1). In addition, the positive anti-TB IgM serologic test rendered the diagnosis complex, but the clinical manifestations showed some important differences that were atypical for pulmonary TB (Zhang et al., 2011) or other pulmonary bacterial infections (Yao et al., 2010).
The disease course did not worsen rapidly as occur in common bacterial infections nor have the characteristic symptoms of typical wasting diseases. His general condition did not deteriorate within the 3-month course. He had no night sweats, emaciation, and was unresponsive to broad spectrum antibiotics and specific anti-TB therapy. Furthermore, although repeated serum anti-TB IgM titers were positive, and thus an indication of TB infection, additional sputum smears and culture, and PPD skin tests were necessary to confirm the diagnosis. The elevated eosinophils count raised the suspicion of a parasitic infestation, and the uncommon abdominal findings and inguinal subcutaneous nodules served as an indication for a biopsy. Most importantly, the clinical history must include local epidemiologic entities, which should cover the endemic etiologies that might be unique for some specific regions, but otherwise uncommon.

*Sparganosis mansoni* is a helminthic disease and parasitic zoonosis (Qiu & Qui, 2009). *Spargnum mansoni* adults reside in the intestines of cats or dogs, the eggs pass with stool and develop in water to become coracidium and are ingested by the first intermediate hosts, which are animal plankton (usually *Cyclops* species). The coracidium grow up to the second stage (procercoid larvae), and subsequently become parasitic in frogs or snakes via the food chain. When humans ingest raw frogs or snakes they can become infested with the plerocercoid larvae. The parasites have strong migration and proliferation ability, and can migrate to and affect a vast majority
of tissue organs, most commonly the subcutaneous tissues and orbits (Li et al., 2011). The plerocercoid larvae rarely involve internal organs, such as the lungs, brain, and spinal cord (Ou et al., 2010). The patient described herein had S. mansoni lesions involving the skin and lungs; the pulmonary lesions caused chest pain and tussiculation.

Helminthic infections can be specifically cured with praziquantel, with satisfactory efficacy and minimal adverse effects. Critical for prevention and control of helminthic infections are health education to avoid ingestion of raw frogs, snakes, crabs, avoiding the application of raw frog meal to the wounds, and prompt early detection and early treatment.

REFERENCES