Case Report

Pulmonary cysticercosis: A case report of abnormal lung nodule based on chest computerized tomography

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ABSTRACT

Pulmonary cysticercosis is one of the rare complications of cysticercosis that occurs worldwide, especially in developing countries. Its clinical presentation can range from asymptomatic, pleural effusion, and constitutional symptoms to incidental pulmonary nodule. Here, we report pulmonary cysticercosis detected as a pulmonary nodule in computed tomography. Positron emission tomography revealed that the nodule was non-FDG avidity. However, the slow-growing pattern of the nodule raised a concern to the clinician to achieve definite diagnosis by surgical biopsy. Histopathological examination revealed cysticercosis. The patient was treated with praziquantel.

1. Introduction

Cysticercosis is caused by Taenia solium. The parasite is transmitted to humans through consumption of raw, fresh food contaminated with tapeworm eggs. A meta-analysis in Asia found the prevalence of cysticercosis from 0.8% to 41.8%. The highest prevalence was found in Thailand [1]. Although cysticercosis is common in Asia, pulmonary involvement of cysticercosis is rare [2]. Clinical presentation of pulmonary cysticercosis includes cough, sputum production, constitutional symptoms, pulmonary nodule, and pleural effusion [3,4]. In the present case, we report pulmonary cysticercosis that presented as a slow-growing pulmonary nodule (see Figs. 1 and 2).

2. Case report

A 71-year-old male with myasthenia gravis, benign prostatic hypertrophy, obstructive sleep apnea, and major depressive disorder with no history of smoking presented to the pulmonary disease clinic with an abnormal lung nodule from a thymoma screening computed tomography (CT) of the chest. The nodule was nonenhanced, noncalcified, and located in the anterior segment of the left upper lobe with the maximum diameter of 0.8 cm (Fig. 1A). The patient complained of fatigue. No other symptoms were reported. He could not recall any history of eating raw food.

Physical examination revealed BP of 133/69, body temperature of 37.3 °C, and heart rate of 75 bpm. He was well nourished. Cardiovascular, respiratory, and gastrointestinal examination were normal. Neurological examination revealed left ptosis. Spirometry finding was normal. He was advised to follow-up CT chest in 1 year.

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A 1-year follow-up CT chest revealed slightly growing nodule from 0.8 mm to 0.9 mm at the same location (Fig. 1B). Positron emission tomography (PET) revealed that the nodule was non-Fluorodeoxyglucose (FDG) avidity. No other abnormality was observed.

Thoracic surgery was performed for wedge resection of the nodule due to its growing size. The patient underwent Video-Assisted Thoracic Surgery (VATS) with left upper lobe wedge resection. The pathology revealed a cystic lesion with chronic inflammation that contained some vague granuloma and parasitic organism morphology compatible with cysticercosis cyst. The pulmonary cysticercosis was diagnosed. Stool examination revealed no proglottids or eggs. The patient received praziquantel 3600 mg per day for 14 days. Clinical fatigue was improved. He gained weight from 78 to 85 kg in 6 months after treatment.

3. Discussion

Pulmonary cysticercosis is rare. The rarity of pulmonary cysticercosis was hypothesized by the life cycle of *T. solium* parasite. The larvae prefer human muscles and brain as sites to complete its life cycle in humans [5]. The presenting symptoms of pulmonary cysticercosis are nonspecific [3,4]. The patient usually requires to undergo CT scan and histopathology to receive diagnosis. This case il-
lustrated that pulmonary cystercerosis presented as a solitary pulmonary nodule. Previous reports revealed pulmonary cystercerosis presenting multiple pulmonary nodules. The CT findings of cystercerosis were cystic lesions with well-defined borders and a central hyperdense nodule representing the parasite head. These findings can be found in histoplasmosis, paragomimiasis, and echinococcosis. The concomitant nodules in the cardiac muscle and chest wall are suggestive of cystercerosis since the parasite usually infiltrates these organs. However, the diagnosis from histopathology remained gold standard [6].

The pulmonary nodule in our case was found to be slow-growing. The PET scan revealed non-FDG avidity. Although the patient was nonsmoker with no significant history of having risk of lung cancer, non-FDG avidity was found on PET scan. The slow-growing nodule with a size of more than 8 mm and the age of the patient were suggestive of the need for tissue diagnosis [7]. The peripheral location and size of the nodule limited the ability to perform bronchoscope biopsy and transthoracic needle aspirations. Therefore, the VATS small wedge resection was the preferred diagnostic choice and provided therapeutic treatment for this patient. The stool examination of cystercerosis in our case was negative. In general, the sensitivity of stool examination ranged from 75% in a previous study in a single stool collection [8]. In our case, we identified cystercerosis cyst from wedge resection, which enabled the diagnosis of cystercerosis. The recommended treatment for cystercerosis is praziquantel. The usual dose is 50 mg/kg/day for 2 weeks [9], which is like our case. Our patient reported the improvement of symptoms and weight after the treatment of cystercerosis.

Author contribution statement
Chatunathanai Savigamin - wrote the paper and performed literature review.
Vichai Benjacholammas – Performed the surgery.
Thitiwat Sriparsart – Collected data, proofread the article, and guided study design.

Ethics statement
The authors declare that appropriate written informed consent was obtained for the publication of this manuscript and accompanying images.

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Declaration of competing interest
No conflict of interest was declared in this study.

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