

Diagnostic Utility of Fine Needle Aspiration Cytology in a Case of Pulmonary Hydatid Cyst Masquerading as Tuberculosis

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Abstract

Hydatid cyst may mimic other diseases including carcinoma and tuberculosis which may raise diagnostic dilemma that may be more enhanced in areas where tuberculosis is endemic. This may result in delayed diagnosis of hydatid cyst leading to its complications. The present case is therefore being reported as it was clinically and radiologically diagnosed as tuberculosis but on fine needle aspiration cytology (FNAC) turned out to be a case of hydatid cyst. In addition, vigilant cytological examination revealed only protoscolices and hooklets instead of laminated cyst membrane which is more commonly and easily observed. FNAC serves as a valuable adjunctive tool in the diagnosis of hydatid cysts providing rapid and accurate diagnosis that can guide clinical management and improve patient outcome..

Keywords: Fine needle aspiration cytology, hydatid cyst, tuberculosis

INTRODUCTION

Hydatid cyst is a parasitic disease caused by *Echinococcus granulosus*, which is considered to be endemic in South America, Mediterranean countries, and Turkey, where livestock occupations are most common. Hydatid cyst is more commonly observed in the liver and lung in humans, but may occur in the lumbar spine, brain, seminal vesicles, or pouch of Douglas.^[1] The clinical and radiological presentations of hydatid cyst may mimic other diseases, including carcinoma and tuberculosis.^[2,3] This becomes even more important in areas where tuberculosis is endemic, and so may result in delayed diagnosis of hydatid cyst, leading to its complications. Cytological examination is considered to be an important modality for early diagnosis of hydatid cyst. Although anaphylaxis due to ruptured cyst has been reported but many studies have concluded that cytological examination is a safe and effective method for diagnosis.^[4,5]

The present case is, therefore, being reported as it was clinically and radiologically diagnosed as tuberculosis, but on fine needle aspiration cytology (FNAC) turned out to

be a case of hydatid cyst. In addition, vigilant cytological examination revealed only protoscolices and hooklets instead of a laminated cyst membrane, which is more commonly and easily observed.

CASE REPORT

A 39-year-old male, a teacher by occupation, presented with low-grade fever, cough, weight loss, and dyspnea for the last 2 months. He was a known case of type 2 diabetes mellitus and had a history of hepatitis B 6 months back. He had no history of exposure to cats or dogs. His chest X-ray showed prominent bronchovascular markings and hilar shadows on both lung fields, suggestive of bronchitis with pulmonary tuberculosis. His contrast-enhanced

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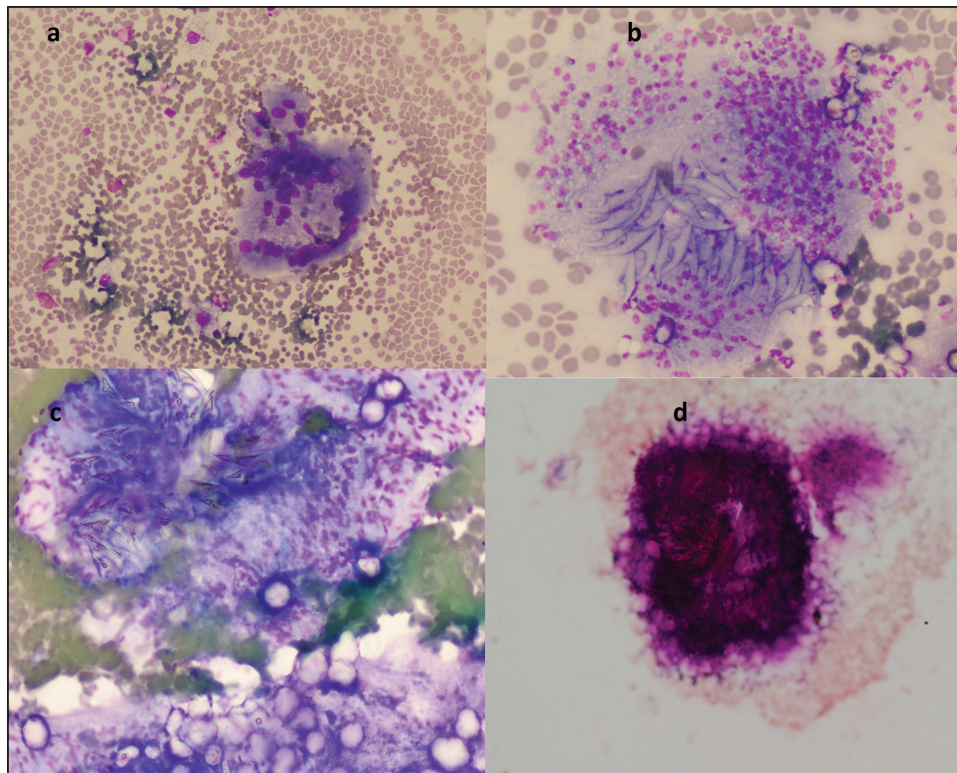


Figure 1: (a) CT-guided fine needle aspiration cytology lung showing reactive giant cells with few macrophages, eosinophils, and lymphocytes in a hemorrhagic background (May–Grünwald Giemsa; $\times 40$). (b–d) FNAC lung smears showing hydatid cyst brood capsule, scolex, hooklets, and endocyst membrane. CT = computed tomography, FNAC = fine needle aspiration cytology

computed tomography (CT) thorax revealed small cavity formation, fibrocongestive changes, and tiny centrilobular nodular densities in the right upper lobe of the lung with mediastinal lymphadenopathy and central necrosis suggestive of pulmonary tuberculosis. CT-guided FNAC was advised, which showed inflammatory cells comprising lymphocytes, polymorphs, cystic macrophages, and a few eosinophils and occasional reactive giant cells. There was no evidence of any epithelioid granuloma, but vigilant examination of smears revealed hydatid scolices and hooklets; however, no laminated cyst wall was seen [Figure 1]. Ziehl–Neelsen (ZN) stain for acid-fast bacilli (AFB) was also done because of clinical suspicion of tuberculosis, which turned out to be negative. The cytological diagnosis was given of pulmonary hydatid cyst. The patient refused any surgical intervention and so was immediately put on oral albendazole tablet with a dose of 350 mg twice daily for 3 months. His symptoms improved, and he has been on continuous follow-up for the last 8 months.

DISCUSSION

Clinically, patients with pulmonary hydatid cysts more commonly present with cough, hemoptysis, fever, or dyspnea, and may show late presentation due to slow slow-growing nature of the cyst. There is overlap in

symptoms between hydatid cyst and tuberculosis, which can make it challenging to differentiate between the two conditions. In addition, both conditions can manifest as cavitory lesions on radiological examination within the lung parenchyma, making it difficult to distinguish between them.^[6] The present case also presented as nodular opacities on CT imaging, further mimicking the appearance of tubercular granuloma, highlighting the importance of awareness of the overlapping of clinical and radiological features so that delay in diagnosis of pulmonary hydatid cyst may be avoided. This is even more important in tubercular endemic areas where clinical suspicion of tuberculosis is high. Literature search shows that many lesions, ranging from pulmonary hematoma, fungus, and tumors, including carcinomas, can mimic hydatid cyst clinically and radiologically, so definitive pathological or microbiological examination is required.^[7,8] Concomitant infections or dual pathologies may sometimes pose a diagnostic dilemma that requires a robust workup. However, in the present case, the ZN stain for AFB was negative on FNAC, and as patient responded well to albendazole for the hydatid cyst. Mediastinal lymphadenopathy is, although less commonly seen in hydatid cyst, but cases have been reported with this presentation. It is, therefore, important that pulmonary hydatid cysts be considered if there is resistant pneumonia or tuberculosis with mediastinal lymphadenopathy.^[8]

FNAC serves as a valuable adjunctive tool in the diagnosis of hydatid cysts, providing rapid and accurate diagnostic information that can guide clinical management and improve patient outcomes. Although there have been reports of complications, including anaphylaxis associated with the aspiration of hydatid cysts but studies have shown it to be a valuable, safe diagnostic tool in the evaluation of hydatid cysts.^[4,5] Kapatia *et al.*^[4] studied 24 cases of hydatid cyst on FNAC and observed that laminated membrane and hooklets are more commonly observed on the cytological examination of hydatid cyst, followed by protoscolices. However, in the present case, no laminated membrane was observed, but protoscolices were seen with rows of hooklets. This suggests that gentle aspiration to minimize trauma to the cyst wall for reducing the risk of spillage of hydatid cyst fluid, followed by close cytological examination, is sufficient to make an early, definite diagnosis of hydatid cyst.

Surgery is typically the mainstay of treatment for pulmonary hydatid cysts, but it is often combined with medical therapy. This may involve preoperative or postoperative administration of antiparasitic medications such as albendazole or mebendazole to reduce the risk of recurrence or manage any remaining cysts.

Thus, to conclude, the diagnostic dilemma due to the overlap of clinical and radiological findings of pulmonary hydatid cyst and tuberculosis may lead to delayed diagnosis, resulting in complications. FNAC serves as a

valuable adjunctive tool in the diagnosis of hydatid cysts, providing a rapid and accurate diagnosis that can guide clinical management and improve patient outcomes.

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Conflicts of interest

There are no conflicts of interest.

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