

CASE REPORT

Fine-Needle Aspiration Diagnosis of Hydatid Cyst

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ABSTRACT. The diagnosis of hydatid disease outside endemic areas is usually not suspected. Hydatid cysts in imaging studies can be confused with hepatic tumors, abscesses, cystadenomas, liver cysts or other lesions. Serology is the usual confirmatory test, but cytologic diagnosis has been described. Aspiration of

the cysts has not been employed as a routine diagnostic method for fear of spillage and anaphylactic reactions. We report a case of unsuspected hepatic echinococcosis that was confirmed by fine-needle aspiration of the lesion and cytologic confirmation without complications.

H ydatid disease and hepatic echinococcosis are frequently seen in sheep-raising regions around the world. Outside endemic areas, the diagnosis is uncommon and usually unsuspected. Images of cystic lesions may be confused with tumors and the appropriate serologic diagnostic tests not ordered. The diagnosis can usually be accomplished by the use of radiologic imaging and immunodiagnostic techniques. Serologic tests are useful to confirm the diagnosis of echinococcosis.

The cytologic diagnosis of this condition has been reported several times, specially in sputum and pleural fluid (1,2,3). The main criteria are the presence of hooklets and scolices (4). Allen and Fullner described the various structures that could be identified such as hooklets, scolices with invaginated hooklets, scolices with evagination of the anterior portion and eosinophilic appearing granules in structures representing calcareous corpuscles (5).

Fine needle aspiration biopsy (FNAB) has not been a primary method for the diagnosis of echinococcosis because of the possibility of spillage and anaphylactic reactions, although according to Kammerer and Schantz the risks can be minimized if the procedure is guided by ultrasonography or computerized tomography (6).

Nevertheless, only occasional adverse reactions have been described in the literature among the cases subjected to FNAB. We report a case of hepatic echinococcosis in which the diagnosis was made by FNAB of the lesion without complications.

Case Report

A 39 year-old male was referred to University Hospital for evaluation of pancreatic and hepatic cystic masses. The patient complained of epigastric and right upper quadrant pain of one month evolution. The pain was dull, non-radiating and not relieved by change in position, food intake or medications. He admitted a weight loss of 15 pounds in the previous month, but denied fever, nausea, vomiting or general malaise. The patient lived in Morocco until ten years before. On physical examination the abdomen was of normal size and contour. There was mild abdominal tenderness on deep palpation in the epigastric area. The liver and spleen were not palpable and no masses were present. The rest of the physical examination was unremarkable. An abdominal sonogram revealed a septated cystic lesion and computerized tomography of the abdomen showed a 14 cm. round, well circumscribed, multiloculated, fluid-containing structure, with large soft tissue septal components overlying the body of the pancreas, and a similar larger structure within the left lobe of the liver (Fig.1). The possibility of pancreatic cystadenoma or cystadenocarcinoma was considered. Routine laboratories revealed eosinophilia (10.4%) and mild leukocytosis ($12.6 \times 10^3/uL$). A sonographically

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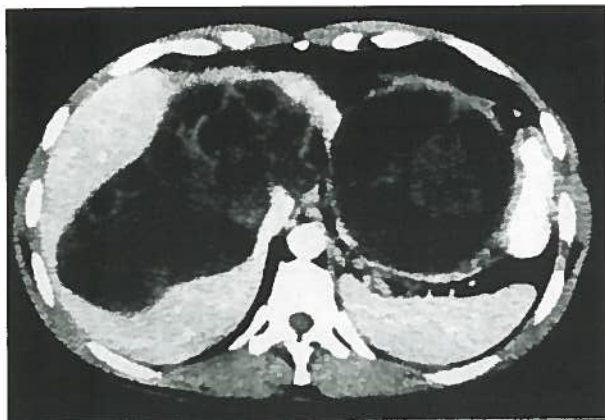


Figure 1. Computed tomographic scan demonstrating a 14 cm, well circumscribed, multi-loculated, predominantly fluid-containing structure with large soft tissue septal components in the left liver lobe overlying the pancreas .

guided FNAB of the hepatic lesion using a 22 gauge needle was done for diagnostic purposes. A clear yellow fluid was aspirated which on examination was negative for malignant cells and disclosed scanty polymorphonuclear leukocytes and lymphocytes. Multiple round eosinophilic and hyaline structures in an eosinophilic proteinaceous-like background were interpreted as calcareous corpuscles characteristic of echinococcosis (Fig.2). The patient underwent surgical

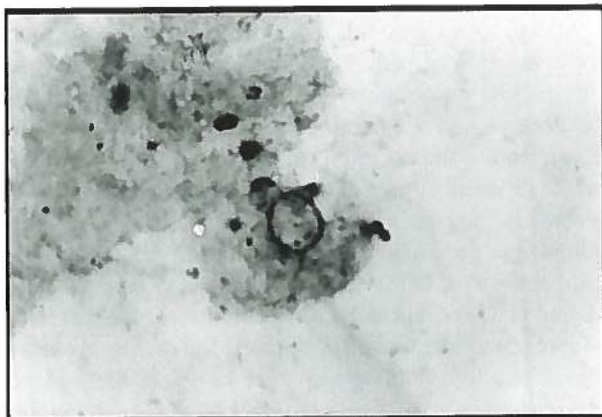


Figure 2. Microscopic examination of the cysts showing the calcareous corpuscles characteristic of echinococcosis.

intervention without complications. Histologic findings in the evaluation of the cyst wall included the inner and nucleated germinative membrane, the pericyst layer, multilayered laminated membrane, hydatid sand and areas of the host's thin fibrous reaction, all of these compatible with *E. granulosus* disease. The diagnosis was confirmed by ELISA and immunoblot serology (Division of

Parasitic Diseases, CDC, Atlanta, Georgia). Pathologic examination of the cyst wall and daughter cysts revealed characteristic scolices and shark-tooth hooklets (Fig.3). The patient was treated with mebendazole 40mg/kg/day and discharged from the hospital in two weeks.



Figure 3. Cytopathologic diagnosis of echinococcosis demonstrating hooklets and fragments of acellular membrane, granular and necrotic debris. (Papanicolau; x100.)

Discussion

The diagnosis of hepatic echinococcosis in nonendemic areas such as Puerto Rico is uncommon. Hydatid cysts in imaging studies, including ultrasound and computerized tomography, may be confused with hepatic tumors (7), choledochal cysts, abscesses, cystadenomas, renal and liver cysts (8).

FNAB has not been the preferred method of diagnosis for fear of spillage and anaphylaxis, and in the past echinococcosis was felt to be a contraindication for this procedure (9). Anaphylactic shock has been described after aspiration of hepatic (10,11,12) and lung cysts (13). Only occasional adverse reactions have been reported in the literature, including anaphylactic reactions, cytobronchial communications, or infections of the cyst (4). The lack of adverse reactions in most of the reported cases may have been due to the use of thin needles (22 gauge).

Unintended aspiration of a hydatid cyst, as in our case, has been done without complications (9,14,15). The use of thin 22 gauge needles in radiologically-guided aspirations is suggested to minimize the risks of reaction (4,6). The characteristic findings of hooklets, scolices and eosinophilic- appearing granules representing calcareous corpuscles (5,16) in the aspirated fluid confirm the diagnosis.

Prevention of cyst liquid spillage by the elastic outside cyst membrane has been suggested (9). Ultrasonographic

guidance of the FNAB may also help in avoiding adverse reactions. Filice et al described percutaneous drainage under ultrasound guidance and found the procedure to be therapeutically successful, safe and feasible (17).

Our case supports P. R. Hira's suggestion that FNAB is a safe and reliable method to diagnose hepatic echinococcosis in cases with negative or equivocal serology (18), and when the diagnosis has not been suspected.

Resumen

El diagnóstico de enfermedad hidatídica fuera de las áreas geográficas endémicas usualmente no se sospecha. Los quistes hidatídicos se pueden confundir con tumores de hígado, abscesos, cistadenomas, quistes hepáticos y otras lesiones. La serología es el método diagnóstico confirmatorio usual, pero se puede utilizar el diagnóstico citológico también. La aspiración de los quistes no se ha recomendado como procedimiento de rutina por temor a derrame del contenido y reacciones anafilácticas. Reportamos un caso de equinococosis hepática no sospechada que se confirmó por aspiración de la lesión y su citología, sin complicaciones.

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