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Cytological Presentation of Hydatid Cyst- A Rare Case Report

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Case Report

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Abstract

Hydatid cysts is a zoonosis caused by an infestation with larval tapeworms Echinococcus granulosus. It affects mainly the liver and is extensively distributed worldwide, but is endemic in sheep-raising regions. The definitive diagnosis of liver echinococcosis requires a combination of imaging, serologic, and immunologic studies. However, specific diagnosis is based on microscopic examination of the cyst fluid with demonstration of scolices, hooklets or fragments of laminated membrane and occasional multinucleated giant cells. We present herewith a case of hydatid cyst diagnosed cytologically, in a 30 years female who presented with non-radiating pain in right abdomen.

Keywords: FNAC; Hydatid Cyst; Liver; Ultrasound

Abbreviations: PTs: Percutaneous Treatments.

Introduction

Hydatid cysts (echinococcosis) is a zoonosis caused by an infestation with larval tapeworms Echinococcus granulosus. It affects mainly the liver [1]. Nevertheless, the disease might well spread to more unusual sites such as the lungs and brain. [1] The disease is extensively distributed worldwide, but is endemic in sheep-raising regions, especially Mediterranean countries, the Middle East, Eastern Europe, South America, Australia and New Zealand [1].

The parasite life cycle involves dogs and other canids (coyotes, dingoes, red foxes) as definitive hosts and ungulates (sheeps, pigs, goats, horses) as intermediate hosts. Definitive hosts are infected by ingestion of offal containing hydatid cysts. Humans can accidentally becomeaberrantintermediate hosts, after ingestion of Echinococcus eggs excreted by infected carnivores [2].

Hydatid cysts are spherical, fluid-filled, unilocular vesicles, consisting of an internal cellular layer (germinal layer) and an outer acellular, laminated layer. The parasite cysts gradually expands and causes a granulomatous host reaction, followed by the development of a fibrous tissue layer (pericyst) [3]. The definitive diagnosis of liver echinococcosis requires a combination of imaging, serologic, and immunologic studies. However, specific diagnosis is based on microscopic examination of the cyst fluid and bydemonstrating various hydatid elements such as protoscolices, hooklets or fragments of laminated membrane and occasional multinucleated giant cells. The presence of hooklets is diagnostic of hydatid cyst [4].

Case Report

A 30 years female presented with non-radiating pain in right abdomen since the last 8 months, associated with mild fever on and off and vomiting. Physical examination showed no palpable lump per abdomen. Hematological parameters and Chest X ray was within normal limits.

Ultrasound scan showed a large simple cyst involving the right lobe of the liver compressing the middle hepatic vein leading to loss of cardio-phasity (Figure 1). CECT showed a well-defined fluid density in a non-enhancing lesion involving segment 7 and 8 of the liver suggestive of an infective pathology (Figure 2). Serological testing was not performed. Provisional clinical diagnosis was suggestive of Hydatid cyst.

Figure 1: Ultrasound scan showed a large simple cyst involving the right lobe of the liver compressing the middle hepatic vein leading to loss of cardio-phasity.

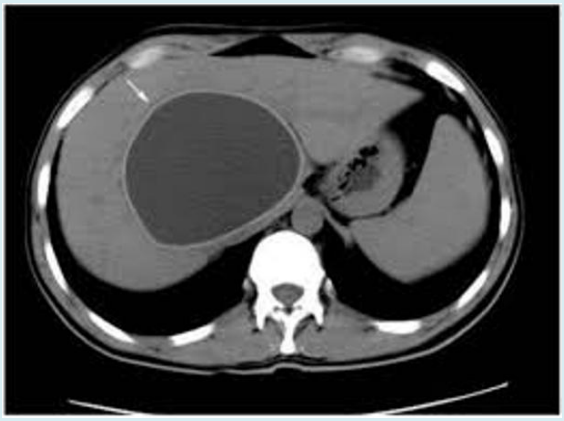

Figure 2: CECT showed a well-defined fluid density in a non-enhancing lesion involving segment 7 and 8 of the liver suggestive of an infective pathology.

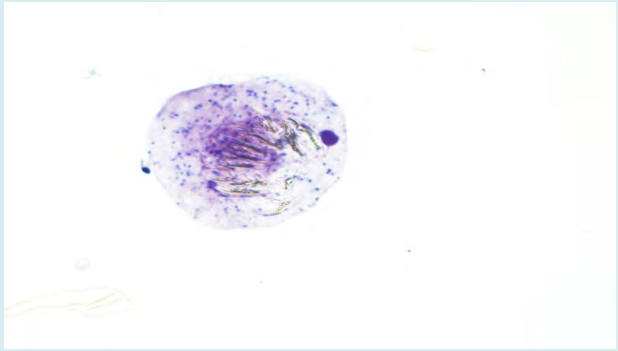

Figure 3: Fine needle aspiration cytology smear showed few scolices with refractile hooklets and fragments of laminar membrane. Papanicolaou stain x 400.

On Fine needle aspiration cytology, 6ml clear fluid was aspirated. Smears stained with Papanicolaou stain showed few scolices with refractile hooklets and fragments of laminar membrane (Figure 3). Hence, a final diagnosis of a hydatid cyst was given.

Laproscopic cyst removal was performed and grossly the specimen was pearly white membranous mixed with mucoid material, measuring 3.0 x 2.0 cms in size. Histologic examination revealed a cyst with outer fibrous layer with middle laminated, acellular layer admixed with abundant mixed inflammatory infiltrates and congested blood vessels.

Discussion

Hydatid cyst is a parasitic disease caused by the larval forms of *Echinococcus* tapeworms. Humans are accidental intermediate hosts and become infected by ingestion of food contaminated with eggs shed by dogs or foxes. After ingestion, the eggs of *E. granulosus* hatch and the larval oncospheres pass to the liver by the portal vein. Three quarters of infected individuals develop one or more hepatic cysts [5].

The majority occurs in the right lobe, but they may be multiple and involve all lobes of the liver. The cyst is usually white, spherical and filled with fluid. In the present study, it involved segments 7 and 8 of the liver. Hydatid cysts involves the liver in 75% cases, followed by lungs in 20%, kidneys and muscle 4% each, spleen, soft tissues and brain 3% each and bones in 2% cases.[6] The most frequent symptoms are fatigue and abdominal pain. Patients may also present with jaundice, hepatomegaly or anaphylaxis due to cyst leakage or rupture. In our case, the patient presented with non-radiating pain and mild fever with vomiting.[7] Complications includes rupture in the biliary tree with secondary cholangitis, biliary obstruction by daughter cysts, portal hypertension, ascites, intracystic or subphrenic abscess formation and development of a bronchobiliary fistula [4-8].

The diagnosis may often be incidental during an abdominal ultrasonography performed for other clinical reasons. USG is the examination of choice because of its high diagnostic accuracy, low cost and non-invasiveness. Sonography not only helps in diagnosis and localization of the cysts, but also in the assessment of the state and activity of the disease. It clearly demonstrates the hydatid sand, floating membranes, daughter cysts, and vesicles inside the cyst [9,10]. In our case USG was performed due to abdominal pain with the clinical impression of a large simple cyst involving the right lobe of liver compressing middle hepatic vein suggestive of a hydatid cyst.

FNAC is often contraindicated in cases of hydatid cyst, but can be considered as a safe and effective modality for its diagnosis. It can be diagnosed preoperatively by FNAC with the direct demonstration of parasitic elements such

as laminated membrane, hooklets, scolices with rostellum and calcified spherules in the stained smears of aspirate. [8]. Fine needle aspiration cytology in our case showed few scolices with refractile hooklets and fragments of laminar membrane. Minimal complications can be managed by anti-anaphylactics. No post-FNAC complication was noted in our case.

ELISA is a highly sensitive and useful serological test for echinococcosis, especially in its active stages. However, it may lead to negative results, due to the small size of the cyst (<10 mm in diameter) or the separation of the cyst from the surrounding tissue [4-9].

The therapeutic modalities for hydatidosis are chemotherapy, surgery (with open or laparoscopic approach) and percutaneous treatments (PTs) [10]. A stage-specific approach is recommended. The best treatment option is complete surgical excision of the intact cyst which avoids leakage of cyst contents. If it is not possible, the cyst contents can be removed intraoperatively and the cyst pouch irrigated with scolicidal solutions. In our case laproscopic cyst removal was performed with moist oxygen inhalation and nebulization with duolinbudate and albendazole.

Conclusion

Cytology is an useful tool in the specific diagnosis of hydatid cyst which is based on microscopic examination of the cyst fluid with demonstration of scolices, hooklets or fragments of laminated membrane.

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