

Bile Fluid Cytology of Hepatic Hydatid Cyst

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Abstract: *Hydatid cysts (echinococcosis) are caused by an infestation with larval tapeworms of the genus Echinococcus. The disease is extensively distributed worldwide, and it has been rarely reported in India. We describe the cytologic features of a case of hepatic hydatid cyst and pelvic hydatid cyst in a 45-year-old female. Computed tomography revealed multiple hepatic hydatid cyst and pelvic hydatid cyst. A left percutaneous transhepatic biliary drainage stent was performed. The aspirated bile fluid during percutaneous transhepatic drainage was greenish and hazy. The cytology smears showed round ova and free hooklets.*

Keywords: Echinococcosis; Liver; Cytology, histopathology

1. Introduction

Cystic echinococcosis is an endemic problem in Middle East and Asia. Cystic echinococcosis mostly affects lung, liver and spleen but it may also occur rarely in unusual sites as bone, muscle, brain, adrenal and pelvis [1]. Primary hydatid disease of the pelvis (0.75%-2.25%) is a very rare disease [2]- [5]. According to another clinical-epidemiological study which was carried out among 117 cases of hydatid disease in central India, only 1 case of pelvic hydatidosis was reported. However, in endemic country like Libya, only 14 cases of pelvic hydatid cyst were reported in one institution between 1971 and 1979 [6]. Bile fluid cytology of hydatid cysts has been described. [5-8] In this report, we described the cytologic and histopathology features of hepatic hydatid cysts and pelvic hydatid cyst examined in a 45-year-old female.

2. Case Report

A 45-year-old female presented with abdominal pain that had persisted for the past three days. The patient is a housewife and belongs lower middle socio-economic class. Physical examination revealed no abdominal mass. She had undergone left percutaneous transhepatic biliary drainage 1 month ago. Contrast enhanced computed tomography scan revealed multiple hepatic hydatid cyst in right lobe and caudate lobe and pelvic hydatid cyst. (Fig.1 & 2).

Once again left percutaneous transhepatic biliary drainage was performed and collect bile fluid during this procedure through catheter. The aspirated fluid was greenish and hazy. Smears made from centrifused bile fluid. The smears were stained using Papanicolaou and hematoxylin and eosin stains. The smears are acellular showed eosinophilic amorphous material with few round ova like structure are seen along with free hooklets. (Fig.3&4).



Figure 1: Multiple hepatic hydatid cyst in CECT.



Figure 2: Pelvic hydatid cyst in CECT.

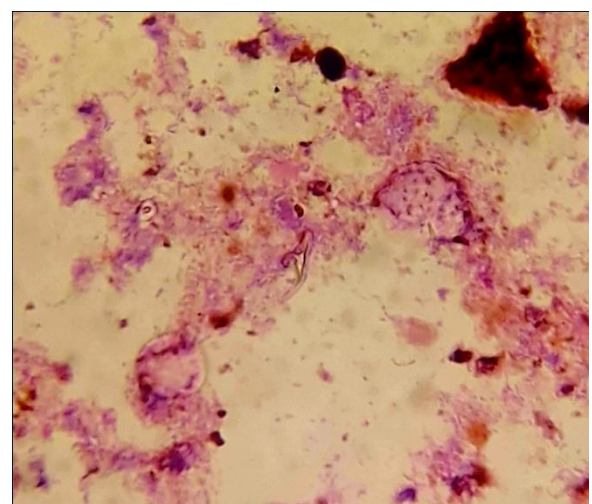


Figure 3: Free hooklets.

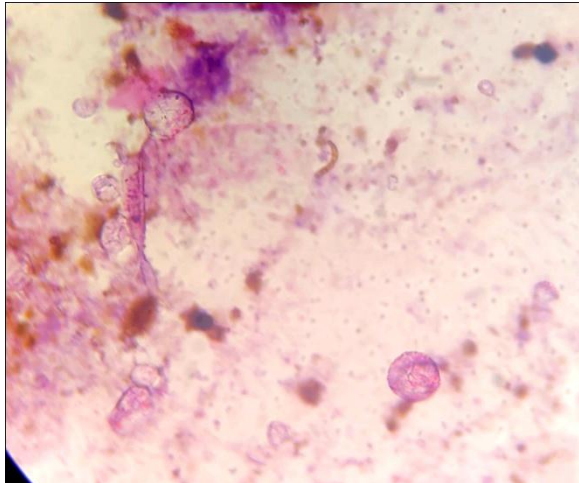


Figure 4: Eosinophilic amorphous material with few round ova like structure.

On gross examination, Multiple (70 to 75) whitish to yellowish filled cysts are received. Sizes of cyst varying from 3x3 cm to 0.5x0.5 cm. On cutting clear, yellowish, serous fluid came out. A 5x4.5x4.5 cm sized cystic specimen is received. Outer surface is grayish white to yellowish smooth, shiny, lobulated and capsulated attached with few fibrofatty areas. On cut section it shows grayish white to yellowish cystic areas. On cutting 30 ml clear serous fluid received. (Fig.5 & 6).



Figure 5: Multiple Hepatic cysts



Figure 6: Pelvic cyst

Histopathologic examination revealed that laminated membrane of hydatid cyst along with hooklets and brood

capsule. And in pelvic cyst shows histopathological picture of laminated membranes with hooklets and brood corpuscle (Fig.7&8).

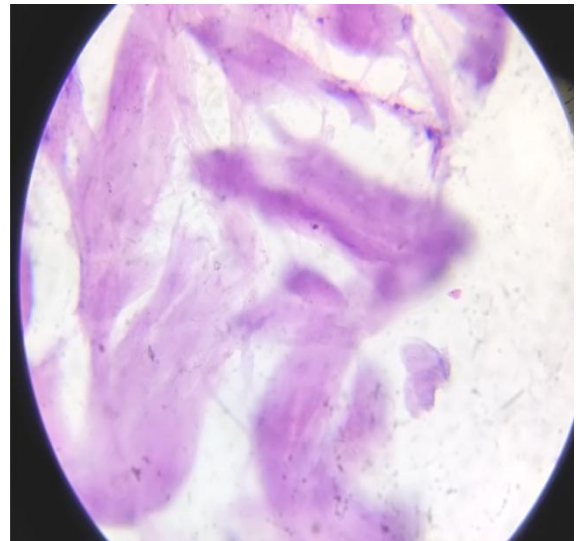


Figure 7: Laminated membranes.

3. Discussion

Hydatid cyst is a parasite disease caused by the larval forms of *Echinococcus* tapeworms. Infections by *E. granulosus* are the most common. Humans are accidental

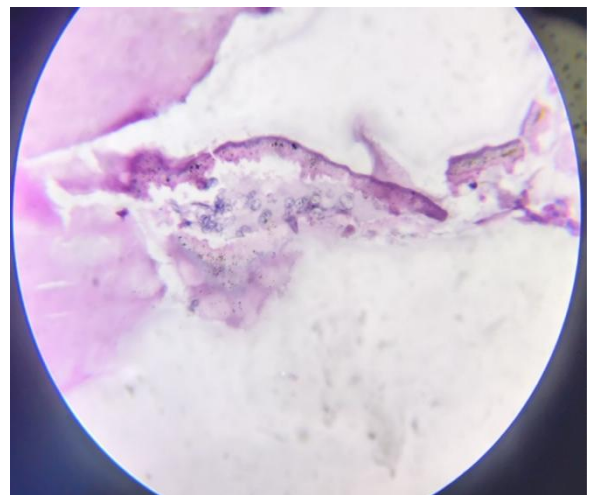


Figure 8: Brood corpuscles

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. The majority occurs in the right lobe, but they may be multiple and involve all lobes of the liver. A hydatid cyst is white, spherical, and filled with fluid. It varies from a few millimeters to many centimeters in diameter. [7] Because of its slow growth, the diagnosis may be delayed for months to years after the initial infection. Clinical manifestations include hepatomegaly, obstructive jaundice, and cholangitis. Complications include cholangitis and rupture. If the patient is untreated, the hydatid cyst can be fatal.

The adult *E. granulosus* is a small tapeworm capped by a scolex at the anterior terminus, and measures 3 to 5 mm in length. Four suckers and a double crown of 28-50 hooks emerge from the scolex. [9] The cyst wall has a laminated membrane lined by a germinal layer. This membrane is about 1 mm thick and has no nuclei. The germinal layer is 10 to 25 µm in thickness and contains nuclei.

Cytologically, protoscolices, hooklets, and fragments of the laminated membrane are commonly found in hydatid cysts. [11-14] In some cases, only laminated membranes were present in the inflammatory background. [16-18] In the current case, protoscolices, hooklets, and laminated membranes were identified and the background showed necrotic debris and inflammatory cells. The liver is the most frequently involved organ. In cases of hydatid cysts that involve atypical locations and other organs, the diagnosis can be difficult. FNAC appears to be a safe and useful method in the diagnosis of hydatid cyst, although arguments regarding this issue persist. [19] Cytologic diagnosis of hydatid cysts has been reported in the lung, [20] omentum, [21] muscle, [22] soft tissue, [16, 18] brain, [23] orbit, [24] and joints. [18] The differential diagnosis of hepatic hydatid cyst includes abscess, hemangioma, and non-parasitic cysts such as solitary bile duct cyst and hepatobiliary cystadenoma. Hydatid cyst should be considered when fragments suggestive of a laminated membrane are present on smears without evidence of protoscolices. [19] A definite diagnosis of hydatid cyst is confirmed by identification of protoscolices, refractile hooklets or fragments of a laminated membrane. Surgical excision of the intact hydatid cyst without rupture is the treatment of choice, to reduce the chance of seeding and recurrence. [15]

There have been significant advances in the knowledge of *Echinococcus* biology and the development of more specific and sensitive immunological tests. [25] Early diagnosis of hydatid cyst by serology may provide opportunities for early treatment and more effective chemotherapy. [26]

4. Conclusion

Cystic echinococcosis mostly affects lung, liver and spleen but it may also occur rarely in unusual sites as bone, muscle, brain, adrenal and pelvis [1]. FNAC appears to be a safe and useful method in the diagnosis of hydatid cyst. Cytological examination is useful for the accurate diagnosis and for prevention of the further complication also Bile fluid cytology helpful in diagnosis as our case suggest.

Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

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