

Cytomorphology Of Hydatid Disease

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Citation

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Abstract

We present a case of hydatid disease and conclude that in a patient with a presumptive diagnosis of cystic hydatid disease, FNA is the primary method of confirming hydatid disease.

CASE REPORT

A 40-year-old female complained of dull pain abdomen for the last 3 months. On per abdominal examination, no mass was palpable. Her routine hematological and biochemical investigations were within normal limits. Ultrasound abdomen revealed a 6x3.5 cm, unilocular hyperechoic lesion in right lobe of the liver. A radiological diagnosis of abscess liver was made. Hydatid serology was negative. Ultrasound guided fine needle aspiration (FNA) was done with 22gauge lumbar puncture needle and 110ml turbid fluid was aspirated. No untoward allergic reaction was observed following FNA. The fluid was centrifuged and smears were prepared from the sediment. The smears were stained by May-Grünwald Giemsa (MGG), haematoxylin & eosin (H&E) and Masson's trichrome (MT) stains.

Microscopic examination revealed numerous hooklets, laminated membrane and scolices. No inflammatory cells were seen. The laminated membrane appeared as fragments of acellular material with delicate parallel striations staining deep blue (Figure1). Many scolices which were round to oval structures about 100µm in diameter with one or two rows of characteristic radially arranged hooklets were seen (Figure 2). The hooklets were about 20-40µm in size, semi-translucent, refractile, triangular or sickle-shaped with an inner semi-translucent core of the same shape. The hooklets were better highlighted by MT stain (Figure 2; Inset). Some scolices showed flame cells and were without hooklets (Figure 3). With these cytological findings, a diagnosis of hydatid cyst was made.

Figure 1

Figure 1: Photomicrograph of the laminated membrane appearing as fragments of acellular material with delicate parallel striations staining deep blue (May Grunwald Giemsa, x400).

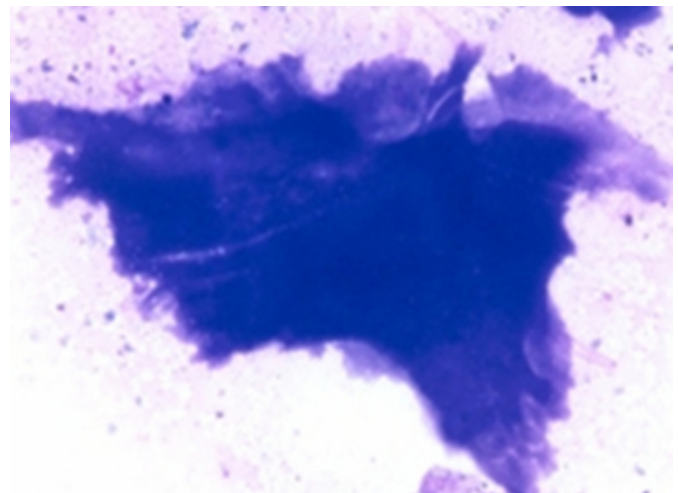


Figure 2

Figure 2: Photomicrograph of the scolex with a row of characteristic radially arranged hooklets (Haematoxylin and eosin, x 200). Inset: Hooklet better highlighted by Masson Trichrome stain (Masson Trichrome, x400).

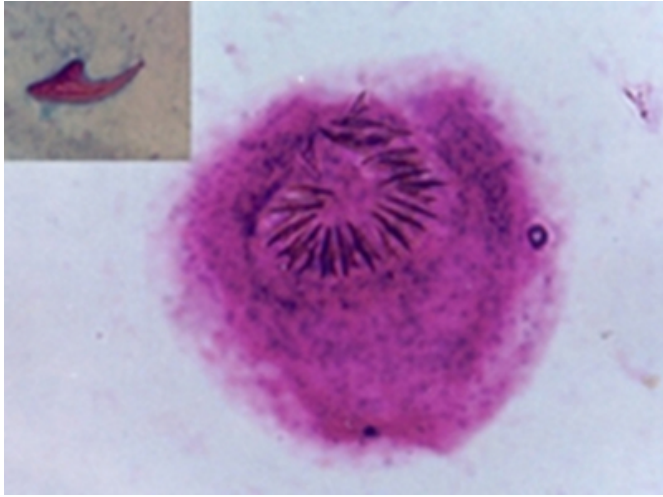
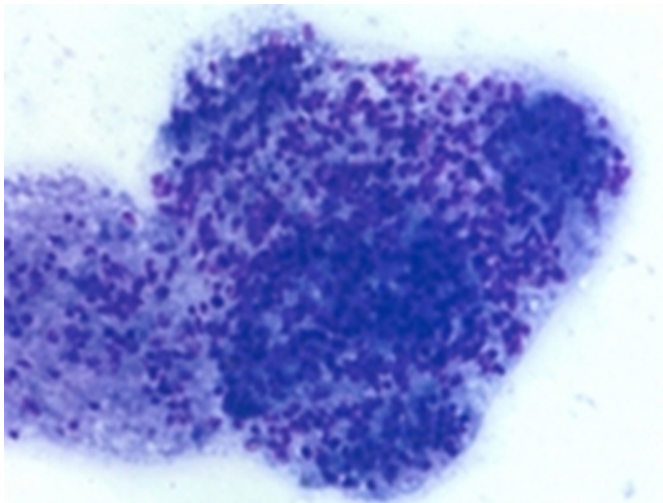


Figure 3

Figure 3: Photomicrograph of the scolex showing flame cells without hooklets (May Grunwald Giemsa, x400).



DISCUSSION

Hydatid disease caused by the larvae of the cestode *Echinococcus*, occurs worldwide. The common species are *E. granulosus* and *E. multilocularis*. The former is more prevalent and causes unilocular cysts, while *E. multilocularis* is rare and causes multilocular cysts. Dog is the definitive host and humans are the intermediate hosts. When infected ova are consumed by the human host, embryos develop in

the proximal small intestine and reach the liver through the blood resulting in one or more echinococcal cysts. Some of the embryos may pass through the hepatic capillaries, enter the pulmonary circulation and filter out in the lungs. A few may pass the pulmonary capillaries to enter the general stream and lodge in various organs. About 60% cysts are found in the liver, 5-15% in the lungs and the rest in the bones, brain and other organs. In majority of cases, the disease is asymptomatic, while some patients may clinically present with pain or by its pressure effects on surrounding tissues.

FNA is conventionally contraindicated in a suspected case of hydatid cyst because of risk of anaphylaxis and dissemination. However, this risk has been overemphasized in the past as there are many reports on cytological diagnosis of hydatid disease without complications^{1,2,3}.

Hydatid disease can be diagnosed by serology and imaging studies, but these techniques are not definitive. A confirmatory diagnosis can only be made by biopsy or fine needle aspiration cytology. On FNA, the diagnosis is established by demonstrating scolices, hooklets or laminated membrane. However, all the three components may not be visualized in any one given case. Special histochemical stains can be used to highlight these different components. The cyst membrane takes up the periodic Schiff stain while hooklets are better stained by MT and Ziehl Neelsen stains.

To conclude, in a patient with a presumptive diagnosis of cystic hydatid disease, FNA is the primary method of confirming hydatid disease.

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