Solitary hepatic echinococcal cyst

Clinical History:

A 35-year-old Caucasian woman complained of diffuse abdominal pain and abdominal distension.

Imaging Findings:

The CT revealed a single, large, low density, fluid-filled mass of 15.5 cm in size in the left lobe of the liver (Fig. 1a-h; 2a,b). There was no calcification of the wall. There was serpentine structure within the fluid-filled mass (Fig. 1d, e; 2a, b). This cystic lesion demonstrated water attenuation of 15 HU. Inner layer of cyst had separated from outer layer giving the appearance of a serpentine structure inside of the cyst which is seen in Echinococcal cysts. No other cystic lesions were found.

Discussion:

Echinococcus granulosus which causes cystic echinococcosis is a member of the smallest tapeworms in the Taeniidae family, and its larval stage, the metacestode, is responsible for zoonotic infection in humans [1]. The life cycle of Echinococcus granulosus involves two hosts. The definitive host is usually a dog but may be some other carnivores. The adult worm of the parasite lives in the proximal small bowel of the definitive host, attached by hooklets to the mucosa. Eggs are released into the host's intestine and excreted in the faeces. Sheep are the most common intermediate hosts. They ingest the ovum while grazing on contaminated ground. Human become accidental intermediate host. The ovum loses its protective chitinous layer as it is digested in the duodenum. The released hexacanth embryo, or oncosphere passes through the intestinal wall into the portal circulation and develops into a cyst within the liver. When the definitive host eats the viscera of the intermediate host, the cycle is completed. Humans may become intermediate host through contact with a definitive host (usually a domesticated dog) or ingestion of contaminated water or vegetables [2].

The hydatid cyst has three layers: (a) the outer pericyst, composed of modified host cells that form a dense and fibrous protective zone; (b) the middle laminated membrane, which is acellular and allows the passage of nutrients; and (c) the inner germinal layer, where the scolices (the larval stage of the parasite) and the laminated membrane are produced. The middle laminated membrane and the germinal layer form the true wall of the cyst, usually referred to as the endocyst, although the acellular laminated membrane is occasionally referred to as the ectocyst [2, 3].

CT has a high sensitivity and specificity for hepatic hydatid disease [4]. Cyst fluid usually demonstrates water attenuation (3–30 HU) [5]. Calcification of the cyst wall or internal septa is easily detected at CT. A hydatid cyst typically demonstrates a high-attenuation wall at unenhanced CT even without calcification. Detachment of the laminated membrane from the pericyst can be visualized as linear areas of increased attenuation within the cyst [6,
Daughter vesicles manifest as round structures located peripherally within the mother cyst.

Clinical management of hepatic cysts includes albendazole therapy in combination with either surgical resection or the puncture aspiration injection re-aspiration (PAIR) procedure. Larger cysts (diameter >10 cm) preferably undergo surgical resection [8, 9]. Asymptomatic individuals may undergo an observation approach with supervision [10].

**Differential Diagnosis List:** Echinococcal cyst in the left lobe of liver, Hepatocellular carcinoma, Hepatic abscess, Hepatic cyst, Metastasis

**Final Diagnosis:** Echinococcal cyst in the left lobe of liver

**References:**


Description: Axial CT slice in soft tissue window shows cystic lesion in the left lobe of liver. Origin: Nemsadze G. Department of Radiology, Tbilisi Central Clinical Hospital, Tbilisi State Medical University, Tbilisi, Georgia.
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Description: Coronal reconstruction in soft tissue window shows cystic lesion in the left lobe of liver with linear areas of increased attenuation within the cyst. **Origin:** Nemsadze, G, Department of Radiology, Tbilisi Central Clinical Hospital, Tbilisi State Medical University, Tbilisi, Georgia.
Description: Sagittal reconstruction in soft tissue window shows cystic lesion in the left lobe of liver with linear areas of increased attenuation within the cyst. Origin: Nemsadze G, Department of Radiology, Tbilisi Central Clinical Hospital, Tbilisi State Medical University, Tbilisi, Georgia.