

Diagnostic difficulty of liver lesion

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ABSTRACT

Liver abscess is mostly either pyogenic or amebic. Fungal and mycobacterial liver abscesses are rare and mostly associated with immunosuppression. The occurrence of fungal liver abscess with hydatid cyst was never reported previously. This case created diagnostic difficulty, whether we are dealing with liver abscess or hydatid cyst. Sometimes, it may be possible that concurrent occurrence of hydatid cyst with liver abscess or hydatid cyst become infected and mimic like liver abscess.

Keywords: *Echinococcus*, enzyme-linked immunosorbent assay, fungus, hydatid cyst, liver abscess

Introduction

Liver abscess is mostly either pyogenic or amebic. The incidence of fungal liver abscess is rare compared to pyogenic or amebic liver abscess.^[1] Routes of exposure of bacteria can occur by biliary tree, portal vein, hepatic artery, direct extension, and cryptogenic abscess. Fungal and mycobacterial liver abscesses are rare and mostly associated with immunosuppression.^[2] The occurrence of fungal liver abscess with hydatid cyst was never reported previously.

Case Report

A 65-year-old female patient admitted with a complaint of upper abdominal pain for 15 days, more on the right hypochondrium and epigastric region, associated with a history of nausea and vomiting. There was a history of fever with loss of appetite and loss of weight. No history of jaundice, cough, or respiratory distress was noted. She was a known case of diabetes mellitus for 5 years, on oral hypoglycemic drugs. Her general examination and vital signs were normal. Abdominal examination showed tenderness in the right hypochondrium with hepatomegaly and intercostal tenderness. Respiratory, cardiovascular, central

nervous system, and musculoskeletal system found to be normal. Provisional diagnosis is made as liver abscess and proceeded with investigations.

Routine blood investigations such as complete blood count and renal and liver function tests were normal. Coagulation profile showed raised INR (1.58). Ultrasound abdomen showed 7.15 cm × 4.43 cm ill-defined echo texture lesion with internal anechoic area seen in segment VII and V of the liver [Figure 1]. The impression was given as liver abscess and cannot rule out hydatid cyst. We are not sure whether we are dealing with chronic liver abscess or infected hydatid cyst; hence, we proceeded with contrast computed tomography (CT) abdomen and immune assay for IgG antibodies against hydatid cyst (*Echinococcus*). Contrast CT abdomen showed enlarged liver of 20.8 cm with ill-defined hypoechoic collection with air fluid level of size 13 cm × 10 cm × 7 cm noted in the right lobe of liver with enhancing walls suggestive of liver abscess [Figures 2 and 3]. However, serum enzyme-linked immunosorbent assay (ELISA) against *Echinococcus* IgG-positive (0.78 OD) (Reference interval-negative <0.3, positive >0.3). The patient was started on antibiotics and albendazole for hydatid cyst. Vitamin K and fresh-frozen plasma were given to correct coagulopathy. We are not sure with diagnosis whether synchronous hydatid cyst with pyogenic liver abscess or hydatid cyst becomes infected. Hence, we proceeded with PAIR after adequate preparation.

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Aspirate was sent for Gram stain, culture and sensitivity, and cytology. Gram stain showed many pus cells and fungal filaments branching septate hyphae, suggestive of *Candida albicans* and culture and sensitivity were also suggestive of *C. albicans*. Cytology was negative for malignant cells. Later, we placed pigtail catheter inside the abscess cavity and the cavity started resolving [Figure 4]. Follow-up of the patient showed no evidence of residual lesion.

Discussion

Hydatid cyst occurs due to infection with *Echinococcus granulosus*. After ingestion of parasite embryo, it releases an oncosphere which penetrate the mucosa of intestine. Larvae of *Echinococcus* reach portal venous system through intestine and spread to various organs such as liver, lung, spleen, brain, muscle, and other parts.^[3] Most of the hydatid cyst is asymptomatic unless the patient develops complications or compression.

Ultrasound abdomen mostly diagnoses hydatid cyst, but when the diagnosis is uncertain, we need CT abdomen or magnetic resonance imaging (MRI) abdomen to fetch diagnosis. When imaging fails to identify the lesion or when the lesion is doubtful, we need serological examination, which is confirmatory.^[4] Following serological test used for the diagnosis of hydatid cyst. They are complement fixation test, indirect hemagglutination test, latex agglutination test, ELISA, indirect immunofluorescence antibody test, immunoelectrophoresis, and immunoblotting.^[5]

Sensitivity and specificity of ELISA vary from 88.2–91.7% and 93.4–99.1%, respectively.^[6] Sensitivity and specificity of ELISA vary from organ to organ, in which hydatid cyst is involved. Hydatid cyst liver carries higher sensitivity (90%) compared to hydatid cyst of the lung (75%). ELISA for IgG carries higher sensitivity (90%) compared to ELISA for IgM (85%) or IgE (80%) antibodies. Ultrasound abdomen shows calcification of the cyst wall with double echogenic shadow due to pericyst.^[5] CT scan shows peripheral rim of calcifications with septations. Fluid-filled cyst with variable density observed depends on the

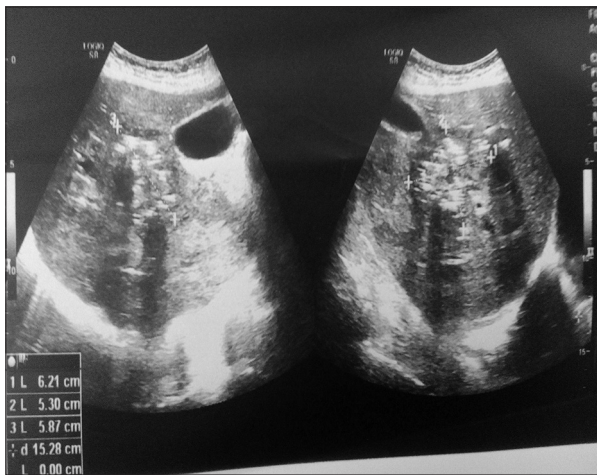


Figure 1: Ultrasound abdomen showed 7.15 cm × 4.43 cm ill-defined echo texture lesion with internal anechoic area seen in segment VII and V of the liver



Figure 2: Axial computed tomography abdomen showed enlarged liver with hypodense fluid collection

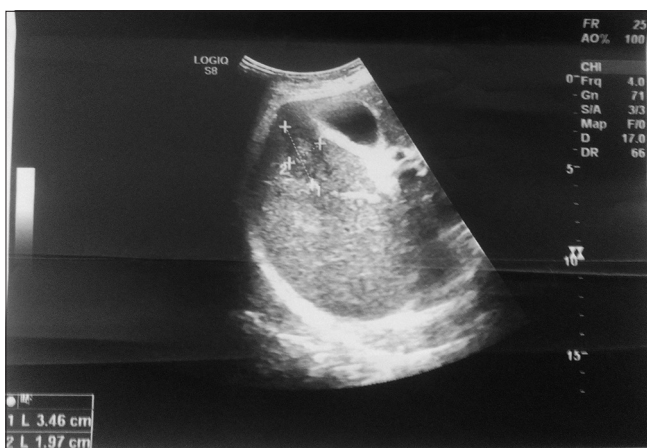


Figure 3: Contrast computed tomography abdomen showed enlarged liver of 20.8 cm with ill-defined hypo echoic collection with air fluid level of size 13 cm × 10 cm × 7 cm noted in the right lobe of liver with enhancing walls suggestive of liver abscess

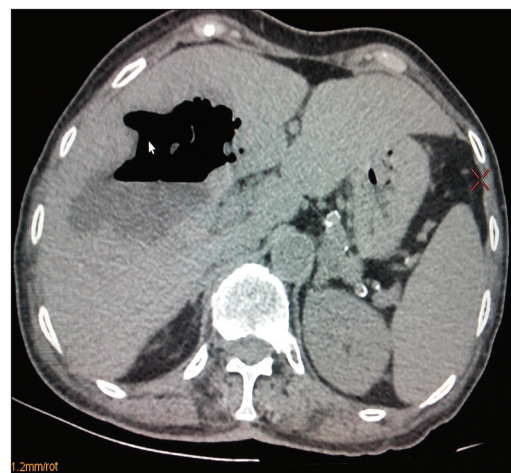


Figure 4: Ultrasound abdomen with pigtail catheter inside the abscess cavity with resolving abscess

amount of debris. MRI abdomen shows mixed low signals on T1-weighted images whereas mixed high signals on T2-weighted images with septations.

The occurrence of abscess in hydatid cyst is very rare. Mostly, hydatid cysts with immunocompromised status are more prone to develop liver abscess following hydatid cyst. The occurrence of abscess in hydatid cyst creates diagnostic difficulty when seropositive for hydatid cyst, but imaging fails to identify hydatid cyst or serology positive for hydatid cyst, but aspirate shows negative for hydatid. In our case, there was a diagnostic difficulty because imaging failed to identify typical hydatid cyst, but seropositive for hydatid cyst. With extensive search on PubMed, this is the first case reported with hydatid cyst with fungal liver abscess created diagnostic difficulty. The previous description of fungal abscess mostly associated with liver malignancies or hematological malignancies.^[7] Fungal liver abscess following hydatid cyst was treated with PAIR and medical management such as albendazole with antifungal agents.^[8]

Conclusion

This case created diagnostic difficulty whether we are dealing with liver abscess or hydatid cyst. Sometimes, it may be possible that concurrent occurrence of hydatid cyst with liver abscess or hydatid cyst became infected and mimic like liver abscess. Seropositive hydatid cyst sometimes fails to have imaging findings of hydatid cyst. Immunocompromised states with hydatid may be more prone for fungal liver abscess compared to pyogenic liver abscess. This kind of cases can be managed with initially PAIR followed by pigtail for proper resolution.

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Conflicts of interest

There are no conflicts of interest.

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