

'Frosted liver' appearance in serohepatic variant of hepatic tuberculosis

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DESCRIPTION

Tuberculosis can present with myriad manifestations and is a leading cause of morbidity and mortality in the tropical countries. Hepatic tuberculosis is seen in adults and is not so common in children, usually presenting in the fourth to sixth decade of life.¹ The disease shows non-specific symptoms and is usually incidentally detected. Hepatic tuberculosis can occur in isolation or it can be associated with other findings of systemic tuberculosis like necrotic mesenteric lymph nodes, gastrointestinal tuberculosis or pulmonary tuberculosis. The imaging

manifestations of the hepatic tuberculosis can be classified into three main types—parenchymal or military pattern, tuberculous cholangitis and serohepatic variants.² The miliary/parenchymal pattern is more commonly seen, whereas the serohepatic variant is rare. Serohepatic pattern of liver involvement presents as multiple focal areas of thickened liver subcapsule leading to the 'sugar coating' or 'frosted liver' appearance (figure 1).³ Histopathologically, the connective tissue overlying the liver serosa and Glisson's capsule are responsible for this appearance.²

A 53-year-old gentle man presented with complains of vague abdominal pain since the last 5 months. Abdominal examination revealed mild tenderness in the right hypochondrium. Routine laboratory investigations revealed elevated alkaline phosphatase 308 u/L, conjugated bilirubin 1.13 mg/dL and erythrocyte sedimentation rate 45 mm/hour. Ultrasound abdomen revealed multiple nodular hypoechoic lesions in the subcapsular region of the liver (figure 2A,B). Contrast enhanced CT abdomen and pelvis was done for further evaluation. The CT scan was performed on a 64-slice

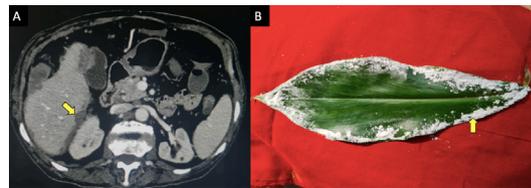


Figure 1 Contrast enhanced CT of the abdomen in portovenous phase, axial image (A) shows 'frosted liver appearance' with multiple nodular hypodense subcapsular liver lesions (arrow in A); (B) schematic representation of frosted leaf resembling the 'frosted liver' (arrow in B).

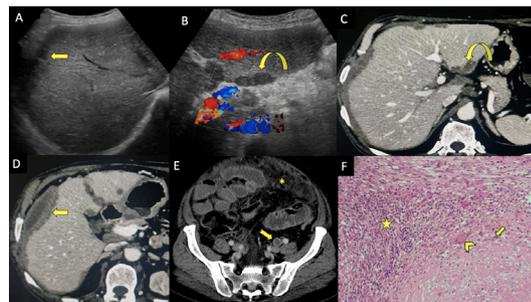


Figure 2 (A) and (B) are ultrasound abdomen and Doppler images respectively showing nodular hypoechoic subcapsular lesions (straight arrow in A and curved arrow in B of the liver showing no vascularity). Contrast enhanced CT of the abdomen and pelvis in portovenous phase axial images (C–E): (C) multiple nodular hypoenhancing lesions in the subcapsular region of the liver, involving the left lobe (curved arrow in C) and right lobe (arrow in D) with a small crescentic right perihepatic collection in D; (E) a necrotic left iliac lymph node (notched arrow) with omental thickening and fat stranding (asterisk in E); (F) Microscopic staining showed epithelioid cells (arrow), Langhans type of giant cell (arrow head) and lymphoplasmacytic infiltrate (star) (Haematoxylin & Eosin staining; original magnification ×200 in D).

Patient's perspective

I am the patient and I also work as hospital technical staff. I was suffering from abdominal pain since last 5 months with increased tiredness and fatigue. I underwent routine blood check-up where my liver markers were increased. The doctors had advised an ultrasound which showed that I had some liver disease. I was subsequently advised a CT scan. My CT scan showed that I had abdominal infection. Over the next 5 days, my health deteriorated and I was admitted. The doctors confirmed that I was suffering from tuberculosis based on my biopsy reports. I feel I must have contracted the infection, at work as I work as a hospital staff. I was subsequently put on antitubercular medicines. The doctors and staff have taken care of me here and have explained how I need to take care of my diet and be regular with my anti tubercular medications. I have been regularly taking my medications for 3 months now and I feel much better. I have regained my lost weight and appetite and even my laboratory investigations show good progress. Even though I still have to continue to take these antitubercular medications for few more months, I feel I will overcome this disease and I hope to recover completely in future.



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Learning points

- ▶ Isolated subcapsular hepatic lesions scalloping the liver surface has many differentials including pseudomyxoma peritonei, metastatic deposit, lymphoma, parasitic infections and extramedullary haematopoiesis.
- ▶ In countries endemic for tuberculosis, subcapsular hypodense lesions with thickening of liver capsule should prompt the possibility of hepatic tuberculosis especially when associated with ancillary findings of tuberculosis like necrotic lymph nodes, lung changes of tuberculosis, bowel wall thickening.
- ▶ Biopsy/cytology of these subcapsular liver lesions can be avoided if histopathological/ microscopic evidence of tuberculosis has been detected at any other site in the patient.

multidetector CT scanner (Philips Ingenuity, Philips Healthcare, Cleveland, Ohio, USA) with 100 mL of 350 mg/mL of intravenous non-ionic contrast medium (Iohexol: Omnipaque, GE Healthcare, Marlborough, USA) with automated exposure control. CT protocol included an unenhanced phase and a portovenous phase at 55–60 second postcontrast injection. CT showed multiple hypodense (on unenhanced phase) and hypoenhancing (on portovenous phase) nodular lesions in the subcapsular region of the liver with overlying thickened capsule giving the ‘frosted liver’ appearance (figure 2C,D). Multiple mesenteric

and iliac lymph nodes with central necrosis along with omental thickening and fat stranding were seen (figure 2E). Subsequently, the patient underwent lymph node biopsy. Histopathology showed, multiple Langhans giant cells, epithelioid cells along with lymphoplasmacytic infiltrates (figure 2F). Mycobacterium tuberculosis complex was detected by GeneXpert Assay. The patient has received 3 months of antitubercular treatment. He shows improvement in symptoms with normalisation of serological parameters like alkaline phosphatase 105 u/L and conjugated bilirubin 0.3 mg/dL.

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