

We present two cases where liver imaging yielded incidental findings characteristic of hepatic schistosomiasis.

A 78-year-old woman underwent computed tomography (CT) of the abdomen to investigate epigastric pain. Computed tomography showed capsular and septal calcifications, junctional notches, an irregular hepatic contour, and extension of periportal fat deep into the liver (Fig 1). All of these imaging features are consistent with schistosomiasis.

A 53-year-old man who was a hepatitis B carrier had ultrasonography (USG) of the liver as part of routine surveillance for hepatocellular carcinoma. The USG showed diffuse periportal hyperechogenicity (Fig 2a) and a hypoechoic mass in the right anterior segment. Computed tomography showed septal calcifications consistent with schistosomiasis. A 5-cm arterial, enhancing mass with washout of contrast during the porto-venous phase was noted in the right anterior segment of the liver. These features are

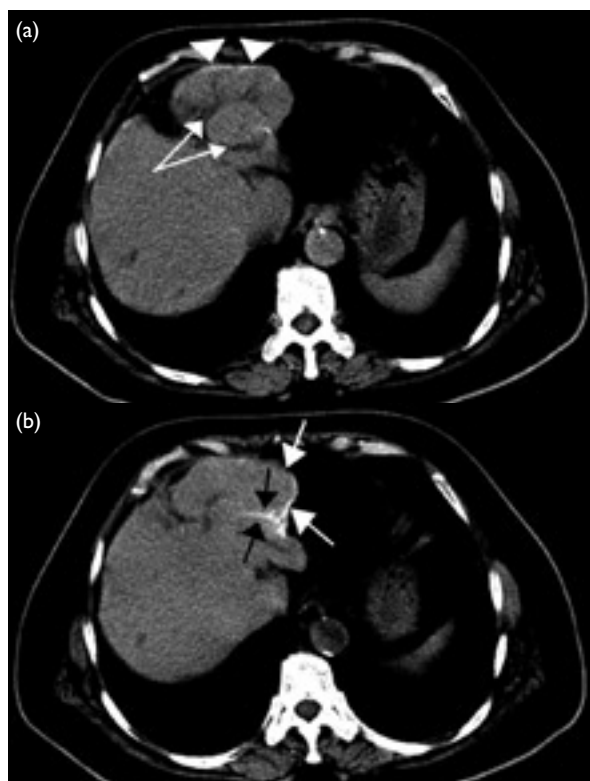


FIG 1. Non-contrast enhanced computed tomography (CT) liver showing (a) capsular calcifications (white arrowheads), an irregular hepatic contour, and extension of periportal fat deep into the liver (white arrows), and (b) septal calcifications (black arrows) and junctional notches (white arrows)

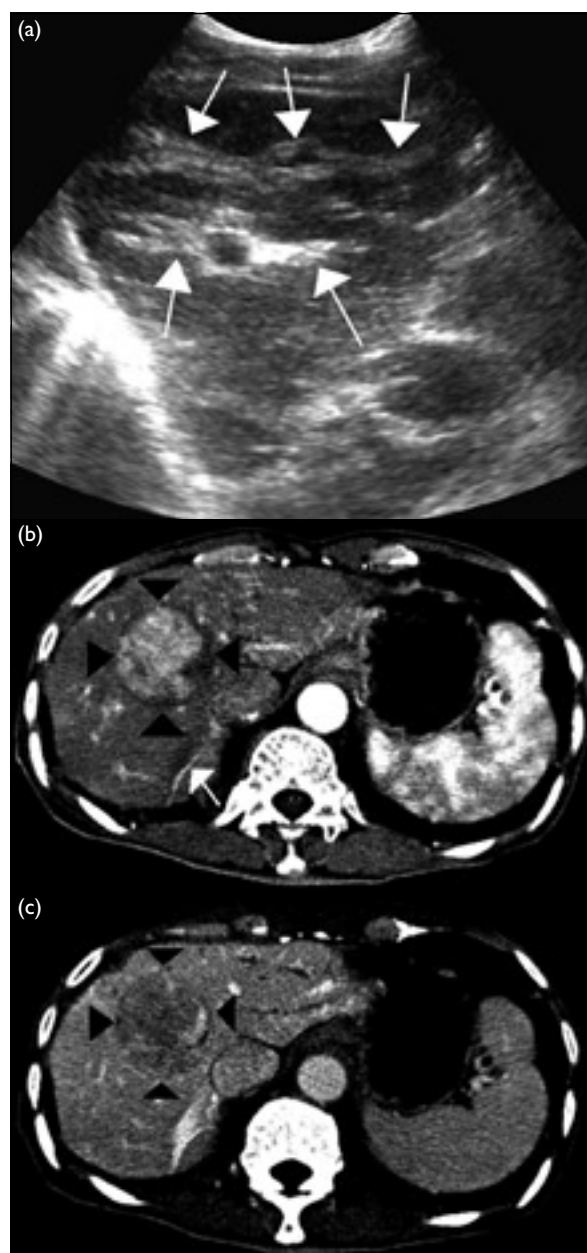


FIG 2. (a) Ultrasonography of the liver showing diffuse periportal hyperechogenicity (white arrows). (b) Contrast-enhanced computed tomography (CT) arterial phase image showing septal calcification (white arrow) in the right posterior segment and a hypervascular tumour in the right anterior segment (black arrowheads). (c) Contrast-enhanced CT porto-venous phase image showing washout of contrast in the tumour, suggestive of hepatocellular carcinoma (black arrowheads)

suggestive of hepatocellular carcinoma (Fig 2b, 2c), which was subsequently confirmed by USG-guided fine-needle aspiration cytology.

Discussion

Schistosoma japonicum, *Schistosoma haematobium*, and *Schistosoma mansoni* are the three most important schistosome species infecting humans.¹ While *S. haematobium* is usually found in the pelvic veins, particularly the vesico-prostatic plexus, the adult worms of the other two usually reside in the portal tributaries: *S. mansoni* in the colonic and rectal tributaries and *S. japonicum* in the superior mesenteric vein. *Schistosoma japonicum* is common in eastern Asia, particularly in Mainland China. The schistosomes live in the bowel lumen and lay eggs in the mesenteric veins. The eggs then embolise to the portal vein and cause a granulomatous inflammatory response, subsequent fibrosis and pre-sinusoidal hypertension. The eggs themselves do not survive and may subsequently calcify, with these calcifications increasing over time.² Chronic infection with either *S. japonicum* or *S. mansoni* leads to cirrhosis and increases the risk of hepatocellular carcinoma.³

The diagnosis of acute schistosomiasis is based on epidemiological data, clinical manifestations, eosinophilia, the presence of living eggs at stool examination, or positive serologic findings. Imaging has no significant contribution to make to the diagnosis of acute schistosomiasis due to *S. japonicum*.² Characteristic USG and pathognomonic CT liver changes develop many years after the initial infection. Typical USG findings include an irregular liver surface pattern and a mosaic pattern with echogenic septae outlining polygonal areas of relatively normal liver parenchyma. The most pathognomonic CT pattern is the presence of septal calcifications aligned perpendicular to the liver capsule giving the 'turtle back appearance'. Other recognised CT features include capsular calcification, junctional notches, an irregular hepatic contour, and extension of peri-portal fat deep into the liver due to fibrosis and parenchymal retraction. Magnetic resonance imaging (MRI) cannot clearly show these characteristic calcifications.⁴ The fibrous septae are hypointense on T1-weighted imaging

and hyperintense on T2-weighted imaging.⁵ The cross-sectional imaging findings typical of chronic schistosomiasis due to *S. mansoni* also reflect the sequelae of peri-portal inflammation and fibrosis.⁴

Many of the imaging features of chronic hepatosplenic schistosomiasis can also be seen in cirrhosis, making differentiating between these diseases difficult. It is important to be aware of this, because patients with cirrhosis need to undergo biopsy in many cases, whereas schistosomiasis patients do not. A recent study found that enlargement of the caudate lobe, as reflected by the caudate lobe–right lobe ratio (upper limit of normal, 0.65), peripheral periportal fibrosis, presence of siderotic nodules in the spleen, and a significantly larger splenic index (upper limit of normal, 480 cm³) on MRI, are more frequently seen in patients with hepatosplenic schistosomiasis than patients with cirrhosis.⁶ This can be a useful guide for radiologists and hepatologists in their daily practice.

Conclusion

Schistosoma japonicum is common in eastern Asia, particularly in Mainland China. Characteristic imaging findings are those of the sequelae of infection contracted many years earlier. One must search carefully for hepatocellular carcinoma in a patient with schistosomiasis because of the high incidence of this disease in these individuals.

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