Case Report

Peliosis hepatis – an unusual radiological presentation with diagnosis made easy: A case report

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ABSTRACT

Peliosis hepatis (PH) is a condition affecting the liver causing sinusoidal proliferation resulting in cavity formation. It is benign and a rare condition. It can be incidentally detected or the patient can present complications secondary to it such as hepatic failure, abdominal distension due to hepatomegaly, ascites, and hemoperitoneum. Imaging findings can be misinterpreted as other conditions such as polycystic liver disease, hemangioma, hepatocellular carcinoma, angiosarcoma, and metastases. That is why, it is important to differentiate all these conditions. Imaging plays a crucial role. Here, we report a case of a 30-year-old woman who came with abdominal distension as her primary complaint was diagnosed to have this condition after carefully ruling out other conditions. She had multiple cystic blood filled and hemorrhagic cavitating liver lesions on imaging. Diagnosis of PH was made. The lesion was not biopsied as there was an increased risk of bleeding. The patient succumbed soon after. PH is a benign condition that is possible to diagnose and differentiate from other liver lesions on imaging based on the obvious findings as seen in our case thus simplifying diagnosis and avoiding biopsy in a vascular cavitatory lesion.

Key words: Case report, Hepatology, Liver, Liver imaging, Peliosis hepatis

Peliosis hepatis (PH) is a benign and rare condition where sinusoidal proliferation in the liver gives blood-filled cystic cavities [1]. The definite pathophysiology of this disease remains unknown. PH is associated with conditions such as *Bartonella*-Human immunodeficiency virus coinfection [2], immunosuppressive therapy after kidney transplantation [3], and oral contraceptives [4].

This case is a unique one and an uncommon cause of liver space-occupying lesion. Knowing about such conditions expands the knowledge and helps us help the patients where timely diagnosis can make a difference.

CASE REPORT

A 30-year-old woman presented with abdominal distension for 1 month and abdominal pain for the last 10 days. The pain was dull aching in nature which was more on the right side. It was not radiating to the back or to the shoulders. No major aggravating or relieving factors. The pain was not responding to over-the-counter painkillers. No history of fever and no history of addictions. She was not on any medications. No significant past medical, surgical, or family history.

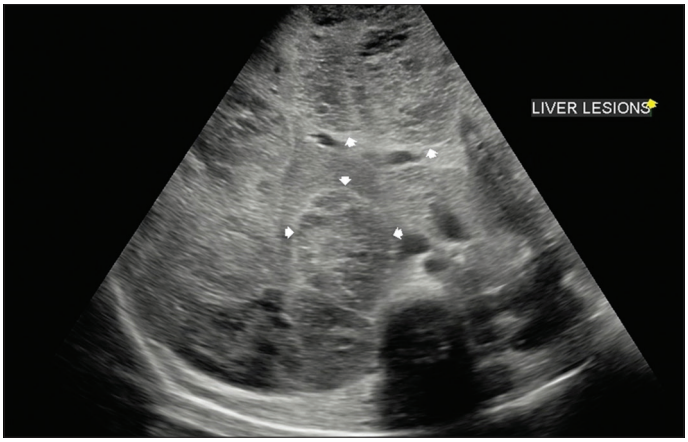

Figure 1: Ultrasound abdomen sections obtained with a convex probe show heteroechoic lesions diffusely spread almost occupying the entire liver (solid white arrows)

On examination, the patient was oriented to time, place, and person. Vitally, pulse rate was 102/min., temperature was normal, blood pressure was 100/70 mmHg, and respiratory rate was 24/min. The patient had no pallor, icterus, cyanosis, clubbing,

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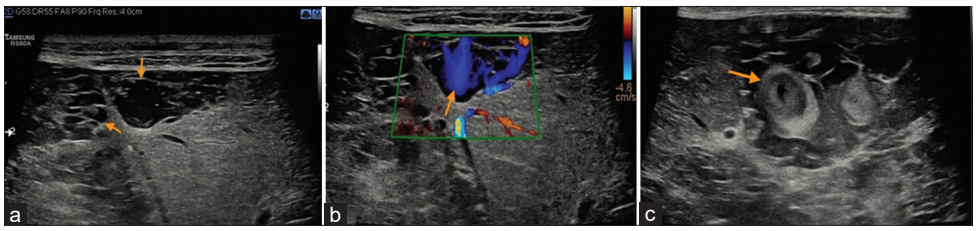

Figure 2: (a) An ultrasound abdomen section obtained with a linear probe demonstrates one of the lesions showing dilated cystic space (orange arrow) with echogenic content in the dependant part (orange arrow); (b) An ultrasound abdomen section obtained with a linear probe demonstrates one of the lesions showing dilated cystic space with color flow within (orange arrow); (c) An ultrasound abdomen section obtained with a linear probe demonstrates one of the lesions showing hemorrhage/thrombus within (orange arrow)

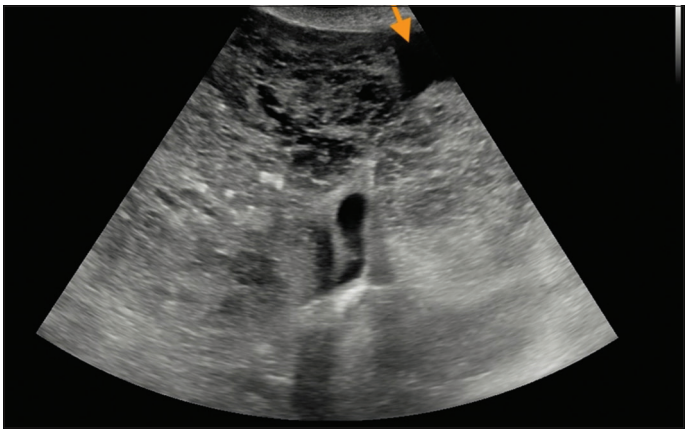

Figure 3: Ultrasound abdomen section obtained with a convex probe shows perihepatic free fluid (orange arrow)

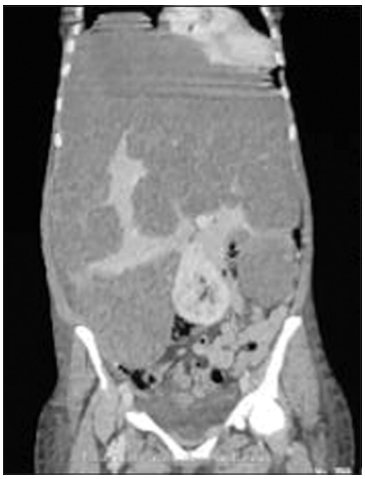

Figure 4: Contrast-enhanced computed tomography coronal section shows hepatomegaly with ill-defined confluent lesions diffusely involving the liver. Note right kidney is displaced inferiorly and medially

or edema. On inspection, the patient had a distended abdomen. Palpation revealed generalized tenderness and hepatomegaly.

The blood investigations were done which showed deranged liver function tests and low hemoglobin (Table 1).

Ultrasound of the abdomen revealed hepatomegaly with multiple variable-sized mixed echogenicity round and confluent lesions (Fig. 1). Contour of the liver was smooth. Many of the lesions showed dilated central and peripheral cystic spaces, which on color Doppler, showed slow flow, suggestive of venous flow (Fig. 2). No arterial flow could be demonstrated. Normal liver parenchymal vessels were not displaced. Some of the lesions showed hyperechoic content within, suggestive of hemorrhage. There was perihepatic free fluid (Fig. 3). No similar lesions were seen in the spleen. Contrast-enhanced computed tomography (CT) revealed gross hepatomegaly, with the liver reaching up to the pelvis, with hypoattenuating lesions, many of which appeared confluent in both the lobes of the liver (Fig. 4). Some of the lesions were hyperdense on plain scan (Fig. 5a). There was no significant enhancement on arterial or portal-venous phases except one lesion in segment IV A (Fig. 5b and c), which showed enhancement in arterial phase with progressive enhancement in the subsequent phases. There was no contour abnormality of the liver. The parenchymal vessels were normal and not hypertrophied. There was no portal vein thrombosis. No other lesions were found in the chest or abdomen.

Diagnosis of PH was made. The differential diagnoses for our case that can be considered are polycystic liver disease, hemangioma, hydatid cysts, hepatocellular carcinoma, angiosarcoma, and metastasis. Polycystic liver disease and hydatid cysts could be ruled out as we had vascular cystic spaces rather than simple cysts as seen in these cases. Hemangiomas often show peripheral nodular discontinuous enhancement which progresses inward on delayed images. Hepatocellular carcinomas show arterial phase hyperenhancement with washout on delayed phases. Angiosarcoma also shows intense enhancement and often presents with metastases to distant organs. Metastases are solid or cystic liver lesions, that show variable enhancement based on the primary lesion. There was no other lesion in the body.

As imaging showed cystic vascular spaces without any solid component with deranged liver function tests a common decision

Table 1: Investigations of the patient

Investigation	Result
Hemoglobin	9 g/dL
White blood count	10,000 cumm
Platelets	200,000 cumm
SGOT/SGPT	300/480 U/L
Serum bilirubin: Direct/total	0.2/1.0 mg/dL
Alkaline phosphatase	110 U/L
Serum creatinine	1.09 mg/dL
Serum electrolytes: Na/K/Cl	140/4.1/100.4

SGOT: Serum glutamic oxaloacetic transaminase, SGPT: Serum glutamate pyruvate transaminase

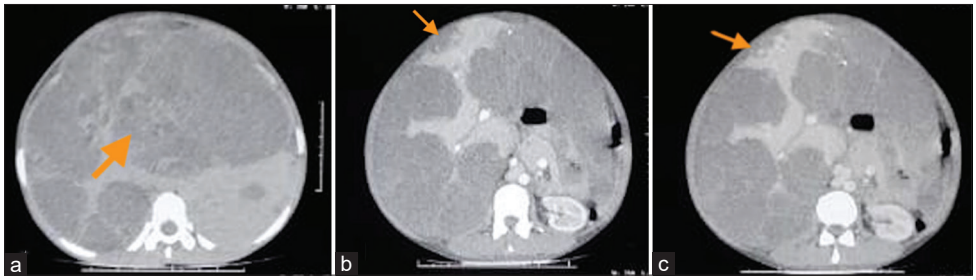

Figure 5: (a) Plain phase of contrast-enhanced computed tomography abdomen axial section shows hyperdense content within some of the liver lesions suggestive of hemorrhage (orange arrow); (b) Arterioportal phase of contrast-enhanced computed tomography abdomen axial section shows no enhancement in the majority of lesions except one in segment IV A (orange arrow) that shows arterial enhancement; (c) Venous phase of contrast-enhanced computed tomography abdomen axial section shows no enhancement in the majority of lesions except one lesion in the periphery (orange arrow) that shows progressive enhancement

of not to biopsy the lesions was made. The patient succumbed a day after the imaging.

DISCUSSION

PH is often asymptomatic, but the patient can have abdominal pain, jaundice, and signs of portal hypertension, acute liver failure, or hemoinstability [5]. In bacillary peliosis, the patient may present with fever and diarrhea [5]. Our patient presented with acute abdominal pain and deranged liver function tests.

Multimodality imaging should be used to characterize the lesion and rule out other diagnosis. On ultrasound, the disease can be either a hypoechoic or a hyperechoic lesion depending on the background liver if fatty or normal. It may have heterogenous echogenicity if complicated with hemorrhage [5]. Our case showed anechoic to hyperechoic lesions with cystic spaces and hemorrhage. Typically, computed tomography/magnetic resonance imaging shows pooling of contrast media more commonly in a centrifugal pattern with enhancement being more prominent in the venous and delayed phases. Sometimes a pattern of arterial hyperenhancing lesion with washout may be seen which should be differentiated from hepatocellular carcinoma [6]. Enhancement pattern can vary depending on the freshness of blood filling the cavities, fresh blood is associated with marked enhancement, whereas retention of old blood gives little or no enhancement [6]. In our case, one lesion in segment IV A showed enhancement.

Liver biopsy can be done, however, since it can cause intra-abdominal bleeding, biopsy should be performed preferably when malignant disease cannot be ruled out [7,8]. In our case, as ultrasound showed cystic spaces with vascularity and hemorrhage, a common decision was made not to biopsy due to a risk of bleeding [9-12].

It has been hypothesized that the obstruction of hepatic sinusoidal outflow contributes to the dilatation of the hepatic central vein and the subsequent hepatocellular necrosis, thus leading to cavity formation [13-15]. The current case demonstrating multiple cystic spaces with slow flow and hemorrhage supports this line of thinking.

The prognosis depends on the condition of the patient at the time of presentation. In the case of an incidental diagnosis, patients can be kept on follow-up. Surgical intervention is needed in cases causing hemoinstability. A causative agent when found needs to be discontinued [11]. In our case, the patient succumbed to the condition soon after she was diagnosed. This is a unique case as in many cases obvious cystic vascular spaces are not seen on ultrasound but seen on histopathology. In our case, the findings were visualized as cystic spaces with slow flow and no solid component. This is in line with the histopathological findings seen in PH [13,14].

CONCLUSION

PH is a benign disease and it can have variable imaging appearance. When ultrasound shows lesions with dilated cystic spaces and internal color flow (venous) with other cross-sectional imaging ruling out alternate diagnoses, coming to a conclusion is simplified.

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