Case Report

Clinical case report: Sclerosing hemangioma of the liver, a rare but great mimicker

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A B S T R A C T

Atypical hemangioma (including sclerosing and/or hyalinizing hemangioma) of the liver is a rare variant of hepatic hemangioma, which is the most common benign hepatic tumor. Atypical hemangioma can be indistinguishable from malignancy, primary, or metastatic, based on imaging characteristics. We describe a case of a 70-year-old man with weight loss, occasional bloody stool, change in caliber of stool, and laboratory abnormalities who was found to have multiple hepatic lesions concerning for metastases. We demonstrate that knowledge of the appearance of atypical hemangioma and its inclusion in the differential diagnosis of hepatic lesions can alter patient management and be important to consider before invasive therapies are planned.

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Case report

The patient is a 70-year-old man who was sent by his gastroenterologist to the emergency department for evaluation of weakness and dehydration. The patient had been constipated with dark coffee color stool and occasional blood per rectum as well as change in the caliber of stool for the last few months. He had an unintentional 29 pound weight loss in the last 3 months. The patient also reports new onset of polyuria and polydipsia.

In the emergency department, the patient had a blood glucose level of 722 mg/dL and creatinine of 2.0 mg/dL. His last colonoscopy was 6 years earlier, which showed tubular adenoma, hyperplastic polyp.

The history and new onset diabetes raised concern for a tumor of gastrointestinal origin.

Contrast-enhanced computed tomography (CT) scan of the abdomen and the pelvis was obtained. This demonstrated 4 heterogeneous hypodense lesions in the right hepatic lobe, concerning for metastasis. These lesions demonstrated peripheral heterogeneous enhancement in the portal venous phase (Figs. 1 and 2). In addition, there was circumferential prominence of the distal rectal wall, which was thought to be either due to collapsed state and/or an underlying mass...
Fig. 1 – Contrast-enhanced computed tomography of the abdomen and the pelvis in soft tissue window demonstrates multiple heterogeneous hypodense lesions in the liver with peripheral heterogeneous ring enhancement.

Fig. 2 – Contrast-enhanced portal venous phase computed tomography of the abdomen and the pelvis in liver window demonstrates 4 heterogeneous hypodense lesions in the liver with peripheral heterogeneous ring enhancement.

Fig. 3 – Contrast-enhanced computed tomography of the abdomen and the pelvis demonstrates circumferential thickening of the distal rectal wall.
There was no evidence of small bowel, pancreatic, renal, bladder, or prostate lesion. An initial diagnosis of rectal mass with multiple hepatic metastases was offered based on the history and imaging findings.

To confirm the diagnosis, the patient underwent an image-guided biopsy of the liver lesion (Fig. 4). The histopathologic findings were consistent with sclerosing and/or hyalinizing hemangioma.

The differential diagnosis for multiple peripherally enhancing hypodense lesions in the liver can include, metastasis (colorectal or other gastrointestinal), hepatocellular carcinoma, biliary hamartomas, hepatic lymphoma, and atypical hemangioma with the most common being liver metastasis (Fig. 5).

Discussion

Hemangioma is the most common benign hepatic tumor with prevalence of 1%-20% in the general population, with a female predominance [1]. Diagnosis of typical hemangioma can usually be made with contrast-enhanced CT or magnetic resonance imaging. Typical hepatic hemangiomas are hypodense lesions, which demonstrate nodular peripheral enhancement in arterial phase and increase in centripetal filling in delayed phase. They usually measure less than 3 cm³.

Although a variety of different types of atypical hemangiomas have been described [2] which may demonstrate unique radiologic manifestation, in many cases the imaging characteristics are not enough to make a certain diagnosis.

Hemangioma degeneration can occur by increasing degree of fibrosis and thrombosis of its vascular channels, which is called sclerosing and/or hyalinizing hemangioma. It can then lead to its end stage, called the involution stage, which is a completely sclerosed and/or hyalinized hemangioma [3,4]. These sclerosing hemangiomas are asymptomatic and are therefore often incidentally found.

Sclerosing and/or hyalinizing hemangioma is a rare benign tumor of the liver. The process of sclerosis changes the radiologic characteristics of these hemangiomas. This subsequently

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**Fig. 4** – Computed tomography-guided biopsy of one of the hypodense hepatic lesions in soft tissue and liver windows (red arrow demonstrates the biopsy needle). The histopathologic findings were consistent with sclerosing and/or hyalinizing hemangioma.

**Fig. 5** – (A) Low power image (2 ×) of cytology cell block: the darker, purple areas demonstrate liver parenchyma while light pink (circled) area is the sclerosed and/or hyalinized hemangioma. (B) Higher magnification (10 ×) of sclerosed hemangioma: punched out circular areas demonstrate blood vessels with lining endothelial cells (in the upper middle portion you can see red blood cells in the vessel). The light pink area demonstrates the sclerotic and/or hyalinized tissue. (C) 10 × view with demarcation between sclerosed hemangioma (yellow arrow) and liver parenchyma (red arrow). Vascular spaces are present with some red blood cells in the lumen.
renders their reliable diagnosis using only imaging characteristics nearly impossible. Sclerosing hemangiomas have an imaging appearance which makes them indistinguishable from malignancy, such as metastasis, hepatocellular carcinoma, and/or cholangiocarcinoma. They are characterized by a lack of early enhancement on dynamic contrast-enhanced CT images and may or may not demonstrate degrees of peripheral enhancement in late phase. Thus, it is difficult to definitively differentiate hyalinized hemangioma from malignant hepatic tumors [5] (Fig. 6). The extensive fibrosis is responsible for lack of enhancement and decreased signal intensity on T2-weighted images on magnetic resonance.

It is important for the radiologist to be aware of the imaging characteristics of sclerosing hemangioma and its mimickers. Using this knowledge in the differential diagnosis should lead to percutaneous biopsy of the lesion(s) in a patient with suspicion malignancy and/or concern for metastasis before any extreme surgical intervention, liver directed therapies, or other hepatic treatment options are considered.

Sclerosing hemangioma is a rare benign tumor of the liver with radiologic manifestations different from typical hemangiomas. The imaging appearance of sclerosing hemangiomas can make them indistinguishable from metastases, hepatocellular carcinoma, and/or cholangiocarcinoma. Therefore, it is critical for radiologists to be familiar with sclerosing hemangiomas, to provide an appropriate differential diagnosis, which leads to biopsy of the suspected lesions before any other more invasive treatment options are considered.

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