Hepatic epithelioid hemangioendothelioma in a young female mimicking metastasis on radiology: Report of a case with brief review of literature

Abstract

Hepatic epithelioid hemangioendothelioma, is a rare vascular tumor of undetermined malignant potential. Clinical symptoms and signs are nonspecific, and the diagnosis may be easily missed. We report a case of 23-year-old female who presented with right upper quadrant abdominal pain. Ultrasonography of the abdomen showed multiple discrete nodules in the liver with complex architecture and a hypoechoic centre. Contrast enhanced computed tomography was also performed, which showed peripheral rim enhancement in the arterial phase and “target-sign” in portal and venous phases. These radiological findings suggested metastasis on radiology. However, serum alpha-fetoprotein, CA-125 and carcinoembryonic antigen were within the normal limits. A tru-cut biopsy from the liver nodule showed the presence of tumor cells invading the liver, which was suggestive of epithelioid hemangioendothelioma and later confirmed by CD34 and CD31 immunostains. The patient, presently on thalidomide treatment regimen, is surviving with a stable disease.

Key words: Hepatic epithelioid hemangioendothelioma, radiology, vascular tumor

INTRODUCTION

Epithelioid hemangioendothelioma is a rare vascular tumor of unpredictable malignant potential known to arise in soft tissue, liver, and lung. Involvement of the liver is rare with incidence of <0.1/1,00,000 population being reported. The clinical presentations and laboratory results including radiology are nonspecific and pose a challenge for diagnosis without any clue. Biopsy with immunohistochemical study along with radiological correlation clinches the diagnosis. We hereby report a rare case of hepatic epithelioid hemangioendothelioma (HEH), with a brief review of literature misdiagnosed as metastatic deposits on radiology and later diagnosed on biopsy, thereby leading to timely diagnosis and avoiding unnecessary work-up to localize a nonexisting primary.

CASE REPORT

A 25-year-old female patient presented with right upper quadrant pain in the abdomen and weight loss of 3 months duration. She was married and had a single child. Her father is a known case of neurofibromatosis. Physical examination revealed hepatomegaly and tenderness in right hypochondrium. Ultrasound of the abdomen [Figure 1a] showed multiple discrete hypoechoic nodules in the liver. The internal architecture was mildly complex and heterogeneous with central more hypoechoic nature suggesting central necrosis. Contrast enhanced computed tomography (CT) was also performed, which showed variable degrees of peripheral rim enhancement in the arterial phase [Figure 1b]. Portal [Figure 1c] and venous [Figure 1d] phase images depicted a “target-sign” appearance of tumor nodules. Many of the lesions were peripheral, extending to the capsular margin. Capsular retraction adjacent to the mass lesions was not apparent. Calcifications were not seen. These radiological findings suggested metastatic deposits in the liver. However, serum CA125, carcinoembryonic antigen and alpha-fetoprotein levels were within the normal limits. HBsAg and anti HCV were negative. Liver function test revealed an elevated serum alkaline phosphatase of 235 IU/L.
Colonscopic and gastroscopical findings were unremarkable. A tru-cut ultrasonography (USG) guided liver biopsy was performed by the radiologist and sent for evaluation.

Histopathological examination of the biopsy revealed the hepatic parenchyma infiltrated by the tumor cells particularly along the sinusoids [Figure 2a and b]. There was characteristic zonal pattern of cellularity. The peripheral or advancing edge was more cellular with infiltrating cells. The other end of the biopsy showed less cellularity with more collagenous and myxoid stroma. This corresponded to the USG and CT findings of a central hypodense area. The infiltrating tumor cells formed small solid nests and small blood vessels. The cells were rounded having eosinophilic cytoplasm and a round nucleus with eosinophilic nucleolus. Occasional tumor cells showed intra-cytoplasmic vacuoles containing red blood cells. Stroma showed mild neutrophilic and lymphocytic infiltrate. Immunohistochemistry with CD34 and CD31 highlighted strongly positive tumor cells. Some of the tumor cells show intra-cytoplasmic positivity in tumour cells. Inset in (d) shows absence of cytokeratin positivity in tumor cells. Some of the tumor cells show intra-cytoplasmic lumina (arrows) and epithelioid morphology. Definitive diagnosis of the tumor rests with histopathological examination. In general, there are cellular areas consisting of characteristic dendritic and/or epithelioid cells with evidence of vascular differentiation as well as hypocellular stroma, which is upper quadrant pain, weight loss, fever, and rarely jaundice. Many a times (25% of the reported cases) tumor presents as an incidental finding during an abdominal imaging.

Imaging studies of HEH are nonspecific and initial diagnosis is often misdiagnosed as metastatic carcinoma in most of the published reports. Most of the lesions are multiple, peripheral and extend to the liver capsule. Calcification and focal necrosis may be seen. During an abdominal imaging, some of the reported cases showed bull’s eye nodule, as seen in our case. On CT imaging, after intravenous contrast material, most tumors display marginal enhancement during the arterial phase. Of the two types on CT scan, the nodular type is relatively nonspecific, as far as radiological features are concerned. The diffuse pattern is more suggestive with the following features: (1) Large and slow-growing tumor, mainly located in the periphery, without actual bulging of the liver capsule because of its fibrotic structures; (2) peripheral enhancement of contrast medium and the demonstration of many hypervascularized, central lesions with a tendency for the tumor nodules to merge into each other and no traceable sign of the portal or hepatic veins in the CT scan; and (3) pronounced, compensatory hypertrophy of the unaffected liver segments, portal hypertension and splenomegaly, and local calcifications.

Definitive diagnosis of the tumor rests with histopathological examination. In general, there are cellular areas consisting of characteristic dendritic and/or epithelioid cells with evidence of vascular differentiation as well as hypocellular stroma, which is
sclerotic to myxoid. The cells grow along the sinusoids using it as a scaffold, which eventually obliterates and they infiltrate the adjacent hepatic parenchyma. The stroma is most dense in the center with increasing cellularity at the periphery. As the lesions evolve, the stroma becomes sclerotic. Stromal inflammation was noted in most of the cases, as seen in our case. The vascular nature of the tumor is confirmed by the positive staining with vascular markers such as CD31, CD34 and von Willebrand's factor. The differential diagnoses include fibrolamellar carcinoma, cholangiocarcinoma and metastatic carcinoma. However, these tumors remain strongly positive for epithelial markers and negative for vascular markers.[1‑3,9,10]

The clinical course of HEH is quite unpredictable, as per literature. Histology is not of much value in predicting the outcome. The treatment modalities include orthotropic liver transplantation, chemotherapy, and radiotherapy.[1‑3]

In conclusion Hepatic epithelioid hemangioendothelioma is a vascular tumor with misleading clinical and radiological features. However, biopsy study with a close observation and radiologic correlation allows toward the diagnosis.

REFERENCES


How to cite this article: Adiga DA, Rai S, Pai RR, Tantry VB. Hepatic epithelioid hemangioendothelioma in a young female mimicking metastasis on radiology: Report of a case with brief review of literature. Onc Gas Hep Rep 2015;4:34-6.

Source of Support: Nil, Conflict of Interest: None declared.