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Case Report

Primary hemangioendothelioma of liver; report of a case and review of literature

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الملخص

يعتبر ورم الكبد البطاني الوعائي شبيه الظهارة ورما نادرا جدا منشأه الأوعية الدموية، وغير معروف السبب، مع صعوبة التنبؤ بمساره الطبيعي وخباثته الكامنة. يتظاهر المرض بعدد لا يحصى من الأعراض الغامضة، ويمكن تشخيصه بالموجات فوق الصوتية, والأشعة المقطعية, والرنين المغناطيسي. الآفات الكبدية المشابهة للوحة الهدف بسبب فرط الصدى في المركز، ونقص الصدى في الحافة الطرفية هي علامات التشخيص بالموجات فوق الصوتية. ويمكن تحديد تقلص الغشاء الكبدي بسبب التليف الشامل بالأشعة المقطعية والرنين المغناطيسي. تظهر الآفات عادة قليلة الكثافة في الصور الموزونة على T1 وشديدة الكثافة في الصور الموزونة على T2. ولا يوجد إجماع على علاج ورم الكبد البطاني الوعائي شبيه الظهارة, الذي يتراوح بين استئصال الكبد, واستئصال الجزء المصاب من الكبد, وزرع الكبد, والعلاج الكيميائي-والإشعاعي, والاستئصال الحراري. يستعرض تقرير الحالة هذا سيدة تبلغ من العمر 36 عاما, تم تشخيصها صدفة بورم الكبد البطاني الوعائي شبيه الظهارة, الذي تم علاجه باستئصال الجزء الأيمن من الكبد وكانت نتائجه إيجابية.

الكلمات المفتاحية: ورم الكبد البطاني الوعائي شبيه الظهارة; أورام الكبد; استئصال الكبد; الآفات المستهدفة

Abstract

Hepatic epithelioid hemangioendothelioma (HEH) is an exceedingly rare tumor of vascular origin with unknown etiology and unpredictable natural course and malignant potential. The disease presents with myriad of vague symptoms and can be diagnosed by ultrasound, CT, and MRI. Target shaped hepatic lesions due to hyperechoic center and hypoechoic peripheral rim are the diagnostic ultrasonic features. Hepatic capsular retractions due to extensive fibrosis can be identified by CT and MRI. The lesions are usually hypointense on T1-weighted images and hyperintense on T2-weighted images. There is no consensus on treatment of hepatic epithelioid hemangioendothelioma, which ranges from hepatic resection, hepatectomy, liver transplantation, chemo- and radiotherapy, and thermoablation. This case report presents a 36-year-old female, incidentally diagnosed to have hepatic epithelioid hemangioendothelioma, which was treated by right hepatectomy and was attended by favorable outcome.

Keywords: Hepatic epithelioid hemangioendothelioma; Hepatectomy; Liver tumors; Target lesions

Introduction

Epithelioid hemangioendothelioma is an angiocentric vascular neoplasm of soft tissue, characterized by proliferation of endothelial cells with an epithelioid morphology.[1] The biologic behavior of the tumor has been described as "borderline" in terms of malignant potential and recurrence[2] but this still remains an area of debate.[3] Epithelioid hemangioendothelioma can involve lung and mediastinum,[4] thyroid,[5] peritoneum,[6] lymph nodes,[7] bone,[8] palate[9] and liver.[10] We report a case of asymptomatic primary hepatic epithelioid hemangioendothelioma (HEH)

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which was incidentally diagnosed by routine abdominal imaging and managed successfully by hepatic resection.

Case report

A 36-year-old Caucasian lady underwent routine ultrasound of abdomen and was found to have a focal lesion in the 8th hepatic segment measuring 4 cm in diameter. The lesion had "target" appearance due to hyperechoic center and hypoechoic peripheral rim. Her abdominal examination and liver function tests were unremarkable. For better characterization of the lesion, an MRI on 1.5 T (Philips Achieva) was performed as shown in Figures 1–4. There is a hypointense lesion in the right lobe of liver with lower signal intensity in the center on T1-weighted images (Figure 1), while T2 fat sat image (Figure 2) is showing "target" like appearance with high signal intensity and a hyperintense central region of the nodule. While the dynamic contrast-enhanced phase (Figure 3(a)–(c)) showing slight enhancement at the periphery with gradual and delayed central enhancement of the lesion. Hepatobiliary phase (Figure 4) is showing a peripheral rim of hypointensity with a hyperintense central region most probably due to prolonged retention of contrast material MULTIHANCE (gadobenate dimeglumine) in it. Percutaneous Fine Needle Aspiration Cytology (FNAC) could not contribute to the diagnosis and was indecisive. Two months after first ultrasound scan, patient underwent right hepatectomy, cholecystectomy and excision of one lymph node from porta hepatis. Histological diagnosis reported a primary hepatic epithelioid hemangioendothelioma with no malignant transformation. No lymph nodes were involved by the tumor. Figure 5(a)–(c) demonstrate postoperative contrast-enhanced CT and MRI with no residual or recurrent lesions. The patient is being followed up by 6-month abdominal CT and remained well during the one-year follow-up.

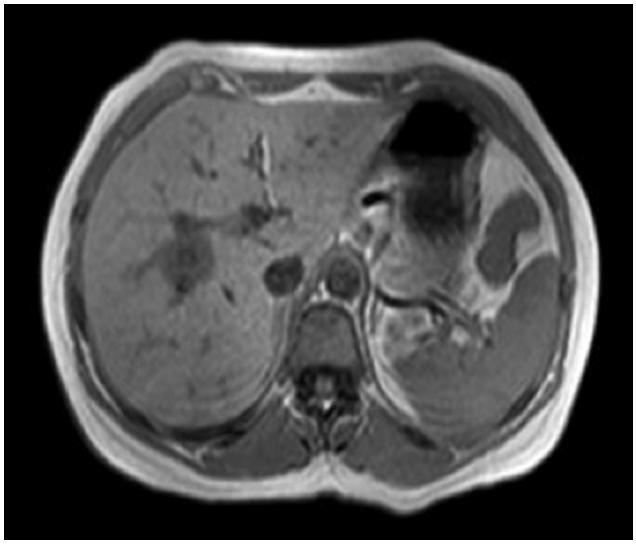

Figure 1: The lesion is hypointense with lower signal intensity in the center on T1-weighted images.

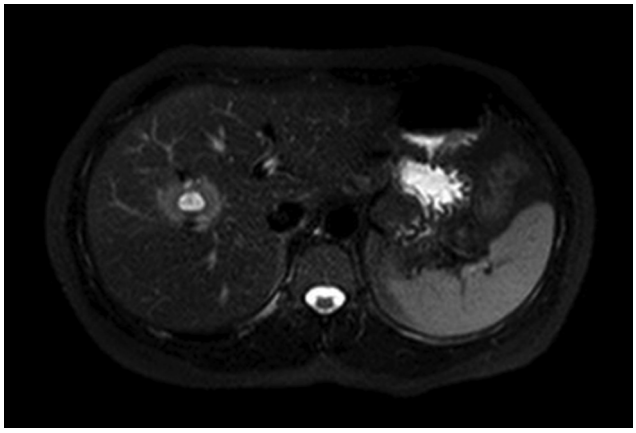

Figure 2: T2 fat sat image shows "target" like appearance with high signal intensity and the more hyperintense central region of the nodule.

Discussion

Primary HEHs are extremely uncommon, with a reported incidence of one per million population.[11] There is 3:2 preponderance in favor of females[12] and the disease occurs most often in adults, with a mean age of 41.7 years (age range; 30–40 years).[13] Our 36-year-old female patient also matches the published demographic findings. There are no clear risk factors for the development of HEH, although oral contraceptives,[14] vinyl chloride,[15] asbestos,[16] thorotrast,[17] major hepatic trauma,[18] and alcohol consumption[19] are known to be contributory agents in HEH pathogenesis. We could not find any risk factor in our patient.

The rate of missing the tumor has been reported to be as high as 60–80%.[20] The most common misdiagnoses were cholangiocarcinoma, angiosarcoma, hepatocellular carcinoma, metastatic hepatic carcinoma, and sclerosing hemangioma.[13] Mixed hamartoma, bile duct adenoma, cirrhosis, venoocclusive disease, fibrolamellar carcinoma, postnecrotic fibrosis, and Budd–Chiari syndrome were less common misdiagnoses.[21]

Presentation of the disease is essentially nonspecific and the patients can have weight loss and right upper quadrant pain. In rare cases, jaundice and hepatic dysfunction may be noted due to replacement of liver parenchyma by the tumor.[22] Tumor markers (∞-fetoprotein, carcinoembryonic antigen, CA 19-9) remain normal in cases of HEH.

Two striking histological features of HEH are described in literature; the presence of characteristic dendritic and/or epithelioid cells with evidence of vascular differentiation and intracytoplasmic lumina containing red blood cells; and abnormal stroma, which varies from myxomatous to densely fibrotic.[23] The definitive diagnosis of malignant vascular tumors requires immunohistochemical evidence of endothelial differentiation. Immunohistochemical reactivity for FVIII-RAg, CD31, CD34, and cytokeratins has been demonstrated in endothelial cells.[24] Although histology is the prerequisite for a correct diagnosis, it is of little value in predicting outcome.[25]

MRI depicts multiple hypoattenuating masses, which coalesce in the periphery of the liver to form large confluent regions. Focal capsular retraction is usually reported.[26]

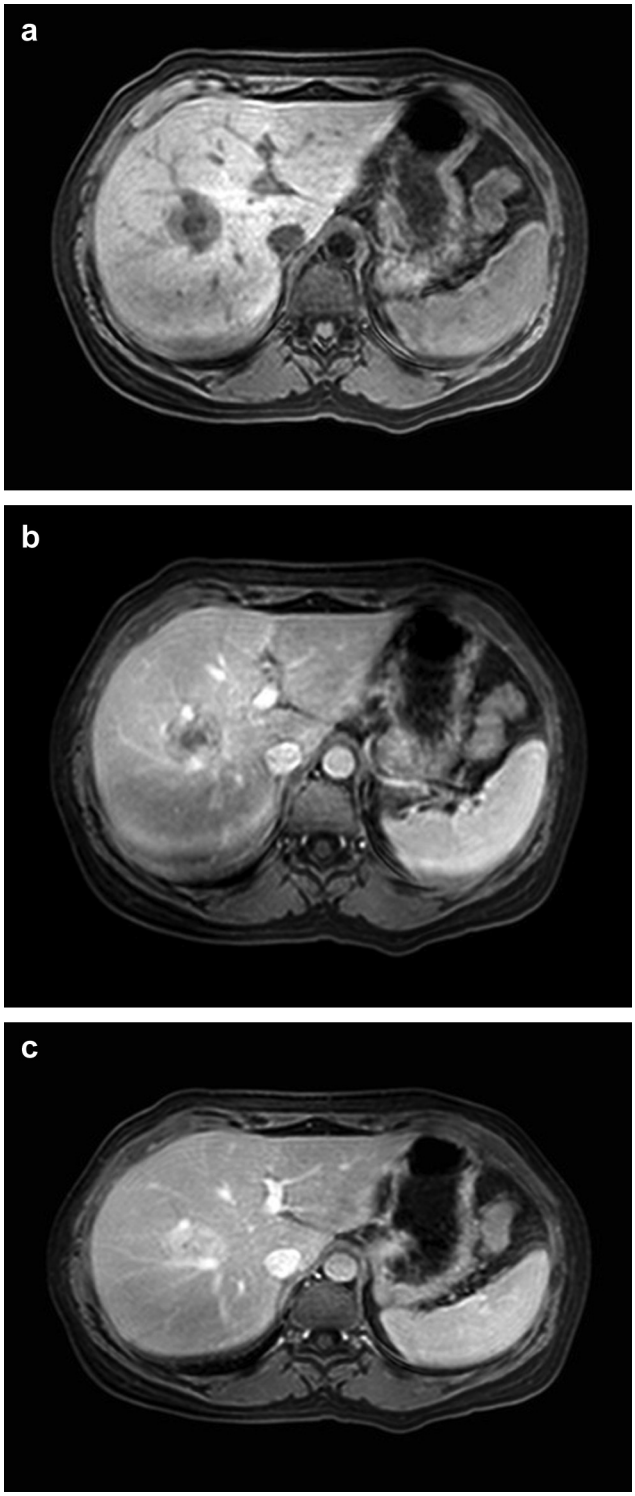

Figure 3: (a), (b), and (c): On dynamic three phases (with no contrast/ venous 70 sec / and late phase 3 min) contrast-enhanced image, there is a slight enhancement in the periphery of the lesion with gradual and delayed central enhancement.

Other MRI findings include hepatomegaly, portal branch invasion, hepatic vein narrowing or obliteration, inferior vena cava compression, and collateral vessels. HEH is usually hypointense on T1-weighted images and

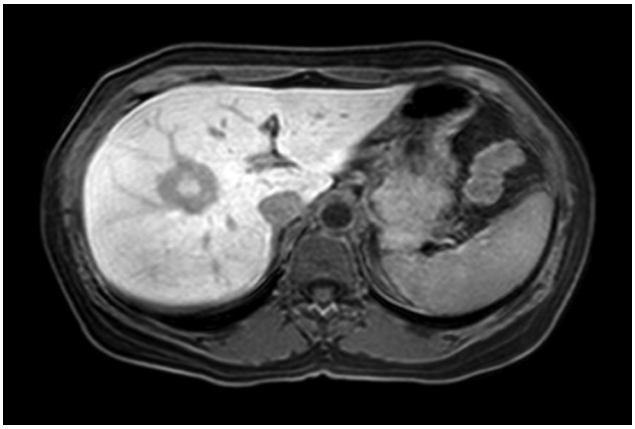

Figure 4: The hepatobiliary phase image shows a peripheral rim of hypointensity with an hyperintense central region most probably due to prolonged retention of contrast material in it.

hyperintense on T2-weighted images and the target appearance of the lesions may be influenced by a central sclerotic area and a peripheral zone of cellular proliferation.[27]

Radiologically, two distinct types of HEH with different stages have been described: the nodular type in the early stage of HEH; and the diffuse type, in advanced disease due to an increase in size and coalescence of the lesions often associated with hepatic vascular invasion.[28] HEH may appear as discrete nodules (0.5−12 cm) or as complex, confluent masses.[27] Many lesions are peripheral and invade the liver capsule. Flattening or retraction of the liver capsule because of fibrosis and compensatory hypertrophy of the unaffected liver segments may be diagnostic clues.[29]

Ultrasonography may delineate either discrete nodules or diffuse echotexture regions with extensive hepatic parenchymal distortion.[27] CT scan complements MRI and ultrasound findings. Because, on contrast-enhanced scans, tumor nodules may become isodense to liver parenchyma, the extent of involvement may be defined better on unenhanced images.

There is no agreed treatment strategy for HEH owing to its rarity, heterogeneous status, and variable clinical outcome. The management modalities for patients with liver malignancies include surgical resections, liver transplantation,[6] tumor embolization, chemotherapy and radiotherapy,[30] thermoablation, percutaneous ethanol injection, and even follow-up without any therapy.[31] In a study of 286 HEH patients, 71 were not given any treatment and the reported mortality was more than 50%. Hence, a "no treatment" or "wait and see" strategy is not feasible.[12] Liver transplantation is an accepted treatment option for HEH and is associated with excellent outcomes.[6] The selection of surgical therapy depends on extent of liver involvement, bi or uni lobar, multifocality, and extrahepatic extensions. Our patient had right hepatectomy as the disease was localized in the right lobe without extrahepatic extension. The decision on a treatment strategy for HEH has to be tailored to each patient, the rate of disease progression, and the response to other treatment modalities may be important determinants for decision making. For primary HEH, Yokoyama et al.

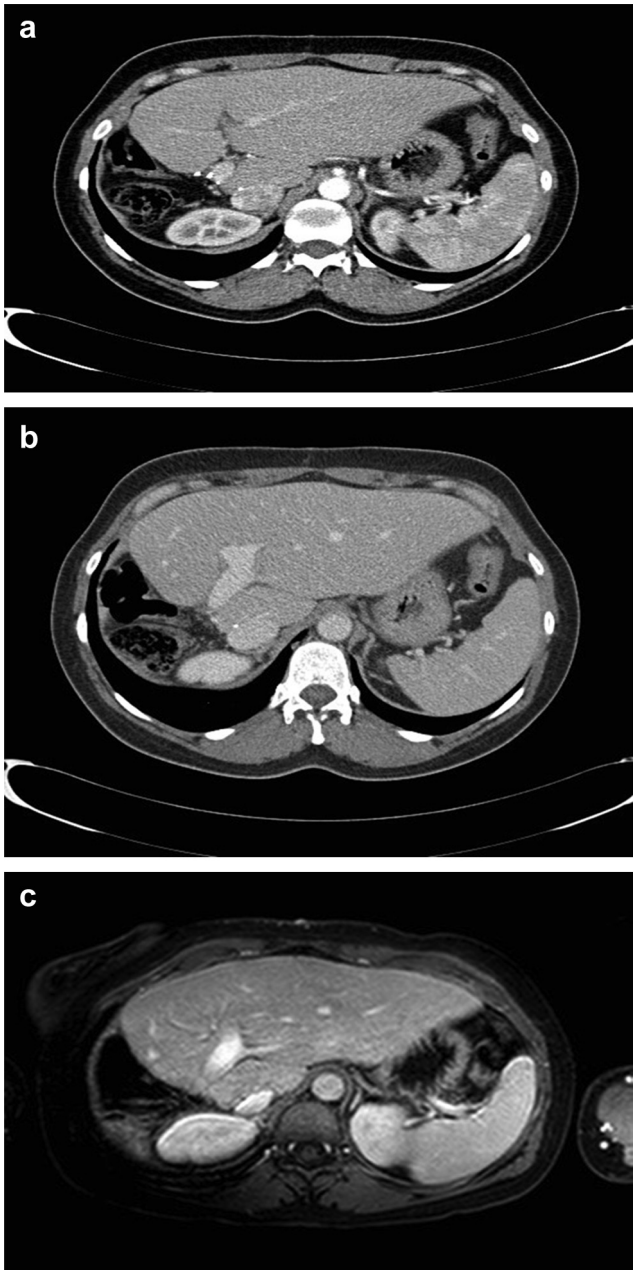

Figure 5: (a), (b), and (c) represent CT arterial phase, CT portal venous phase, and contrast-enhanced MRI T1 sequence (Portal Venous phase), respectively.

reported 1-year, 3-year, and 5-year survival rates of 88%, 73%, and 48%, respectively.[32] Pichlmayr et al. published a survival rate of approximately 55%.[33]

Conflict of interest

The authors have no conflict of interest to declare.

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