LETTER / Gastrointestinal imaging

A spindle cell sarcoma of liver supplied by internal mammary artery

Keywords: Spindle cell sarcoma; Liver; Internal mammary artery

Primary sarcomas of the liver are extremely rare and constitute approximately 0.1% of primary malignant neoplasms of the liver [1]. Although the hepatic artery (HA) is the main feeding artery to most tumors of the liver, extrahepatic collateral arteries may also supply the tumors. We report here in detail a spindle cell sarcoma of the liver which was exclusively supplied by the right internal mammary artery (IMA) rather than the HA.

Case report

A 46-year-old man presented with 4-year duration of intermittent discomfort in the right upper quadrant of the abdomen. Initial laboratory results upon presentation included serum alanine aminotransferase 132 U/L (normal level 0–40 U/L), aspartate aminotransferase 67 U/L (normal level 0–40 U/L), and cancer antigen 125 74.49 U/mL (normal level < 35 U/mL). α-fetoprotein was normal. Hepatitis B surface antigen and hepatitis C surface antibody were negative.

Ultrasound suggested a hypoechoic mass abutting the diaphragm in the right lobe of the liver. CT images revealed a heterogeneous enhancement mass about 12.9 cm in diameter with visible feeding branches of the IMA (Fig. 1a). Reconstructed maximum intensity projection (MIP) CT images revealed probable tumor arterial supply arising from the HA and right IMA (Fig. 1c).

Percutaneous biopsy of the mass was performed under ultrasound guidance. Histologically, the mass was predominantly comprised of spindle or oval cells with abundant eosinophilic cytoplasm and dotted with lipid-like vacuoles (Fig. 2a). Most of the oncocytic cells showed positive expression of CD117 (c-kit) (Fig. 2b), vimentin (Fig. 2c) and Ki-67 (Fig. 2d), but negative expression of AE1/AE3, CK8, Actin, SMA, HMB45, S-100 and Lysozyme. Collectively, the tumor

![Image 1](http://dx.doi.org/10.1016/j.diii.2014.06.002)

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reached a pathological diagnosis of mesenchymal spindle cell sarcoma.

The patient preferred transcatheter arterial chemoembolization (TACE) to surgical resection. Angiography revealed that the right lobe hepatic mass was exclusively supplied by the right IMA rather than the HA in the initial presentation (Fig. 1d and e). No other extrahepatic collateral artery was identified. TACE was performed and repeated from the right IMA every 1–3 months. During each TACE session, an emulsion of 5–10 mL iodized oil (Fig. 1b), 30–60 mg polyvinyl alcohol particles and 20–40 mg doxorubicin were delivered until stagnant flow was achieved.

The patient is currently doing well 19 months after the diagnosis, and has undergone seven TACE sessions over 17 months. Although TACE was delivered via the right IMA for the first five TACE sessions, HA supply of the tumor was appreciated during the sixth treatment and, therefore, TACE was also performed on this vessel for the sixth and seventh sessions (Fig. 1f).

Discussion

As an extrahepatic collateral artery, IMA supply 2.2% of HCC patients and may serve as a feeding artery in patients with hepatic artery occlusion caused by repeated TACE [2,3]. Like other hepatic tumors, spindle cell sarcoma can acquire its vascular supply from extrahepatic collaterals [4], including the IMA, hence emphasizing the importance of pre-procedural and intra-procedural imaging. In our case, pre-procedural CT revealed the right IMA as a potential feeder of the tumor, while the diagnosis of the spindle cell sarcoma was based upon the classic microscopic findings and immunohistochemical results [5]. Although a normal patent HA was revealed, the right IMA was considered as the main feeder of the tumor at the initial TACE session of the patient. Nevertheless, predominant involvement of the HA was later detected at the sixth TACE session probably due to repeated transarterial embolization of the IMA in the present case.

There is no standard treatment for patients with primary sarcomas of the liver. A long-term survival is possible after complete tumor resection in a preselected population with early-stage disease [6]. Locoregional therapy by interventional radiology including transarterial infusion chemotherapy is also effective [7]. In the current case, repeated TACE via the IMA was technically successful. TACE using doxorubicin was clinically tolerated with a positive impact on disease progression of the patient at 19 months. Long-term survival may be possible in this patient with spindle cell sarcoma treated by TACE and prompts further investigations on the effectiveness of TACE using doxorubicin in these rare hepatic tumors.

Disclosure of interest

The authors have not supplied their declaration of conflict of interest.

References


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