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Recurrent Inflammatory Pseudotumors of the Liver Misinterpreted as Malignant Tumors in a Cirrhosis Patient

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Inflammatory pseudotumor (IPT), also known as inflammatory myofibroblastic tumor, is a rare benign condition that occurs throughout the body.[1] IPT of the liver (IPTL) appears as a soft tissue tumor mimicking a malignant tumor.[2,3] Here, is a case with recurrent IPTLs showing imaging features of malignant hepatic tumors and abscess in a cirrhosis patient.

An age 56 male with alcoholic liver cirrhosis visited our hospital for a hepatic mass detected on surveillance ultrasonography (US). The patient had no symptoms. Some tumor markers of hepatic malignancy were within normal range (AFP 1.32 ng/ml, PIVKA-II 21 mAU/mL), but CA 19-9 were mildly elevated (47.5 U/ml). The US image showed a hypoechoic mass at the left lobe of the liver (Fig. 1A). CT images showed an ill-defined arterial enhancing mass with delayed washout, suggesting hepatocellular carcinoma (HCC) (Fig. 1B, C). On the magnetic resonance imaging (MRI), gadoxetic acid-enhanced images showed a 2.2 cm sized ill-defined arterial enhancing mass (Fig. 1D) with portal venous phase washout, and showed a 4 cm extent of ill-defined peripheral hypointensity on the hepatobiliary phase (HBP) image (Fig. 1E) at the left lobe of the liver. The initial radiologic diagnosis was HCC, but the differential diagnosis was IPTL or inflammatory mass. A biopsy was performed, and the pathologic diagnosis was IPTL (Fig. 1F). The patient routinely visited our hospital

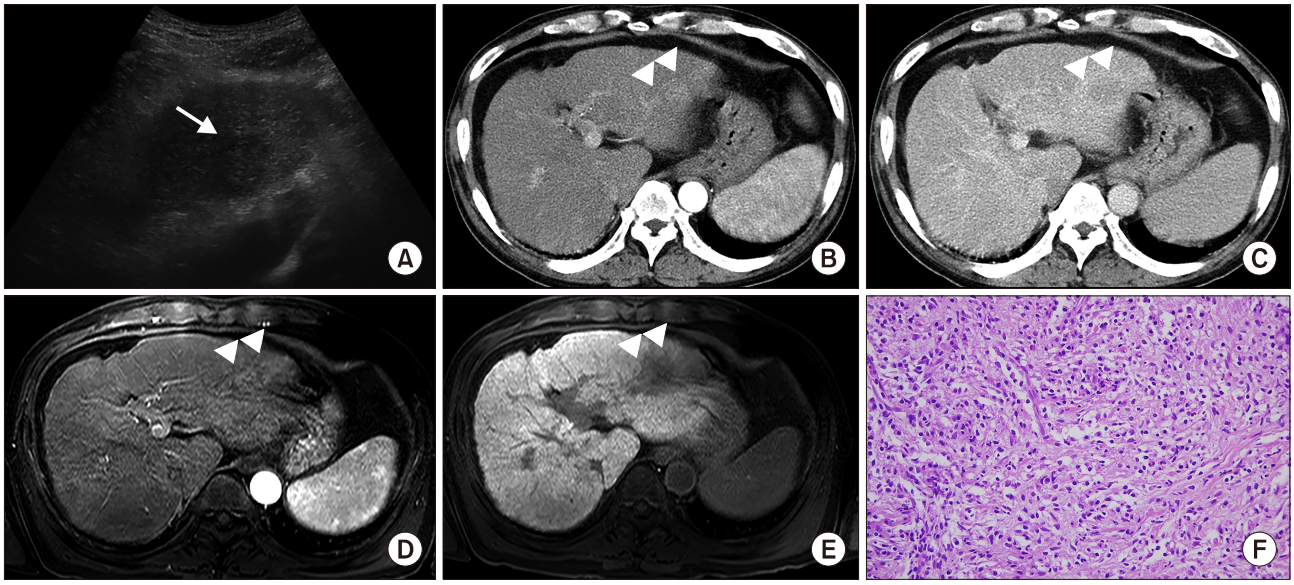

FIG. 1. US (A), CT (B, C), MR (D, E) and photomicrograph (F) images of the inflammatory pseudotumor of the liver (IPTL) mimicking hepatocellular carcinoma (HCC). (A) The transverse US image showed a hypoechoic mass (arrow) at the left lobe of the liver. (B) The arterial phase computed tomography (CT) image showed an ill-defined arterial enhancing mass (arrowheads) at the left lobe of the liver. (C) The delayed phase CT image showed washout feature of the hepatic mass (arrowheads). (D) The arterial phase magnetic resonance (MR) image showed an 2.2 cm sized ill-defined arterial enhancing mass (arrowheads) at the left lobe of the liver. (E) The hepatobiliary phase MR image showed ill-defined hypointensity of the peripheral portion (arrowheads). (F) Photomicrograph (hematoxylin and eosin, ×400) showed inflammatory cells including lymphocytes, plasma cells, and eosinophils, and some spindle cells, suggesting IPTL.

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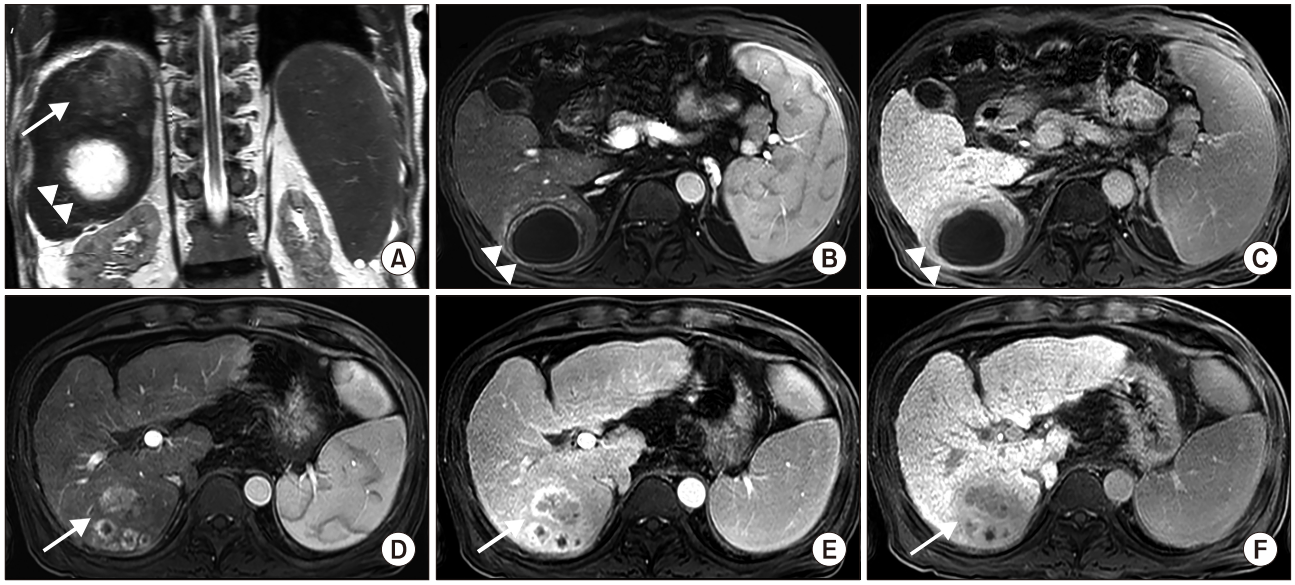

FIG. 2. The MR images of IPTL misinterpreted as malignant hepatic tumors including intrahepatic cholangiocarcinoma (ICC), combined type HCC-ICC and tumor necrosis. (A) The coronal T2 weighted image showed more than 7 cm extent of ill-defined T2 hyperintense masses (arrow) and a 6 cm sized large cystic or necrotic mass (arrowheads) at the posterior section of the right hepatic lobe. (B) The arterial phase MR image showed peripheral enhancement and central unenhancing portion of the inferior mass (arrowheads). (C) The hepatobiliary phase MR image showed ill-defined hypointensity at the peripheral portion of the lesion (arrowheads). (D) The arterial phase MR image showed arterial enhancing mass and peripheral enhancing masses (arrow) at the superior lesions. (E) The transitional phase MR image showed persistent enhancement of the large mass and peripheral enhancement of small masses (arrow). (F) The hepatobiliary phase MR image showed ill-defined mild hypointensity of the lesions (arrow).

for HCC surveillance. On the fourth year, the patient visited our hospital with hepatic masses. An MRI coronal T2 image showed different characteristics of the two lesions at the segment 6 of the liver (Fig. 2A). Gadoxetic acid-enhanced images showed a 6 cm sized peripheral rim enhancing lesion with a central necrotic or cystic portion at the inferior lesion (Fig. 2B), suggesting malignant tumor necrosis or abscess. A HBP image showed mild peripheral hypointensity (Fig. 2C). At the superior lesions, a gadoxetic acid-enhanced image showed arterial enhancing masses and peripheral rim enhancing masses with persist enhancement (Fig. 2D, E), and showed mild hypointensity on the HBP image, suggesting intrahepatic cholangiocarcinoma (ICC) or combined type of HCC-ICC (Fig. 2F) or IPTL. A biopsy was performed again for the two lesions, and both were confirmed to be IPTL. Steroid treatment was administered and all lesions were resolved.

IPTL is a rare inflammatory condition accounting for 8% of extrapulmonary IPTs.[2] The pathogenesis of IPTL is unknown, but, the proposed etiologies are viral or bacterial infection, trauma, vascular disease, and autoimmune disease.[3,4] Clinically and radiologically, the diagnosis of IPTL before pathologic confirmation is difficult, because of nonspecific symptoms, laboratory findings and imaging features.[2] Especially, it reveals a hepatic mass on various imaging studies, the differential diagnosis of IPTL includes HCC, ICC, metastatic tumor, lymphoma, malignant fibrous histiocytoma, hepatic abscess, tuberculosis, and sarcoidosis.[5]

In this case, recurrent IPTLs showed imaging features mimicking malignant hepatic tumors. By retrospective review of the images, the common imaging features of all three lesions were ill-defined margins and mild hypointensity on hepatobiliary phase MR images. Further, the latter two lesions showed peripheral rim enhancement. According to a recent study, early targetoid appearance of enhancement is more commonly observed in IPTL rather than ICC, and the ill-defined peripheral margin can be observed in IPTL.[3]

In summary, when hepatic masses, even in a cirrhosis patient, show atypical imaging features such as targetoid enhancement or ill-defined margins, IPTL should be considered as a differential diagnosis.

CONFLICT OF INTEREST STATEMENT

None declared.

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