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Letters to the Editor

Portal vein thrombosis after percutaneous ethanol injection of hepatocellular carcinoma

Key words: Portal vein thrombosis. Hepatocellular carcinoma. Percutaneous ethanol injection.

Dear Editor,

Portal vein thrombosis secondary to ethanol injection of hepatocellular (HCC) carcinoma is an unusual complication, whose management is not standardized. We report a case of a patient with liver cirrhosis and hepatocellular carcinoma class A of the Barcelona-Clinic-Liver-Cancer (BCLC) staging system, on the active liver transplant list, who had this complication after three sessions of percutaneous ethanol injection (PEI), which was partially resolved after low-molecular-weight heparin treatment.

Case report

We present the case of a 70-year-old patient with liver cirrhosis and portal hypertension from hepatitis C virus, Child-Pugh class B and previous episodes of esophageal varices bleeding and ascites.

When the patient was waiting on the active liver transplant list, two nodules of 1.5 cm and 3 cm were detected during ultrasound surveillance, which were compatible with HCC in two imaging techniques (control-enhanced ultrasound and CT scan). We started PEI treatment on the largest of the nodules. Three sessions were carried out.

In the control abdominal ultrasound, three days after the last PEI, a thrombosis in the trunk of the portal vein and main branches was registered. This lesion was explored using contrast-enhanced ultrasound (SonoVue®), without enhancement in arterial phase (Fig. 1) or later, a characteristic that suggested a benign nature. It was supported by a computerized tomography (CT) scan and anatomopathological data from a fine needle aspiration (FNA).

Due to this was a finding not present in previous abdominal ultrasound or CT, detected on ultrasound after percutaneous treatment and study with SonoVue®, TAC and FNA confirmed the benign origin of portal vein thrombosis, it was considered as a complication of the PEI. We decided to start treatment with low-molecular-weight heparin subcutaneous (1 mg/kg/day), checking in subsequent ultrasound controls that portal thrombosis had decreased, because after 22 days of this treatment the thrombus was only partially in the left portal branch. Finally, the patient was transplanted without complications until now.

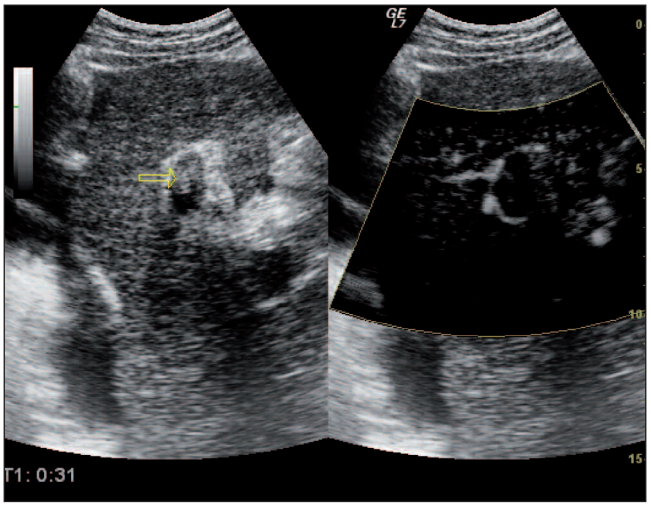

Fig. 1. Ultrasound of portal vein thrombosis (left); contrast-enhanced ultrasound: no enhancement in arterial phase (right).

Discussion

Portal vein thrombosis is a relatively frequent complication in liver cirrhosis, mainly caused by the decrease or inversion of the venous flow due to portal hypertension. Nevertheless, it can also be associated with malignancy (primary or secondary), with inflammatory or infectious liver, intestinal, or pancreatic diseases, and hypercoagulable states. Furthermore, in the last few years, an iatrogenic origin has been recognized due to endoscopic sclerotherapy and more recently percutaneous treatment of HCC (1).

The main reason for determining the nature of a portal thrombosis in patients with cirrhosis is to differentiate between benign and malignant thrombosis, because if the thrombosis is due to vascular invasion it means an advanced HCC, class C of the BCLC staging system, which can only receive palliative treatment (2).

Portal thrombosis secondary to percutaneous treatment of hepatocellular carcinoma is a complication not very widely described for either radiofrequency nor ethanol injections. In the case of ethanol injections is present in 2.8-5% (3,4) of cases and it is due to chemical damage to the endothelial cells caused by the filtration of ethanol into the portal vessels next to the HCC being treated (4).

Its diagnosis is based on the de novo appearance of a portal vein thrombosis with benign features, after applying this percutaneous treatment. Color Doppler ultrasound, CT scans or magnetic resonance imaging with contrast do not easily distinguish the origin of the thrombosis, therefore it may, sometimes be necessary to perform an ultrasound guided FNA of the portal vein thrombosis, technique with high specificity and sensitivity, although not risk-free. Contrast-enhanced ultrasound SonoVue®, has proved a useful diagnostic tool in distinguishing benign and malignant thrombosis, because it has high sensitivity and specificity (89.6% and 100%, respectively) in this application (5), as well as its important advantages such as its speed, easiness of use, safety, good tolerance, and the possibility of being repeated after only a few minutes. The ultrasound SonoVue® image is absence of enhancement in the three phases in the case of benignity, and enhancement in the arterial phase with or without washout in the portal-venous and later phases, in the case of malignancy (5).

Its treatment has not been clearly established, and there are even cases of spontaneous resolution after six months (3). We decided to treat our patient with low molecular weight heparin (1mg/kg/day), following recommended treatment for acute portal vein thrombosis for at least three months, after achieving adequate secondary prophylaxis for bleeding esophageal varices (6) due to the absence of absolute contraindications, in order to improve the patient's condition prior to liver transplantation. We achieve a partial early resolution of the portal vein thrombosis.

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