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CASE REPORT

Pedunculated hepatocellular carcinoma and splenic metastasis

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Abstract

Only a few cases of pedunculated hepatocellular carcinoma (P-HCC) have been reported in the literature. The common sites of extrahepatic metastases in patients with HCC are the lungs, regional lymph nodes, kidney, bone marrow and adrenals. Metastasis to spleen is mostly *via* hematogenous metastasis, direct metastasis to spleen was very rare. We report a case of P-HCC presenting as a left upper abdominal lesions which involved the spleen that was actually a P-HCC with splenic metastasis. This case is unique as P-HCC directly involved the spleen which is not *via* hematogenous metastasis.

Key words: Pedunculated hepatocellular carcinoma; Splenic metastasis; Hematogenous metastasis; Direct metastasis; Splenectomy

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INTRODUCTION

The pedunculated hepatocellular carcinoma (P-HCC) which protrudes from its pedicel or presents as epibiotic mass almost making no invasion into the liver, is a rare exception to the gross type[1,2]. To date, only a few cases have been reported[2-4]. The common sites of extrahepatic metastases in patients with hepatocellular carcinoma (HCC) are the lungs, regional lymph nodes, kidney, bone marrow and adrenals, which is *via* hematogenous metastasis. The P-HCC directly invading the spleen not *via* hematogenous metastasis is extremely rare. In this report, we describe a case of P-HCC which directly involved the spleen.

CASE REPORT

A 68-year-old man with HBV-related cirrhosis was admitted to our hospital because of left flank pain and loss of weight for a forty-day duration. A mass lesion could be touched in left upper abdomen. AFP level was 166.02 ng/mL, CA125, CA199 and CEA were negative. HBVDNA level was 1.51×10^4 copies/mL. Sonographic and CT scan showed a 17 cm × 14 cm × 10 cm tumor between left hepatic lobe and spleen, which also involved the upper pole of spleen and almost made no invasion into the liver (Figure 1). Celiac and hepatic arteriography displayed mass lesions taking blood from left hepatic artery, splenic artery and left inferior phrenic artery, and transarterial chemoembolization was performed (Figure 2). Image-guided biopsy of tumor was consistent with HCC.

At operation, mild cirrhosis was found in the liver, a large tumor lied in the left upper abdomen between left hepatic lobe and spleen. The upper pole of spleen was involved, almost making no invasion into the liver, gastrointestine and pancreas (Figure 3). He underwent spleen, tumor and partial left hepatic lobe resection in January 2008. The loss of blood was 1000 mL in total. HCC and splenic metastasis were confirmed by pathological examination (Figure 4). The postoperative clinical course was uneventful, with a negative follow-up for clinical and radiological investigation at 17 mo after surgery.

DISCUSSION

The P-HCC has been reported to occur in 0.24%-3.0% of all HCC patients[5]. Hematogenous metastasis to spleen

Table 1 Previous cases reported in literature with HCC and splenic metastasis

Authors	Age (yr)/ sex	Metastasis type	Clinical manifestations	Intrahepatic metastasis at time of splenic metastasis	Metastasis to other organs
Filik *et al*[6]	62/W	H	Severe ascites and abdominal pain	Multiple HCC	None
	47/M	H	Right flank of pain	HCC	None
Hanada *et al*[7]	59/M	H	Asymptomatic	Multiple HCC	Adrenal gland
	69/W	H	Not described	None	None
	67/M	H	Not described	None	Lung
Yamamoto *et al*[11]	68/W	H	Abdominal fullness	Single HCC	None
	61/M	H	Swelling cervical lymph nodes	HCC	Cervical lymph nodes
Fujimoto *et al*[12,13]	62/M	H	LUQ mass	None	None
	62/M	H	Spontaneous rupture of spleen	HCC	None
Horie *et al*[14]	62/W	H	Spontaneous rupture of spleen	HCC	None
Katoh *et al*[17]	55/M	H	Not described	HCC	None
Iwaki *et al*[8]	60/M	H	Asymptomatic	Multiple HCC	Lung and jejunal
Sumiya *et al*[16]	78/M	H	Spontaneous rupture of spleen	None	Lung
Hayashi *et al*[15]	76/M	H	Asymptomatic	None	None
Hama *et al*[9]	61/M	H	Asymptomatic	Multiple HCC	Lung
Nakamura *et al*[10]	54/M	H	Asymptomatic	Multiple HCC	Lung

HCC: Hepatocellular carcinoma; H: Hematogenous metastasis; LUQ: Left upper quadrant.

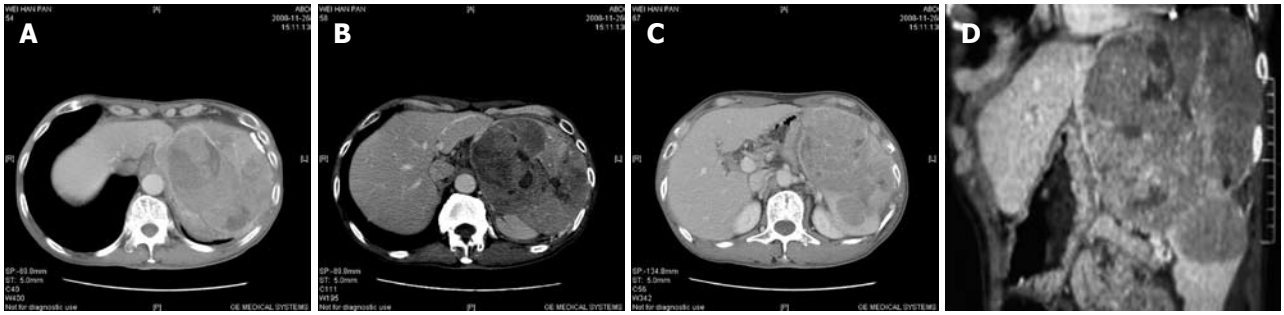

Figure 1 CT scan in abdomen showing a mass tumor between left hepatic lobe and spleen directly involving the upper pole of spleen and almost making no invasion into the liver (A-D).

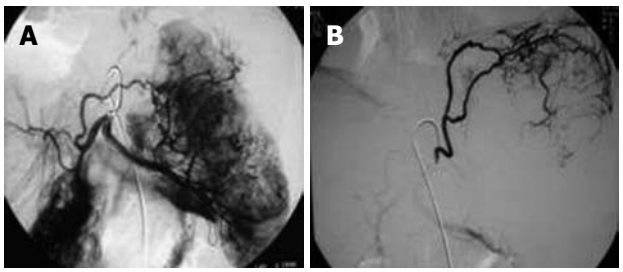

Figure 2 Celiac and hepatic arteriography confirmed the mass lesions taking blood from left hepatic artery and splenic artery (A) and inferior phrenic artery (B).

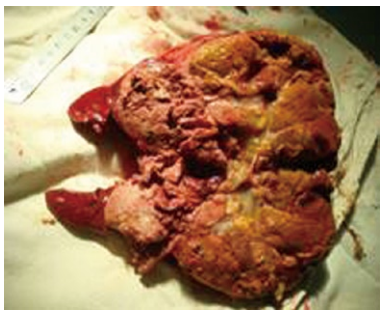

Figure 3 Postoperative photography showing the lesions directly involving the upper pole of spleen.

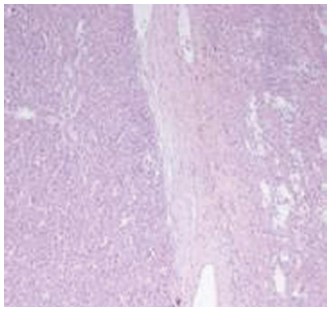

Figure 4 Histopathology showing the splenic metastasis of hepatocellular carcinoma (HE, × 40).

is very rare with a reported prevalence of 0.7%-0.8% in HCC patients[6,7], but it is probably more common than direct metastasis.

Preoperative differential diagnosis between metastatic or primary splenic tumors is difficult. High levels of AFP (> 1210 ng/mL) may contribute to the diagnosis of P-HCC. With improvement in diagnostics such as angiography and CT scan, the preoperative diagnosis is feasible in patients with negative or mild increase of AFP level. In this patient, selective celiac arteriography showed a tumor fed by hepatic artery, splenic artery and left inferior phrenic artery, from which we can judge the blood supply and diagnose the tumor. Image-guided biopsy of tumor was utilized to confirm the presence of HCC when the imaging study could not draw a conclusion.

The intrahepatic metastasis from HCC occurs mostly commonly *via* the portal vein, which is followed by hematogenous metastasis to the lungs and bone, lymph node metastasis, direct metastasis and peritoneal metastasis. Previous cases in the literature with HCC and splenic metastasis are summarized in Table 1[6-17]. Metastasis to spleen occurred hematogenously in previous cases. In the present case, the splenic metastasis occurred directly. The cumulative survival rates of extrahepatic metastasis of HCC were very poor. Such lesions in the case may not represent remote metastases, but they are actually HCC with extended invasion to the spleen. Whether splenic metastasis happens directly or hematogenously should be distinctive and the resection of P-HCC and splenic metastasis can be curative in the former. The distinction between the two is important, as it affects the stage, prognosis and management of the patient. Although the long-term outcome of resection for such splenic metastasis is unknown, direct splenic metastasis of P-HCC can be easily controlled to obtain gross disease clearance and may achieve better long-term survival.

In conclusion, splenic metastases of P-HCC are difficult to distinguish from primary splenic tumors, even with modern imaging studies. The treatment involves resection and surgical exploration, whenever possible.

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