99mTc-DTPA-HSA uptake in a case of splenic hamartoma

Hitoya Ohta,1 Tomoo Kombuchi,1 Shohei Kondo,2 Masanori Yoshida,2 Shunji Yamamoto,2 Minoru Ukikusa,2 Hiroji Awane,2 Naomi Tomono3 and Masayuki Shintaku4

Departments of *1Laboratories, *2Surgery, *3Internal Medicine and *4Pathology, Osaka Red Cross Hospital

Primary splenic tumors are very rare. The authors present a case of splenic hamartoma in which positive 99mTc-DTPA-HSA uptake was recognized with ultrasound, CT, MR and angiographic images. This case showed the need to consider hamartoma as well as hemangioma in the differential diagnosis of 99mTc-DTPA-HSA uptake in splenic tumors.

Key words: spleen, hamartoma, blood-pool imaging, 99mTc-DTPA-HSA

INTRODUCTION

Primary splenic tumors are very rare, and preoperative diagnosis is not easy.1 We report a case of splenic hamartoma in which positive 99mTc-DTPA-HSA uptake was recognized.

CASE REPORT

A 56-year-old woman with no symptom was found to have a splenic mass (4 × 4 cm) on abdominal ultrasonography (US). The mass was slightly hypoechoic (Fig. 1). Hematological examination and blood chemistry findings were within normal limits. The mass was shown as a round slightly hypodense area on CT enhanced scan (Contrast medium was administered by intravenous drip infusion (total 100 ml) and the CT image was obtained about 4 minutes after 50 ml administration.) (Fig. 2). The mass was isointense on a T1-weighted spin echo image (TR/TE: 600/13) and hyperintense on a T2-weighted image (TR/TE: 2500/100) (Fig. 3). Blood pool scintigraphy was performed 30 minutes after injection of 740 MBq 99mTc-DTPA-HSA. The planar image showed 99mTc-DTPA-HSA uptake in the spleen (Fig. 4). SPECT was performed in 60 steps, 360°, 25 seconds per step, with a 64 × 64 matrix (TOSHIBA GCA-7200A). 99mTc-DTPA-HSA uptake in the splenic lesion was recognized (Fig. 5 A, B). This finding suggested splenic hemangioma. Angiography showed hypervascular tumor in the parenchymal phase (Fig. 6). Splenectomy was performed. Pathological examination revealed splenic hamartoma (Fig. 7).

DISCUSSION

Splenectomy is a rare benign lesion and is composed of an abnormal mixture of normal splenic elements. Most cases have been discovered incidentally at autopsy or splenectomy. The incidence at autopsy is 0.13%.1 On US, splenic hamartoma appears as a demarcated solid homogeneous mass.2 On plain CT, splenic hamartoma appears as an area of low density and postcontrast CT shows various enhancement.3 On MRI, splenic hamartoma appears as an isointense area on the T1-weighted image and a hyperintense area on the T2-weighted image.4 On angiography, splenic hamartoma is richly vascular tumor. In benign splenic tumors except hamartoma, a relative lack of vascularity in the parenchymal phase is generally apparent.4,5 On scintigraphy, splenic hamartoma is frequently demonstrated as an area of photodeficiency, although uptake of heat-treated 51Cr-labeled red blood cells or radiocolloid in the tumor has been reported.4,6 The present case was consistent with these reported US, CT, MRI and angiographic features.

In the present case, since the tumor was not very hyperintense on the T2-weighted image, blood-pool
scintigraphy with $^{99m}$Tc-DTPA-HSA was employed to rule out hemangioma, but $^{99m}$Tc-DTPA-HSA uptake was recognized, and the pathologic diagnosis was splenic hamartoma. In our knowledge, there is nothing in the literature on blood-pool scintigraphy with $^{99m}$Tc-DTPA-HSA of splenic hamartoma. Concerning the mechanism of $^{99m}$Tc-DTPA-HSA uptake, it is reported that prolonged enhancement on postcontrast CT and MR images is char-
Fig. 6 Angiography showed tumor stain in the parenchymal phase.

...acteristically recognized in splenic hamartoma. And pro-
longed enhancement is probably due to stagnant contrast
material within the sinusoids of the red pulp component of
the tumor. This prolonged enhancement may contribute
to $^{99m}$Tc-DTPA-HSA uptake in splenic hamartoma.

In conclusion, a rare case of splenic hamartoma was
presented. This case suggested the possibility of splenic
hamartoma when tumor was not very high intensity on the
T2-weighted MR image and $^{99m}$Tc-DTPA-HSA uptake
was recognized on blood-pool scintigraphy.

ACKNOWLEDGMENT

The authors thank Mr. Masahiro Takayama, Mr. Keizou
Yamaguchi and Miss Kayo Sawada for their valuable assis-
tance.

REFERENCES

S, et al. Increased activity on radiocolloid scintigraphy in
CT and MR appearances of splenic hamartoma. J Comput
Angiographic diagnosis of benign and malignant splenic
5. Kuykendall JD, Shanser JD, Sumner TE, Goodman LR.
Multimodal approach to diagnosis of hamartoma of the
Am J Roentgenol Radium Ther Nucl Med 116: 419–422,
1972.
7. Ohta H, Tsuhisaki M, Mihara Y, Takeda H, Taniguchi T,
Kombuchi T. Tc-99m DTPA-HSA SPECT in a case of