

Hepatic carcinosarcoma demonstrated by Ga-67 scintigraphy

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A case of a primary hepatic carcinosarcoma, a very uncommon liver tumor in adults, demonstrated by Ga-67 scintigraphy, was reported. The liver image showed a lesion of low activity in the left lobe of the liver, whereas the Ga-67 image showed a moderate accumulation in the lesion detected by the liver scan and further indicated a high accumulation extending downwards from the hepatic lesion. An autopsy revealed that the huge abdominal tumor was composed of hepatocellular carcinoma and malignant mesenchymoma in the left hepatic lobe and in the lower part of the tumor, respectively. The Ga-67 image demonstrated these two different histological components of the tumor.

Key words: Ga-67, liver tumor, carcinosarcoma.

INTRODUCTION

PRIMARY CARCINOSARCOMA of the liver is extremely rare, and to our knowledge, there have only been seven cases reported as primary carcinosarcoma.¹⁻⁷ Radiological findings of this tumor had no specific features; therefore, it is very difficult to accurately diagnose a liver tumor as primary carcinosarcoma. We report here a case of so-called primary carcinosarcoma which was suspected to consist of two different components based on the characteristic finding in Ga-67 scintigraphy.

CASE REPORT

A 55-year-old man was referred to Miyazaki Medical College Hospital complaining of upper abdominal fullness. His previous medical history was not remarkable, except for a duodenal ulcer which had been treated conservatively for the past 20 years.

On admission a snowman shaped mass of 10 and 12 cm in diameter originated from the liver was palpable in the upper abdomen. The upper part of

the tumor was hard and the lower part was slightly soft, and it moved during respiration. Liver function tests, serum AFP and serum CEA levels were all within normal values. Upper GI series revealed that the lesser curvature of the stomach was compressed by this huge tumor and that there was no mucosal irregularity. Abdominal CT (Fig. 1) showed a huge liver tumor which grew and extended downward from the left hepatic lobe. Abdominal angiography suggested the presence of a malignant liver tumor showing a hypervascular pattern which was supplied by the left hepatic artery. Liver scintigraphy and Ga-67 scintigraphy were performed with a gammacamera (400T, G.E.) using 185 MBq of Tc-99m phytate and 111 MBq of Ga-67 citrate, respectively. The liver image showed a lesion of low radioactivity in the left lobe (Fig. 2). The Ga-67 image showed a moderate accumulation in the lesion seen in Fig. 2 and further indicated a high accumulation extending downwards from the hepatic lesion (Fig. 3a, b). The patient died one month later from upper GI bleeding.

An autopsy showed that the right hepatic lobe was occupied by cirrhosis and that an encapsulated snowman shape mass originated in the left hepatic lobe and grew downward roundly. Macroscopically, the upper half of the mass (originating in the liver) was composed of a solid tumor, whereas the lower half was of another tumor with signs of hemorrhage and necrosis (Fig. 4a, b). Microscopically, the upper portion

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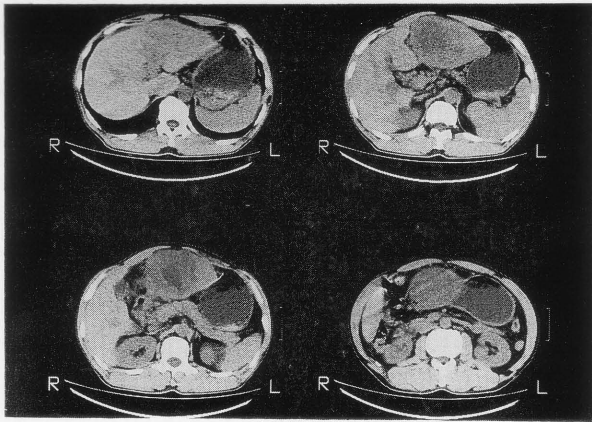


Fig. 1 The abdominal CT-scan showed a low density mass in the left lobe of the liver. There was a water density area, thought to be necrosis, in the lower solid portion of the tumor.



Fig. 2 The Tc-99m phytate liver scintigram showed a lesion of low activity in the left lobe.

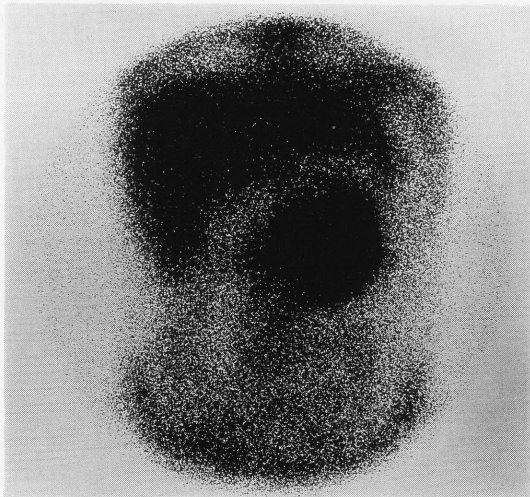


Fig. 3a The Ga-67 scintigram (anterior view) showed moderate accumulation in the lesion seen in Fig. 2. High accumulations were shown in a lower part of the tumor.

consisted of a hepatocellular carcinoma showing a trabecular form (Fig. 5a), while the lower portion was occupied by a malignant mesenchymoma which comprised proliferations of spindle cells accompanied with atypical polynuclear giant cells, rhabdomyocells, leiomyocells, and osteoid formation (Fig. 5b). Sections from the midportion of the tumor revealed that

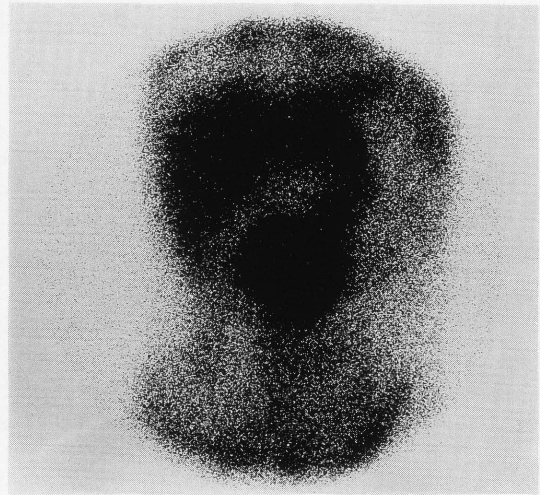


Fig. 3b The Ga-67 scintigram (left anterior oblique view) showed that the accumulation extended from the upper part to the lower part of the tumor.

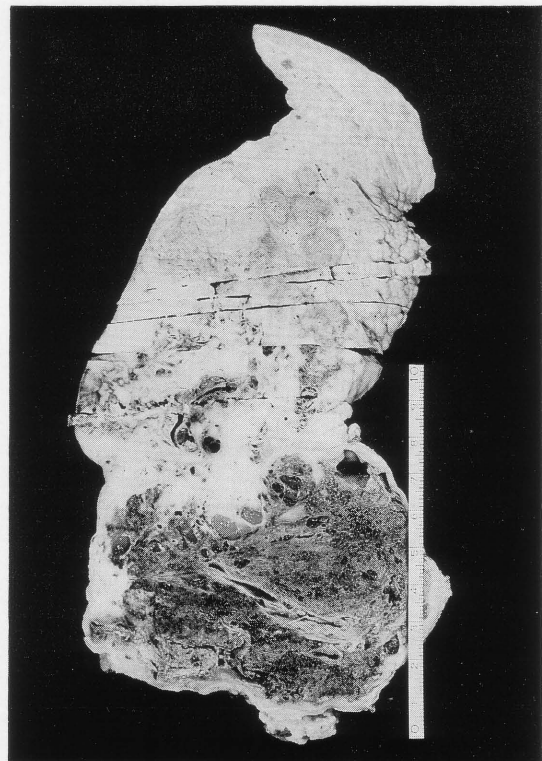


Fig. 4a The sagittal section of the mass showed a solid tumor in the left lobe and a continuous solid portion with massive necrosis and hemorrhage. The right side is anterior.

these two different histological components mentioned above coexisted (Fig. 5c). This malignant tumor was thought to be a collision tumor, one type of so-called carcinosarcoma.

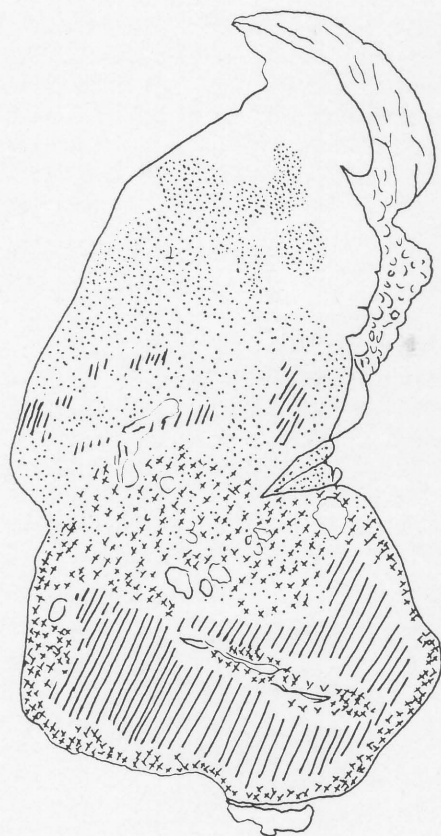
DISCUSSION

Primary hepatic sarcoma is an uncommon liver tumor, and carcinosarcoma or malignant hepatic mixed tumor is very rare. Mayer and Fould classified carcinosarcoma into three groups according to the possible methods of their origin; 1) combination tumors, 2) composition tumors, and 3) collision tumors.^{8,9} On the other hand, Edmondson⁴ divided them into two groups as summarized in table 1.

The present case was thought to be a collision tumor or a combined carcinoma and sarcoma in Meyer's or in Edmondson's classification based on its histological distribution. Seven cases previously reported as carcinoma and sarcoma are shown in table 2 together with the present case. Eight cases were all elderly or middle-aged males with liver cir-

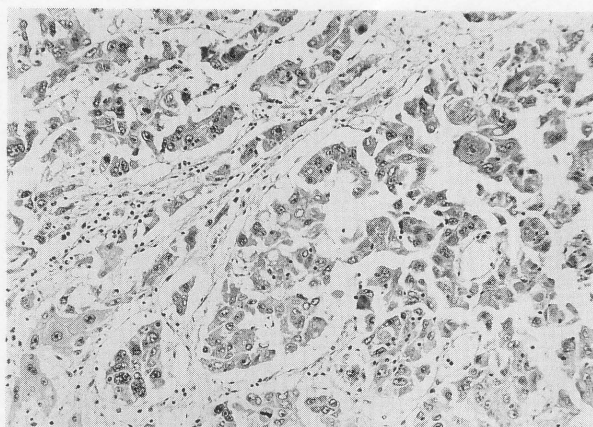
rhosis. The serum AFP levels were examined in three cases, but were all negative.

Concerning Ga-67 scintigraphic findings, no re-

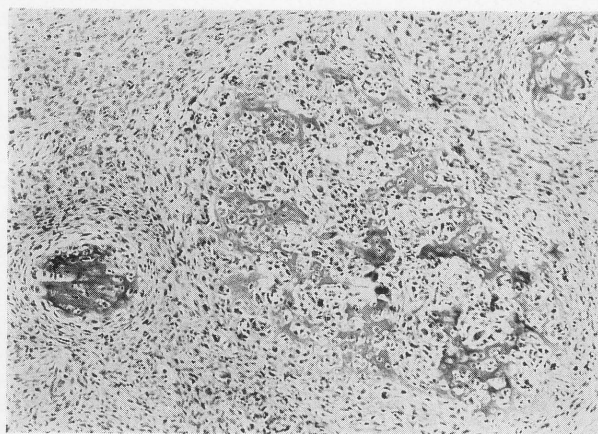


- Hepatocellular carcinoma
- XXXXX Sarcoma
- ////// Necrosis and hemorrhage

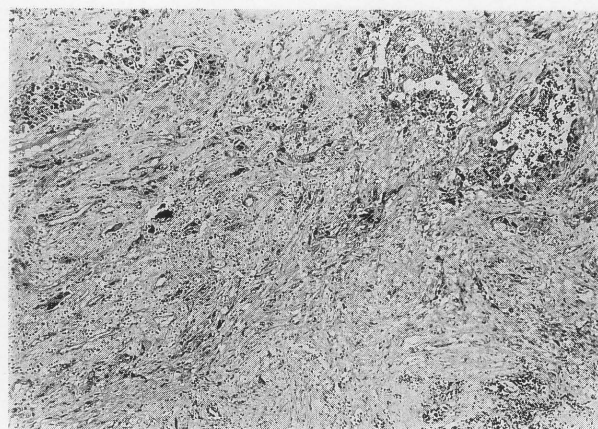
Fig. 4b Schema of the tumor (sagittal section) showing the histological distribution.



(a)



(b)



(c)

Fig. 5 (a) Microscopic findings showed two components. The upper portion consisted of the trabecular form of hepatocellular carcinoma. (b) The lower solid portion composed of a proliferation of spindle cells with osteoid formation. (c) The midportion consisted of two different histological components. (a, b: H.E. stain, $\times 400$; c: H.E. stain, $\times 100$)

Table 1 The classification of the primary hepatic carcinosarcoma

Meyer and Fould		Edmondson
Carcinosarcoma	1. Combination tumor	Malignant hepatic mixed tumor (True carcinosarcoma) Carcinoma and sarcoma
	2. Composition tumor	
	3. Collision tumor	

Table 2 Summary of carcinoma and sarcoma of the liver in 8 cases

Authors	Year	Sex	Age	Liver cirrhosis	Type of carcinoma	Type of Sarcoma
Dominici	1909	M	56	+	Liver cell carcinoma	Spindle cell sarcoma
Saltykow	1914	M	62	+	Liver cell carcinoma	Spindle cell sarcoma
Jaffe	1924	M	64	+	Liver cell carcinoma	Spindle cell sarcoma
Edmondson	1958	M	56	+	Liver cell carcinoma	Spindle cell sarcoma
Ojima	1964	M	65	+	Cholangiocarcinoma	Fibrosarcoma
Ishizu	1974	M	69	+	Liver cell carcinoma	Spindle cell sarcoma
Nagamine	1977	M	79	+	Liver cell carcinoma	Spindle cell sarcoma
Present author	1989	M	55	+	Liver cell carcinoma	Malig. mesenchymoma

sults were reported in seven of the cases. In the present case, the Ga-67 image showed a moderate accumulation in the upper part of the tumor and a high accumulation extending to the lower part. The tumor was suspected therefore to consist of two different histological components. Comparing the findings in the Ga-67 image with the histological distribution of the tumor, the moderate accumulation reflected hepatocellular carcinoma and the high indicated sarcoma, which occupied the lower part of the tumor and showed hemorrhage and necrosis. Although the mechanism of accumulation, as shown in the Ga-67 image of the neoplasm, is not clear, the differences between the accumulation rates may partially reflect its histological character. It seems that Ga-67 scintigraphy is a useful diagnostic tool for the detection of combined carcinoma and sarcoma of the liver.

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