We report a 41-year-old woman with a retroperitoneal schwannoma mimicking hepatic tumor in the caudate lobe. Dynamic computed tomography in the early phase showed an enhanced tumor (2.7 cm in diameter) in the Spiegel lobe of the liver, which compressed the inferior vena cava (IVC). We also performed left hepatic angiographic computed tomography, and found that the tumor was less enhanced. The patient underwent laparotomy under a preoperative diagnosis of primary hepatic caudate tumor with faint neovascularity. At surgery, the tumor was found to be located between the left caudate lobe and the IVC, and was resected as being of a retroperitoneal origin. This case illustrates that tumor location must be determined with great care when the mass seems to exist at the dorsal edge of the liver, and especially when the tumor is hypovascular.

Key words: retroperitoneal schwannoma – liver tumor – caudate lobe – diagnosis

INTRODUCTION

Retroperitoneal tumors are sometimes difficult to distinguish, preoperatively, from other tumors originating in the adjacent organs, and moreover the qualitative diagnosis is difficult because of their rarity. When such tumors have protrusions or when they share common radiological features with tumors of the liver, kidney or adrenal gland, the clinical diagnosis is often confusing (1,2,3). Here we report a case of retroperitoneal schwannoma which mimicked a scirrhous-type hepatocellular carcinoma in the caudate lobe (4). Angiographic computed tomography (CT) was recognized to be of great value for defining the localization of tumors in these areas.

CASE REPORT

A 41-year-old woman underwent ultrasonography at a medical check up for chronic hepatitis. A round hypoechoic mass was detected in the Spiegel lobe of the liver. Blood analysis showed almost normal liver function with positive hepatitis-C virus antibody. Carcinoembryonic antigen and alpha-fetoprotein were both negative. Dynamic CT, in the early phase, showed a well-defined and enhanced tumor (2.7 cm in diameter), which compressed the inferior vena cava (IVC), and was well enhanced in the late phase (Fig. 1). The tumor could not be revealed by celiac and superior mesenteric angiography (Fig. 2), and no other feeding artery directly from the aorta was identified. We also performed left hepatic angiographic CT, and found that the tumor was not enhanced (Fig. 3). No neoplasm was found upon examination of the gastrointestinal tract, ruling out the possibility that the tumor was a metastatic carcinoma in the liver. The patient underwent laparotomy under a preoperative diagnosis of primary hepatic tumor with faint neovascularity, possibly a scirrhous-type hepatocellular carcinoma or a cholangiocellular carcinoma. At surgery, the tumor was found to be 3 cm in diameter and located between the left caudate lobe and the IVC, and was diagnosed as being of a retroperitoneal origin. It was well encapsulated, round with a smooth surface, and elastic or stony hard. It was separated from the liver and IVC without difficulty after the dissection of two nerve-like strings from the retroperitoneum attached to the tumor.

PATHOLOGICAL FINDINGS

The resected specimen demonstrated a hard and well-demarcated tumor without a capsule, which was 2.8 x 2.2 cm in size and pale yellow with a heterogeneous consistency at the cut surface in the gross section. Histological examination revealed that the tumor was composed of densely packed spindle cells with oval nuclei...
Figure 1. (a) Dynamic CT in the early phase showing enhancement of the tumor (arrow) at the Spiegel lobe of the liver, compressing the IVC (arrow head). (b) Dynamic CT in the late phase showing enhancement of the tumor.

arranged in wide bands. The nuclei did not show palisading, and were not uniform in size, but there was no mitosis (Fig. 4). The tumor was stained positively for S-100 and vimentin, and negatively for actin and desmin. Therefore, this tumor was finally diagnosed as a benign retroperitoneal schwannoma. Liver biopsy showed mild active chronic hepatitis.

DISCUSSION
Schwannoma, a relatively rare retroperitoneal tumor, has a reported incidence of only 0.5–1.2% (1), which may make an accurate preoperative diagnosis difficult (2,3). However, it is clinically essential to determine whether the tumor really exists in the retroperitoneum before analyzing it on a qualitative basis. When the tumor is located at the posterior border of the liver, careful examination is necessary to determine whether it arises from the liver itself or from neighboring tissue. In the present case, plain CT first demonstrated that the mass seemed to be located in the Spiegel lobe of the liver. There was a hypodense band between the tumor and lateral segment of the liver, but not between the tumor and the paracaval portion of the liver. We therefore thought the tumor arose from the Spiegel lobe of the liver. Dynamic CT then revealed that it was relatively hypovascular (4), suggesting a hypovascular primary liver tumor such as a scirrhous-type hepatocellular carcinoma or combined hepatocellular carcinoma and cholangiocellular carcinoma.

This patient highlighted several noteworthy diagnostic considerations. First, selective hepatic angiographic CT (5) was very useful for ascertaining whether the tumor was really supplied from the hepatic artery. When sufficient contrast medium was injected from the left hepatic artery to stain the whole left lobe, as shown in Fig. 3, the mass was clearly visualized as an avascular area. The differences between dynamic CT and angiographic CT regarding the vascular supply raised a preoperative question as to whether the mass would be of liver origin with hypovascularity or of extrahepatic origin. Secondly, discrepancy of respiratory movements between the liver and the tumor on ultrasonography, if noticed, may be of diagnostic value. A tumor biopsy might have provided diagnosis information, but this was not done because of the deep tumor location and possible implantation.

Figure 2. Celiac (a) and superior mesenteric (b) angiography showing no tumor stain.
Retroperitoneal schwannoma

Figure 3. Angiographic CT demonstrating no vascularity of the tumor, in contrast to the whole left hepatic lobe, which was well stained.

Figure 4. Photomicrograph of the resected tumor showing densely packed spindle cells with oval nuclei arranged in wide bands.

Because we failed to identify a possible feeding artery such as the right inferior phrenic, lumbar or adrenal arteries, the lack of enhancement by celiac angiography and angiographic CT suggested that the tumor was hypovascular, rather than extrahepatic. Determination of tumor location must be done with great care when the mass exists between the liver and the retroperitoneum, and especially when the tumor is hypovascular. The lessons learned from this case may be of value for the correct diagnosis of tumors located deep in the abdomen, or between the abdominal organs.

Acknowledgement

This study was supported in part by a grant-in-aid for Cancer Research from the ministry of Health and Welfare of Japan.

References


