Primary Mesenteric Liposarcoma Successfully Diagnosed by Preoperative Imaging Studies

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Abstract

Liposarcoma is one of the most common primary neoplasms in the retroperitoneum, whereas primary mesenteric liposarcomas are rare (1). We encountered a case of liposarcoma which arose from the mesentery of the jejunum that was diagnosed by imaging studies before surgical operation.

Key words: liposarcoma, preoperative imaging studies

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Case Report

A 65-year-old Japanese woman presented with a mass without pain in the left upper abdomen. Physical examination was normal except for a solid mass in the left upper quadrant. The mass was palpated as smooth and elastic hard. It was a non-tender tumor and movable in all directions. Laboratory data were all within normal ranges except for total cholesterol. Carcinoembryonic antigen and soluble interleukin-2 receptor were normal. Abdominal X-ray appeared to be normal. On barium enema and small bowel series, the mass had regular and smooth margins without invasion but it pushed out the small intestine during recumbent position (Fig. 1). These signs suggested that the tumor originated in mesenterium. Abdominal ultrasonography (US) showed a solid, homogenous and hyperechoic mass about 13 cm in size in the left upper quadrant. Computed tomography (CT) scan of the abdomen revealed a low density mass with slight irregular enhancement (Fig. 2). There was no evidence of lymphadenopathy and the liver was free of metastatic disease. Free fluid was present in the pelvic and abdominal cavities. The mass showed low intensity on T1-weighted magnetic resonance images (MRI) (Fig. 3A) and fat suppressed T1-weighted images and high intensity on T2-weighted images (Fig. 3B). On contrast study, heterogeneous enhancement was seen after the injection of Gd-DTPA (Fig. 3C). A superior mesenteric arteriogram showed a slightly hypervascular tumor supplied by the jejunal artery and showed irregular tumor vessels. Based on these findings, the patient was diagnosed as mesenteric liposarcoma and laparotomy was performed. The tumor was found in the mesentery of the jejunum and appeared to be reddish-brown color, smooth surface and elastic hard. It was well-demarcated, weighed 700 g and measured 16×13×9 cm. The histological appearance was a well-differentiated liposarcoma, composed of a heterogenous organization of multivacculated adult lipocytes. Neoplastic cells with large hyperchromatic nuclei were scattered within the region. Fat necrosis was not observed (Fig. 4).

Discussion

Liposarcoma is the second most common soft tissue sarcoma following malignant fibrous histiocytoma, accounting for approximately 16-18% of all soft tissue tumors (2), and frequently occurs in the lower extremities and the retroperitoneum. Primary tumors of mesentery are uncommon. To our knowledge, only 24 cases of liposarcoma occurring in the mesentery have been published in Japan (3, 4). It is histologically defined as a tumor composed of lipoblasts. At present, the World Health Organization (WHO) classification of soft tissue tumors utilizes an extension of this division and identifies five distinct subtypes of liposarcoma: well-differentiated, myxoid, round cell, pleomorphic, and dedifferentiated (5).

For diagnosis, CT scans and MRI can provide important information regarding the size and involvement of adjacent...
structures as well as tissue characteristics of the tumor (6-9). The reported characteristics of liposarcoma on CT images are 1) inhomogeneity, 2) infiltration or poor margination, 3) CT numbers greater than the patients normal fats, and 4) contrast enhancement (8). The enhancement on CT changes according to the degree of histological grade (9). In the present case, CT scans revealed a low density tumor with irregular enhancement. It is reported that well-differentiated liposarcomas are hyperintense on T2-weighted MRI, and demonstrate faint or no enhancement (7, 10, 11). CT and MRI appearances of well differentiated liposarcoma, especially lipoma-like tumors can be to the same as those of fat, but those findings may be differentiated from other types of tumors by their largely lipomatous appearance. In the present case, the characteristics of MRI of the tumor were similar to those of fat except for the irregular enhancement. The images showed high intensity on T2-weighted images and low intensity on fat-suppressed T1-weighted images. These images suggested the presence of fat and malignant tissue in the tumor, and histologically, the tumor consisted of a lipogenic element.

On the other hand, gastrointestinal angiography does not
facilitate the differentiation of liposarcoma from other types of sarcomas. Sarcomas originating from vascular, fibrous, neural, and osseous tissues have variable degrees of vascularity (12). Liposarcomas are usually avascular to moderately vascular, and they cause displacement of the major vessels. Moderately hypervascular liposarcoma may show irregular, fine tumor vessels and areas of tumor stain. Venous filling may occur early. Gastrointestinal angiography may be useful for preoperative planning.

In the present case, the physical examination revealed a freely movable abdominal mass, which suggested the location of the tumor in the mesentery. On small bowel series, the tumor had a regular and smooth margin without invasion to the GI tract. In addition, these characteristics suggested that the tumor is located in the mesentery, not retroperitoneum. Other radiological findings were also highly suggestive of the fat element in the tumor and malignant potential.

In summary, primary mesenteric liposarcoma is a rare neoplasm, while liposarcoma is the second most common soft tissue sarcoma. Physical examination and imaging studies are sufficiently characteristic to allow a specific diagnosis.

References


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