—Case Reports—

Dedifferentiated Liposarcoma Arising from the Mesocolon Ascendens: Report of a Case

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Abstract

Dedifferentiated liposarcoma of the mesentery is an extremely rare tumor.

A 71-year-old man with a 2-month history of abdominal distention was admitted to our department for evaluation and treatment of an abdominal mass. Computed tomography and magnetic resonance imaging revealed an 11 × 9 cm mass lesion with fat density in the upper right abdominal cavity, displacing the ascending and transverse colon ventrally. Abdominal angiography showed small feeding vessels of the tumor from the ileocolic artery and the middle colic artery. On basis of these findings, liposarcoma arising from the mesocolon ascendens was diagnosed, and complete removal of the tumor and central pancreatectomy (partial resection of the body of the pancreas) were performed. The histopathological diagnosis was dedifferentiated liposarcoma, and the patient is free from recurrence 6 months after surgery. The treatment strategy for abdominal dedifferentiated liposarcoma is surgical resection with a wide surgical margin.

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Key words: liposarcoma, dedifferentiated type, mesocolon ascendens, surgical treatment

Introduction

Liposarcomas are rare tumors accounting for 10% to 15% of soft-tissue sarcomas, most of which occur in the lower extremities and the retroperitoneum[1]. The World Health Organization classifies liposarcomas into 5 histologic subtypes: well-differentiated, dedifferentiated, myxoid, round cell, and pleomorphic sarcomas. Dedifferentiated histologic subtypes have a worse prognosis and an increased risk of local recurrence compared with well- differentiated liposarcomas[2]. Therefore, aggressive complete surgical resection of the tumor and adjacent organs is the mainstay of treatment for dedifferentiated liposarcomas[3].

We report here a case of dedifferentiated liposarcoma arising from the mesocolon ascendens and discuss the management of this tumor along with a review of the literature.

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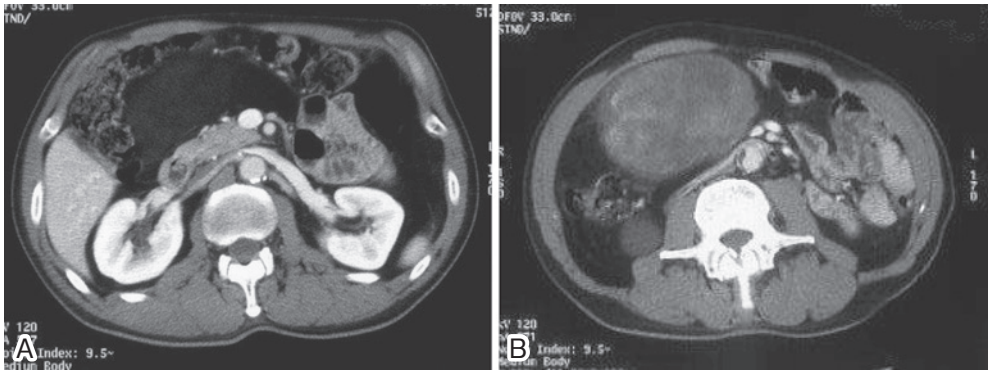

Fig. 1 **A, B**: Computed tomography revealed an 11×9 cm heterogeneous mass lesion with fat density in the upper right abdominal cavity, displacing the ascending and transverse colon ventrally.

Case Report

A 71-year-old man with 2-month history of abdominal distention was admitted to our department for evaluation and treatment of an abdominal mass. On physical examination, a large, well-defined, smooth mass was detected in the upper right abdomen. Levels of tumor markers, such as carcinoembryonic antigen and CA19-9, were within their normal ranges. Computed tomography revealed an 11 × 9 cm heterogeneous mass lesion with fat density in the upper right abdominal cavity, displacing the ascending and transverse colon ventrally **(Fig. 1A, 1B)**. The tumor exhibited contrast enhancement in the arterial phase. On magnetic resonance imaging, this tumor showed hypointensity on T1-weighted images and heterogeneous signal intensity on T2-weighted images **(Fig. 2)**. Abdominal angiography showed small feeding vessels of the tumor from the ileocolic artery and the middle colic artery **(Fig. 3A, 3B)**. Fiberoptic colonoscopy showed no abnormalities. On the basis of these findings, liposarcoma arising from the mesocolon ascendens was diagnosed preoperatively.

At laparotomy, a huge yellowish lipomatous mass was found at the mesocolon ascendens with dense adhesions to the body of the pancreas **(Fig. 4A)**. Complete removal of the tumor and central pancreatectomy (partial resection of the body of the pancreas) were performed. The tumor consisted of 2

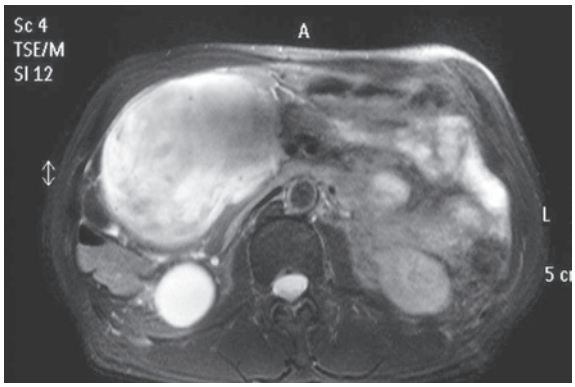

Fig. 2 Magnetic resonance imaging revealed a tumor that showed heterogeneous signal intensity on T2-weighted images.

masses, that measured 13 × 8 × 5 cm and 8 × 6 × 4 cm **(Fig. 4B)**. The cut surface was firm and yellow-gray **(Fig. 4C)**.

Pathologic examination revealed dedifferentiated liposarcoma consisting of well-differentiated and pleomorphic components. The well-differentiated components included mature lipoma like cells varying in size, with severe atypia and dense fibrosis **(Fig. 5A)**. The dedifferentiated area showed pleomorphic, spindle-shaped cells with hyperchromatic nuclei **(Fig. 5B)**. Tumor cells showed reactivity for S-100 **(Fig. 6A)**, and the Ki-67 index was 40% to 50%. The resected pancreas showed no evidence of tumor invasion, although adhesive inflammation was detected on the border **(Fig. 6B)**. Regional lymph nodes showed no sign of metastasis.

The postoperative course was uneventful, and the patient was discharged 4 weeks after surgery

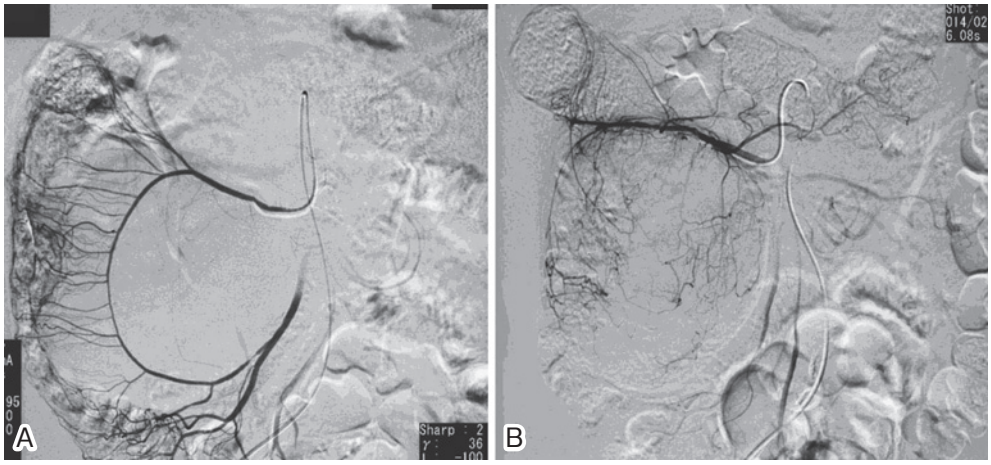

Fig. 3 **A, B**: Abdominal angiography showed small feeding vessels of the tumor from the ileocolic artery and the middle colic artery.

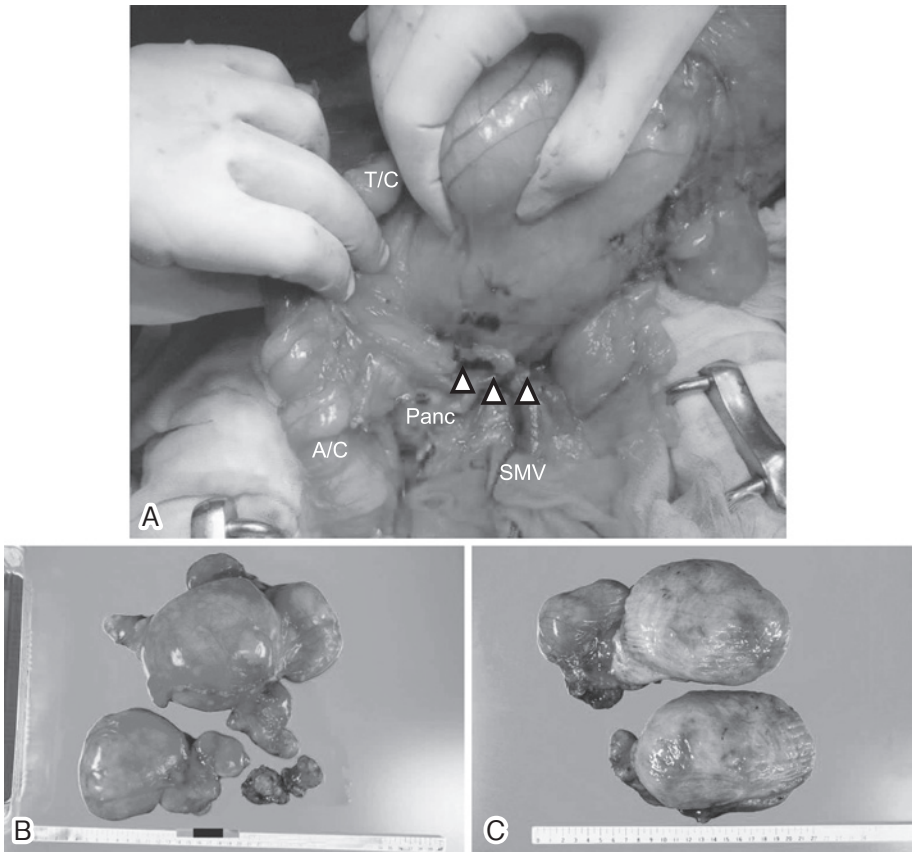

Fig. 4 **A**: A huge yellowish lipomatous mass was found at the mesocolon ascendens. The tumor showed dense adhesions to the body of the pancreas (white **arrowheads**). **B, C**: The tumor consisted of 2 masses, which measured 13×8×5 cm and 8×6×4 cm. The cut surface was firm and yellow-gray.

without receiving adjuvant treatment. Six months after surgery, the patient is well with no signs of recurrence.

Discussion

Liposarcomas account for 10% to 15% of soft-tissue sarcomas, and are second in frequency to malignant

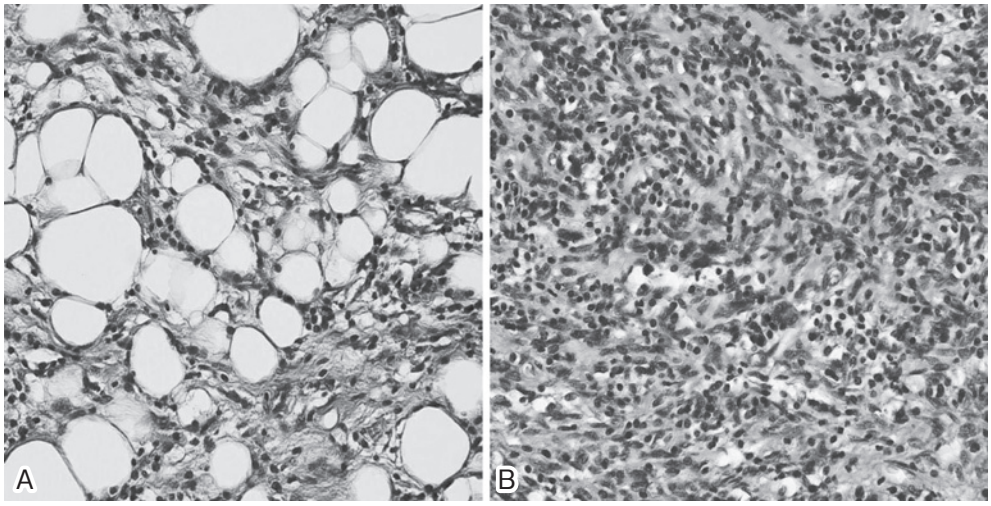

Fig. 5 **A**: The well-differentiated components included mature lipoma like cells of varying size, with severe atypia and dense fibrosis. **B**: The dedifferentiated area showed pleomorphic, spindle-shaped cells with hyperchromatic nuclei.

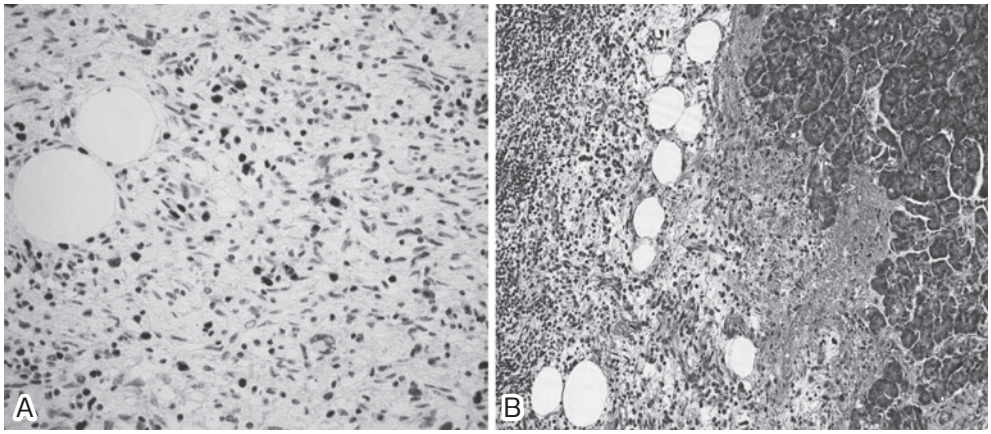

Fig. 6 **A, B**: Tumor cell showed reactivity for S-100, and the specimen of the resected pancreas showed no evidence of tumor invasion, although adhesive inflammation was detected on the border.

fibrous histiocytoma. Liposarcoma is largely a disease of adults, with its incidence peaking between the ages of 40 and 60 years, and shows a slight male predominance[1]. Liposarcomas arising from the mesentery are extremely rare. The lower extremities are the most common location, accounting for 56% of all liposarcomas. The retroperitoneum is the next most frequent location with 15% to 20% of liposarcomas located there[4,5]. Liposarcomas arising from the mesentery usually produce no symptoms, and are difficult to diagnosis until they are large enough to cause symptoms of pressure[6]. In addition, dedifferentiated liposarcoma occurs most commonly in the retroperitoneum but rarely in other anatomic locations such as the mesentery. A search of the literature of the last 10 years found only 6 cases of dedifferentiated liposarcoma arising from the mesentery, including 1 case arising from the sigmoid mesentery[7]. Hasegawa et al[8] have reported 5 cases of dedifferentiated liposarcoma arising from the small bowel mesentery. In the present case, physical examination revealed a freely movable abdominal mass, which suggested the tumor was in the mesentery. In addition, abdominal angiography showed feeding vessels from the colonic arteries. On the basis of these findings, liposarcoma originating from the mesentery was diagnosed preoperatively. Laparotomy confirmed

that the tumor had arisen from the mesocolon ascendens.

Evans[9] reported in 1979 that dedifferentiated liposarcomas included non-lipogenic sarcomas and well-differentiated liposarcomas. There are 2 types of dedifferentiation, 1 of which is called de novo or primary dedifferentiation. Primary dedifferentiation can be seen in biopsy or resected specimens at presentation. On the other hand, secondary dedifferentiation develops within a previous well-differentiated liposarcoma late in the clinical course[10]. In general, dedifferentiation is supposed to occur in a time-dependent manner[10,11]. However, Shimoji et al[12] have reported that dedifferentiation does not always correlate with tumor size. Other workers have reported that dedifferentiated usually arises in a de novo lesion rather than in recurred lesions[2]. Their reports suggest that dedifferentiation may occur at any time and in any well-differentiated liposarcomas. Accumulation of genetic abnormalities is thought to be the trigger for dedifferentiation. Further genetic studies will be needed to identify the genes that are responsible for dedifferentiation and to elucidate the mechanism of dedifferentiation[12].

Complete removal of the tumor is the most effective treatment, and radical complete surgical resection markedly increases the survival rate. Dedifferentiated liposarcoma has a worse prognosis than well-differentiated liposarcoma because of the high incidence of local recurrence and distant metastasis. Approximately 40% of dedifferentiated liposarcomas will recur locally, and 17% will metastasize, and 28% of patients will ultimately die of the tumor[2]. Therefore, complete removal with a clear resection margin is extremely important. If the tumor adheres to or invades adjacent organs, surgical resection of the tumor and of adjacent organs is recommended[3,13]. Singer et al[3] have reported an overall disease-specific survival rate of 73% at 3 years with complete resection, whereas incomplete resection had a 3-year disease-specific survival rate of only 43%; therefore, complete resection of the tumor is essential even if a contiguous organ must be sacrificed. In our case, the tumor showed dense adhesions to the body of the pancreas, and complete removal of the tumor and central pancreatectomy were performed. Although pathologic examination of the resected specimen showed adhesive inflammation, it is difficult to determine intraoperatively whether a tumor has invaded the pancreas.

Aggressive re-operation is recommended in cases with local recurrence, but the efficacy of adjuvant chemoradiation and chemotherapy for abdominal liposarcomas is not clear[14,15]. It has been reported that a patient who underwent resection 4 times survived for 13 years[16]. Sato et al.[17] have also reported the longest survival time with the maximum number of resections was 21.5 years for a patient who underwent resection 7 times.

We have reported a rare case of dedifferentiated liposarcoma, arising from the mesocolon ascendens. However, the recurrence rate of dedifferentiated liposarcoma is extremely high, and careful long-term follow-up is necessary.

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