Dedifferentiated liposarcoma of the retroperitoneum with osteosarcomatous component

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Abstract

Liposarcoma is one of the most common soft-tissue sarcomas and classified as five groups. Dedifferentiated liposarcoma includes multiple elements such as solid tissue, adipose tissue and calcified tissue, which is different from common liposarcoma in tissue constitue. Dedifferentiation to osteosarcoma is rarely described in the literature. We reported the radiological and pathological findings in a case of dedifferentiated liposarcoma with osteo-sarcomatous dedifferentiation in the retroperitoneum and discussed the characteristic features of this specific tumor. Complete surgical resection of the neoplasm is the only curative means, but establishing a prognosis remains a challenge for long-term evaluation.

Case Report

A 47-year-old woman was admitted to our hospital with a huge inhomogenous abdominal mass found by computed tomography (Figure 1A-B). She had presented with discomfort and swelling in the left upper abdomen for 2 years. She had history of uterine myomectomy 3 years ago. Physical examination revealed a palpable solid mass, which was 10×6 cm in size. The huge encapsulated tumor that originated in the left retroperitoneum was completely removed en bloc via median laparotomy. There was no involvement of sourrounding tissue. The resected tumor measured 20×13×10 cm and weighed 1.47 kg. Center slice of neoplasm was pale grey and pores (Figure 2A). Histopathological examination of the resected specimen revealed three well-differentiated, sarcomatous components: liposarcoma, fibrosarcoma, and osteosarcoma (Figure 2B-D). Immunohistochemical stainings showed Sudan III-positive, CD34-100-negative, and CD68–negative. Macroscopic and microscopic characteristics of the neoplasm placed it into a diagnosis of dedifferentiated liposarcoma. The patient was discharged with an uneventful hospitalization and well with no recurrence at 12-month follow-up although chemotherapy had not been adminstrated (Figure 1C).

Discussion

Liposarcomas accounts for 15% of soft-tissue sarcomas. Those tumors originate mainly in the extremities and torso, but are rare in the retroperitoneum. Histopathologic classification of liposarcomas was proposed by WHO classification in 1969, based on the classification of Enzinger and Winslow, as five groups: well-differentiated type, myxoid type, round-cell type, pleomorphic type, and mixed type. In 1979, Evans reported a dedifferentiated type, a mixture of high-grade sarcoma components in the well-differentiated type of liposarcoma, which is classified as a kind of subspecific well-differentiated type. Now, it has extended its range sufficiently to contain mixtures of other low-grade sarcoma components. The most common dedifferentiated component was undifferentiated pleomorphic sarcoma or fibrosarcoma. The dedifferentiated component was various, and rhabdomyosarcomatous, leiomyosarcomatous, or osteosarcomatous component was only included in 10% of the cases. Such morphological variability may lead to misdiagnosis as other sarcoma type, especially in the retroperitoneum.

Dedifferentiated liposarcomas commonly occurred in the late adult life with a median of 61.5 years of age, and were more common in men, and most common in the retroperitoneum, 106 of 155 cases.[1] Symptoms are usually nonspecific, and a large tumor often leads to signs of local compression. Huge calcification or ossification, as described in our case, is a characteristic imaging pattern of dedifferentiated liposarcoma, different from extraskeletal chondrosarcoma.[2] Osteosarcomatous or chondrosarcomatous dedifferentiation is the cause of such mineralization corresponding to calcification in multidetector computed tomography (MSCT) images. Differential diagnoses of fatty tumor containing mineralized components include myxoid liposarcoma with cartilagenous metaplasia; atypical lipomatous tumor (well-differentiated liposarcoma) with osseous, cartilagenous, smooth muscle, or skeletal muscle metaplasia; and dedifferentiated liposarcomas. Malignant mesenchymoma with two or more lines of differentiation may include dedifferentiated liposarcoma, but presently it has not been used.[3]

Retroperitoneal liposarcomas is potentially curable by radical complete surgical resection; if necessary, this includes the removal of other vital structures. The efficacy of chemotherapy remains controversial. A prognostic analysis tends to be difficult, although a number of factors have been clarified as prognostic both for

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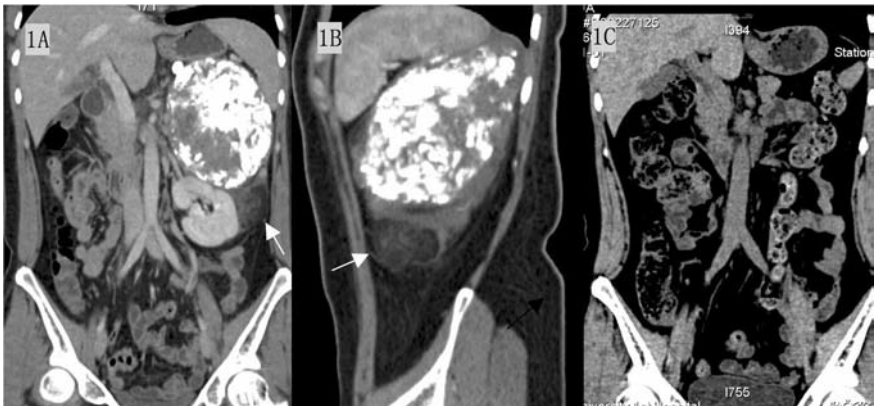

Figure 1. Multiple planar reconstructions showing ossified soft tissue mass as well as a lipomatous mass (arrow) adjacent to the ossified mass (A-B); computed tomography showing no recurrence at the 12-month follow-up (C).

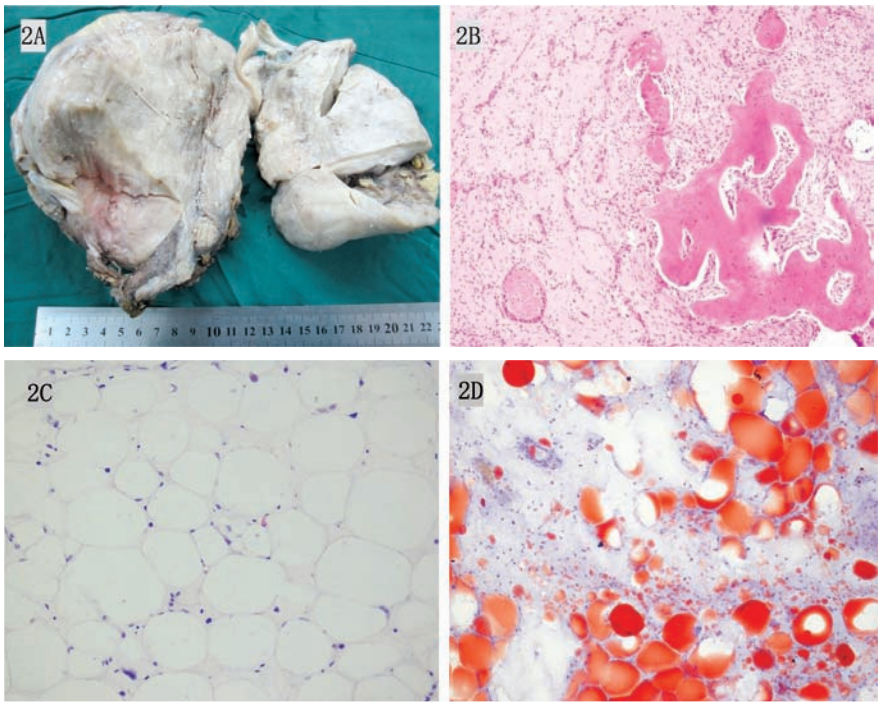

Figure 2. Gross specimen showing pale grey and pores (A). H&E staining showing atypical spindle-shaped cells between thick bone trabeculae (B). H&E and Sudan III staining showing mature-looking adipocytes intermingled with lipoblasts and atypical spindle-shaped cells (C-D).

survival and recurrence.[3-4] In summary, the above-mentioned case will deepen our recognition for dedifferentiated liposarcoma with osteosarcomatous component, especially in imaging appearances from MSCT.

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