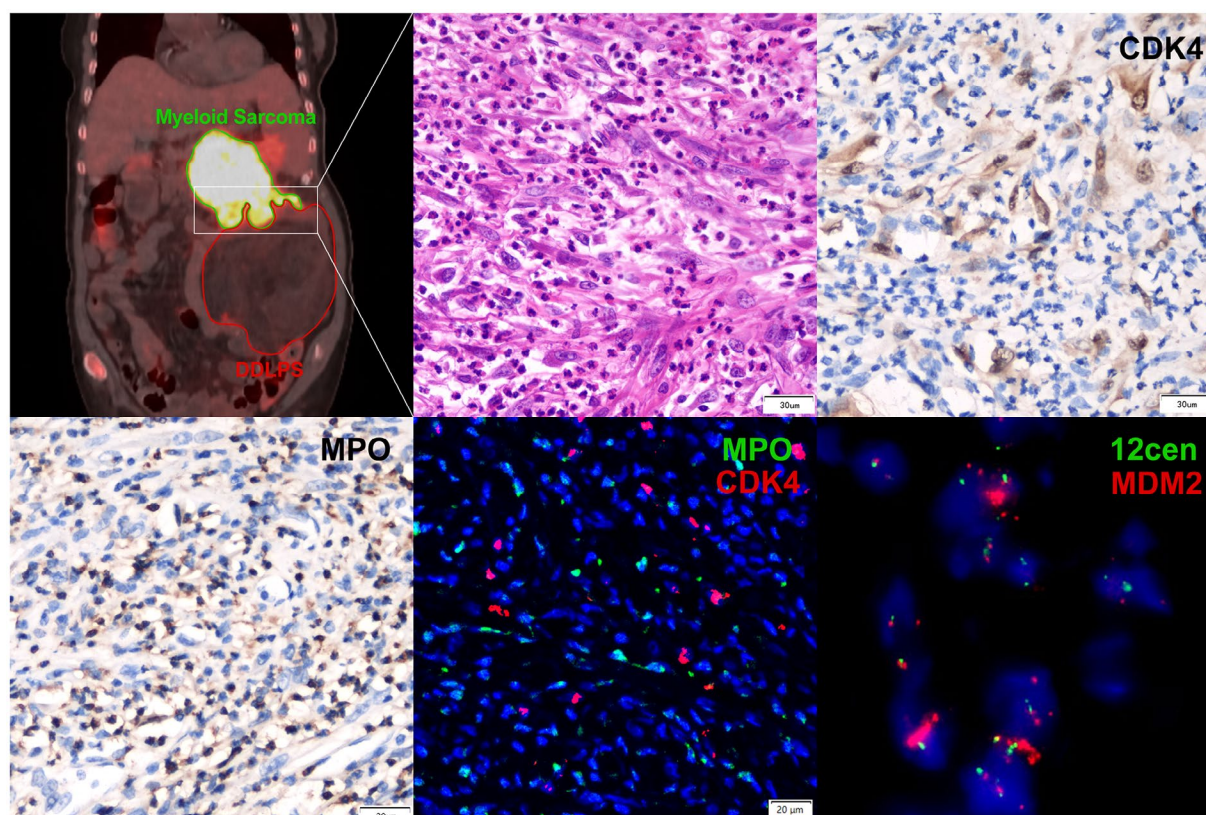


## Myeloid sarcoma ‘invading’ a dedifferentiated liposarcoma: A rare collision tumour



A 78-year-old woman who had a left perirenal dedifferentiated liposarcoma (DDLPS) resection 15 years earlier presented with fatigue and dizziness. Laboratory tests revealed severe anaemia with haemoglobin 44 g/L (reference range, 115–150 g/L). Bone marrow smear showed marked erythroid hyperplasia with dysplasia and 8.0% ring sideroblasts. Next-generation sequencing of bone marrow identified mutation of splicing factor 3b subunit 1 (*SF3B1*) p.K700E (variant allele frequency 35.3%). The diagnosis was myelodysplastic syndrome (MDS) with low blasts and *SF3B1* mutation (MDS-SF3B1). Four months later, the patient complained of abdominal distension. Positron emission tomography-computed tomography revealed a large heterogeneous mass with an area of high metabolic activity (the upper left panel of the image). Surgical resection removed a 24 × 17 × 9.5 cm tumour. Histological examination of the hypermetabolic hot portion of the tumour revealed sheets of neutrophils

admixed with histiocytes (upper central image, haematoxylin and eosin, objective x10). Next-generation sequencing of the hot portion demonstrated the same *SF3B1* p.K700E as in the previous bone marrow specimen, consistent with a myeloid sarcoma. The hypometabolic cold portion of the tumour consisted of spindle cells positive for cyclin-dependent kinase 4 (CDK4) by immunohistochemistry and mouse double minute 2 homolog (*MDM2*) amplification by fluorescence in situ hybridization, confirming a recurrent DDLPS. At the interface between the ‘cold’ and ‘hot’ portions, spindle-shaped DDLPS cells were intermingled with myeloperoxidase (MPO)-positive myeloid sarcoma cells (the remaining panels of the image). This finding suggested an actively proliferating myeloid sarcoma infiltrating a slow-growing DDLPS, representing a truly rare occurrence.

This case highlights the importance of correlating imaging findings with histopathological and molecular studies,

because distinct regions within a single mass may represent biologically different processes. Myeloid sarcoma is an extramedullary manifestation of myeloid neoplasms<sup>1</sup> and may arise in association with MDS or represent disease progression.<sup>2</sup> The occurrence of myeloid sarcoma infiltrating a pre-existing solid tumour is exceedingly rare and raises interesting questions regarding potential tumour–tumour interactions and whether the microenvironment of DDLPs may facilitate the growth or homing of myeloid neoplastic cells.

# **PATIENT CONSENT STATEMENT**

We have obtained the patient's consent to use clinical information and images for educational purposes.

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