Retroperitoneal Dedifferentiated Liposarcoma With Heterologous Osteosarcomatous Differentiation and a Prominent Aneurysmal Bone Cyst-like Morphology

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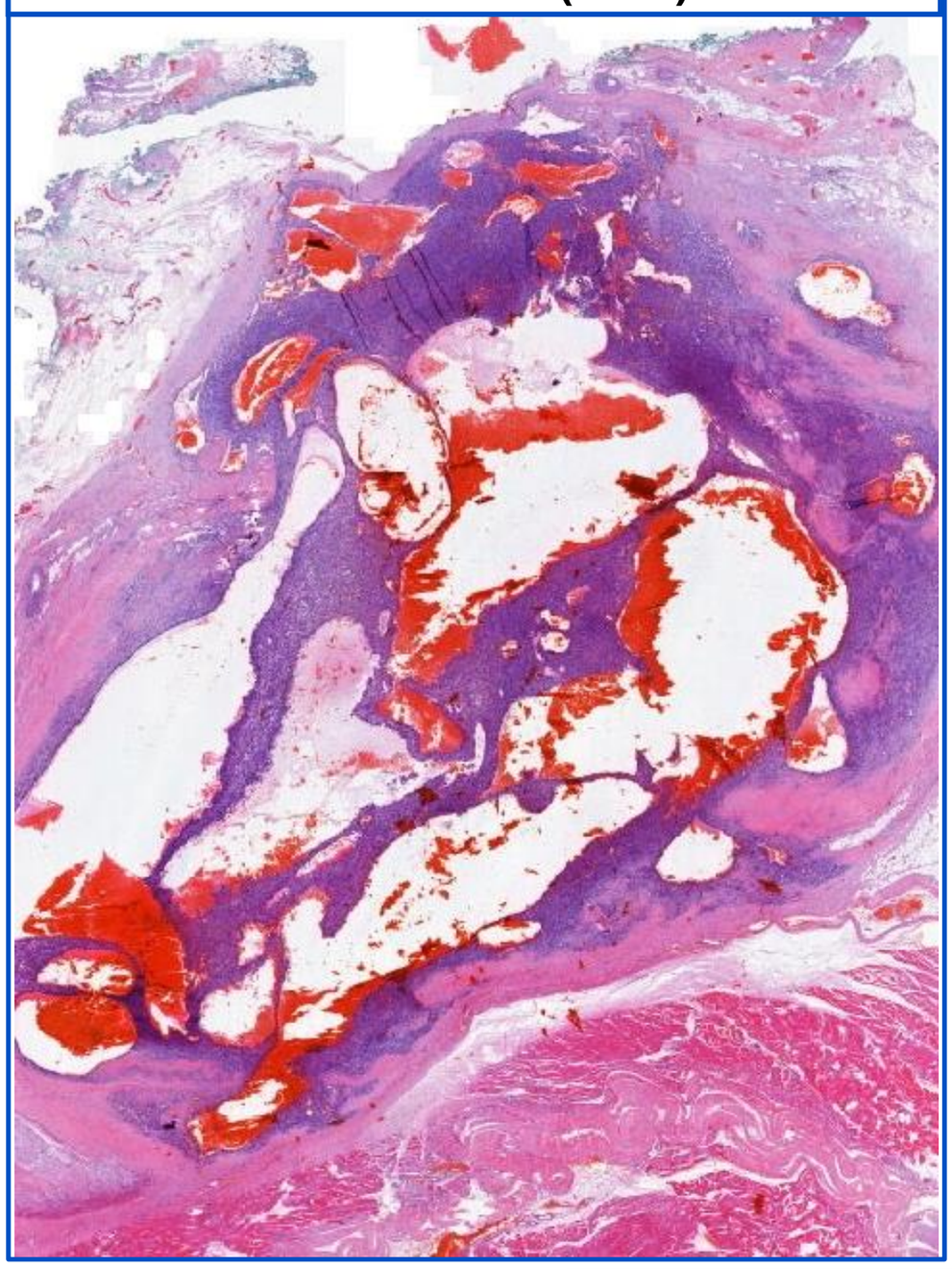
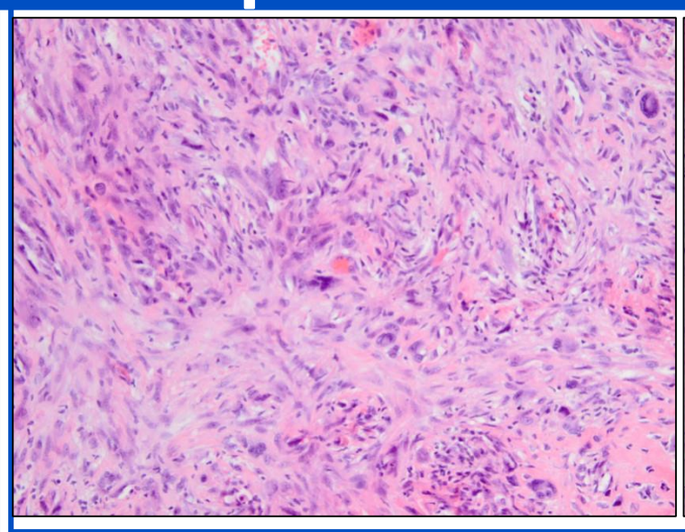
Abstract

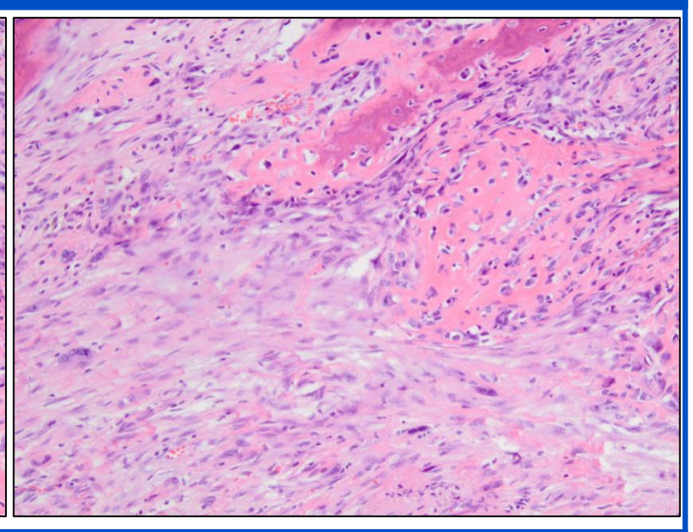
A 69-year-old woman with a medical history of recurrent dedifferentiated liposarcoma of the retroperitoneum presented with a 3-cm large hemorrhagic and multicystic left-sided retroperitoneal mass. Histopathological examination of the resected tumour revealed a heterogeneous, high-grade mesenchymal nonlipogenic tumour with areas of osteoblastic differentiation. Moreover, there were zones with aneurysmal bone cyst ABC-like features, with large blood-filled spaces without endothelial lining and separated by septa containing spindle cells, clusters of osteoclast-like multinucleated giant cells and thin strands of woven bone. A diagnosis of a dedifferentiated liposarcoma with heterologous osteosarcomatous differentiation and an aneurysmal bone cyst-like morphology was made, based on the morphology, the clinical presentation and the supportive immunohistochemical and molecular findings (MDM2 overexpression and amplification of the MDM2 gene, respectively). We believe that this is the first description of aneurysmal bone cyst-like morphology in dedifferentiated liposarcoma, further expanding the wide morphological spectrum of dedifferentiated liposarcoma.

Case report

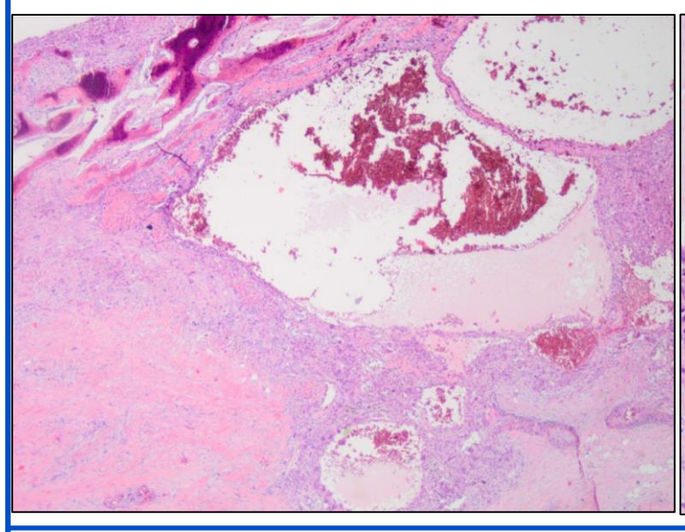
Tumor showing aneurysmal bone cyst–like features (H&E)

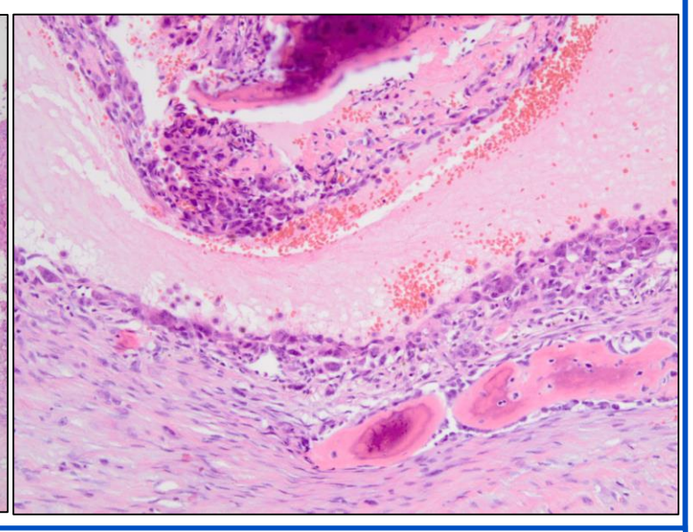






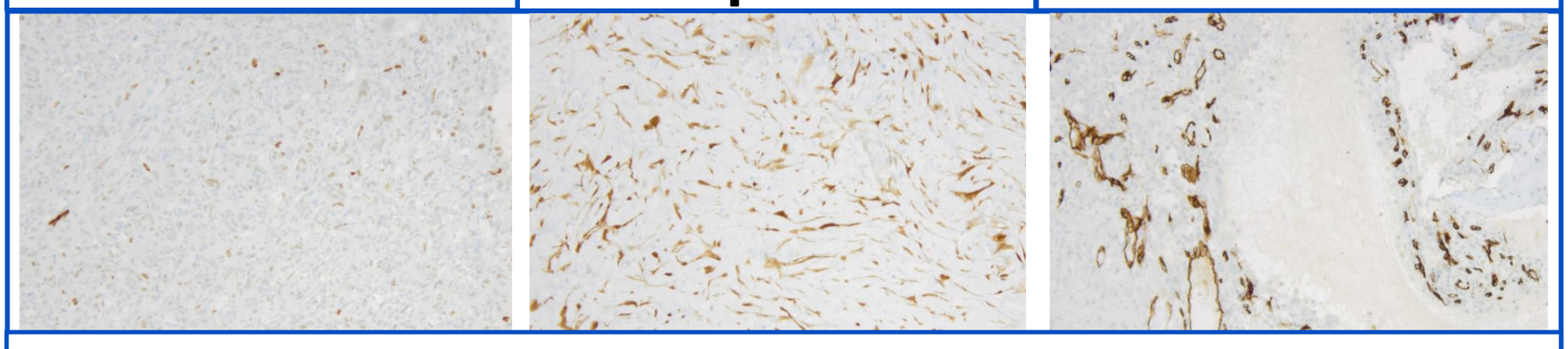
The tumor is mainly composed of pleomorphic and spindle tumor cells, arranged in a vaguely fascicular and storiform pattern. Areas of osteosarcomatous differentiation, composed of immature osteoid and woven bone, were also observed.





Furthermore, there were zones that showed aneurysmal bone cyst (ABC)–like features, with large blood-filled spaces without endothelial lining and separated by septa containing spindle cells, clusters of osteoclast-like multinucleated giant cells and thin strands of woven bone.

MDM2	p16	CD34



Immunohistochemistry showed a strong nuclear overexpression for MDM2 and p16 in all different tumor areas. The tumor cells did not express CD34 or ERG. CD34 further illustrated the absence of endothelial cell lining within the pseudovascular, blood-filled spaces in the ABC-like component.

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Conclusion

Dedifferentiated areas in dedifferentiated liposarcoma can exhibit a wide morphological spectrum (ranging from hibernoma-like to paraganglioma-like histologies) which can be a major diagnostic challenge. This case presents an unusual morphological variant of a dedifferentiated liposarcoma with not only heterologous myogenic and osteosarcomatous differentiation but also a striking ABC-like morphology. This case is, to our knowledge, the first report of an ABC-like morphology in dedifferentiated liposarcoma, further expanding the broad morphological spectrum of dedifferentiated liposarcoma.

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