Title: Deceptive Appearances: Dedifferentiated Liposarcoma Presenting as a Retroperitoneal Abscess
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Introduction
Liposarcoma encompasses various histological subtypes, each distinct in clinical behavior and prognosis. The most common subtype, well-differentiated liposarcoma, can progress to dedifferentiated liposarcoma (DL), a notably more aggressive variant. DL often presents diagnostic challenges due to vague presentations, and nonspecific appearances on imaging susceptible to misidentification. We highlight these challenges through a case of an elderly male initially thought to have a psoas abscess but ultimately diagnosed with DL.

Clinical Vignette
An 82-year-old male presented with progressive right hip and leg pain after a fall. Initial labs and x-ray/CT imaging led to a presumptive diagnosis of psoas abscess. Despite antibiotics and multiple drainage attempts by interventional radiology, clinical improvements were minimal, and the fluid collection persisted on repeat imaging. Suspicion for malignancy led to a core needle biopsy and peripheral blood smear, however, both were suggestive of an acute, reactive inflammatory process with no evidence of malignancy.

During a 4-week hospitalization, the patient experienced worsening leukocytosis (peak 72.2×10^9/L), progressive non-oliguric renal dysfunction with creatinine of 1.70 (0.72 on admission), worsening HFrEF with EF of 28%, and new-onset atrial fibrillation with rapid ventricular response that proved difficult to rate control. He eventually underwent surgical debridement with large amounts of necrotic tissue removed and biopsy sent for repeat pathology. Given notable improvements including WBC 21.2×10^9/L, creatinine 1.58, rate controlled atrial fibrillation, and interval decrease in size on repeat imaging, repeat debridement and washout was performed. Post-operatively, the patient decompensated with concern for hemorrhagic shock. Unfortunately, only after this second procedure and 9 days after the initial surgery did the biopsy result, confirming the diagnosis of high-grade DL. Further aggressive intervention was precluded by the patient's condition; he was transitioned to comfort care then passed away shortly thereafter.

Discussion/Clinical Relevance
Although liposarcoma is the most common primary retroperitoneal neoplasm, sarcomas overall are rare tumors with significant diagnostic challenges. CT imaging is often non-specific, and even with MRI, diagnosis often necessitates diagnostic pathology with integration of morphologic, molecular, and immunohistochemical characteristics. Moreover, cases of DL have been associated with marked neutrophil-predominant leukemoid reactions and production of Granulocyte Colony Stimulating Factor (G-CSF), predisposing to misdiagnosis of infection. This case highlights these diagnostic challenges and the need for vigilance particularly when response to treatment is varied and calls for continued DL research and awareness to improve diagnostic accuracy and treatment outcomes.