

# Deceptive Appearances: Dedifferentiated Liposarcoma Presenting as a Retroperitoneal Abscess

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## Case Presentation

An 82-year-old male with past medical history of hypertension, coronary artery disease, and heart failure with preserved ejection fraction presented with progressive right hip and leg pain after a mechanical fall sustained a few months prior. He initially visited his PCP, had x-rays of lumbar spine, bilateral hips, and right femur that showed no acute abnormalities. He also underwent outpatient physical therapy without improvement. His pain progressed until he eventually had difficulty ambulating, prompting him to visit the emergency department.

- **Initial Vitals**
- **BP 166/97, Resp 18, Temp 98.6F, SpO2 94% on 2L NC, HR 88**
- **Physical exam** notable for
- **Musculoskeletal:** Tenderness to palpation over right lateral hip
- **Skin:** No overlying redness over joints
- **Labs**
- **WBC 33.5, Neut # K/uL 29.1 (89.6%), CRP 126, ESR 74**
- **Imaging**
- **CT R Hip without Contrast:** "There is a large collection and is related to the iliopsoas muscle on the right side. . . There is no displaced fracture in the right hip."

Figure 1. Radiographic Similarities of Retroperitoneal Abscess and Dedifferentiated Liposarcoma



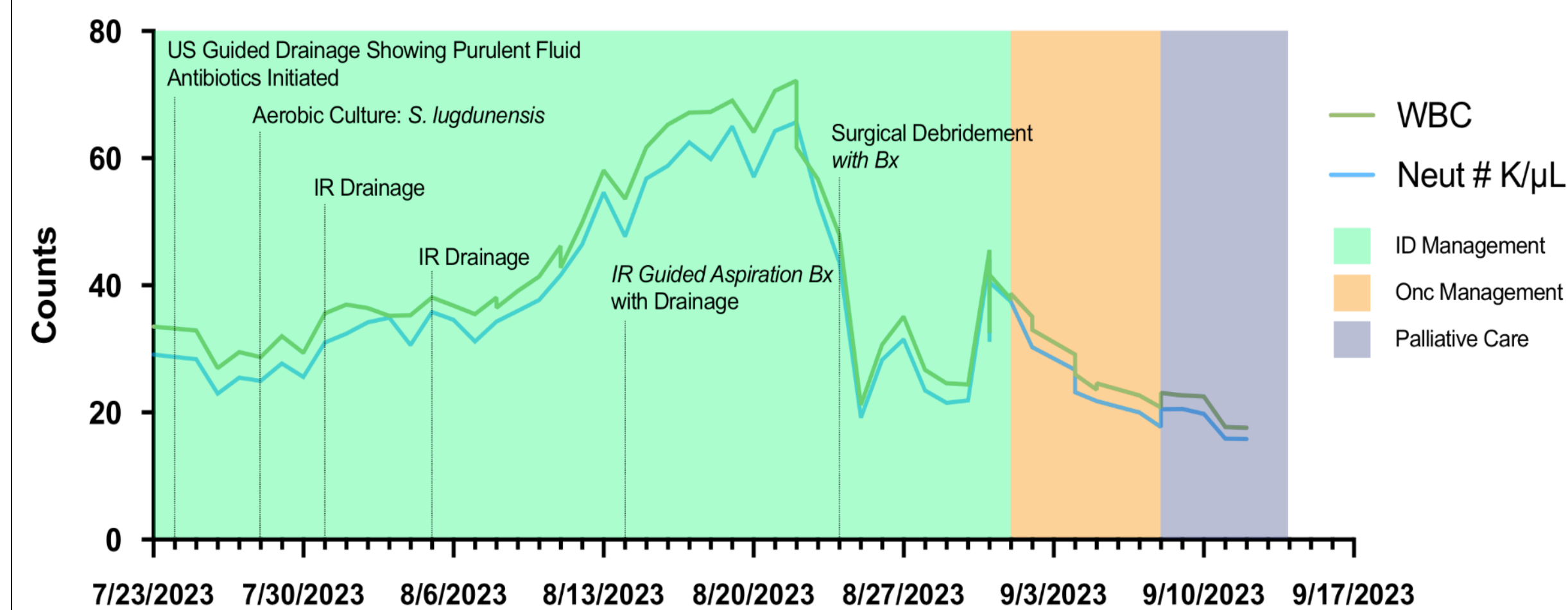
A: Case image, CT abdomen pelvis with IV contrast showing "Degenerative changes in right hip. Large collection related to iliopsoas muscle."

B: Reference Image, CT abdomen pelvis with contrast showing retroperitoneal abscess<sup>1</sup>

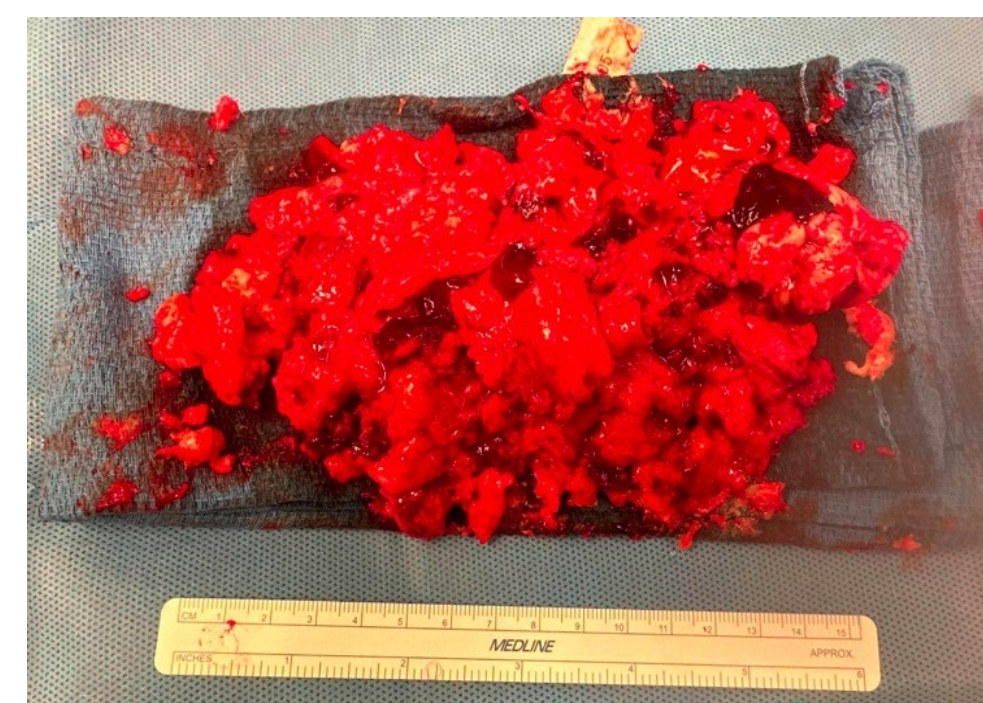
C: Reference Image, CT abdomen pelvis with contrast showing retroperitoneal dedifferentiated liposarcoma

## Hospital Course

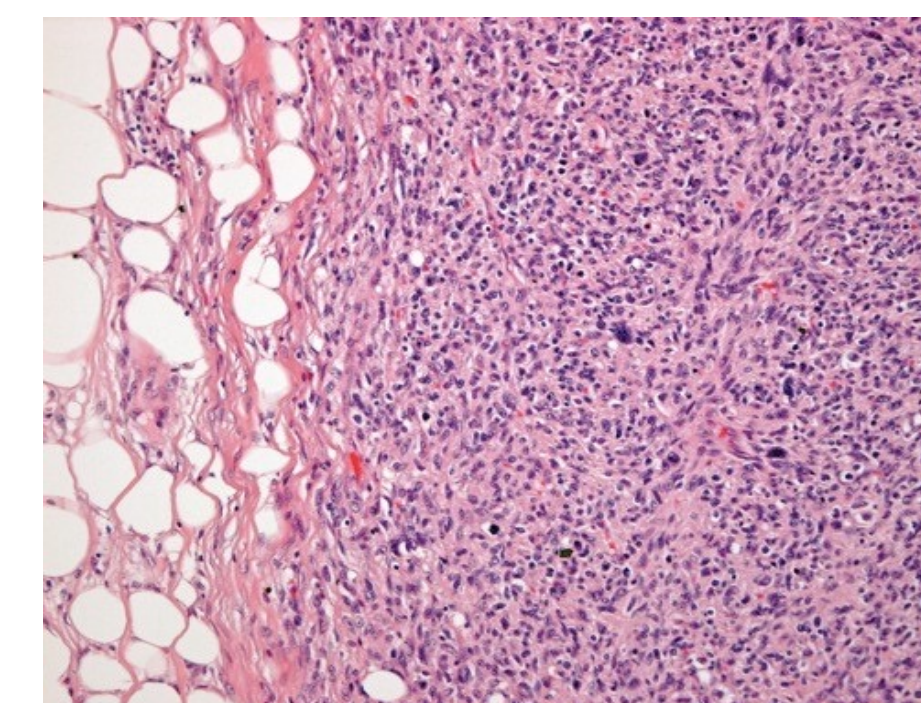
Evolution of Hospital Diagnostic Work Up and Hospital Management



**Figure 2:** Depiction of hospital course highlighting daily CBCs and key interventions. Infectious disease consulted for antibiotics early in course. Hematology consulted early as well. Initial Interventional Radiology (IR) percutaneous drainage attempt yielded 250cc of sanguino-purulent fluid that cultured positive for *S. lugdunensis* (2 colonies). Drain output remained low despite dislodgements, repositioning, and multiple upsizes up to 18 French. As WBC continued to trend upward, malignancy remained on differential, however, pathology reports following IR guided needle aspiration were negative for malignancy. Diagnosis made after surgical debridement with biopsy, prompting oncology consultation. Unfortunately, patient did not improve, and with palliative care's assistance, was transitioned to comfort measures only.



A. Case image, resection of "very large amount of necrotic fat appearing material."



B. Reference image, abrupt transition from well differentiated liposarcoma (WDL) to typical appearance of DDL.<sup>2</sup>

## Conclusions

Although liposarcoma is the most common primary retroperitoneal neoplasm, sarcomas overall are rare with significant diagnostic challenges: CT imaging results are often non-specific; even with MRI, no combination of findings are sufficient for a confident diagnosis without sampling of tissue.<sup>3</sup> Percutaneous biopsy has low sensitivity, especially for De-differentiated Liposarcoma (DDL) (36.5% vs 85.1% for Well differentiated liposarcoma WDL)<sup>4</sup> DDL can produce Granulocyte Colony Stimulating Factor (G-CSF), causing a marked neutrophil-predominant systemic leukemoid reaction easily misattributed to infection<sup>5</sup>

The presented case highlights these, as well as other, challenges that led to a delayed diagnosis including:

Multiple pathology reports of IR percutaneous drainage favored a reactive acute inflammatory process, most consistent with an abscess, without evidence of malignancy. Peripheral blood cytology, in setting of marked leukocytosis raised concern for hematologic malignancy.

Complicated hospital course including worsening renal function, worsening heart failure with newly reduced EF of 28%, and refractory atrial fibrillation with rapid ventricular response contributed to poor surgical candidacy and a delayed resection.

Such challenges demand careful attention given that the gold standard of treatment is surgical resection. We hope this clinical vignette improves our understanding of DDL, its characterization, identification, treatment, and ultimately, prognosis for future patients.

## References

- <sup>1</sup>Chan B, Psoas abscess. Case study, Radiopaedia.org (Accessed on 07 Apr 2024) <https://doi.org/10.53347/rID-170781>
- <sup>2</sup>Ikoma N, Torres KE, Somaiah N, Hunt KK, Cormier JN, Tseng W, Lev D, Pollock R, Wang WL, Feig B. Accuracy of preoperative percutaneous biopsy for the diagnosis of retroperitoneal liposarcoma subtypes. *Ann Surg Oncol.* 2015 Apr;22(4):1068-72. doi:10.1245/s10434-014-4210-8. Epub 2014 Oct 30. PMID: 25354575; PMCID: PMC4520392.
- <sup>3</sup>Sorour S, Bao B, Wilson MP, Low G. Cystic retroperitoneal dedifferentiated liposarcoma: A case report. *J Clin Imaging Sci* 2023;13:22.
- <sup>4</sup>Iwasa, Y., & Nakashima, Y. (2013). Dedifferentiated Liposarcoma With Lipoma-Like Well-Differentiated Liposarcoma: Clinicopathological Study of 30 Cases, With Particular Attention to the Comingling Pattern of Well- and Dedifferentiated Components: A Proposal for Regrouping of the Present Subclassification of Well-Differentiated Liposarcoma and Dedifferentiated Liposarcoma. *International Journal of Surgical Pathology*, 21(1), 15–21. <https://doi.org/10.1177/1066896912449040>
- <sup>5</sup>Sakamoto A, Matono H, Yoshida T, Tanaka K, Matsuda S, Oda Y, et al. Dedifferentiated liposarcoma with leukocytosis A case report of G-CSF-producing soft-tissue tumors, possible association with undifferentiated liposarcoma lineage. *World J Surg Oncol.* 2007;5:131. Epub 20071116. doi: 10.1186/1477-7819-5-131. PubMed PMID: 18021394; PubMed Central PMCID: PMC2203997