Open Access

Annals of Surgical Case Reports & Images

Volume 3 | Case Report

Recurrent giant retroperitoneal liposarcoma following prior surgery for suspected appendicular mass: A case report

***Corresponding Author:** Shubham Yadav*

Email: shubhamcr17@gmail.com

Shubham Yadav[1]*; Sanjeev Kumar[2]; Aakanksha Singh[3]; Dheeraj Raj[4]; Naushad Ali[5]

[1]Assistant Professor, Department of Surgery, Lala Lajpat Rai Medical College, India.

[2]Professor, Department of Surgery, Lala Lajpat Rai Medical College, India.

[3]Senior Resident, Department of Surgery, Lala Lajpat Rai Medical College, India.

[4]Professor, Department of Surgery, Lala Lajpat Rai Medical College, India.

[5]Junior Resident, Department of Surgery, Lala Lajpat Rai Medical College, India.

Received: Jul 22, 2026

Accepted: Sep 03, 2026

Published Online: Sep 10, 2026

Journal: Annals of Surgical Case Reports & Images

Online edition: https://annscri.org

Cite this article: Yadav S, Kumar S, Singh A, Raj D, Ali N. Recurrent giant retroperitoneal liposarcoma following prior surgery for suspected appendicular mass: A case report. Ann Surg Case Rep Images. 2026; 3(2): 1146.

Introduction

Soft tissue sarcomas originate from mesenchymal cell lineages and represent a diverse group of malignancies named according to their tissue of origin. Liposarcomas (LPS), derived from adipocytic elements, comprise several histologic variants distinguished by their differentiation patterns: well-differentiated, dedifferentiated, myxoid, pleomorphic, and hybrid forms [1]. These tumors constitute less than 1% of all adult cancers, with LPS accounting for approximately 20% of soft tissue sarcomas, most commonly arising in limb girdle sites [2,3]. Retroperitoneal LPS (RPLPS) remains an uncommon subtype of LPS cases and posing unique diagnostic challenges due to its occult location [3].

Prognostication hinges primarily on histologic grade and subtype characteristics. Well-differentiated LPS carries an excellent 5-year survival, whereas dedifferentiated forms show markedly worse outcomes, with survival dropping [4].

RPLPS typically evolves silently within the spacious retroperitoneum, evading clinical detection until substantial mass effect develops against contiguous viscera, vessels, or neural structures [5]. When symptoms emerge, patients usually report only nonspecific complaints like diffuse abdominal pain or bloating. This indolent growth permits many lesions-up to 20 cm at initial discovery. Although biopsy provides definitive histologic diagnosis, preoperative imaging with contrast-enhanced CT or MRI serves as the cornerstone for assessing resectability,

vascular encasement, and organ displacement, largely supplanting routine biopsy due to seeding risks [6]. Complete surgical extirpation defines curative intent, though indistinct pseudocapsular margins often necessitate multivisceral en bloc resection [6]. Adjuvant strategies-radiation, chemotherapy, or targeted agents-address microscopic residual disease and mitigate relapse risk. Surveillance protocols advocate serial imaging at 3-6 month intervals initially, extending to annual assessments long-term [7]. This case illustrates RPLPS recurrence following incomplete postoperative monitoring, underscoring contemporary diagnostic, therapeutic, and follow-up paradigms for this formidable entity.

Case presentation

A 50 -year-old male presented to the emergency department with complaints of vague abdominal discomfort, progressive abdominal distension, and constipation of insidious onset. He had a significant surgical history of exploratory laparotomy performed two years earlier through a paramedian approach for a suspected appendicular mass, during which excision of the mass with appendectomy had been carried out. Detailed histopathological records from the index surgery were not available at the time of presentation. At the current admission, the patient was initially managed under physician care with a provisional diagnosis of abdominal ascites. However, further clinical assessment revealed a grossly distended abdomen with a palpable mass occupying essentially all quadrants. On examination, the mass was ill defined, firm in consistency, and showed limited mobility. These findings prompted referral to the surgical team for further evaluation. Contrast-enhanced computed tomography of the abdomen demonstrated a very large retroperitoneal mass (Figure 1) ~ 287.7 mm Cranio-caudal, 196.8 mm Antero-posterior occupying almost the entire abdominal cavity, with marked displacement of the abdominal viscera (Figure 3). The right kidney was displaced and seen closely related to the tumor (Figure 2), while the lesion was abutting major retroperitoneal vessels and the liver capsule, indicating the technical complexity of resection. In view of the imaging findings and the patient's progressive symptoms, operative management was planned.

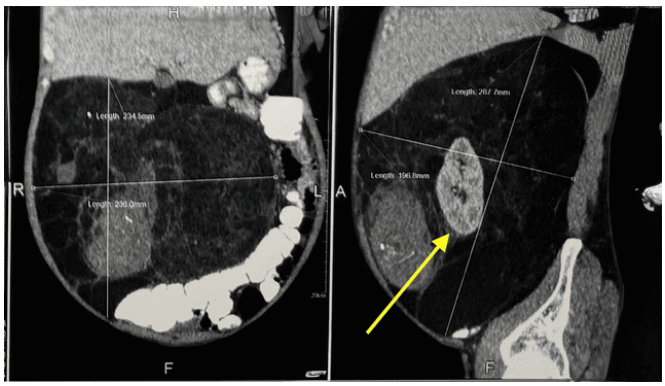

Figure 1: Sagittal CT view of the abdomen and pelvis, showing the large intra-abdominal mass encasing right kidney (yellow arrow) ~ 287.7 mm (Cranio-caudal) × 196.8 mm (Antero-posterior).

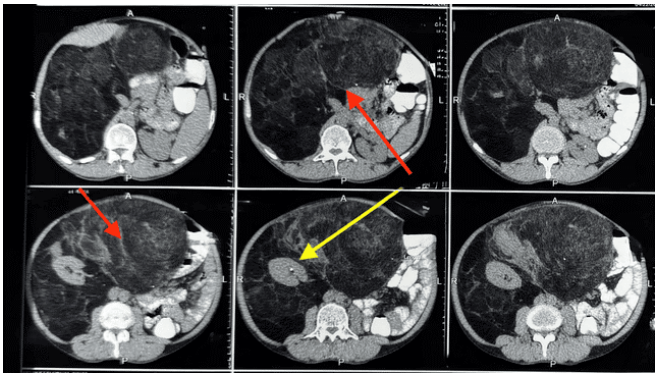

Figure 2: Axial CT view of the abdomen and pelvis, showing the large complex soft tissue mass (red arrow) extending from the right upper quadrant into the lower abdomen encasing right kidney (yellow arrow).

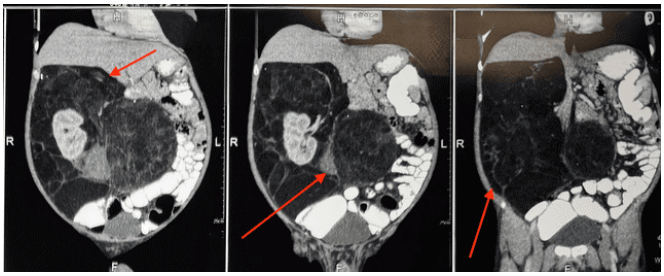

Figure 3: Coronal CT view of the abdomen and pelvis, showing the large complex soft tissue mass (red arrows) extending from the right upper quadrant into the lower abdomen.

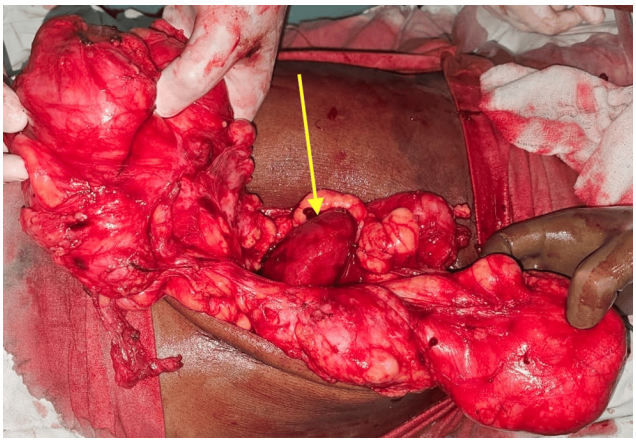

Figure 4: Intraop pic depicting tumor encasing right kidney (yellow arrow).

Operative findings and management

The patient underwent exploratory laparotomy through a midline incision. Intraoperatively, a giant retroperitoneal tumor was identified occupying most of the abdomen and displacing adjacent structures with encasement of right kidney (Figure 4), abutting to liver capsule, retroperitoneal vessels and bowel loops. Careful dissection was undertaken to achieve complete mobilization while safeguarding major vessels, bowel, and the displaced right kidney. En bloc excision of the mass was performed successfully, preserving the right kidney. The resected specimen was remarkable for its size and weighed 11.75 kg, 37 cm × 32 cm size (Figure 5).

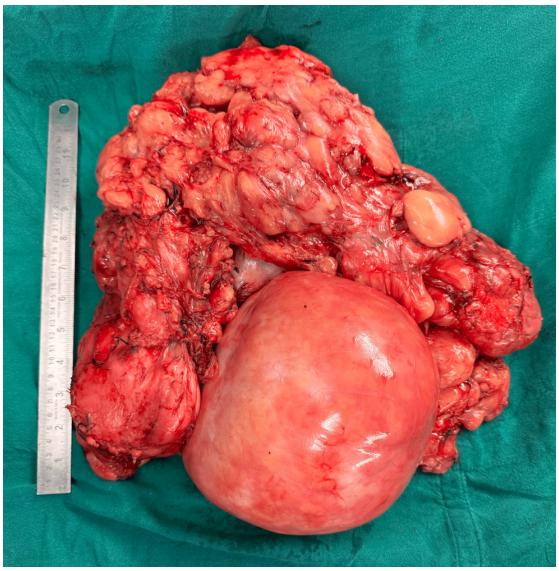

Figure 5: Enbloc resected giant retroperitoneal liposarcoma specimen with a measuring scale by the side for size depiction ~ 37 cm × 32 cm. size of the tumor ~37 cm × 32 cm.

The specimen (Figure 5) was sent for histopathological examination, pathology department confirmed recurrent giant high-grade liposarcoma (slide image not available). The patient was managed in the postoperative period which was uneventful with close monitoring, supportive care, and discharged on POD7 and planned for surveillance.

Discussion

Retroperitoneal Sarcomas (RPS) comprise a biologically heterogeneous group of neoplasms arising from the retroperitoneal compartment [8]. They encompass several histologic entities such as Gastrointestinal Stromal Tumors (GIST), leiomyosarcoma, and Liposarcoma (LPS), with LPS representing the most frequent primary malignant tumor in this space. Benign fatty tumors including lipomas and hibernomas may also originate in the retroperitoneum [7,8]. Distinguishing benign from malignant lesions depends largely on tumor location and microscopic characteristics, as malignant tumors occur more commonly in the retroperitoneum and typically show greater nuclear atypia and cellular pleomorphism [9]. Retroperitoneal Liposarcomas (RLPS) are broadly categorized into well-differentiated and dedifferentiated variants. Dedifferentiated RLPS carries a substantially higher risk of local relapse and distant spread and is noted for aggressive behavior, rapid enlargement, and a high local recurrence rate. Leiomyosarcomas, which arise from smooth muscle, are particularly known for their propensity for hematogenous metastasis to organs such as the lungs and liver, leading to system-specific manifestations like dyspnea, cough, or right upper quadrant pain when these organs are involved [10]. Clinical manifestations of RPS are highly variable and depend on tumor volume, exact location, and compression or invasion of adjacent structures. Early in the disease course, patients may have vague or no symptoms, and many tumors are not detected until they are quite large [11]. Common presenting complaints include abdominal or back pain secondary to mass effect on nearby organs, nerves, or soft tissues, and an enlarging abdominal or flank mass may be palpable on examination. Systemic features such as unintentional weight loss and fatigue tend to accompany bulky or biologically aggressive tumors and those with metastatic disease [11,12]. Gastrointestinal disturbances, including nausea and vomiting, may develop when bowel, kidneys, or other retroperitoneal structures are compressed or infiltrated. Ureteric compression can cause obstructive uropathy with hydronephrosis and impaired renal function, and hematuria suggests direct involvement of the ureter or bladder [13]. Because symptoms are often nonspecific, RPS is frequently discovered incidentally on imaging performed for other reasons. Cross-sectional imaging with contrast-enhanced CT and MRI is crucial to determine tumor size, extent, and relationship to vital structures. The lungs and liver are the predominant sites of distant metastasis, so surveillance of these organs is important for staging and prognostication [8]. Histologic confirmation with image-guided core needle biopsy or fine-needle aspiration is the diagnostic standard and allows classification of sarcoma subtype, although track seeding remains a theoretical risk [3]. Given the broad and nonspecific presentation, a careful differential diagnosis is essential during evaluation. Malignant alternatives include germ cell tumors, lymphomas, and metastases from distant primaries such as colorectal, pancreatic, or pulmonary carcinomas. Benign entities-cysts, fibromas, lipomas, and retroperitoneal abscesses-can mimic sarcomas radiologically and should also be considered. Accurate distinction between these conditions relies on integrating clinical history, detailed imaging assessment, and histopathologic findings from biopsy [14]. Complete surgical excision remains the cornerstone of therapy for RLPS. The operative objective is to obtain negative margins while maximizing tumor clearance and preserving organ function when feasible, a task made difficult by the proximity of these tumors to the kidneys, pancreas, major vessels, and other critical structures [15]. Preoperative (neoadjuvant) radiotherapy may be employed in selected cases to reduce tumor bulk and potentially facilitate resection, although many sarcoma subtypes exhibit relative radioresistance and the overall benefit of radiation in RPS remains debated. Systemic chemotherapy has variable effectiveness across histologic subtypes: leiomyosarcoma is among the more chemosensitive variants, whereas other RPS histologies show inconsistent responses. Targeted agents, particularly tyrosine kinase inhibitors such as imatinib, have an established role in GISTs that involve or metastasize to the retroperitoneum and can be used in unresectable or metastatic disease. Thus, the specific histologic subtype largely dictates the optimal combination of surgery, radiation, cytotoxic chemotherapy, and targeted therapy [16]. RLPS are characterized by a substantial tendency to recur even after apparently adequate treatment. In previously treated liposarcoma, local relapse rates in the retroperitoneum commonly fall in the range of 40-60%, underscoring the need for vigilant surveillance during remission [17]. The infiltrative growth pattern of these tumors and the anatomic constraints of the retroperitoneal space contribute to the difficulty of achieving durable complete resection. Prognostic factors associated with recurrence include larger tumor size, higher histologic grade, and vascular invasion, and lesions exceeding 5 cm with high-grade features or worrisome histopathology are more likely to develop metastatic disease [18,19]. Dedifferentiated RLPS, in particular, have a pronounced predisposition for both local recurrence and distant spread. Positive or close surgical margins markedly increase the probability of relapse, and most recurrences manifest within the first 2-3 years following resection. Consequently, patients require close, long-term imaging follow-up to detect early local or metastatic recurrence and to guide timely further intervention [6,20]. In the present case, the patient's recurrent tumor grew to 11.75 kg, which

places it among the rare giant presentations described in published literature, although even larger individual cases have been documented. This case also illustrates an important diagnostic pitfall. A careful abdominal examination followed by cross-sectional imaging is crucial in distinguishing free fluid from a large soft tissue mass. Contrast-enhanced CT remains the workhorse investigation because it demonstrates the tumor's extent, tissue composition, organ displacement, vascular relationships, and respectability. Another notable feature of this case is the possibility that the initial surgery addressed a lesion presumed to be appendicular pathology rather than a recognized retroperitoneal sarcoma. This underlines the need to preserve prior records and histopathology, as well as the importance of maintaining suspicion for unusual pathology when operative findings or postoperative course do not fit the expected pattern. Recurrent disease after previous abdominal surgery should prompt thorough review of prior diagnoses wherever possible.

Conclusions

Retroperitoneal sarcomas present a significant therapeutic challenge due to the intricate surgical procedures required for their excision and their limited response to chemotherapy and radiation. It is crucial to thoroughly evaluate the radiological features of these tumors to determine their potential for resection. Despite the inherent difficulties associated with their management, a comprehensive surgical approach remains the key to successful treatment of retroperitoneal sarcomas. This case of recurrent giant high-grade retroperitoneal liposarcoma in a 50-year-old man emphasizes the silent growth potential, diagnostic ambiguity, and strong recurrence tendency of retroperitoneal sarcomas. Initial misdirection toward ascites delayed definitive surgical evaluation, but timely imaging and reoperation enabled successful en bloc excision of a 11.75 kg tumor. The case reinforces the need for meticulous histopathological documentation after index surgery, regular long-term surveillance after resection, and multidisciplinary postoperative planning to detect recurrence before tumors reach massive proportions.

Declarations

Author contributions: All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Dr Shubham Yadav, Dr Aakanksha Singh and Dr Sanjeev Kumar, Dr Dheeraj Raj, Dr Naushad Ali. The first draft of the manuscript was written by Dr Aakanksha Singh and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Funding: The authors did not receive support from any organization for the submitted work. No funding was received to assist with the preparation of this manuscript. No funding was received for conducting this study. No funds, grants, or other support was received.

Competing interests: The authors have no relevant financial or non-financial interests to disclose. The authors have no competing interests to declare that are relevant to the content of this article. All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript. The authors have no financial or proprietary interests in any material discussed in this article.

Consent to participate: Informed consent was obtained from all individual participants included in the study. The authors affirm that human research participants provided informed consent for publication of the images in Figure(s). The participant has consented to the submission of the case report to the journal. Patients signed informed consent regarding publishing their data and photographs.

References

1. Suryabanshi A, Timilsina B, Khadka N, Rijal A, Bhandari RS. Huge retroperitoneal liposarcoma encasing right kidney: a case report from Nepal. Int J Surg Case Rep. 2022; 99: 107647.
2. Xiao J, Liu J, Chen M, Liu W, He X. Diagnosis and prognosis of retroperitoneal liposarcoma: a single Asian center cohort of 57 cases. J Oncol. 2021: 7594027.
3. Rachman Y, Hardja Y. Giant retroperitoneal liposarcoma: a case report. Int J Surg Case Rep. 2022; 97: 107465.
4. Yang L, Chen S, Luo P, Yan W, Wang C. Liposarcoma: advances in cellular and molecular genetics alterations and corresponding clinical treatment. J Cancer. 2020; 11: 100-107.
5. Sun C, Jiang L, Wu D. Management of a huge retroperitoneal liposarcoma: a case report and literature review. Asian J Surg. 2023; 46: 5723-5724.
6. Liao T, Du W, Li X, He S, Guan G, Zhu H, Wu J. Recurrent metastatic retroperitoneal dedifferentiated liposarcoma: a case report and literature review. BMC Urol. 2023; 23: 63.
7. National Comprehensive Cancer Network. Soft tissue sarcoma. NCCN Clinical Practice Guidelines in Oncology. 2024. Accessed January 18, 2025.
8. Watson S, Gruel N, Le Loarer F. New developments in the pathology and molecular biology of retroperitoneal sarcomas. Eur J Surg Oncol. 2023; 49: 1053-1060.
9. Messiou C, Moskovic E, Vanel D, et al. Primary retroperitoneal soft tissue sarcoma: imaging appearances, pitfalls and diagnostic algorithm. Eur J Surg Oncol. 2017; 43: 1191-1198.
10. Marko J, Wolfman DJ. Retroperitoneal leiomyosarcoma from the Radiologic Pathology Archives. Radiographics. 2018; 38: 1403-1420.
11. Francis IR, Cohan RH, Varma DG, Sondak VK. Retroperitoneal sarcomas. Cancer Imaging. 2005; 5: 89-94.
12. Peixoto da Silva S, Santos JM, Costa E Silva MP, Gil da Costa RM, Medeiros R. Cancer cachexia and its pathophysiology: links with sarcopenia, anorexia and asthenia. J Cachexia Sarcopenia Muscle. 2020; 11: 619-635.
13. Marcu D, Iorga L, Diaconu C, et al. Impact of retroperitoneal tumors on the digestive tract (review). Exp Ther Med. 2022; 24: 711.
14. Messiou C, Morosi C. Imaging in retroperitoneal soft tissue sarcoma. J Surg Oncol. 2018; 117: 25-32.
15. Dominguez DA, Sampath S, Agulnik M, et al. Surgical management of retroperitoneal sarcoma. Curr Oncol. 2023; 30: 4618-4631.
16. Gamboa AC, Gronchi A, Cardona K. Soft-tissue sarcoma in adults: an update on the current state of histiotype-specific management in an era of personalized medicine. CA Cancer J Clin. 2020; 70: 200-229.

17. Jolissaint JS, Raut CP, Fairweather M. Management of recurrent retroperitoneal sarcoma. Curr Oncol. 2023; 30: 2761-2769.

18. Deng H, Gao J, Xu X, Liu G, Song L, Pan Y, Wei B. Predictors and outcomes of recurrent retroperitoneal liposarcoma: new insights into its recurrence patterns. BMC Cancer. 2023; 23: 1076.

19. Zagars GK, Ballo MT, Pisters PW, Pollock RE, Patel SR, Benjamin RS, Evans HL. Prognostic factors for patients with localized soft-tissue sarcoma treated with conservation surgery and radiation therapy: an analysis of 1225 patients. Cancer. 2003; 97: 2530-2543.

20. Whitaker J, Nessim C, Almond M, Ford SJ. Surveillance post surgery for retroperitoneal soft tissue sarcoma. Curr Oncol. 2023; 30: 2781-2791.