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A Giant Retroperitoneal Liposarcoma: A case report

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Abstract: Liposarcoma, a type of soft tissue sarcoma arising from adipose tissue, is the most common primary malignant tumor of the retroperitoneum. Owing to the ample space in the retroperitoneal cavity, the tumor causes almost no symptoms in its early stages. Symptoms. In most cases, retroperitoneal liposarcoma presents primarily as a painless mass detectable on physical examination. In this case, a 35-year-old female was admitted with abdominal distension and early satiety. Physical examination revealed a giant abdominal mass. CT demonstrates a large retroperitoneal fat-containing mass that displaces adjacent vessels and viscera. It encases the left kidney, causing flattening, and compresses the surrounding bowel, pancreas, and spleen. The tumor was successfully resected via a T-shaped incision. Surgical resection is the mainstay of treatment for liposarcoma. Meticulous protection of intra-abdominal organs is required during surgery, which can be challenging given the size of the mass and intra-abdominal adhesions, particularly within the confined surgical field of the abdominal cavity.

Keywords: Liposarcoma; Retroperitoneal liposarcoma; Retroperitoneal neoplasm

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1. Introduction

The pathology of primary retroperitoneal tumors is varied, but the prevalence of malignant lesions is about 68.4%, benign tumors are about 25.2%, and borderline tumors are about 6.4%. Liposarcoma is the most frequently occurring subtype of malignant retroperitoneal sarcomas, constituting 45–55% of all cases. Most symptoms are non-specific compressive manifestations, including abdominal distension and pain, nausea and vomiting, early satiety, and constipation [1]. Leiomyosarcoma is the second most frequently occurring subtype (2026). emerge only when the tumor grows to a large size and compresses or displaces adjacent organs. The two subtypes constitute more than 70 percent of retroperitoneal sarcomas [2,3].

Liposarcoma is the most common type of soft tissue sarcoma, and it accounts for up to 20 percent of all malignant mesenchymal tumors. These tumors are divided into three subgroups: (1) well-differentiated liposarcoma (WDL), with adipocytic, sclerosing, inflammatory, spindle cell, and dedifferentiated forms; (2)

myxoid and round cell (poorly differentiated myxoid) liposarcoma (MLPS); and (3) pleomorphic liposarcoma (PLPS). Dedifferentiated liposarcoma (DDL) and well-differentiated liposarcoma (WDL) are the two biggest subgroups that mainly affect individuals of middle age or older. WDL may be transformed into DDL, with a highly aggressive biological behavior and poor prognosis [4].

This report describes a case of giant poorly differentiated retroperitoneal liposarcoma (29 × 25 × 5.5 cm) that surrounded the whole left kidney. Consent to publish was obtained from both the patient and his family.

2. Case report

A 35-year-old female presented to the Outpatient Department of Hunan Provincial People's Hospital on August 24, 2026, with a 1-month history of progressive abdominal enlargement. The symptom was not accompanied by weight loss. As abdominal distension worsened and impaired her food intake, the patient sought medical care. On admission, physical examination showed stable vital signs. The patient was conscious and fully oriented. Abdominal examination revealed marked distension, and a firm, poorly mobile mass was palpable. No abnormalities were detected in other systemic examinations. Laboratory findings were unremarkable except for hypoproteinemia.

Contrast-enhanced MRI reveals a large, irregular, heterogeneous mass in the pelvic retroperitoneum. It is hypointense on fat-saturated T1WI with fat visible on non-fat-saturated sequences, and hypointense on T2WI, containing round-like T2 hyperintense foci. Post-contrast imaging shows septal and flocculent enhancement. The lesion encases the left kidney, which is atrophic, and displaces and compresses the surrounding bowel, pancreas, and spleen. Contrast-enhanced CT demonstrates a large retroperitoneal fat-density mass, consistent with liposarcoma. The left kidney is encased, and the pancreas and bowel loops are displaced and compressed. The mass displaces the renal vessels posteriorly and compresses the inferior vena cava, abdominal aorta, and some of their branches. Renography demonstrates reduced left renal perfusion with severely impaired filtration.

After thorough workup and adequate preoperative preparation, including nutritional support, preparation for massive intraoperative transfusion, and preoperative nasogastric tube placement, the patient underwent exploratory laparotomy and tumor resection. The procedure was performed under general anesthesia via a T-shaped incision extending from the subxiphoid area superiorly to the pubic symphysis inferiorly, and laterally from the periumbilical region to the left posterior axillary line. The entire tumor was identified and mobilized. The right kidney was found completely enveloped by the tumor. The left renal artery, left renal vein, and left ureter were dissected and ligated individually. The abdominal aorta and inferior vena cava were free of tumor invasion, and hemostasis was secured. After resection, the abdominal cavity was irrigated with warm saline and two drainage tubes were placed. The abdominal wall was closed with continuous barbed suture.

The gross specimen measured 29 × 25 × 5.5 cm and weighed approximately 11 kg. Pathological examination confirmed dedifferentiated liposarcoma involving perirenal adipose tissue. Tumor cells were present in the fibrous tissue at the ureteral resection margin, while the kidney and adrenal gland were not involved. Postoperative contrast-enhanced CT confirmed complete tumor resection (**Figure 1**). The patient had an uneventful recovery and was discharged on postoperative day 15.

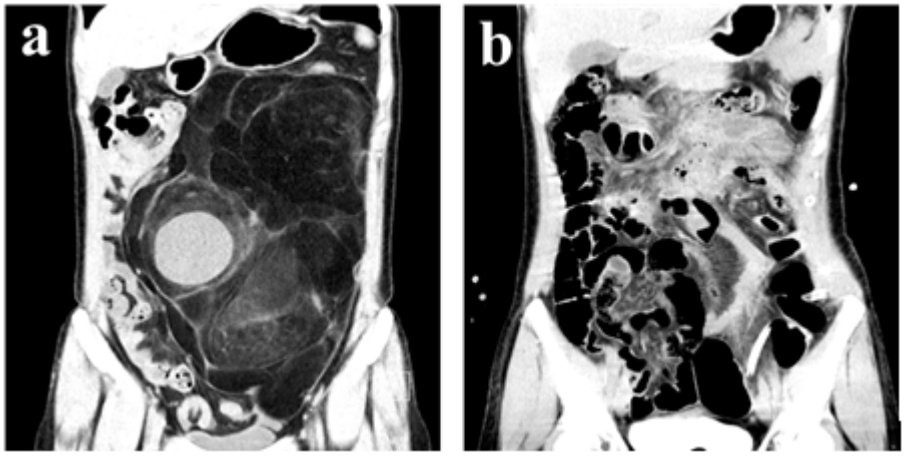

Figure 1. Postoperative contrast-enhanced CT.

Figure 1a shows a giant preoperative retroperitoneal tumor compressing the intestine, liver, and other structures to the periphery of the abdominal cavity. Figure 1b demonstrates successful surgical removal of the tumor.

3. Discussion

Retroperitoneal liposarcoma is the most common primary soft tissue sarcoma of the retroperitoneal space in adults, accounting for over 40% of all retroperitoneal malignancies. It originates in the mesenchyme of the retroperitoneum and is mostly observed in middle-aged and older patients with no significant gender dominance. The key clinical manifestations are slow onset, slow course, and a high frequency of recurrences. In accordance with the WHO soft tissue tumor classification, the disease is divided into four major subtypes, namely, well-differentiated liposarcoma (WDL), dedifferentiated liposarcoma (DDL), myxoid liposarcoma, and pleomorphic liposarcoma. The two largest subgroups are WDL and DDL. Of all WDL cases, up to 10 percent may develop into DDL, which has greater malignancy and a more aggressive nature, and thus a worse prognosis [5].

Multiple instances of giant liposarcoma resection appear in the literature. One of them was described by Ghei et al. as having a size of 60 × 40 × 16 cm and a weight of 18 kg [1]. A case of size 56 × 51 × 25 cm and weight 26 kg was described by Adeena Azam et al. [6]. Dedifferentiated liposarcoma, as mentioned earlier, usually occurs in deep anatomical locations like the retroperitoneum or mediastinum. Though surgery is considered the backbone of treatment, the resection of tumors may prove difficult due to their proximity to important organs. The successful removal of retroperitoneal liposarcoma may increase the 5-year survival rate by 16.7 percent to 58 percent. Chemotherapy is also an option in the case of unresectable or advanced disease, with doxorubicin and ifosfamide being the first-line agents. The prognosis of a particular subtype varies based on the grade of the tumor and the existence of metastasis. Postoperatively, CT scans are usually suggested three times per year in the first two years, every six months for the next five years, and yearly thereafter. In general, liposarcoma can be fatal. Proper preoperative preparation is essential in surgical treatment, and each subtype must be treated as a separate condition with specific therapeutic interventions and prognostic expectations [7].

4. Conclusion

Giant liposarcoma is an uncommon clinical manifestation, and surgery is the most common form of treatment. Precise preoperative assessment and sufficient preparation are paramount when managing this condition to the best of their abilities. Control of intraoperative blood pressure and preservation of vessels are the key to surgical success. En bloc removal of the nearby affected organs, including the kidney or bowel sections, may be required in order to eliminate the lesion. However, organ function should be given proper consideration to ensure that patients have better quality of life and survival in the long term.

Disclosure statement

The authors declare no conflict of interest.

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