International Surgery Journal
Habib DO et al. Int Surg J. 2026 May;13(5):828-831
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20261181

Case Report

Giant retroperitoneal lipoma: a case report and literature review

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Received: 13 March 2026
Accepted: 17 April 2026

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ABSTRACT

Retroperitoneal lipomas are exceptionally rare benign tumors, with fewer than 20 cases documented over the past four decades. We present a case of a giant retroperitoneal lipoma managed surgically to highlight the diagnostic and therapeutic considerations. A 58-year-old woman presented with a slowly enlarging abdominal mass and pain. Imaging revealed a 16-cm encapsulated retroperitoneal mass originating in the left iliopsoas muscle consistent with a lipoma. The concurrent findings included an ovarian cyst and an umbilical hernia. The patient underwent resection involving a transperitoneal laparotomy with capsular preservation. Histopathology confirmed a mature lipocytic lipoma without malignancy. This case reinforces the understanding that retroperitoneal lipomas, though rare, require meticulous preoperative evaluation with magnetic resonance imaging to distinguish them from liposarcomas. Complete surgical excision remains the gold standard in terms of yielding excellent outcomes. The documentation of such cases is crucial to expand the understanding of this rare pathology.

Keywords: Retroperitoneal lipoma, Adipose tumor, Surgical management, MRI, Case report, Giant lipoma

INTRODUCTION

A lipoma is a common form of benign tumor consisting of adipose tissue that can be found in a wide variety of locations.[1,2] These encapsulated tumors are characterized by the proliferation of mature adipocytes without cyto-nuclear atypia.[3,4] Rare cases located intra-abdominally have been described in the literature.[1] This intra-abdominal, mesenteric, or retroperitoneal (atypical) location can cause diffuse abdominal pain, occlusions, and intestinal perforations.[2] We report here the case of a patient followed for a pelvic mass dependent on the psoas muscle with imaging suggesting a retroperitoneal lipoma associated with a left ovarian cyst and an uncomplicated hernia of the linea alba. The patient benefited from surgical resection by the transperitoneal route with conservation of the capsule, a left adnexectomy, and a repair of the hernia during the same operative procedure. The purpose of this study is to report a new case in the literature, given the rarity of this pathology, and review the literature on the latest recommendations for the management of retroperitoneal lipoma.

CASE REPORT

Patient history

The patient was a 58-year-old married mother of two children with no significant pathological history. She was referred to our department for the management of a hypogastric mass that was progressively increasing in size with abdominal pain evolving over one year.

Clinical findings

On clinical examination, we found a firm subumbilical mass fixed to the deep abdominal wall. The biological laboratory examination was unremarkable, with biological tumor markers such as CA125 and CA153 returning negative (Table 1).

Table 1: Blood test panel with tumor markers.

Analysis	Results	Reference values	Units
Hemoglobin	13.5	11.5-15.5	g/dl
Blood platelets	178,000	150,000-400,000	/U
PT	100	79-100	%
CA 125	9.30	< 35	U/ml
CA153	10.90	< 31.5	U/ml

CA: carbohydrate antigen, PT: prothrombin time, U/ml: units per milliliter

Thoracic-abdominal-pelvic computed tomography (CT) indicated a lipoma of the left iliac psoas muscle that was well-limited and without trabeculae. It measured 125 mm and displaced the digestive structures without invasion. There was also a round, well-limited, fluid-containing mass on the left side of the uterus measuring 25×27 mm that was consistent with an ovarian cyst as well as a subumbilical white line hernia with epiploic content and a neck measuring 28 mm (Figure 1).

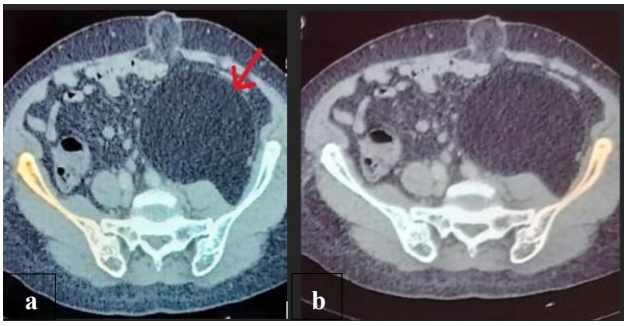

Figure 1 (a and b): Abdominal computed tomography scan showing a homogeneous hypodense mass pushing against but not invading the abdominal viscera (red arrow).

Additional pelvic magnetic resonance imaging (MRI) revealed a mass that was bulky, rounded, well-limited, and thin-walled originating in the left iliopsoas muscle with exophytic development. The mass presented as a T1 and T2 hypersignal with signal suppression on the fat-saturation sequences that was unenhanced after the injection of contrast medium (PDC). It measured 160 mm. Topographically, superiorly, and medially, it pushed back the peritoneum with the digestive loops superiorly and medially. Externally, it displaced the left colon. Anteriorly, it respected the rectus abdominis muscle (Figure 2).

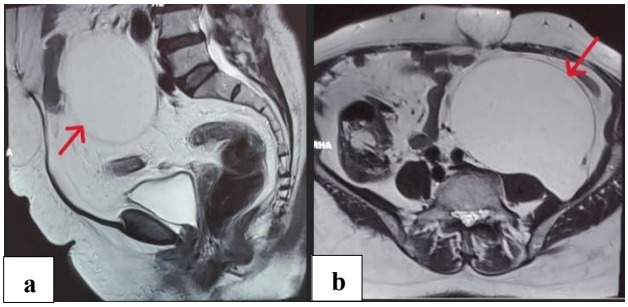

Figure 2: Abdominal-pelvic MRI. MRI with T2 signal: coronal section; (a) sagittal section, and (b) showing a T2 hypersignal mass (illuminated) pushing back the viscera with a separation line.

MRI: magnetic resonance imaging

Therapeutic intervention

Based on the patient's preserved performance status, unifocal disease without locoregional or metastatic spread, and unremarkable lab workup, surgical excision was deemed the optimal treatment. A midline laparotomy was performed, and intraoperative exploration revealed an encapsulated retroperitoneal mass in the left iliac fossa displacing the sigmoid colon. The mass maintained a clear plane of separation from the sigmoid and was adherent to, but did not invade, the lateral abdominal wall (Figure 3).

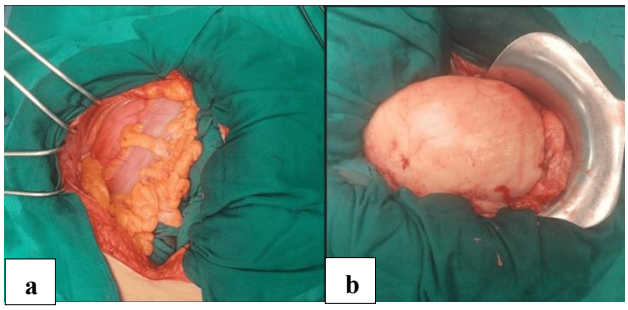

Figure 3: Intraoperative view images (a) retroperitoneal lipomatous mass pushing back the sigmoid colon; and (b) encapsulated lipoma after peritoneal dissection.

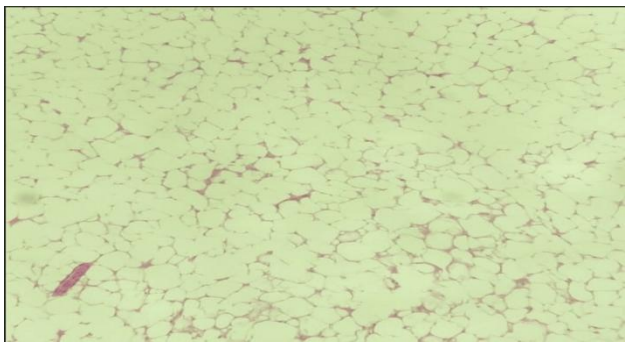

Figure 4: Histological image. Low magnification microspike appearance of a mature lipocytic lipoma without cytonuclear atypia (HEx100).

The procedure consisted of transperitoneal resection of the retroperitoneal mass with a left adnexectomy and resection of the subumbilical hernia sac by median laparotomy straddling the umbilicus. The post-operative course was straightforward. Histological examination of the surgical specimen showed a mature lipocytic lipoma with no sign of malignancy (Figure 4). Follow-up imaging eleven months after the operation showed no sign of recurrence.

DISCUSSION

Lipomas are benign encapsulated tumors of adipose tissue that most commonly present during the fifth and sixth decades of life with equal gender distribution.[5,6] The precise pathophysiology remains incompletely understood, though current evidence suggests that lipomas originate in mesenchymal cells in primordial adipose tissue.[5,7] These lesions may develop in any anatomical location that contains adipose tissue.[8,9] While subcutaneous lipomas demonstrate association with several metabolic factors, including hypercholesterolemia, obesity, and diabetes, as well as traumatic triggers, such correlations remain undocumented for retroperitoneal variants.[8-10] The medical literature documents rare instances of familial retroperitoneal lipoma occurrence.[11]

Retroperitoneal lipomas typically originate in renal, adrenal, or soft tissue structures.[5] Deep-seated lipomas, particularly those occupying the retroperitoneal space, are exceptionally rare, with fewer than 20 reported cases over the past four decades.[9] The term “giant lipoma” describes lesions exceeding 10 cm in diameter, and pelvic lipomas may demonstrate extension into inguinal or perineal regions through various anatomical foramina.[6,9,10]

The clinical presentation of retroperitoneal lipomas usually involves asymptomatic, slow, and progressive growth.[8] The manifestations of symptomatic retroperitoneal lipomas remain nonspecific and typically reflect a mass effect on adjacent structures, potentially including pelvic discomfort, urinary symptoms (dysuria, polyuria, or, rarely, hematuria), bowel dysfunction, lymphatic obstruction, and/or neurological symptoms secondary to nerve compression.[8,12,13]

Radiological evaluation plays a crucial diagnostic role. Ultrasonography typically demonstrates a well-circumscribed, hyperechoic mass with internal fibrous septations and absent vascularity on Doppler interrogation.[13,14] Both CT and MRI reliably identify fatty tumors, but the latter modality is preferred for preoperative assessment because of superior soft tissue resolution and multiplanar imaging capabilities.[12,13] Characteristic MRI findings include signal isointensity to adipose tissue across all sequences with occasional fine internal septations.[12,14] In the present case, MRI revealed a well-demarcated, exophytic mass measuring 160 mm that demonstrated T1 and T2 hyperintensity with signal suppression on fat-saturated sequences and no post-contrast enhancement.

Critical differential diagnostic consideration must be given to well-differentiated liposarcomas, and definitive diagnosis requires histopathological examination.[8,14] Radiological features suggesting malignancy include rapid interval growth, a septal thickness exceeding 2 mm, nodular components, and evidence of local invasion.[14,16,17] The current consensus recommends regarding any purely fatty retroperitoneal lesion as a potential liposarcoma until and unless histopathology proves otherwise.[16]

Percutaneous biopsies remain controversial because of the theoretical risk of tumor seeding along the needle tract.[12,14,18] When performed for a suspected liposarcoma, strict adherence to the retroperitoneal approach (avoiding transperitoneal traversal) and subsequent complete excision of the biopsy tract during definitive surgical management are mandatory.[18] In our clinical case, no preoperative biopsy was performed.

The definitive management of liposarcomas consists of complete surgical excision with particular attention to capsular preservation.[14,19] The transperitoneal approach is the preferred surgical route for large tumors and, in our case, involved a midline laparotomy that preserved the intact capsule. Macroscopic examination typically reveals a multilobulated, yellowish-pink mass containing fibrous septations, though careful histological evaluation remains essential to exclude cytological atypia suggestive of liposarcoma.[20,21]

The long-term outcomes generally prove favorable, with recurrence rates below 5% and recurrence typically attributable to incomplete initial resection.[22] However, repeated surgical interventions may increase the risk of malignant transformation.[6,23] For postoperative surveillance, ultrasonography offers a practical and cost-effective monitoring solution.[13]

CONCLUSION

Retroperitoneal lipomas are rare benign tumors that require a multidisciplinary approach for optimal management. Diagnosis primarily relies on MRI to confirm the fatty nature of the lesion while precisely assessing anatomical relationships and identifying potential signs of malignancy. Importantly, any purely fatty retroperitoneal mass should be considered potentially malignant until histopathological confirmation is obtained.

The gold-standard treatment is complete surgical excision with capsular preservation, preferably involving a transperitoneal approach for large tumors. When a preoperative biopsy is necessary, a strict retroperitoneal route must be used to minimize the risk of tumor seeding. Long-term outcomes are generally favorable, with recurrence rates below 5% and recurrence mostly associated with incomplete initial resection. Despite the low risk of malignant transformation, prolonged postoperative surveillance with cost-effective ultrasonography is justified.

The exceptional rarity of these lesions, evidenced by the limited published cases, underscores the importance of meticulous documentation and standardized diagnostic criteria. Further studies are needed to better characterize prognostic factors and refine the therapeutic strategies for these uncommon tumors.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Habib DO, Mkira O, Kamil MA, Kaid KM, Moctar NF, Belkouchi O, et al. Giant retroperitoneal lipoma: a case report and literature review. Int Surg J 2026;13:828-31.