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CASE REPORT

Giant Uterine Leiomyosarcoma with Ascitic Cytology Positive: A Case Report on Diagnostic and Surgical Challenges in a Low-Resource Setting

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Introduction: Uterine leiomyosarcoma (uLMS) is a rare, aggressive smooth-muscle malignancy that constitutes only a small fraction of uterine cancers but contributes significantly to morbidity and mortality. Preoperative distinction from benign fibroids remains challenging, particularly in low-resource settings. This report aims to describe a case of giant uterine leiomyosarcoma with peritoneal dissemination and highlight the diagnostic and surgical challenges encountered in a resource-limited environment.

Case Presentation: A 45-year-old multiparous woman from rural Somalia presented with a five-year history of progressive abdominal distension and irregular vaginal bleeding. Imaging revealed a massive heterogeneous uterine mass with central necrosis and ascitic fluid. Following preoperative stabilization, total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed. Intraoperatively, a large vascular uterine tumor was observed occupying the abdominal cavity and adherent to the omentum and peritoneum. Histopathology confirmed high-grade uterine leiomyosarcoma with extensive myometrial invasion and peritoneal dissemination, evidenced by malignant cells in the ascitic fluid. The postoperative recovery was uneventful, and the patient was referred for adjuvant oncology evaluation. Long-term follow-up was limited due to financial and logistic constraints.

Conclusion: This case illustrates the clinical, diagnostic, and management difficulties of uterine leiomyosarcoma in resource-limited settings. Strengthening gynecologic oncology services, affordable access to imaging and pathology, and early recognition of suspicious uterine masses are essential for improving outcomes and advancing women's health equity in developing regions.

Keywords: uterine leiomyosarcoma, giant uterine tumor, peritoneal dissemination, hysterectomy, women's health, low-resource setting

Introduction

Uterine leiomyosarcoma (uLMS) is a rare and highly aggressive malignant tumor arising from the smooth muscle of the uterus. Although it accounts for only 1–2% of all uterine malignancies, uLMS contributes disproportionately to uterine cancer–related mortality due to its rapid growth, early hematogenous dissemination, and poor response to standard therapies.[1,2] The disease most commonly affects women in their fifth decade of life and frequently presents with abnormal uterine bleeding, pelvic or lower abdominal pain, and abdominal distension—clinical features that often overlap with benign leiomyomas and contribute to delayed diagnosis.[3,4]

Epidemiologically, uLMS most often manifests with abnormal vaginal bleeding (approximately 56%), a palpable pelvic mass (54%), and pelvic pain.[3] Additional symptoms include menstrual irregularities, anemia, dyspareunia, and pressure-related complaints involving adjacent pelvic organs, particularly when tumors reach a large size.[3] Despite the fact that nearly 60% of patients are diagnosed with early-stage disease, prognosis remains poor. Even when confined to the uterus, uLMS carries a 50–70% risk of recurrence, reflecting its strong tendency for early hematogenous spread.[1] The lungs are the most common site of metastasis (74%), followed by the peritoneum (41%), bone (33%), and liver, with

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a median time to recurrence of 12–24 months and mortality from metastatic disease typically occurring within two years.[1]

Preoperative distinction between leiomyosarcoma and benign fibroid disease remains a major diagnostic challenge, even with advanced imaging techniques such as magnetic resonance imaging (MRI) and diffusion-weighted imaging.[5] In low-resource settings, limited access to specialized imaging, histopathologic services, and tumor biomarkers further contributes to delayed recognition and advanced disease presentation. Here, we report a case of giant uterine leiomyosarcoma with peritoneal dissemination, illustrating the diagnostic uncertainty and surgical challenges encountered in a resource-limited environment. The objective of this report is to emphasize the importance of early recognition of suspicious uterine masses and strengthening gynecologic oncology capacity to improve women's health outcomes and promote equity in cancer care globally. Community education and awareness regarding the disease.

Oncology services medical and surgical strengthen and availability and affordability and the need for medical facilities with MDT and capabilities like blood bank and ICU and advance operating theater to deal with these complex cases.

Case Presentation

A 45-year-old multiparous woman from a rural area approximately 180 km from Mogadishu presented with a 5-year history of progressive abdominal distension associated with irregular vaginal bleeding. The bleeding was intermittent but occasionally heavy, resulting in severe symptomatic anemia that required multiple blood transfusions. Over time, she developed dyspnea on exertion, orthopnea, early satiety, and reduced mobility, attributed to the increasing abdominal mass.

On presentation, the patient appeared pale and fatigued but remained hemodynamically stable (blood pressure 110/75 mmHg, pulse 100 beats/min, respiratory rate 20 breaths/min). Abdominal examination revealed marked distension with central fullness. Palpation demonstrated a large, firm-to-hard, irregular, non-tender, mobile mass extending from the suprapubic region to the epigastrium. No guarding, rebound tenderness, or palpable lymphadenopathy was noted. Laboratory investigations revealed severe microcytic anemia (hemoglobin 6.8 g/dL), with otherwise normal biochemical parameters.

Initial abdominal ultrasonography demonstrated a large heterogeneous abdominopelvic mass. However, due to the considerable size of the lesion, adequate characterization—including determination of its origin and internal architecture—was limited. Thus, further evaluation with contrast-enhanced computed tomography (CT) of the abdomen and pelvis was performed, which showed a massive heterogeneous uterine mass with irregular margins and areas of central low attenuation consistent with necrosis, extending from the pelvis into the upper abdomen. (Figure 1A and B)

The mass caused significant displacement of bowel loops and compression of adjacent structures, with associated free intraperitoneal fluid. No significant lymphadenopathy or osseous lesions were identified.

Preoperative CT imaging of the chest demonstrated no evidence of pulmonary metastases. (Figure 2A and B)

Ultrasound-guided biopsy was performed and confirmed the diagnosis of uterine leiomyosarcoma.

Following preoperative optimization, the patient underwent exploratory laparotomy.

Intraoperatively, a massive, highly vascular uterine tumor occupying most of the peritoneal cavity was identified. The mass was densely adherent to the mesentery of both the small and large bowel and to the retroperitoneum, without clear invasion of retroperitoneal structures. 1 liter of ascitic fluid was encountered and aspirated for cytological analysis. No macroscopic peritoneal or omental implants were identified intraoperatively, and no suspicious lesions were observed to warrant additional biopsies or omentectomy. Careful adhesiolysis was performed, and a total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH-BSO) was completed. Complete macroscopic resection was achieved, and no visible residual disease remained; therefore, the procedure was classified as an R0 resection.

Gross examination revealed an enlarged uterus containing an irregular mass measuring 37×28 × 23 cm, with a gray-white, fleshy, and lobulated cut surface, showing extensive hemorrhage and necrosis. (Figure 3A and B). Microscopic examination demonstrated intersecting fascicles of spindle-shaped smooth muscle cells with moderate-to-severe cytologic atypia, hyperchromatic nuclei, and moderate eosinophilic cytoplasm. A high mitotic index (15 mitoses per 10 high-power fields) and coagulative tumor necrosis were present. (Figure 4A–C)

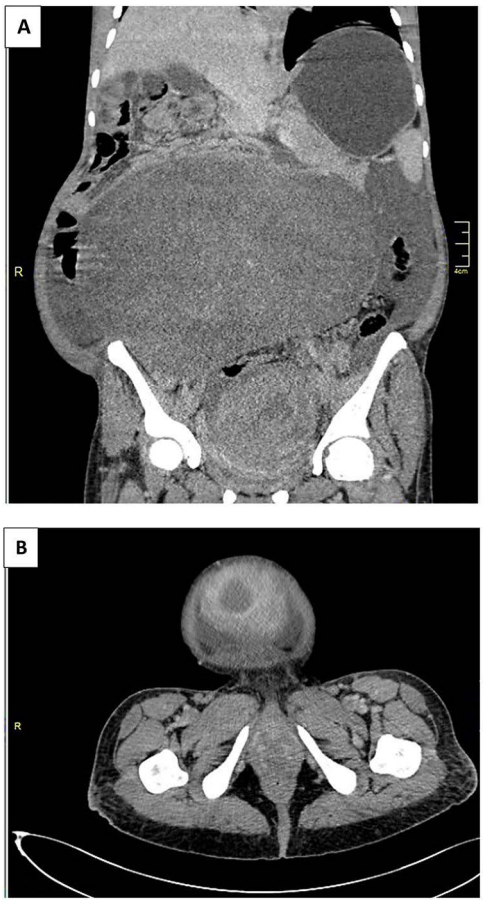

Figure 1 (**A**) Coronal CT showing a large heterogeneous uterine mass with necrosis and mass effect. (**B**) Axial CT demonstrating the pelvic extent of the lesion.

The tumor showed deep (>50%) myometrial invasion and extended to the serosa, cervix, and parametrial tissues, while both adnexa were free of tumor. Lymphovascular invasion (LVI) were not identified, and Surgical margins were free of tumor.

Cytological analysis of ascitic fluid revealed malignant cells, consistent with cytologic evidence of peritoneal involvement, without intraoperative evidence of macroscopic peritoneal dissemination. Immunohistochemical studies (including SMA, desmin, h-caldesmon, Ki-67, and p53) were not performed due to limited resource availability.

The diagnosis was established based on characteristic histomorphological features.

Based on imaging, intraoperative findings, and histopathological evaluation, the tumor was classified as: FIGO stage IB uterine leiomyosarcoma.

The postoperative course was uneventful. The patient received supportive care, including blood transfusion, and was discharged on postoperative day 10 in stable condition. She was referred to an oncology center for further evaluation and consideration of adjuvant therapy; however, she did not proceed with treatment due to financial constraints and limited access to specialized care.

The patient has been maintained on regular follow-up at our institution, complemented by periodic evaluations by a local physician. In addition, telephonic follow-up has been conducted every three months by our surgical team. At the 8-month follow-up, the patient remained clinically stable Follow-up computed tomography (CT) imaging of the abdomen and pelvis demonstrated no evidence of local recurrence, lymphadenopathy, or distant metastases, and there was no residual ascites (Figure 5A and B).

Currently, the patient continues telephonic follow-up due to logistical limitations and is scheduled for repeat CT imaging at one year postoperatively.

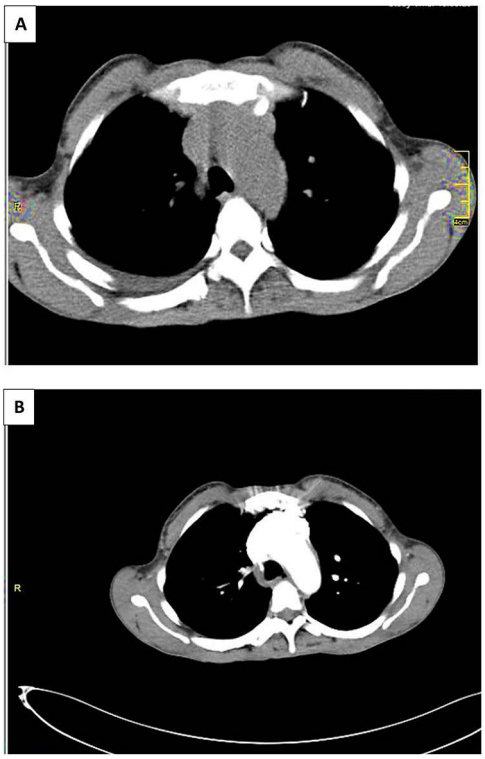

Figure 2 (**A** and **B**) Axial CT images of the chest demonstrating clear lung fields with no evidence of pulmonary metastases.

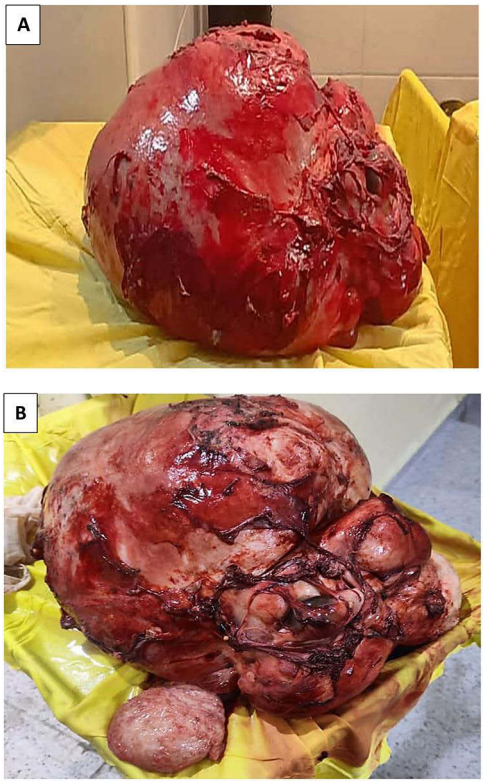

Figure 3 (**A** and **B**) Gross images of the resected uterine mass demonstrating a large, irregular, multilobulated tumor with hemorrhagic surface and attached adnexal structures.

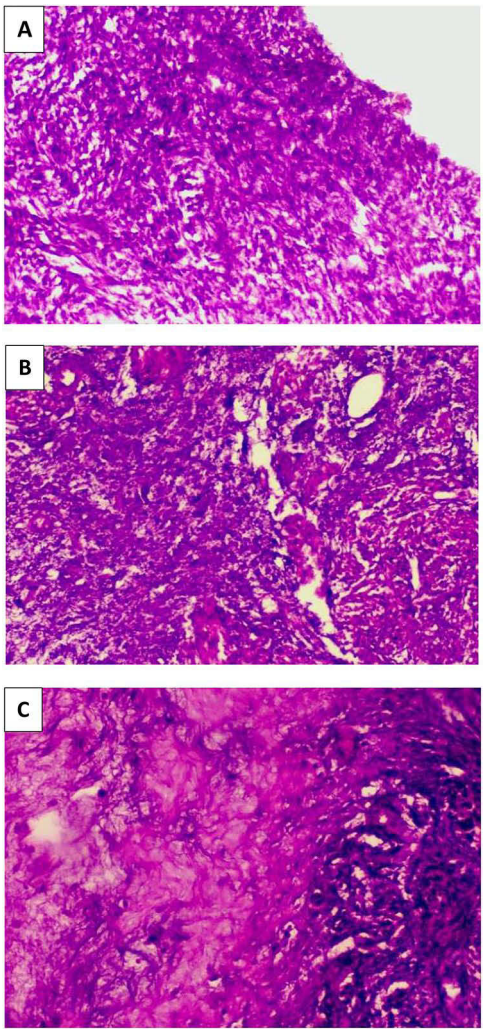

Figure 4 (**A**–**C**) H&E-stained sections demonstrating spindle-cell proliferation, marked atypia with mitoses, and areas of tumor necrosis.

Discussion

Uterine leiomyosarcoma (uLMS) is a rare but highly aggressive malignancy characterized by nonspecific clinical presentation and poor prognosis.[1,2] Although it accounts for a small proportion of uterine neoplasms, uLMS contributes disproportionately to uterine cancer–related mortality due to its high rates of recurrence and early hematogenous spread, particularly to the lungs.[1,2] Patients commonly present with abnormal uterine bleeding, pelvic pain, or progressive abdominal enlargement —symptoms that frequently overlap with benign leiomyomas and contribute to delayed diagnosis.[3,4]

This case highlights several important diagnostic and health system challenges. The patient had a prolonged five-year history of abnormal uterine bleeding and progressive abdominal distension, initially suggestive of benign fibroid disease. Delayed presentation was influenced by limited access to imaging, histopathology, and specialist gynecologic oncology services in a rural setting. Such delays are well recognized and contribute to diagnostic uncertainty and suboptimal outcomes in uterine sarcomas.

Imaging plays a critical role in differentiating uterine sarcomas from benign smooth muscle tumors. In this case, ultrasonography served as the initial imaging modality but was insufficient for definitive assessment due to the lesion's size, thereby necessitating advanced imaging with contrast-enhanced CT. Previous studies have demonstrated that magnetic resonance imaging (MRI) provides superior soft tissue characterization, with features such as heterogeneous signal intensity, hemorrhage, ill-defined margins, central necrosis, and diffusion restriction increasing suspicion for malignancy.[5] Additionally, adjunctive biomarkers such as lactate dehydrogenase (LDH) and its isoenzymes have been

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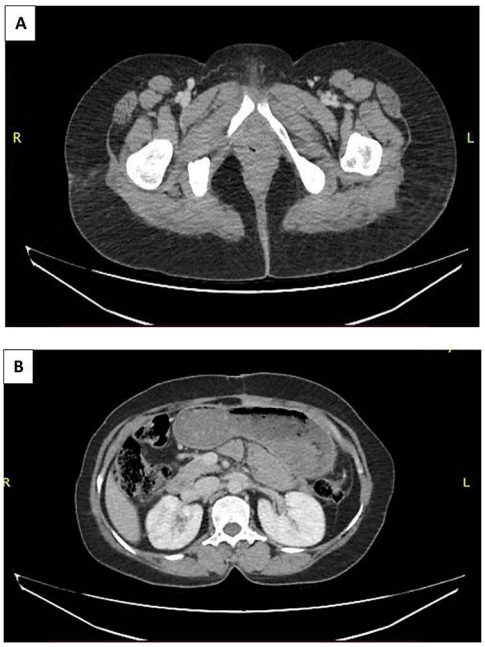

Figure 5 (**A** and **B**) Follow-up CT images demonstrating no evidence of recurrence or metastatic disease.

explored to aid in differentiating leiomyosarcoma from degenerated leiomyoma, their clinical utility is limited and availability is restricted in low-resource settings.[6] Despite these advances, preoperative diagnosis remains challenging, and many cases are initially managed as presumed benign leiomyomas.[7]

Surgical resection remains the cornerstone of treatment for uLMS. In this patient, a total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed, achieving complete macroscopic resection. Importantly, no macroscopic peritoneal or omental implants were identified intraoperatively. Although malignant cells were detected in ascitic fluid, this finding alone does not constitute gross extrauterine disease. Accordingly, the tumor was appropriately classified as FIGO stage IB. Early-stage uLMS is associated with a better prognosis compared with advanced stages; however, the risk of recurrence remains significant due to the aggressive nature of the tumor.[8–11]

Histopathological examination remains the gold standard for diagnosis. In this case, the diagnosis was established based on characteristic morphologic features, including moderate-to-severe cytologic atypia, a high mitotic index, and coagulative tumor necrosis. Although immunohistochemical markers such as smooth muscle actin (SMA), desmin, h-caldesmon, Ki-67, and p53 support the diagnosis, they are not essential when classic histopathologic criteria are present, particularly in resource-constrained settings.

Postoperative management of uLMS remains complex and controversial. In higher-risk or recurrent cases, systemic therapy with anthracycline-based regimens or combination therapies such as gemcitabine and docetaxel may be considered, although response rates are modest.[12] Recent international guidelines also emphasize structured diagnostic and management pathways for uterine sarcomas.[13] For patients with early-stage, uterus-confined disease, observation and surveillance following complete surgical resection are commonly recommended, as the benefit of adjuvant chemotherapy remains uncertain.[14]

In the present case, the patient was referred for oncologic evaluation; however, access to systemic therapy was limited by financial and logistical constraints. Therefore, the patient was managed with close clinical and radiological surveillance.

Follow-up imaging at 8 months demonstrated no evidence of recurrence or metastatic disease, which is encouraging. Nevertheless, continued long-term surveillance is essential given the known risk of relapse even in early-stage disease. Current recommendations support periodic cross-sectional imaging of the chest, abdomen, and pelvis due to the risk of distant recurrence.[14]

This case also highlights the diagnostic challenges associated with differentiating uterine sarcomas from benign leiomyomas in routine clinical practice. The absence of specific clinical or imaging features often leads to delayed diagnosis, particularly in settings with limited access to advanced imaging and pathology services.

Conclusion

Giant uterine leiomyosarcoma with peritoneal dissemination represents one of the most challenging presentations of gynecologic malignancy in low-resource settings. Early recognition of suspicious uterine masses, timely surgical management, and improved access to histopathology and oncology services are crucial for better outcomes. Establishing cost-effective diagnostic algorithms and strengthening gynecologic oncology capacity should be prioritized to reduce late presentations and prevent avoidable morbidity among women in developing regions.

Abbreviations

ULMS, uterine leiomyosarcoma; CT, computed tomography; MRI, magnetic resonance imaging; HPF, high-power field; LDH, lactate dehydrogenase; FIGO, International Federation of Gynecology and Obstetrics; MDT, Multidisciplinary team; CRD, Center for Research and Development; SIMAD, Somali Institute of Management and Administration Development.

Data Sharing Statement

The data supporting the findings of this case report are available from the corresponding author upon reasonable request.

Ethics Approval and Informed Consent

Written informed consent was obtained from the patient for publication of this case and any accompanying images. The patient was fully informed that all identifying details would remain confidential. Institutional approval was not required for publication of this single-patient case report, in accordance with the ethical standards of the Declaration of Helsinki.

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Author Contributions

All authors made a significant contribution to the work reported, whether in the conception, data collection, analysis, or interpretation; participated in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare no conflicts of interest in this work.

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