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Primary Pleomorphic Liposarcoma of the Kidney: A Rare Case Report

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ABSTRACT

Background: Liposarcomas are rare malignant soft tissue sarcomas. Renal liposarcoma accounts for only 1-2% of primary renal sarcomas and is an exceptionally rare entity. Patients commonly present with renal mass, flank pain, or respiratory symptoms. The prognosis remains poor, with reported 5-year survival rates ranging from 29% to 39% following surgical treatment.

Case presentation: A 63-year-old male presented to the outpatient department with persistent left flank pain and malaise. He reported vague left-sided abdominal discomfort for one year, associated with an unintentional weight loss of 10 kg over the preceding six months and occasional difficulty in urination.

Clinical findings and investigations: Laboratory investigations revealed significant anemia (hemoglobin 8.5 g/dL), while renal function tests were within normal limits. Urinalysis showed numerous red blood cells and 2-3 pus cells per high-power field, with a negative urine culture. Ultrasonography demonstrated a large left renal mass. Contrast-enhanced computed tomography (CT) of the abdomen and pelvis revealed an 8 × 10 cm heterogeneously enhancing mass with central necrosis replacing most of the left kidney, raising suspicion for renal cell carcinoma.

Intervention and outcome: Following optimization with blood transfusions and preoperative assessment, the patient underwent an open left radical nephrectomy via a transperitoneal approach. Recovery was uneventful. Histopathological examination confirmed a high-grade pleomorphic liposarcoma arising from the renal parenchyma with negative surgical margins. Immunohistochemistry was negative for Desmin, HMB45, SMA, and PAX8, while EMA showed focal positivity. The patient was referred to medical oncology for further management and remained free of postoperative complications during one month of follow-up.

Conclusion: Given the rarity of renal pleomorphic liposarcoma and the limited available literature, reporting such cases is important. Long-term follow-up and accumulation of clinical data may help improve understanding, management strategies, and patient outcomes.

Keywords: *Case report, Pleomorphic Liposarcoma, Renal Cell Carcinoma Mimic*

INTRODUCTION

Renal liposarcoma is an exceptionally rare malignant tumor, accounting for only 1%-2% of primary renal sarcomas (2). It often presents with nonspecific symptoms and may mimic renal cell carcinoma, making preoperative diagnosis challenging. Radical nephrectomy remains the primary treatment modality. However, the prognosis is generally poor, with reported 5-year survival rates of 29%-39% (2). Histological subtype influences outcomes, with pleomorphic and undifferentiated variants associated with a worse prognosis than well-differentiated tumors (3).

CASE PRESENTATION

A 63-year-old male presented to the outpatient department with persistent left flank pain, malaise, and vague left-sided abdominal discomfort for one year, associated with unintentional weight loss of 10 kg over the past six months and intermittent urinary difficulty. He had no history of hematuria or urinary tract infections.
On examination, he appeared lean and pale but was fully oriented. Vital signs were stable. Abdominal examination revealed a large, firm, non-tender, non-mobile mass in the left lumbar region. Systemic examination was otherwise unremarkable.

Laboratory investigations showed significant anemia (hemoglobin 8.5 g/dL), with normal renal function and mildly elevated inflammatory markers. Urinalysis revealed numerous red blood cells and 2-3 pus cells per high-power field, with a negative urine culture. Ultrasound demonstrated a large hypoechoic mass in the left renal region. Contrast-enhanced CT of the abdomen and pelvis revealed an 8 × 10 cm heterogeneously enhancing mass with central necrosis replacing most of the left kidney, suggestive of renal cell carcinoma (Figure 1).

The patient was optimized with blood transfusion and underwent open left radical nephrectomy via a transperitoneal approach after appropriate preoperative assessment. Postoperative recovery was uneventful. Histopathology revealed a high-grade sarcomatous tumor arising from the renal parenchyma, consistent with pleomorphic liposarcoma (Figure 2). Surgical margins were negative. Immunohistochemistry was negative for Desmin, HMB45, SMA, and PAX8, with focal EMA positivity (Figure 3). MDM2 and CDK4 testing were not performed, which represents a limitation in further tumor characterization. The patient was referred to medical oncology for further evaluation and placed on close follow-up. No postoperative complications were observed during one month of follow-up.

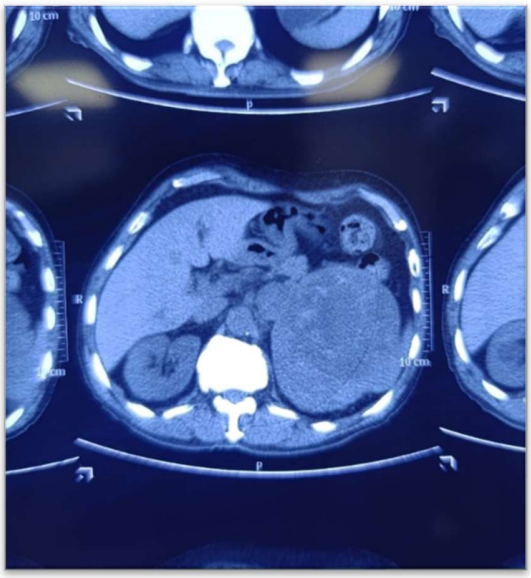

Figure 2 A contrast computed tomography (CT) scan of the abdomen and pelvis demonstrates an approximately 8 x 10 cm heterogeneously enhancing mass with central necrosis, replacing most of the left kidney, with features suggestive of renal cell

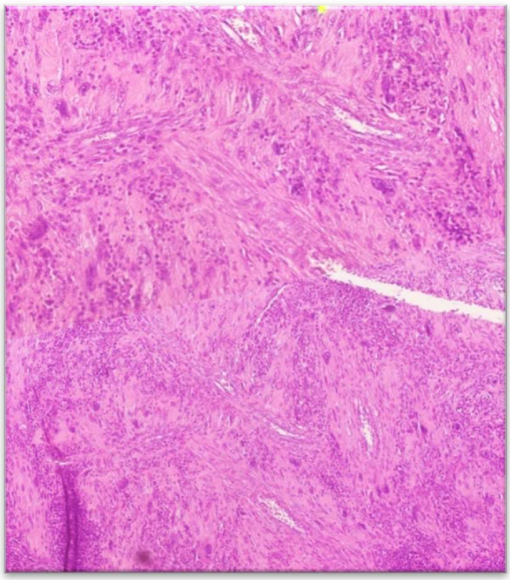

Figure 1 Shows histopathological assessment using hematoxylin and eosin staining with x100 magnification. The findings are consistent with pleomorphic liposarcoma.

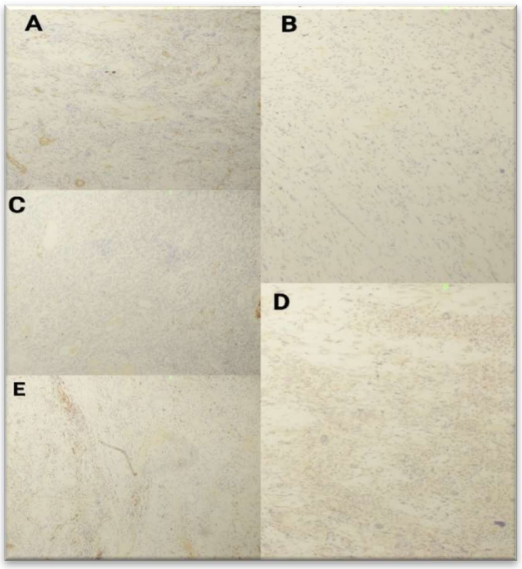

Figure 3 Immunohistochemical stains A: Desmin, B: SMA, C: EMA, D: PAX8, E: HMB45.

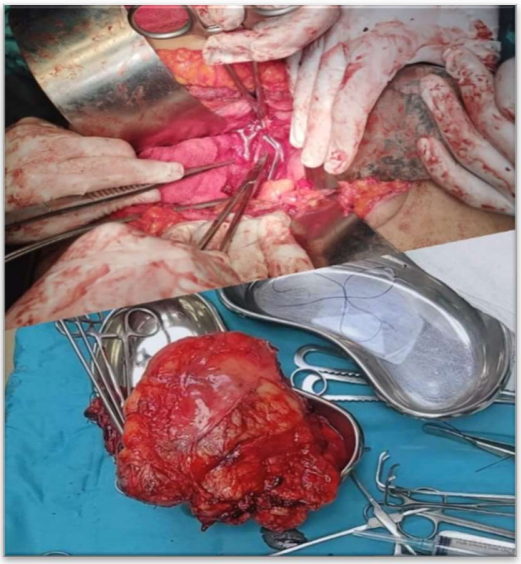

Figure 4 Post operative retrieved kidney gross specimen.

DISCUSSION

Primary renal liposarcoma is an extremely rare malignancy, with limited reported cases in the literature. It constitutes a small proportion of renal tumors and malignant renal mesenchymal neoplasms, with a slight female predominance and most cases occurring in the fifth to sixth decades of life (3,4). Among renal sarcomas, leiomyosarcoma is the most common subtype, while liposarcoma represents a much smaller fraction (4). Renal pleomorphic liposarcoma is particularly uncommon and is associated with aggressive behavior compared to other histological variants.

Preoperative diagnosis is challenging due to nonspecific clinical and radiological features. Patients often present with a renal mass, flank pain, or constitutional symptoms, and imaging findings frequently mimic renal cell carcinoma or other primary renal malignancies. Contrast-enhanced CT and MRI may suggest a malignant renal mass; however, they are not definitive for subtype characterization. In the present case, imaging findings were initially suggestive of renal cell carcinoma, highlighting the diagnostic difficulty in distinguishing these entities preoperatively (3).

Definitive diagnosis relies on histopathological examination following surgical excision. Immunohistochemistry typically shows positivity for MDM2 and CDK4 and negativity for markers such as Desmin, SMA, HMB45, and PAX8 (5). In our case, these markers were consistent with a sarcomatous tumor; however, MDM2 and CDK4 could not be assessed, which limits further molecular confirmation. Importantly, differentiation from renal cell carcinoma and other sarcomatoid renal tumors remains crucial, as management and prognosis differ significantly.

Radical nephrectomy with complete tumor excision and negative margins remains the mainstay of treatment. The role of adjuvant chemotherapy or radiotherapy is not well established, and evidence regarding survival benefit is inconsistent, particularly in cases where complete resection is not feasible (7). Postoperative surveillance with periodic clinical and radiological follow-up is essential due to the risk of recurrence.

Overall, renal pleomorphic liposarcoma remains a diagnostic and therapeutic challenge because of its rarity, overlap with more common renal tumors, and limited evidence guiding adjuvant therapy.

CONCLUSION

Renal liposarcomas are very rare cancers with vague symptoms. Surgery in the form of radical nephrectomy is the treatment of choice followed by chemo-radiotherapy in selected group of patients, but survival benefit is very low. As there is limited literature such rare cases should be reported with focus on long term patient follow up, which may help improve management and outcomes.

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DECLARATION OF COMPETING INTEREST
The authors have no conflicts of interest to disclose in relation to this work.

CONSENT

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available on request.

AUTHORSHIP

AH wrote the first draft of the manuscript. All authors reviewed and edited the manuscript and approved the final version of the manuscript

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