LEIOMYOSARCOMA OF THE KIDNEY IN A 56-YEAR OLD MALE- A CASE REPORT

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ABSTRACT

Objective: Leiomyosarcoma (LMS) of the kidney is a rare condition, and little is known about this subtype of renal sarcoma. The main complaint of a 56-year-old man was left flank pain that had been present for one month. His CT renal angiogram including arterial, venous, and delayed phases showed a large left renal mass and an interpolar region containing a solid mass with a central cystic/necrotic component suggesting renal cell carcinoma projecting into the renal sinus fat. The patient was identified as having high-grade LMS based on immunochemical analysis and gross specimen examination. Although there is a poor prognosis, radical nephrectomy is still the preferred course of action. It is important to review adjuvant therapy's possible advantages with certain patients.

Keywords: Leiomyosarcoma, Flank pain, Renal cell carcinoma

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INTRODUCTION

Only 0.12% of renal malignancies are LMS, making them extremely rare tumors. Additionally, it is known that women in their 60s are particularly affected. Even though LMS is not frequently seen in clinical settings, its aggressive nature, similarities to renal cell carcinoma, and the potential role of adjuvant therapy all require our understanding of this pathology. [1]

CASE PRESENTATION

A 56-year-old man doing an office job was presented to our facility hypertension positive, non-smoker, no retention of urine, burning micturition, and fever visited our institution to get a second opinion on how to handle his kidney tumor. A few episodes of gross haematuria were observed last week as round and long threads of clots. No fresh bleeding or clots were seen in the urine. The patient had a weight loss of 12 kg in 6 months due to appetite loss in the last 6 months, cough positive, no hemoptysis, constipation, GI bleeding, and abdominal trauma or surgery was noted. His reconstructed non-contrast and post-contrast CT renal angiogram including arterial, venous, and delayed phases was done that showed a large left renal mass and interpolar region containing a solid mass with central cystic/necrotic component measuring 13.4 x 13.4 cm, suggesting renal cell carcinoma projecting into the renal sinus fat without tumor thrombus extension into the left renal vein. It was abutting the Gerota fascia but had not extended beyond it. It has stretched the renal calyces. No definite evidence of tumor thrombus extension into the left renal vein was found. The left adrenal gland contained a 10 x 10 mm nodule with an absolute washout of 65% suggesting an adenoma. The lower pole of the left kidney showed a 10 x 25 mm calculus having a density of 1482 HU. Mildly enlarged left para-aortic lymph nodes were also seen. The clinical diagnosis of renal cell carcinoma was made based on the location and features of the kidney tumor. The patient gave his consent for the surgical removal of his kidney tumor and underwent a left-open radical nephrectomy. Hemisection of the kidney by pathology showed histopathological findings as shown in Table 1 and Figure 1.

To further lower the chance of micrometastatic illness, adjuvant chemotherapy was a possibility that was discussed with the patient. For a formal consultation, the Patient was referred to a medical oncology facility. The patient remained stable after the procedure, and a follow-up appointment in three months with a CT scan of the chest, abdomen, and pelvis was planned.

DISCUSSION

Despite being the most common histological subtype and accounting for 50–60% of all renal sarcomas, LMS is a very rare tumor. [1] The signs of LMS are like those of other types of kidney cancer. Clinical manifestations are

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Table 1: Histopathological findings

Microscopic Findings	
Tumor size	17 cm
Histologic type	LMS
Histologic grade	3
Mitotic rate	Approx. 20 mitoses per 10 high power field
Necrosis (Extent)	Present (50%)
Treatment effect	No known presurgical therapy
Margins	
Prinephric fat margin	Uninvolved by sarcoma (UBS)
Renal sinus soft tissue margin	UBS
Renal vein margin	UBS
Ureteral margin	UBS
pT Category	pT1 (Tumor confined to organ)
pN Category	pN0
Immunohistochemistry	
SMA	Diffusely +ve in tumor cells (TC)
Caldesmon	Diffusely +ve in TC
Desmin	Diffusely +ve in TC
CK	Focal +ve in TC
EMA	Focal +ve in TC
PAX8	-ve in TC
CD34	-ve in TC
S100	-ve in TC

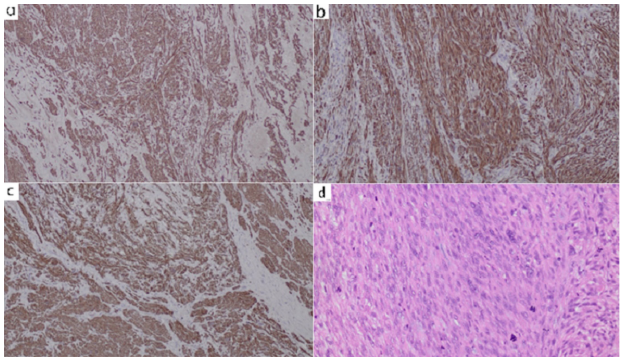

Fig 1: Microscopic Immunohistochemistry images (a) SMA positive in malignant neoplasm 100x (b) Desmin positive in malignant neoplasm 100x (c) Caldesmon positive in neoplasm 100x (d) Spindle cell neoplasm composed of atypical cells with multiple atypical mitoses 400x

commonly non-specific because patients typically have flank discomfort or abdominal pain associated with hematuria. Due to limitations of imaging, it can be difficult to accurately differentiate LMS from RCC due to certain tumor features. [2] Therefore, it is not surprising that renal LMS and RCC are frequently misdiagnosed before surgery and tissue examination that follows. [3]

Under a microscope, the pathologic sample from our patient showed areas of necrosis and spindle cells, which was consistent with earlier studies. Immunohistochemical analysis frequently reveals smooth muscle actin, calponin, desmin, and h-caldesmon positive expressions in renal LMS; this suggests a shift in the cytoskeleton's bundled structure and gives information on the neoplastic transformation process. Despite our case's diffusely positive desmin result, this is typical and demonstrates the altered cytoskeleton bundle. When it can be challenging to distinguish between LMS and sarcomatoid RCC based solely on histology comparisons, immunohistochemical analysis is helpful via the French Federation of Cancer Centre`s guidelines. [4] Due to his high-grade malignancy, our patient is predicted to have a poor prognosis with a 5-year survival rate of less than 40%. Radical nephrectomy is the gold standard for renal LMS. A preoperative diagnosis may be helpful even though it is technically difficult since neoadjuvant chemotherapy can be utilized to treat potential micro-metastases in LMS. [5] For patients with renal LMS, radiation and adjuvant chemotherapy are further alternatives. A high index of suspicion should be maintained because the presenting symptoms and findings from imaging tests do not offer a solid basis for a precise and rapid diagnosis. Adjuvant and neoadjuvant therapy should be considered in addition to surgical excision, which is the chosen treatment of choice for renal LMS. Patients with renal LMS should be sent to an established sarcoma center for complete management.

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