

## A case of leiomyosarcoma of the kidney

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**Introduction:** Sarcomas of the kidney are rare. Among primary sarcomas, leiomyosarcoma is the most frequent. A case of primary renal leiomyosarcoma is presented.

**Case report:** This report concerns a 48-year-old woman, who presented with slowly increasing right flank mass and dull aching pain. A well-defined, gray, firm mass measuring 12.5 x 10.5 cm was histologically composed of interlacing bundles of spindle cells with cellular atypia and nuclear hyperchromasia. Mitotic figures constituted 10-12/ 10 HPF. Tumor cells showed positivity for desmin. The differentiation from sarcomatoid renal cell carcinoma is discussed.

**Conclusion:** The case is reported for its rarity and this is the first reported case of renal leiomyosarcoma in Nepal.

### Introduction

Primary renal sarcomas in adults are unusual neoplasms<sup>(1,2)</sup>. Leiomyosarcoma of the kidney is a rare disease<sup>(3)</sup>. It may arise from the renal capsule or the smooth muscle fibers of the renal pelvis or vasculature<sup>(4)</sup>. This tumor should be differentiated from sarcomatoid renal cell carcinoma and smooth muscle predominant angiomyolipoma. To the best of our knowledge, no case of renal leiomyosarcoma has been reported in Nepal to date.

### Case report

A 48-year-old woman presented to Tribhuvan University Teaching hospital with slowly increasing right flank mass and dull aching pain since last 6 months. Physical examination revealed a 15 x 15 cm firm, mobile bimanually palpable mass at the right flank.

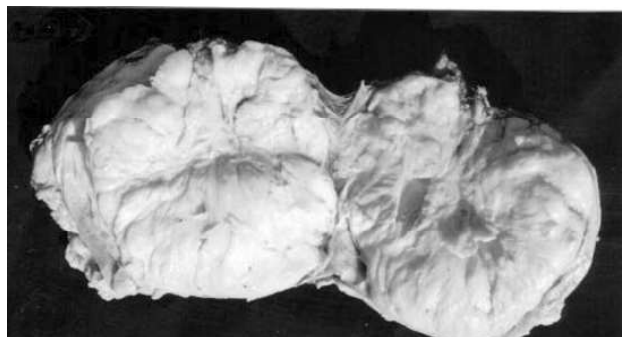
Routine blood examination revealed Hb 14.4 gm/dl, WBC 8,400/cumm/l with 62% neutrophils, 34% lymphocytes, 1% monocytes and 3% eosinophils and platelets 110,000/cumm/l. Biochemical tests revealed blood sugar-5.1 mmol/L, urea-4.0 mmol/L and creatinine 81.0 micromol/L. Urinalysis showed albumin (+) and pus cells (5-6/HPF). Ultrasonography demonstrated a 15 x 8.4 cm solid mass with heterogenous echotexture in the right renal region, replacing the right kidney except for a small normal portion

of upper pole.

The case was diagnosed as renal cell carcinoma on the basis of clinical and ultrasonographic findings. Patient underwent right radical nephrectomy. Patient was discharged after improvement. No further treatment could be carried out because the patient did not report for follow-up.

### Histopathological findings

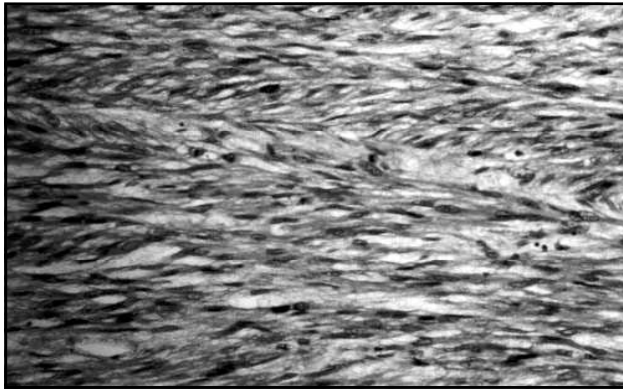
GROSS: The tumor measuring 12.5 x 10.5 cm was well-defined, gray, firm and solid (*Fig. 1*). No necrosis was found. The renal parenchyma (2.2 cm in thickness) was pushed to the periphery. The tumor was extensively sampled.



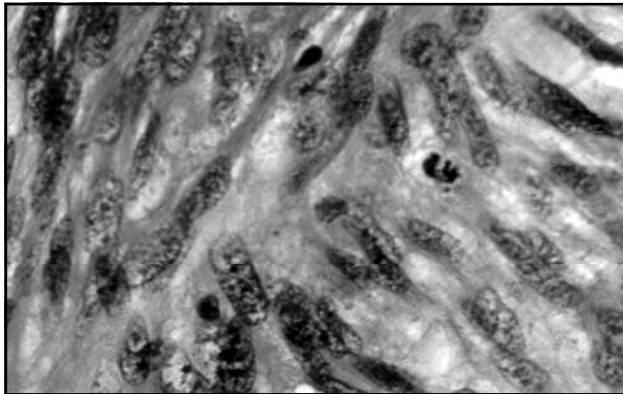
**Fig. 1.** Cut surface of the tumor showing well-circumscribed solid mass. The compressed renal parenchyma is identified at the periphery.

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**MICROSCOPIC EXAMINATION:** The tumor consisted of interlacing bundles of spindle cells (*Fig. 2*) with cellular atypia and nuclear hyperchromasia. Mitotic figures (*Fig. 3, 4*) constituted 10-12/10HPF. These tumor cells showed positivity for desmin

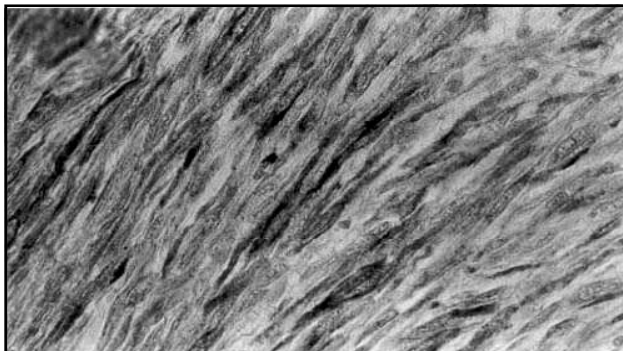


**Fig. 2.** Interlacing bundles of spindle cells.



**Fig. 3.** Mitotic figures.

No microscopic evidence of epithelial malignancy or lipomatous and vascular areas was identified. On the basis of these findings, a diagnosis of renal leiomyosarcoma was made.



**Fig. 4.** An immunohistochemical study reveals positive cytoplasmic staining for desmin.

## Discussion

Renal leiomyosarcoma is an uncommon malignant mesenchymal tumor<sup>(5)</sup>. Patients with renal leiomyosarcoma complains of flank pain, abdominal mass and gross or microscopic hematuria. Our patient developed abdominal mass and pain. Hematuria was not found.

Preoperative diagnosis is very difficult. Ultrasonography and computed tomography are useful but can not differentiate leiomyosarcoma from sarcomatoid renal cell carcinoma. Fine needle aspiration is found to be useful<sup>(6)</sup>. In addition, ureteroscopic biopsy may be useful in making a preoperative diagnosis.

Histologically, renal leiomyosarcoma is composed of interlacing bundles of spindle cells with increased mitotic figures. It is often difficult to differentiate it from sarcomatoid renal cell carcinoma. Fumitaka K emphasized that extensive sampling of tumor usually reveals small areas of carcinomatous component transiting to the sarcomatous components, so that the diagnosis of sarcomatoid renal cell carcinoma can be made<sup>(7)</sup>. Immunohistochemically, leiomyosarcoma cells are positive for desmin, smooth muscle actin, but negative for keratin and EMA. However, sarcomatous cells composing sarcomatoid renal cell carcinoma not only morphologically resemble sarcomas but also have gained true molecular features of sarcomas, while they retain their epithelial features<sup>(8)(9)</sup>.

Radical nephrectomy remains the treatment of choice for this tumor. This case was also managed by nephrectomy. However, Davis et al. recommended that excision of the tumor should be followed by post-operative radiation and chemotherapy<sup>(10)</sup>.

To the best of our knowledge, ours is the first reported case of renal leiomyosarcoma in Nepal.

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