Case 17356

Eurorad

A rare case report on renal capsular leiomyoma mimicking renal cell carcinoma

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Patient: 37 years, female

Clinical History:

A 37-year-old female came to surgical OPD with complaints of abdominal distension and lump in the left side of abdomen with haematuria. Abdominal examination reveals large well-defined hard mass in the left lumbar and iliac region with palpable lower border. The mass is mildly ballotable and shows movement with respiration.

Imaging Findings:

A Triple phase Multi-slice CTshows large well defined, heterogenous, retro-peritoneal soft tissue density mass of size 17.6 x 13.6 x 18.7 cm (AP x MC x SI) in left lumbar region, anterior to the left psoas (Figure 1). Post-contrast study shows heterogenous enhancement with peripheral multiple feeding vessels and multiple central non-enhancing necrotic areas(Figure 2).

Superiorly, lesion was abutting and displacingleft kidney with loss of fat plane with lower pole cortex. The lesion was compressing the left proximal ureter, causing mild left hydroureteronephrosis and displaces aorta and small bowel loops towards the right, pancreatic tail superiorly and descending colon anterolaterally. Loss of fat plane at the left lower pole renal cortex (Figure 3).

On non-contrast MRI, lesion appears hypointense on T2 with few areas of central necrosis, isointense to hypointense on T1when compared to skeletal muscle and shows patchy areas of restriction (Figure 4, 5 and 6).

Discussion:

Neoplasms of the kidney are classified into the renal cell, metanephric, mesenchymal, mixed stromal, germ cell, and neuroendocrine tumours [1,2]. Benign mesenchymal tumours include angiomyolipoma’s, leiomyomas, haemangiomas, schwannomas, lymphangiomas, lipomas, Juxtaglomerular cell tumours, medullary fibromas, and solitary fibrous tumours. Malignant mesenchymal tumours of the kidney are rhabdomyosarcomas, solitary fibrous tumours, leiomyosarcomas, osteosarcomas, malignant fibrous histiocytomas, synovial sarcoma, angiosarcomas and fibrosarcoma’s [3].

Leiomyomas are the rare benign, mesenchymal tissue tumours that arise from smooth muscle cells. Virchow in 1854 was the first person to describe it [4]. Although leiomyomas can affect any genitourinary tract organs, kidneys are mostly affected among them.[5]. It originates from smooth muscle cells of organ-like renal capsule, pelvis, blood vessels and calyces.[6]

It usually affects adult women of a median age of 42 years. In our case, the patient's age was 37.

Renal leiomyomas typically manifest as asymptomatic small renal mass, although large renal lesions can cause pain, hematuria, and palpable flank mass. In non-contrast CT, lesion typically appears to be in a very peripheral location with well-defined margins related to buckling of the cortex. No evidence of calcification. [6]. These features are similar to our case. In MRI, renal leiomyoma manifests low signal intensity on both T1 and T2 images. Contrast studies show homogenous enhancement and areas of haemorrhage, cystic, or myxoid degeneration are seen in large lesions [6, 7].

Malignant mesenchymal tumours of the kidney also mimic renal leiomyoma. Leiomyosarcoma may arise from the renal capsule, parenchyma, pelvis, or main venous blood vessel, manifesting as an expansile mass lesion with heterogeneous enhancement on contrast study attributable to differentiate it from renal leiomyoma. The fibrous component of leiomyosarcoma shows delayed enhancement on CT.

Renal leiomyoma appears mild hyperdense on non-enhanced CT which supplies a vital suggest differentiating from oth er lesions. Other solid renal lesions that are hyperattenuating on CT are hematomas, renal cell carcinoma (RCC) and metanephric adenoma[9]. Renal leiomyoma manifests homogeneous and continuous enhancement on dynamic CT compared to RCC. Diagnosing the renal capsular leiomyoma preoperatively can avoid nephrectomy.

Conclusion

Renal leiomyomas are benign myxomatous tumours without aggressive behaviour. They do not metastasize. It shows a superb prognosis after surgery without recurrence. This case reflects the clinical and radiological features described within the literature. It further illustrates how it’s difficult to tell apart clinically and imaging wise, a leiomyoma from other neoplastic lesions. The medical diagnosis is feasible only by histological examination.

Differential Diagnosis List: Left renal capsular leiomyoma, Retroperitoneal leiomyoma invading the renal cortex, Retroperitoneal fibroma or desmoid-type fibromatosis with the invasion of lower pole., Low grade exophytic renal cell carcinoma (RCC)., Renal leiomyosarcoma, Angiomyolipoma

Final Diagnosis: Left renal capsular leiomyoma

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Figure 1

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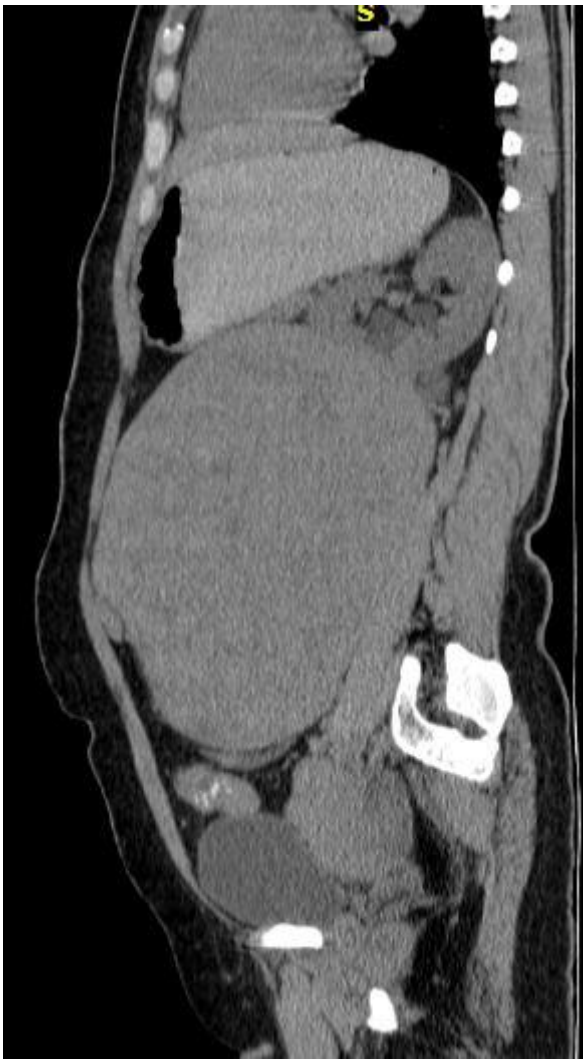

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Figure 2

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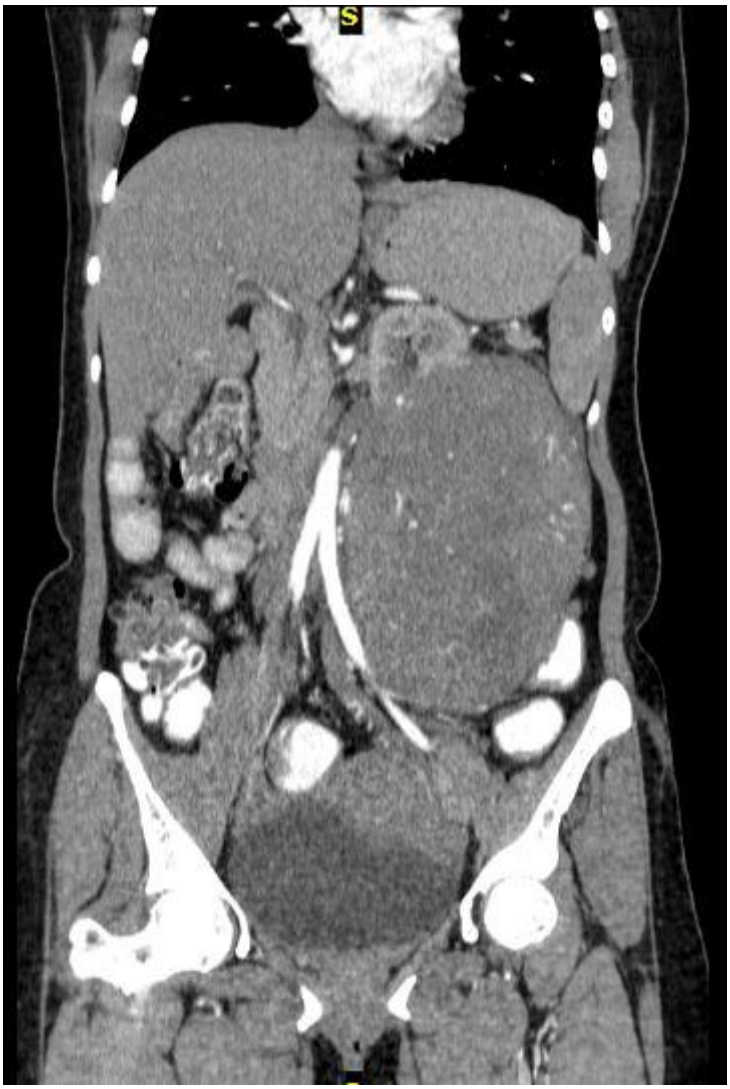

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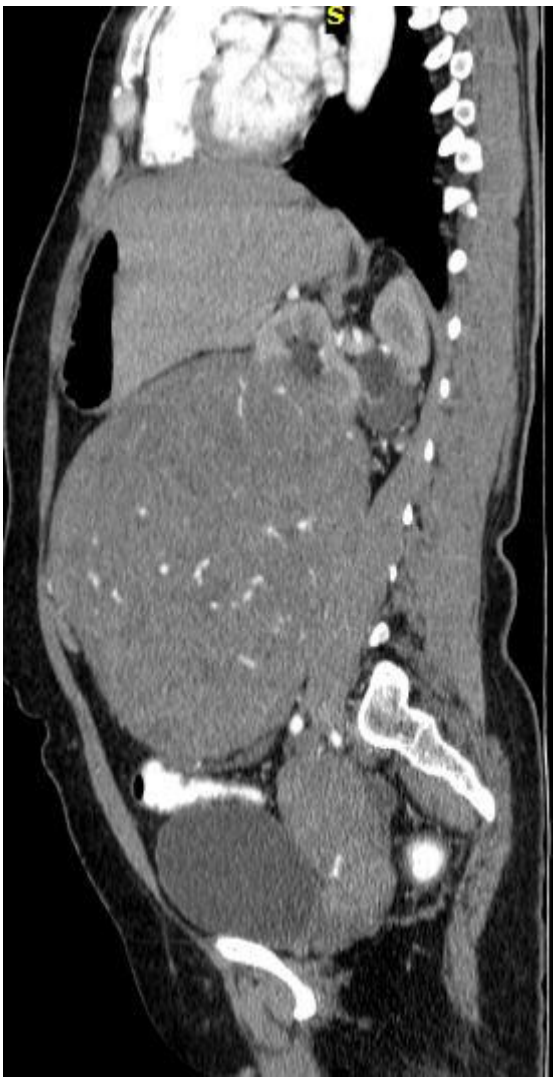

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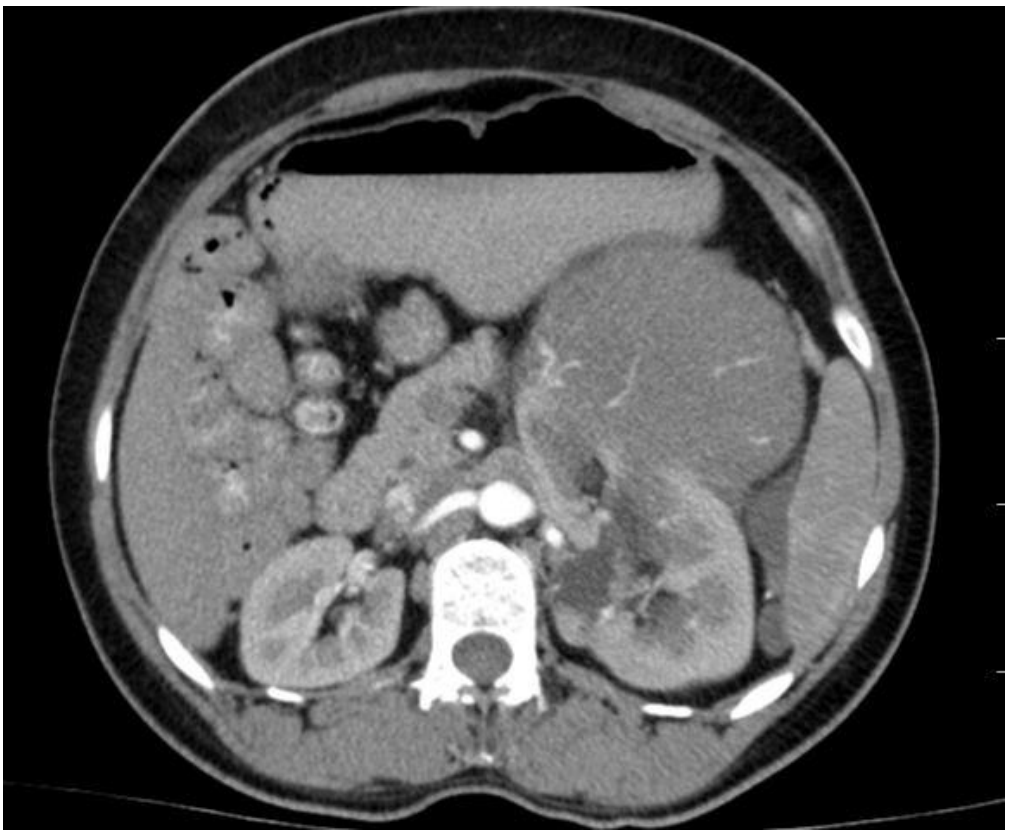

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Figure 3

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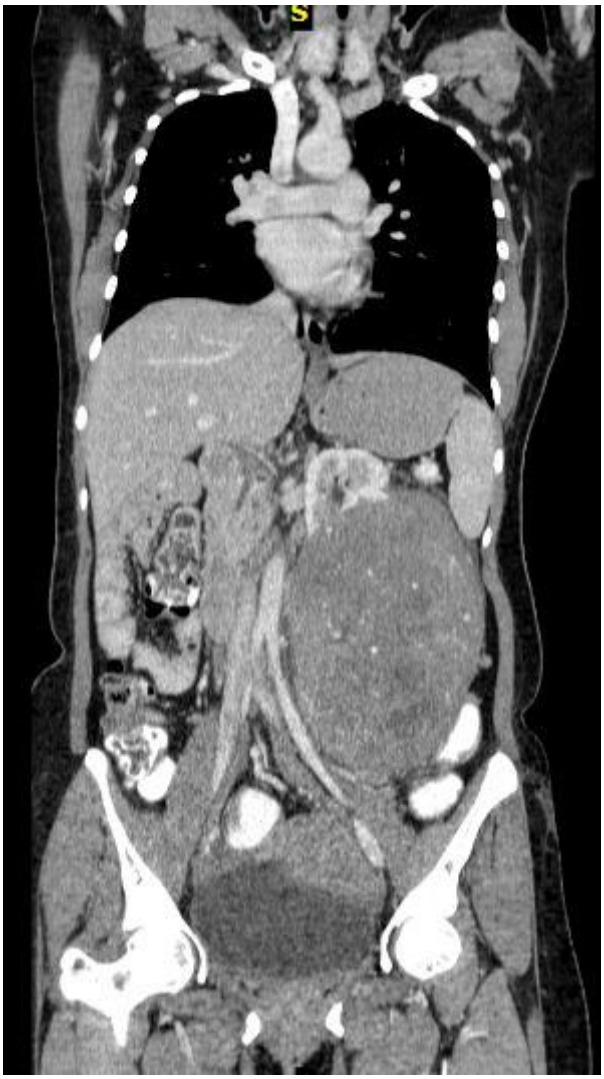

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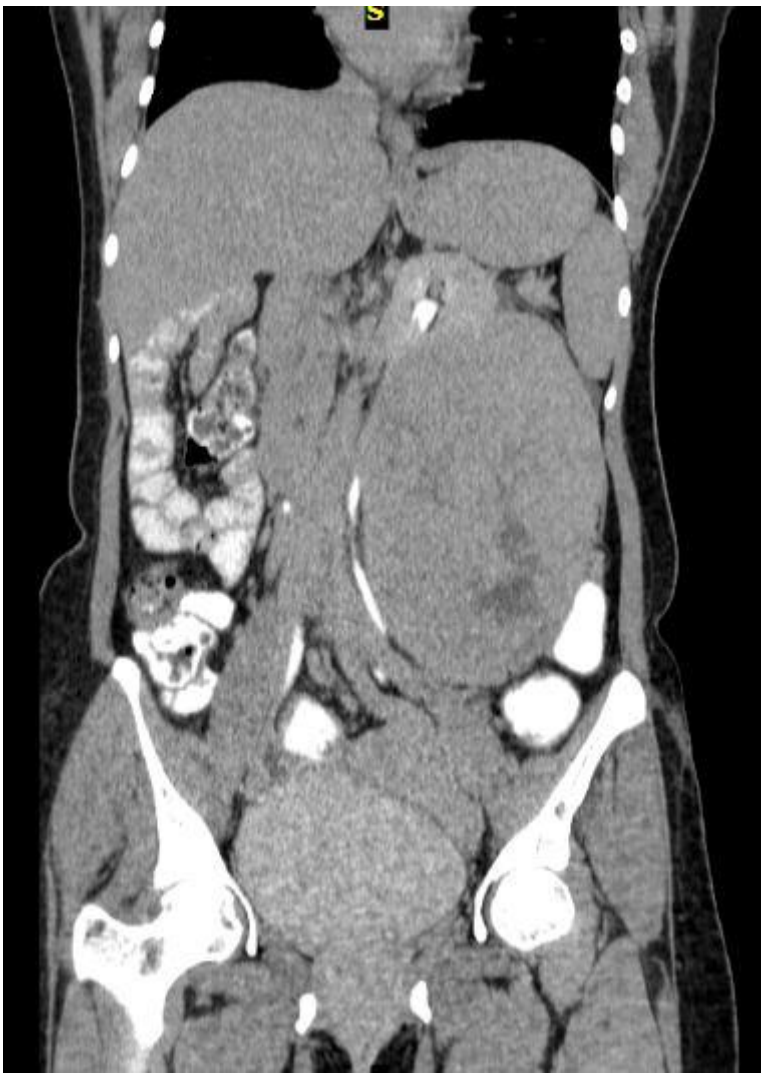

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Figure 4

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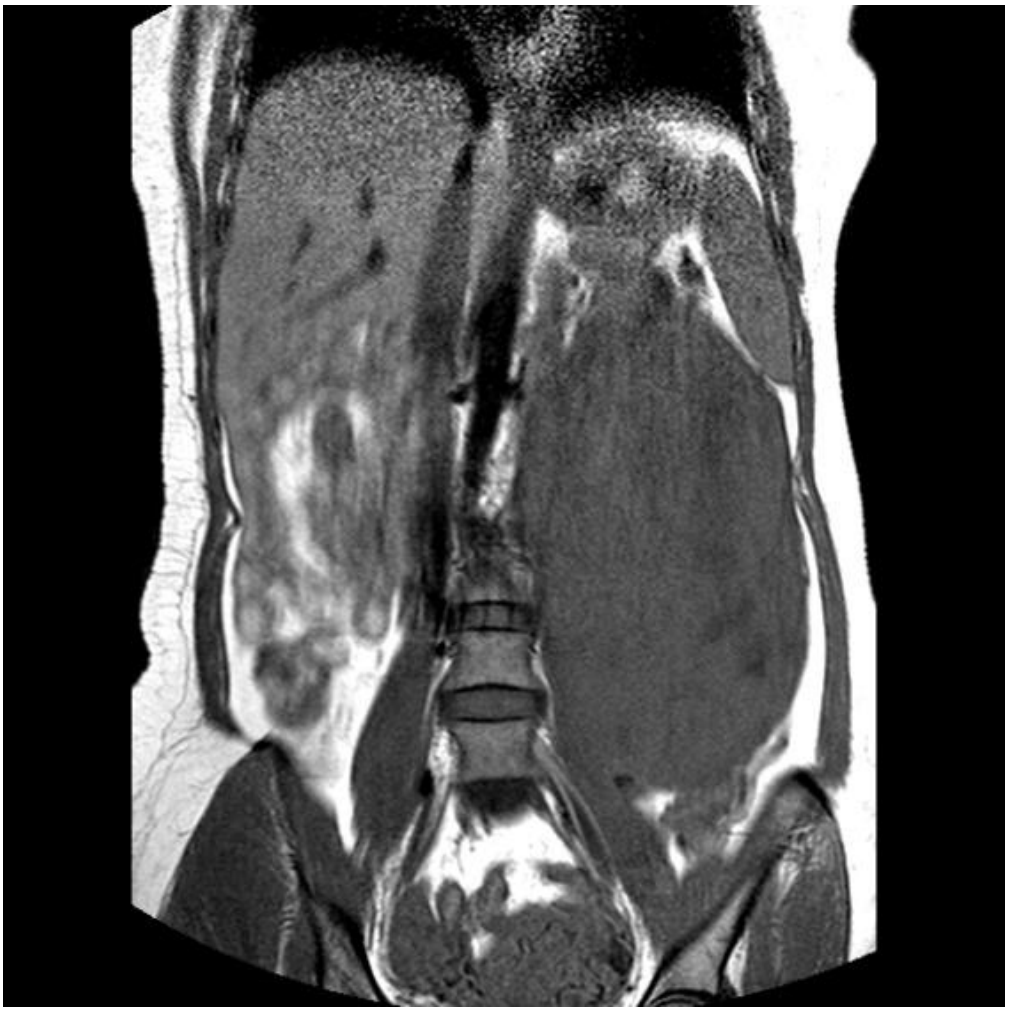

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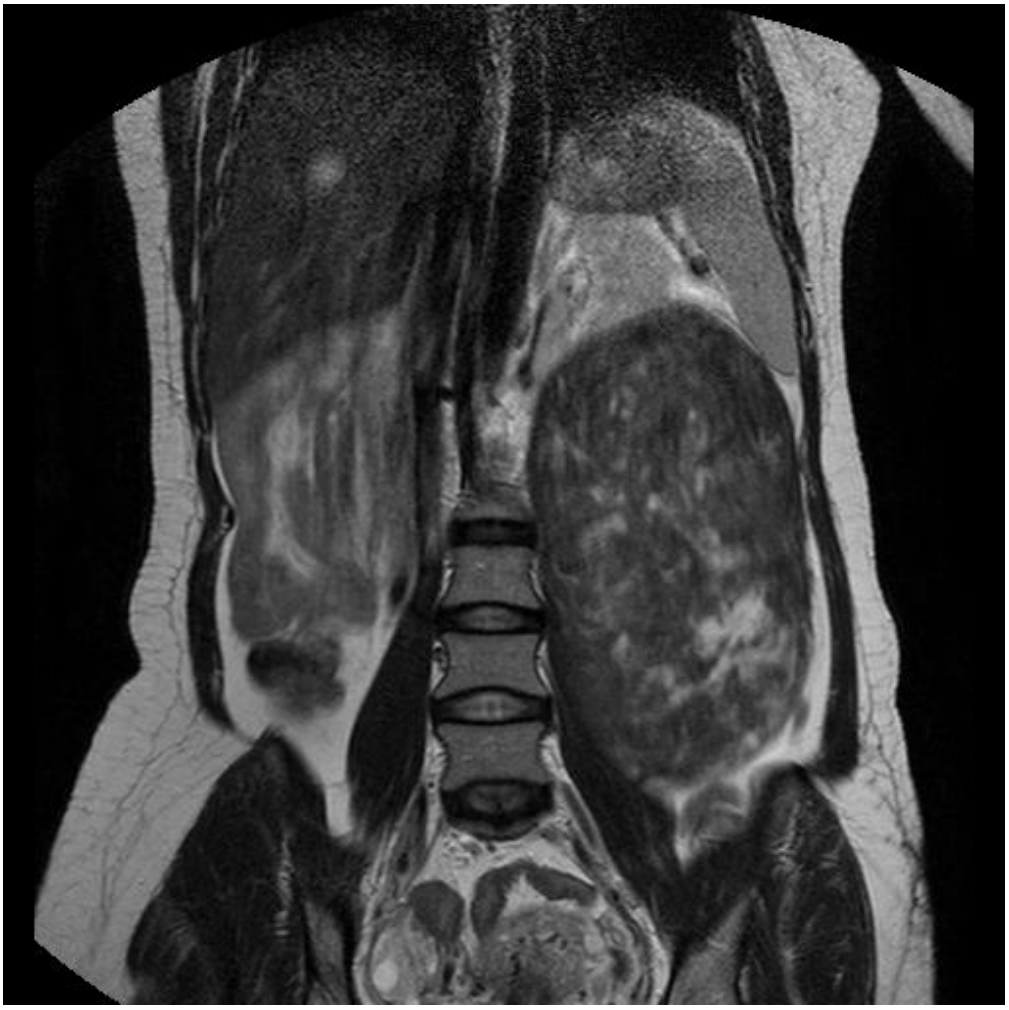

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Figure 5

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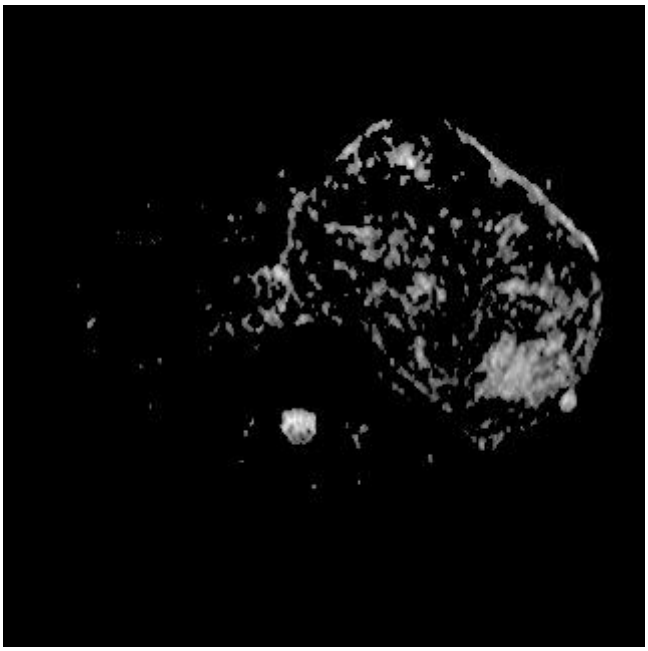

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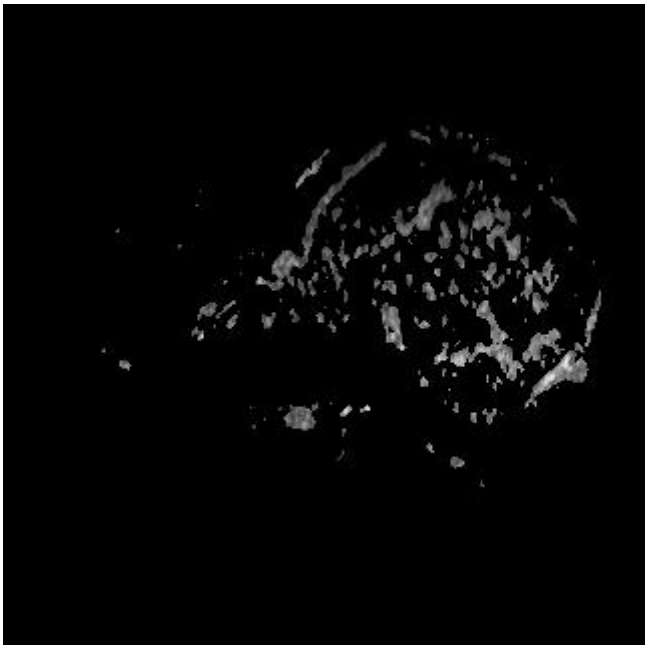

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Figure 6

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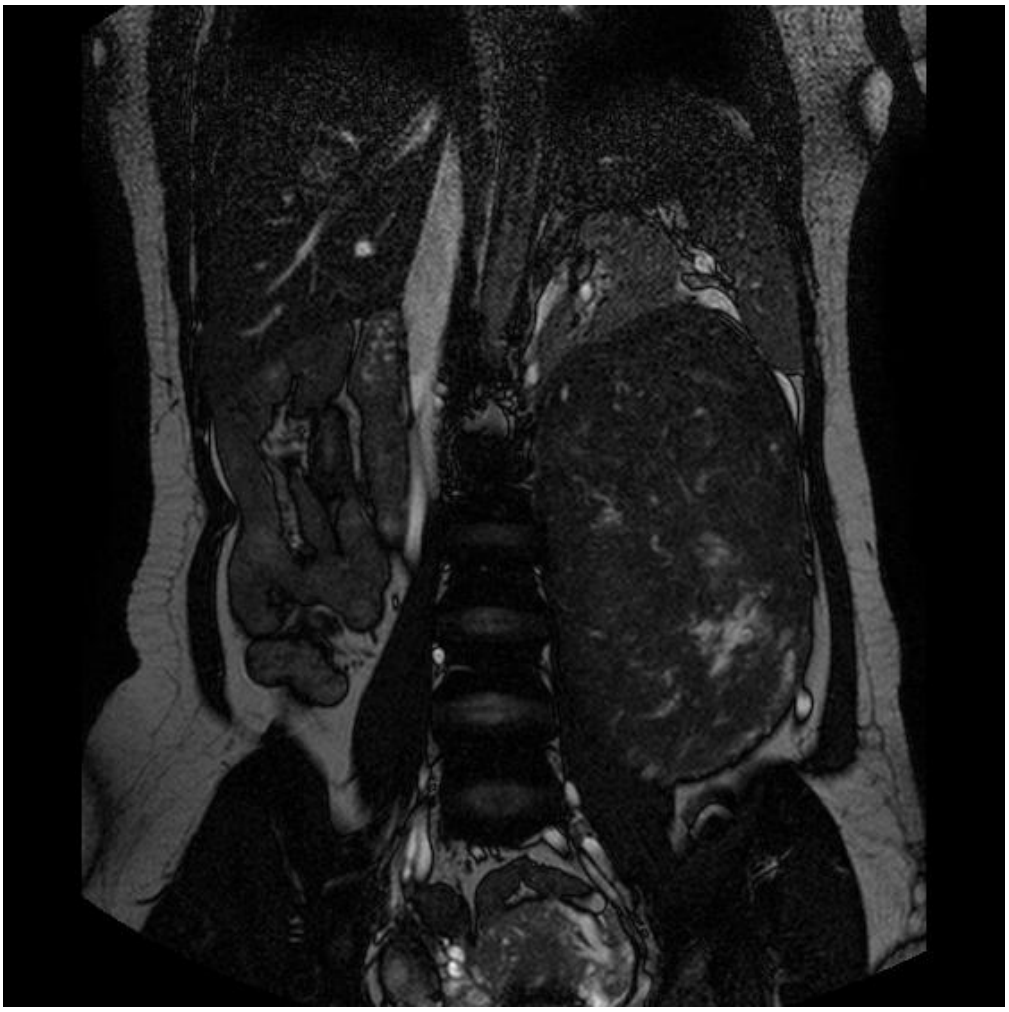

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Figure 7

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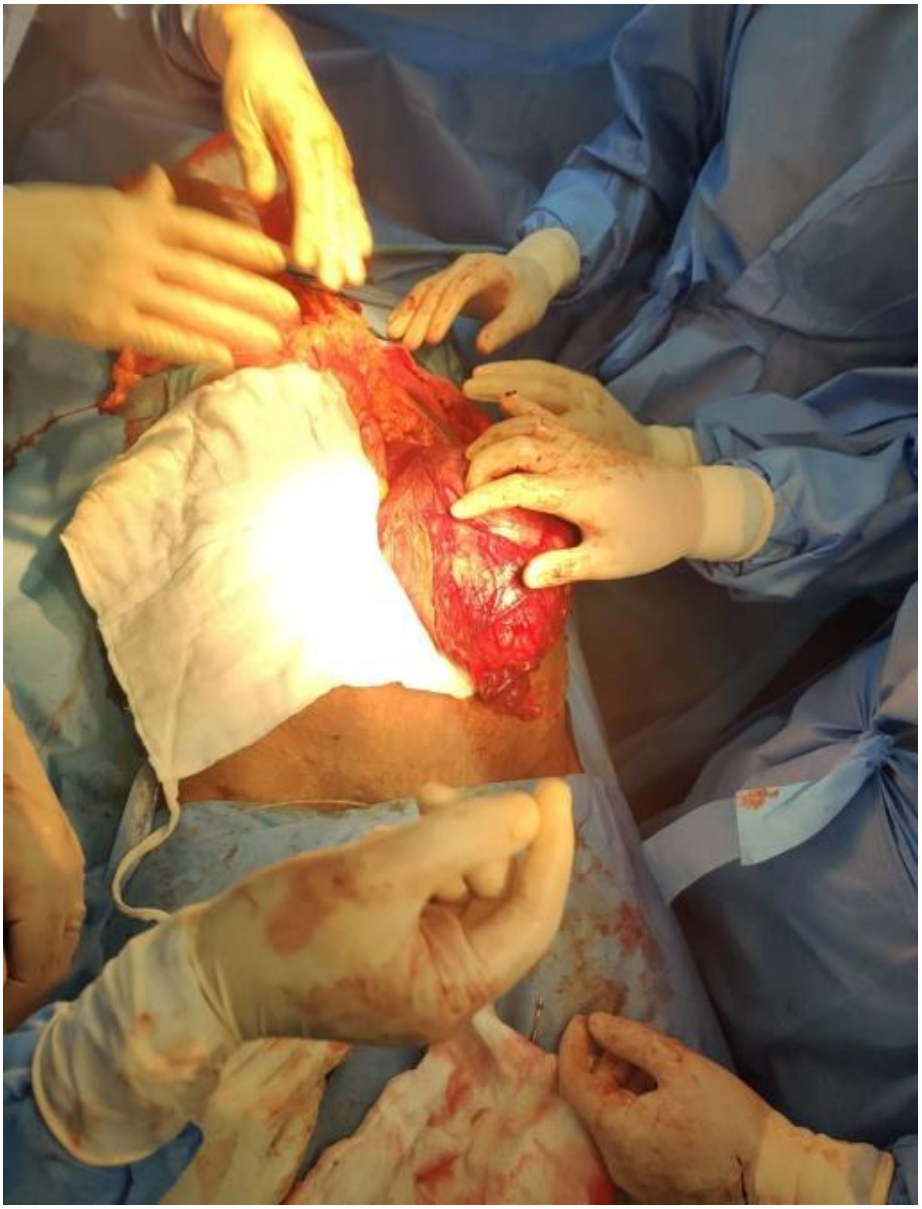

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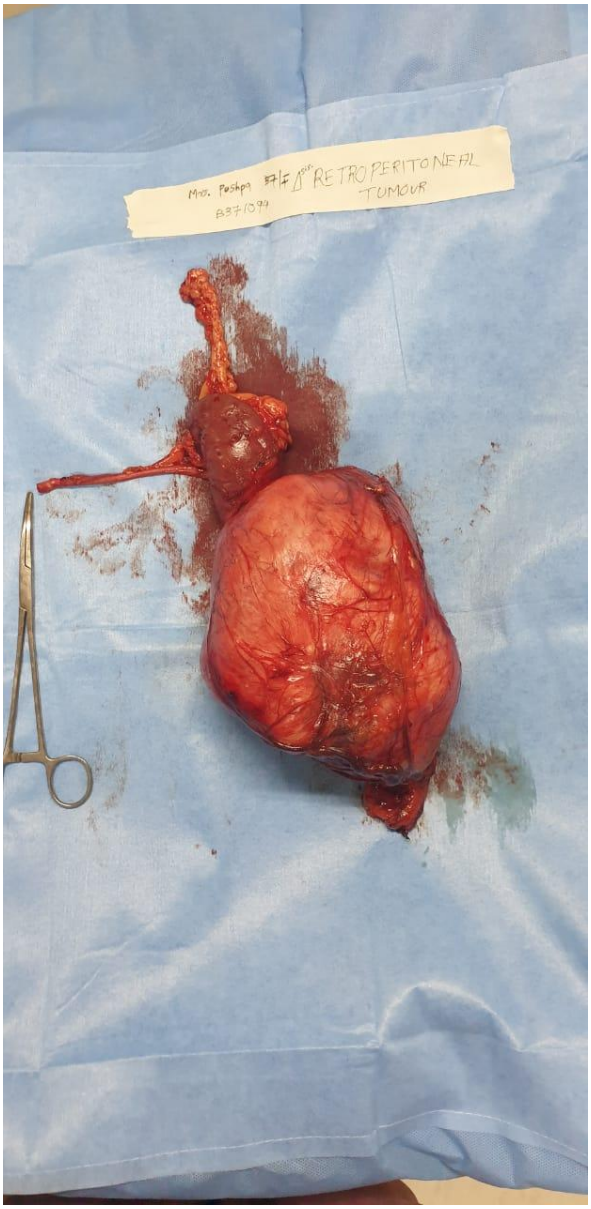

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Figure 8

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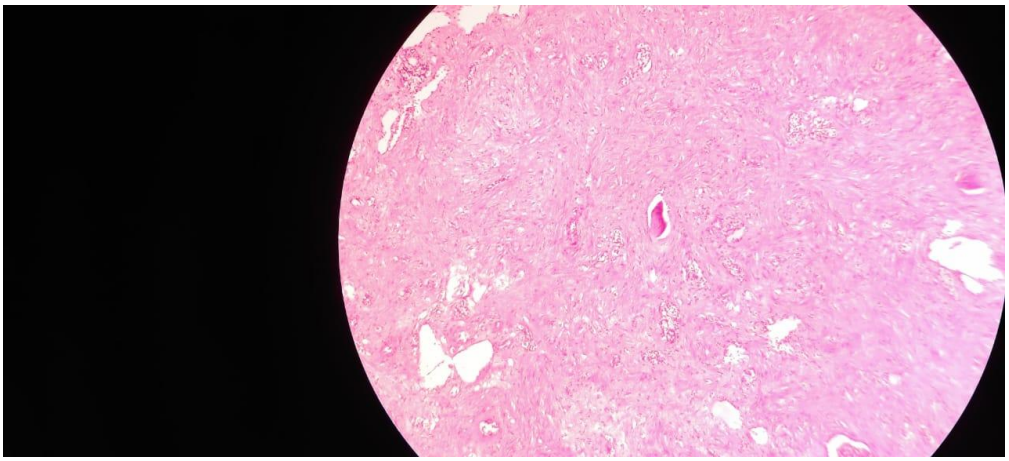

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