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A HUGE LEIOMYOMA OF THE KIDNEY: A RARE BENIGN TUMOR

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ABSTRACT

Leiomyoma of the kidney is a rare benign tumor originating from smooth muscle. Risk factors for leiomyoma include HIV infection, Ebstein bar virus infection, tuberous sclerosis and genetic mutations . Clinical and radiological differentiation of renal leiomyoma from other renal tumors including malignant tumors still remains a challenge and therefore the only way of differentiating it from rest is by histopathological examination. We report a case of this condition in 43 years old female who presented with flank mass and pain.

CASE REPORT

A 43-year-old female presented with progressive abdominal swelling from right side advancing to occupy the whole abdomen and dull pain radiating to the back for 6 years. There was also history of nausea and loss of weight. However, no history of vomiting, fever or blood in urine. She reported to be HIV positive for 6 years on Tenofovir, Lamivudine and Efavirens for past 3 years. She reported to adhere to medication daily and her viral load was undetectable which was done 2 weeks prior to surgery. On physical examination there was a large firm asymmetrical mass occupying the entire right side of the abdomen crossing to the left side of the abdomen. On evaluation, abdominal-pelvic ultrasound revealed a huge heterogeneous solid mass arising from right kidney crossing the midline extending to pelvic region. On contrast enhanced computed tomography scan there was a large well circumscribed non enhancing mass measuring 23 cm x23 cm x 24 cm of 142 HU arising from the upper pole of right kidney with necrotic changes (figure 1). The right

kidney was normal in size, appearance and position. Lung, liver, renal arteries and veins and inferior venacava were normal. There was no lymphnode enlargement. The preoperative impression was renal cell carcinoma.

The patient underwent abdominal exploration through midline incision and intra-operative the tumor was well circumscribed fibroid like mass arising from upper pole of renal capsule. Though more than two third of kidney appeared normal it was not possible to separate the tumor from normal kidney and therefore right radical nephrectomy was performed. The tumor was measured 30 cm x 30cm x 30 cm in size and weighed 15 kg (Figure 2). There was no ascites, no paraortic lymph node enlargement and rest of abdominal viscera was normal. The contra lateral kidney appeared normal. Intraoperative blood loss was approximately 1500mls as the tumour was easily bleeding and the patient received 2 units of blood postoperatively with one-unit transfused intaroperative. The surgery took 4 hours and there was no other major effect apart from significant bleeding. Oral intake and ambulation was initiated on 3rd day post-operative and patient was discharged after 12 days pos operative following removal of all stitches. On follow up clinic there was no complication and there was no any new complain, no tumour recurrence and patient is clinically stable and healthy 2 years following surgery.

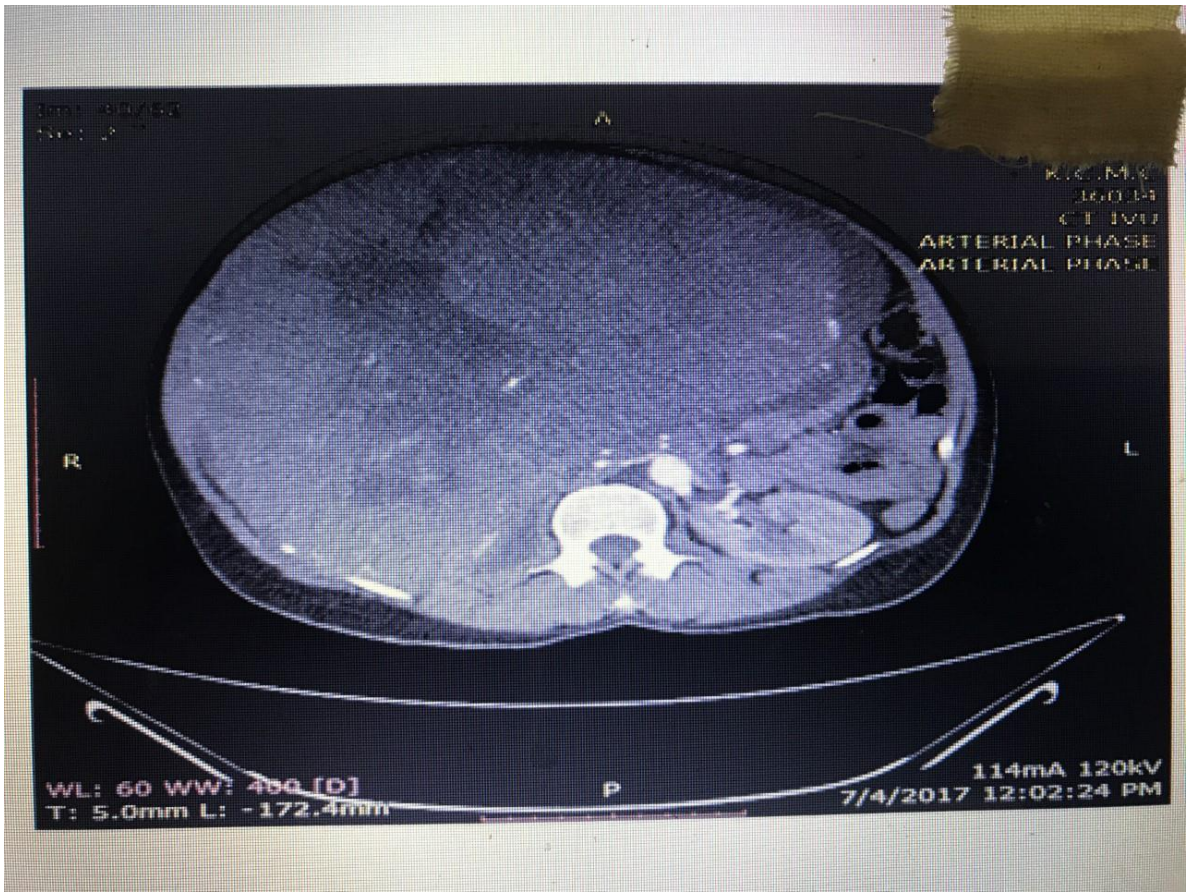

Figure 1: CT scan of the patient with huge Leiomyoma before surgery. A non enhancing right kidney mass, crossing the midline.

Macroscopically from pathology report received a large mass (30cm*30 cm*30 cm) which is encapsulated, weigh 15kg was received. Mass arise from lower pole of the kidney crossing midline. Tumor was firm and grayish white. Cut section showed fibrous tissue with cystic lesion at the center.

In microscopic examination, a section showed tissue formed by diffuse tumor surrounded by thick capsule. Tumor is composed of whorled pattern smooth muscle bundles separated by well vascularized connective tissue. Smooth muscle cells are elongated with eosinophilic fibrillar cytoplasm and distinct cell membrane. Cystic changes are marked. There is no cellular pleomorphism, no mitotic activity or necrosis. Capsular is not involved.

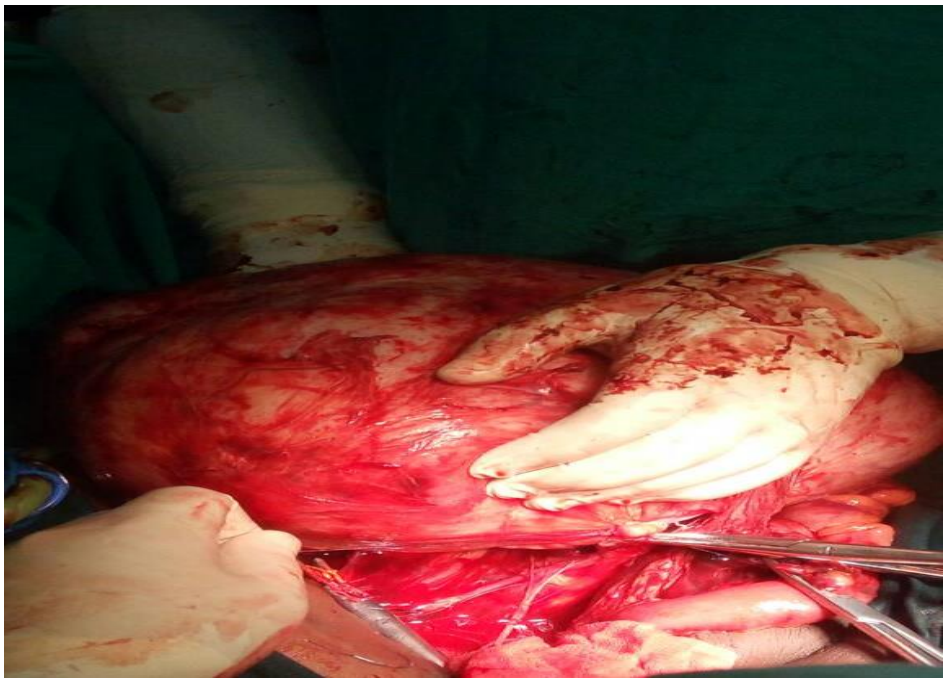

Figure 2: Macroscopic appearance of Renal Leiomyoma, A fibroid like tissue

DISCUSSION

Leiomyoma describes a benign soft tissue tumor which can develop anywhere in the body where smooth muscle is present such as skin, the eyes, the uterus(most common benign tumor in females), the bladder,, the gastrointestinal and respiratory tracts[1]. Leiomyomata are very rare in the urogenital system, urinary bladder being the most common organ involved. Renal leiomyoma are found at autopsy at a frequency of 4.5 % to 5.2%[1] but very few are discovered clinically. Renal leiomyoma is a rare condition and comprise about 1.5% of surgically treated benign renal tumor with about 90 percent arise from smooth muscles in sub capsular or renal capsule while the rest of renal leiomyoma can arise from renal pelvis or veins[1,2,3]. It occurs at an average age of 42 yrs with a female predominance in a ratio of 2:1(F:M). Although the etiology is not exactly known, risk factors include tuberous sclerosis and Epstein-Barr viral infection in immunocompromized individuals[2]. Breakpoints in the q13-15 region of chromosome 12 and combined losses of chromosomes 4, 6, 12 and 14 have been associated with renal Leiomyoma[2,4].

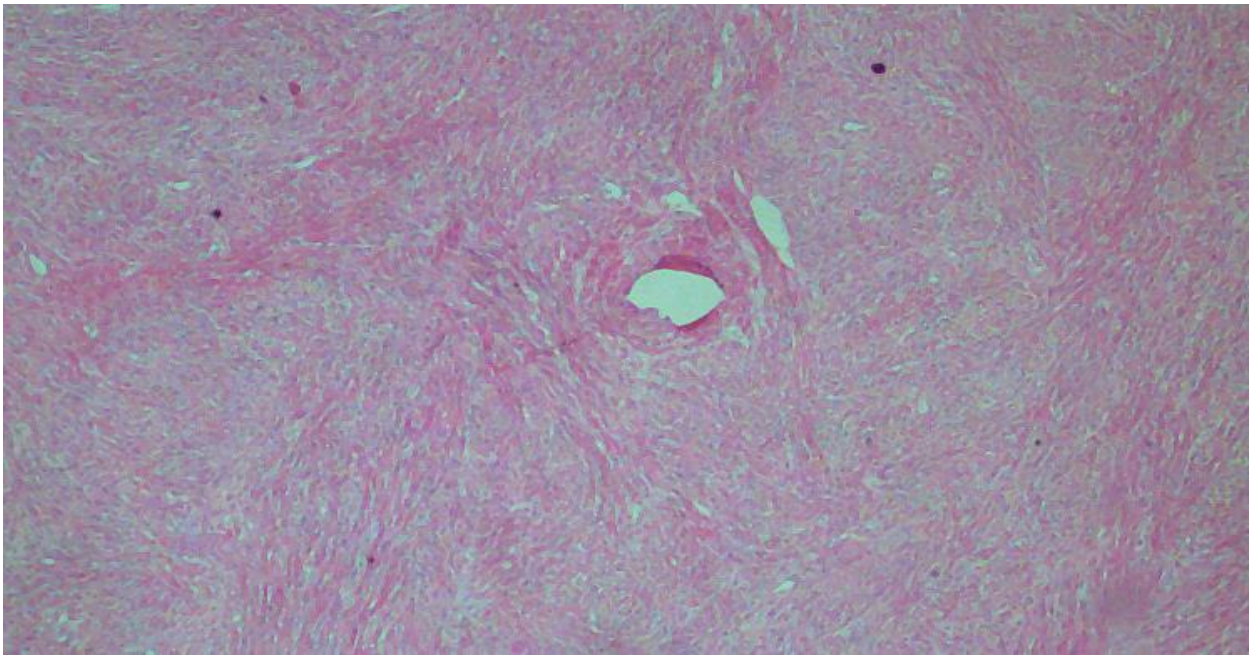

Figure 3: H & E-stained sections with whorled (fascicular) pattern of smooth muscle bundles separated by connective tissue(x4).

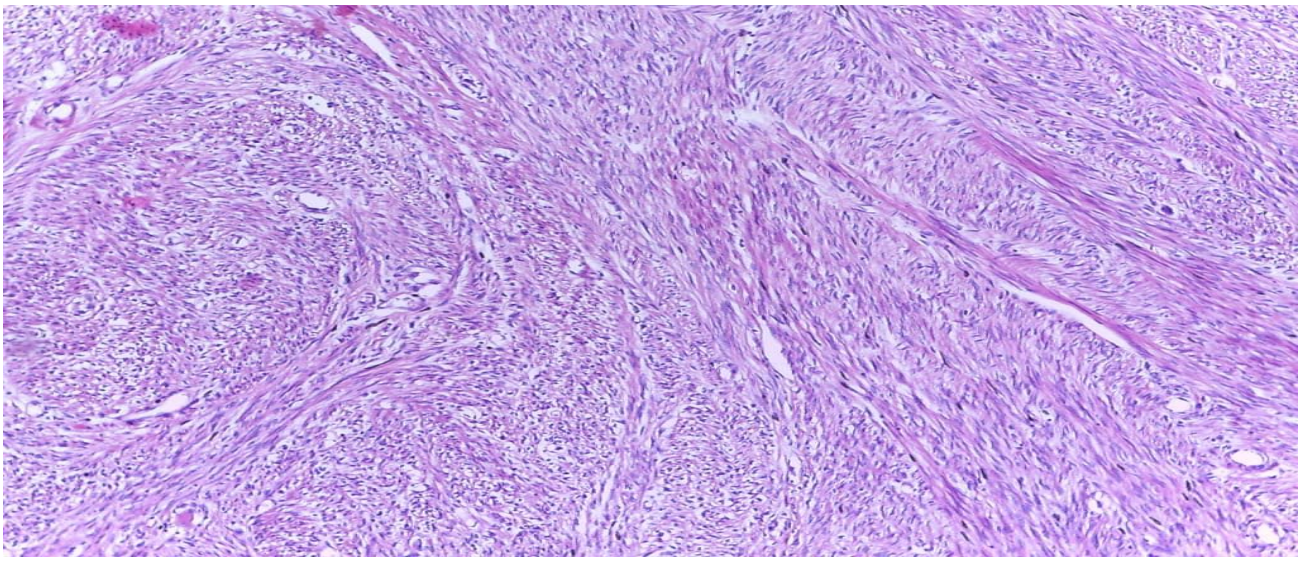

Figure 4: H & E stained sections with whorled (fascicular) pattern of smooth muscle bundles separated by connective tissue(x20).

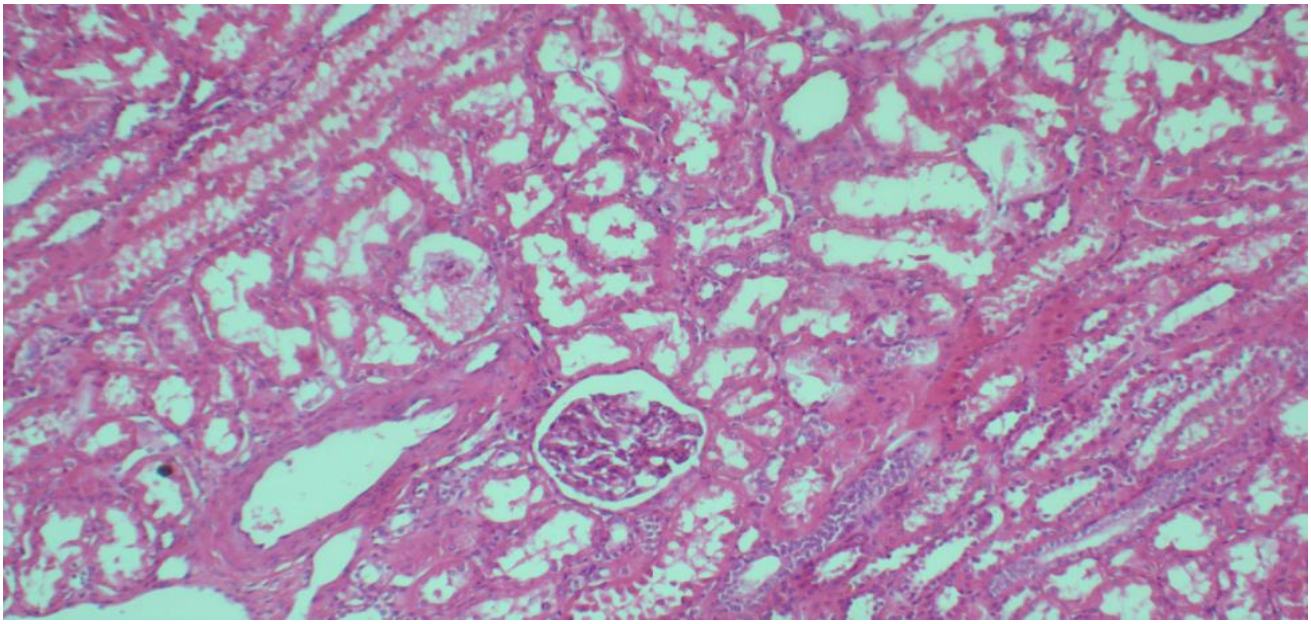

Figure 5: H & E stained sections shows well-formed renal tissue with glomeruli and normal tubules(x40).

Most renal leiomyomas are asymptomatic and diagnosed incidentally when examining for other conditions, but few can become clinically significant. Presentations a large abdominal swelling which may be associated with abdominal pain, hematuria, recurrent urinary tract infections and rarely it can compromise renal function.

Macroscopically, leiomyomas are well encapsulated tumors and range from purely cystic to mixed solid/cystic to purely solid. Radiological differentiation by CT scan from renal cell carcinoma is difficult with characteristic appearance of small exophytic renal mass with or without enhancement arising from renal capsule[1,3].

Microscopic examination of renal leiomyoma reveals intersecting fascicles of smooth muscle bundles separated by well vascularized connective tissue, smooth muscle cells are elongated with occasional fibrillar cytoplasm and distinct cell membrane. There is no cellular pleomorphism, mitotic activity, or necrosis (figure 3, 4 and 5).

Immunohistochemical stains confirm the smooth muscle nature of the tumor with strong diffuse positive staining for smooth muscle actin, desmin and vimentin. Capsular leiyomyoma usually stain positive for melanoma markers[1,4,5,6].

Radical nephrectomy is the main stay of treatment of symptomatic renal leiomyoma although nephron sparing nephrectomy can be done when technically feasible. The prognosis is excellent with its complete removal due to benign nature of the tumor.

Although HIV is mentioned as a risk factor for Leiomyoma, very few case reports have reported Leiomyoma in an HIV patient. This is a typical case of a huge leiomyoma in an HIV patient. Furthermore, the prognosis in this patient is excellent which indicate probably there is no difference in prognosis of Leiomyoma in HIV patients compared to immunocompetent. However, more research should be done so as come with high level evidence. Renal leiomyoma should also be considered as a differential diagnosis of any renal mass as it is difficult to differentiate it from malignant tumor by radiological investigations as was for this case.

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