INTRODUCTION
Leiomyoma are benign tumours originating from smooth muscles which are mesenchymal tissues. They were first described by Virchow in 1854.1 Leiomyomas are commonly found in the uterus but can involve any organ of the genitourinary tract, the kidneys.2 Renal leiomyomas are rarely found in the adults.3 They range in size from a few millimeters to large tumours mostly seen in middle-aged women who may present with abdominal pain. In autopsies, the frequency of leiomyoma is 4.2 - 5.2%.4 It is seen that most cases remain asymptomatic, only minority of cases are discovered clinically.

Majority of symptomatic patients have a palpable mass and abdominal pain. In most of cases reported, treatment of choice is radical nephrectomy and diagnosis is based on histology.

Here, we report this rare condition in a young man who presented with painless gross hematuria without any palpable mass and treated by resection through a uretero-renoscope.

CASE REPORT
A young man aged 25 years presented with painless gross hematuria and passage of clots since last one year. He also had history of recurrent renal stones for which ESWL along with DJ stenting of left ureter was done thrice. Urinalysis revealed microscopic hematuria. Three consecutive urine cytologies were negative for malignancy. Complete blood counts and serum creatinine was normal. Computerized tomography (CT) showed an approximately 1.4 cm enhancing soft tissue nodular lesion projecting into the left upper pole calyx and renal pelvis creating a filling defect with an infiltrative enhancing lesion associated with left para-aortic matted and non-matted lymph nodes (Figure 1). Right kidney was normal. No signs of any metastasis seen. Differential diagnoses were transitional or renal cell carcinoma. He underwent left ureterorenoscopy (URS) under general anesthesia.

Operative findings were suggestive of a growth at the level of upper pole calyx protruding into the renal pelvis. Growth resected with electric cautery used through the ureterorenoscope and removed with Dormia basket. Tumour sent for histopathology for tissue diagnosis. Left ureter was normal (Figure 2). The postoperative course was uneventfull.

Gross examination of the specimen showed three tan white irregular fragments of tissue collectively measuring 1.0 cm (Figure 2). Microscopically, it showed renal pelvic mucosa showing hyperplastic urothilial linings. Subepithelial tissue showed intersecting bundles of bland, uniform smooth muscle cells. There was no mitosis or necrosis. Inflammatory infiltrate was seen in subepithelial area. Diagnosis was suggestive of leiomyoma of left renal pelvis (Figure 3).

The patient was followed after 6 months and was asymptomatic. A routine follow-up CT scan of abdomen showed no recurrence.

Figure 1: Contrast enhanced abdomen-pelvis CT scan of patient shows (a) in coronal section, red arrow demonstrates the filling defect in left renal pelvis on pyelogram phase. (b) Cross-sectional view, blue arrow shows the mild contrast enhancement of the mass in left renal pelvis, while in green circle is the suspected matted para-aortic lymph nodes.
DISCUSSION

Leiomyoma, a smooth muscle benign tumour, mostly found in the uterus, can also be found in kidneys. Renal leiomyomas are asymptomatic and only found on autopsies, with frequency of 4.2% - 5.2%. Steiner and colleagues described the tumour localization in symptomatic patients as subcapsular in 53%, capsular in 37% and of renal pelvis in 10%. 

In symptomatic patients half of the cases present with pain and a palpable mass and 20% with hematuria. Renal leiomyomas are divided into two groups on the basis of the clinical features. Small tumours are asymptomatic, sometimes multifocal and incidentally detected in autopsy or after radical nephrectomy. Big tumours are often single lesions, clinically manifested by symptoms / signs such as pain or abdominal palpable mass.

During the last 15 years, the development and use of ultrasonography and CT scan has increased the detection of clinically asymptomatic renal leiomyomas, with an average size smaller than 5 mm, while symptomatic leiomyomas have an average width of 12.3 cm. On CT scan, these tumours have a characteristic appearance of a small exophytic renal mass with or without enhancement mostly arising from renal capsule, but conclusive radiologic differentiation from RCC is not possible. Ultrasonographic evaluation shows leiomyoma as a hypoechoic lesion that could appear solid or cystic. Derchi and colleagues described all leiomyomas were hyperdense as compared to the kidney, with density similar to muscles on non-contrast CT scan. On contrast enhanced study, these lesions had a lower enhancement than surrounding renal parenchyma, have a peripheral location with well-defined margins, with no signs of infiltration into surrounding tissues. For patients with these radiological features, leiomyoma is part of the differential diagnosis, that does not rule out malignant disease.

On gross examination, leiomyomas are described as well encapsulated masses and range from purely cystic to mix solid/cystic or solid in appearance. Microscopically, it reveals intersecting fascicles of smooth muscle with no evidence of hypercellularity, pleomorphism, mitotic activity, or necrosis. Leiomyomas are also diagnosed by using immunohistochemical stains to confirm the smooth muscle nature of the tumour with strong diffuse positive staining for smooth muscle markers desmin and caldesmon.

It is concluded that definitive diagnosis of leiomyoma is only based on histopathology. As medical imaging has improved, renal leiomyomas is included in the differential diagnosis of renal cell carcinoma, leiomyosarcoma, angiomylipoma and oncocytoma especially with respect to kidney-sparing surgery.

The main differential diagnosis of leiomyoma is usually made with angiomylipoma of the kidney (AML). Most of these AMLs are composed of a variable mixture of mature fat, thick walled blood vessels and smooth muscle, but in many cases it reveals that the smooth muscle component is the most represented on histology. These angiomylipomas have a co-expression of melanocytic marker (HMB-45) and smooth muscle markers desmin and caldesmon.
focal expression of HMB-45 was seen in cortical leiomyomas and suggested a relationship to AMLs and other tumours of the peri-vascular epithelioid cell family.10

Surgery is still the gold standard in patients with large renal leiomyomas and radical nephrectomy is the typical approach with an excellent prognosis.5 Smaller masses (≤ 4 cm) are better treated with conservative surgery. Renal biopsy with the help of interventional radiology is another way to diagnose these benign lesions and to determine need for nephron sparing surgery.

**REFERENCES**
