

## Large urinary bladder leiomyoma causing right hydronephrosis, a rare case report: diagnosis and management

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### ABSTRACT

#### Background

Leiomyoma of the urinary bladder is a rare tumor despite the routine use of ultrasonography. These tumors are typically asymptomatic, sometimes present with hematuria, dysuria, and bladder outlet obstruction. Leiomyoma is a benign tumor which is detected incidentally and rarely causes upper urinary tract changes. (1, 2) We present an extremely rare case of leiomyoma in urinary bladder causing right hydronephrosis and presenting with flank pain.

#### Case summary

A 42 years female presented with flank pain in the emergency room as result of hydronephrosis in the right kidney. Imaging of urinary tract revealed 6 x 6.5 cm, a well-circumscribed tumor with right hydroureteronephrosis suggestive of leiomyoma of the urinary bladder. Excision of leiomyoma was done intravesically with preservation of bilateral ureteral orifices'.

#### Conclusion

Our case highlights despite being a large tumor there was no ureteral involvement. The hydronephrosis was the result of compression from large sized leiomyoma which was successfully managed by excision of leiomyoma.

#### Keywords

Leiomyoma, urinary bladder, Hydronephrosis, Transurethral biopsy, ureteric orifice

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## Background

Leiomyoma's are infrequent tumors in urinary bladder. Mesenchymal tumors account for 1-5% bladder tumors and Leiomyoma accounts for 30-40% of all mesenchymal bladder tumors. They are more common in females of childbearing age. These tumors are mostly asymptomatic and rarely present with hydronephrosis and flank pain. We present challenging and rare case of large leiomyoma causing right hydronephrosis and hydro ureter. (1, 2)

## Case Presentation

42 years female presented with flank pain in emergency room. Patient was examined and investigated. Ultrasound done in emergency was suggestive of right hydronephrosis. The ultrasound of urinary bladder was suggestive of

hypoechoic, with hyperechoic rim in posterior wall of urinary bladder. Figure 1 and 2

Contrast-enhanced CT scan revealed a 6.5 X 6.5 cm, well circumscribed, homogenous, mildly enhancing solid tumor in posterior urinary bladder wall causing compression on right lower ureter leading to right hydronephrosis with hydroureter with left mild hydronephrosis. Figure 3,4

In view of urinary bladder mass cystoscopy was done. The cystoscopy revealed a large solid mass in the posterior wall with normal overlying mucosa. Transurethral biopsy was done which was suggestive leiomyoma. Due to the large size, and right hydronephrosis the patient was considered for transvesical removal of bladder mass and possible ureteric implantation.

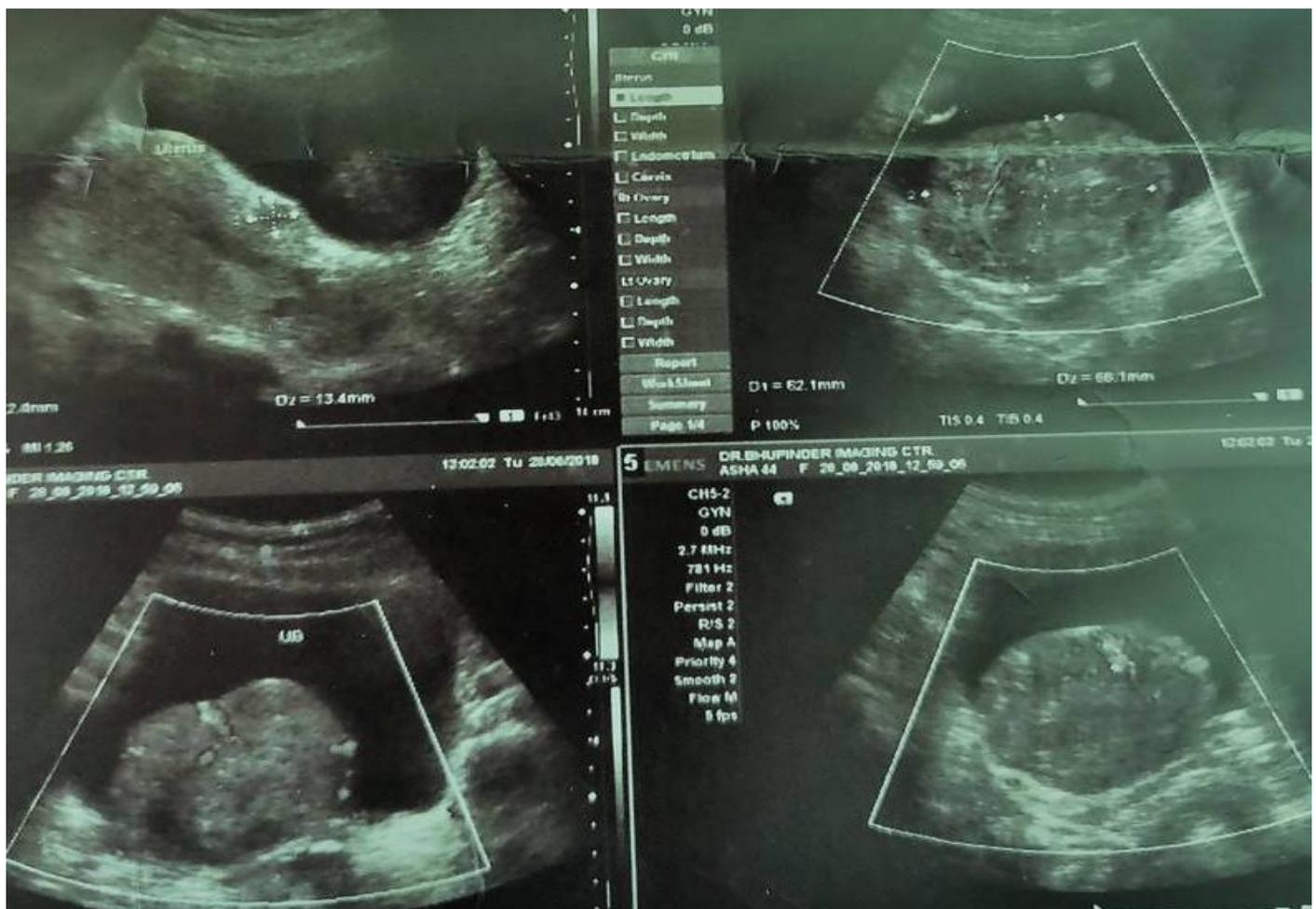
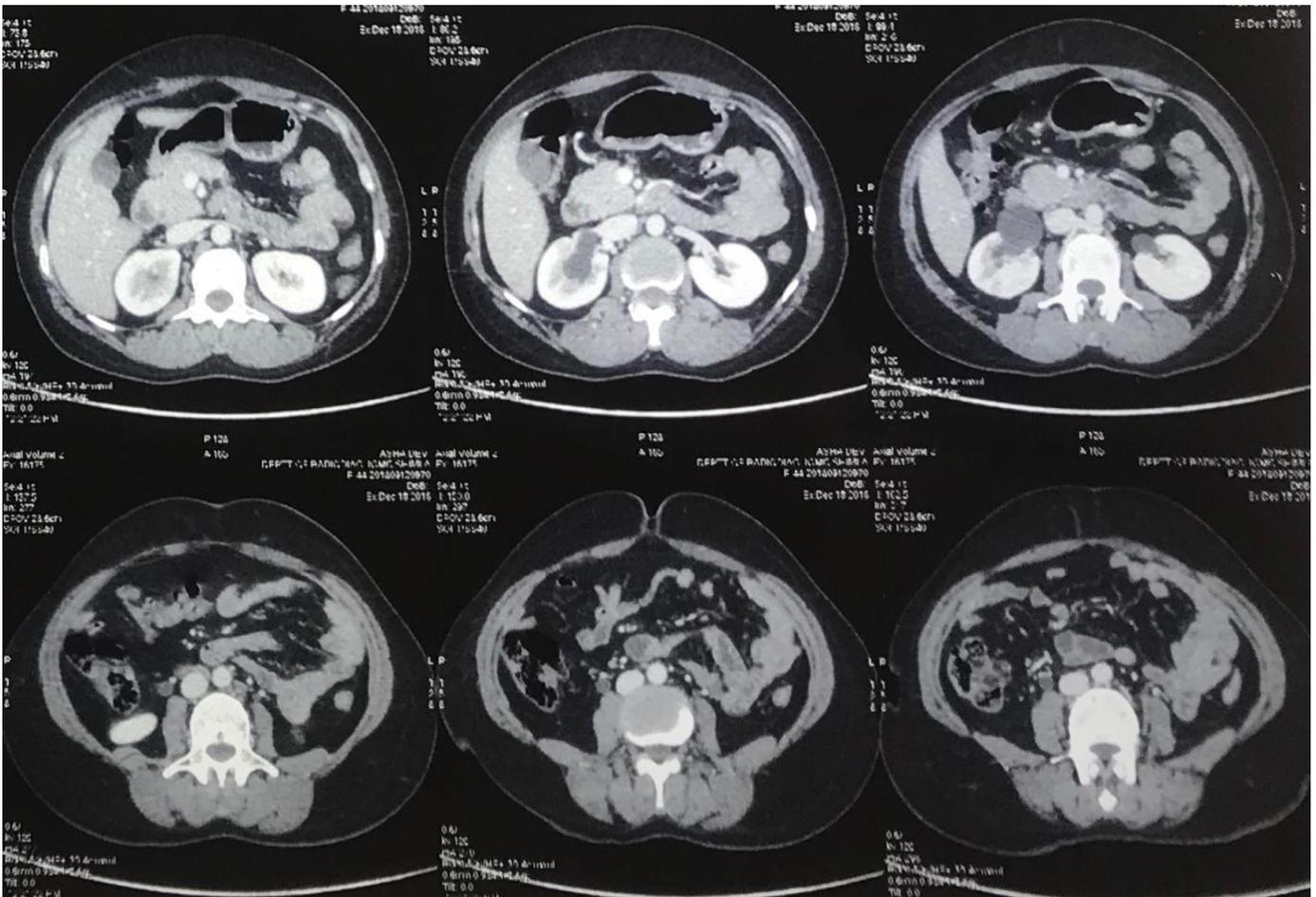


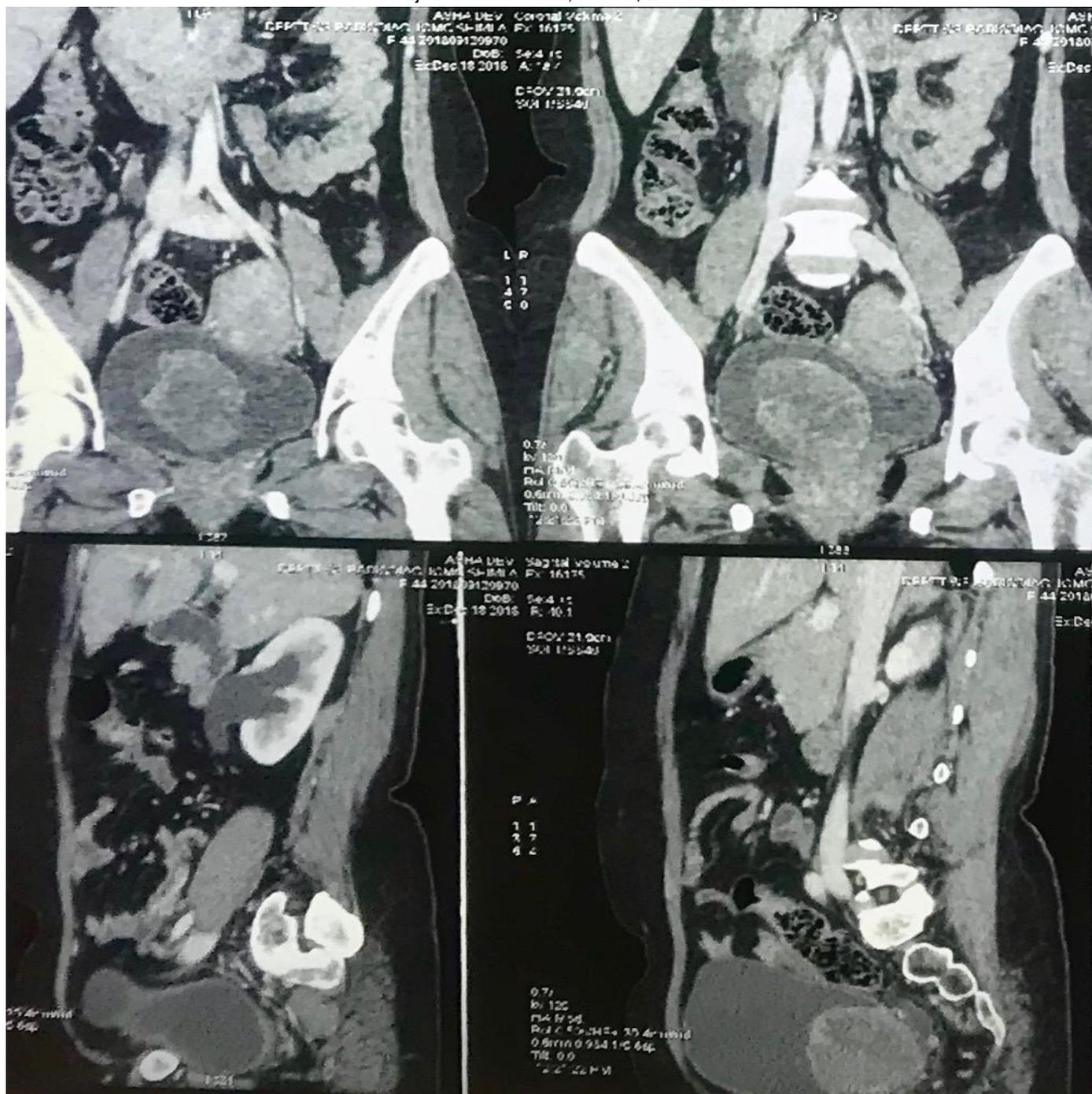
Figure 1. Ultrasonography of leiomyoma showing hypoechoic, with hyperechoic rim in intravesical mass



**Figure 2 a .Well defined hypoechoic solid with hyper echoic areas (rim) b. Contrast enhanced CT scan show well defined smooth, solid, and homogenous mildly enhancing mass of size 6.5 x 6.5 cm in posterior wall of urinary bladder and trigone.**



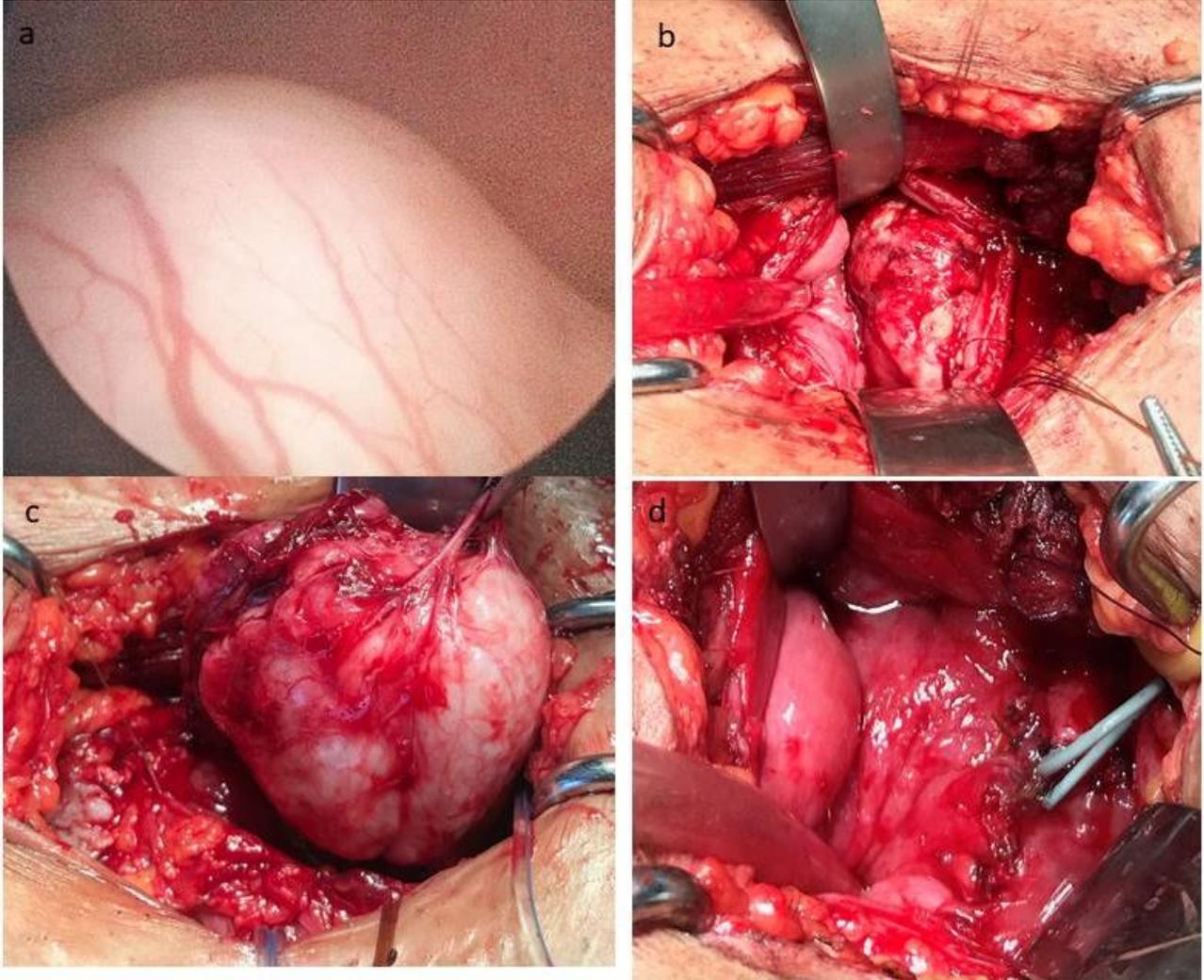
**Figure 3. Contrast enhanced CT scan showing right hydronephrosis with hydroureter till vesicoureteric junction, also seen is solid mass in posterior wall and trigone of urinary bladder**



**Figure 4. Contrast enhanced CT scan showing right hydronephrosis with hydroureter till vesicoureteric junction, also seen is solid mass in posterior wall and trigone of urinary bladder.**

After spinal anaesthesia pfannenstiell incision, cystotomy was done. A large solid mass with overlying normal mucosa was seen displacing the posterior wall of the urinary bladder and bilateral ureteric orifice. The tumor has not invaded right vesicoureteric orifice but causing compression. The mass was excised and both ureters were stented. Urinary bladder was closed in two layers. Figure 5,6

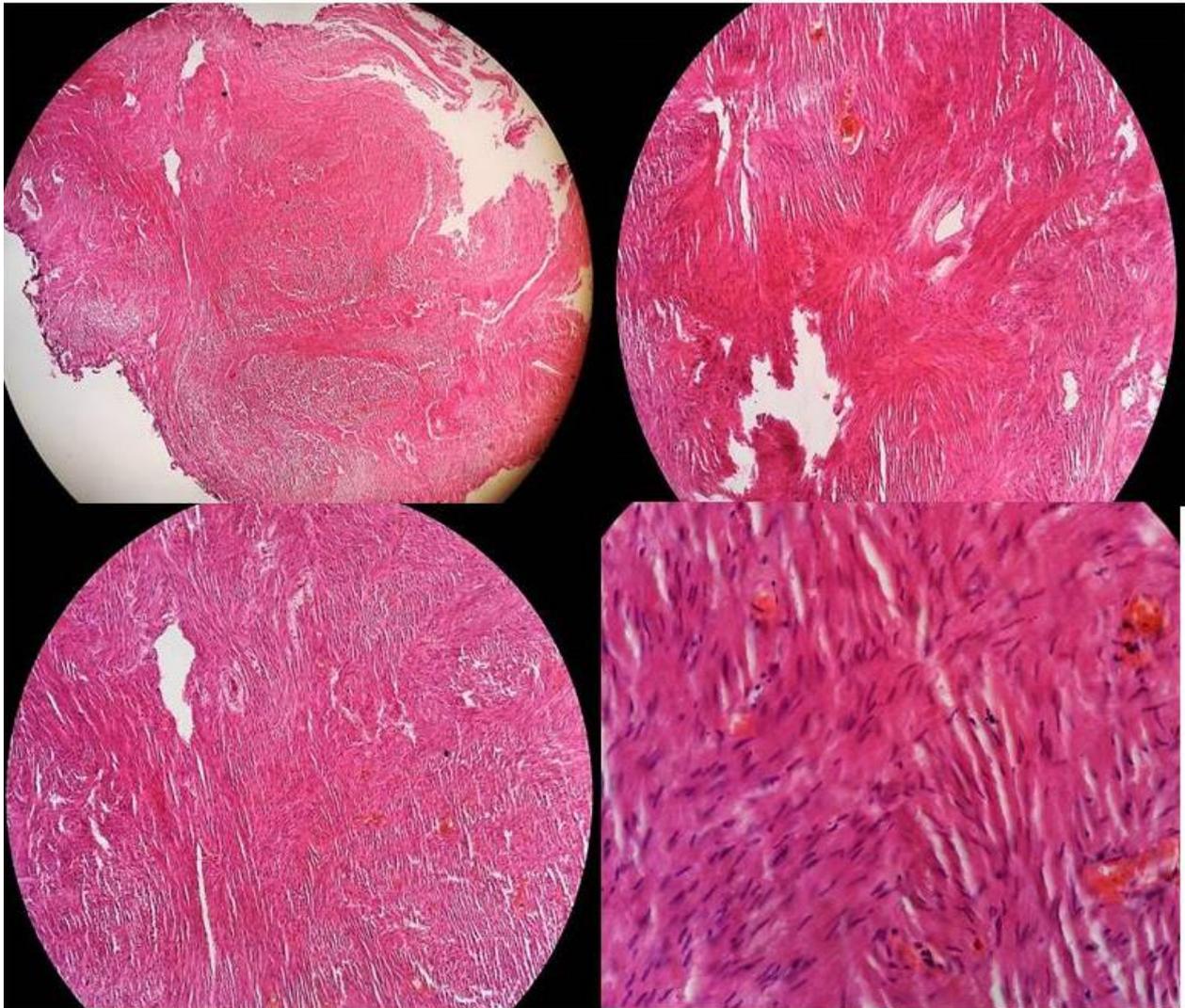
Bilateral double j stents were removed at 2 weeks. On follow up at 1 month the bilateral kidneys were normal. The tumor was solid, well circumscribed greyish white, whorled appearance. On microscopic examination the spindle cells form bundles with different directions (whorled). The smooth cells were separated with variable amount of connective tissue. Figure 7



**Figure 5. A.Cystoscopy shows intraluminal projecting solid mass with normal overlying mucosa, b. Pfannenstiel incision with exposing of intravesical leiomyoma, c. Excision of leiomyoma, d. closure of mucosa and double j stenting of right ureteric orifice.**



**Figure 6. Urinary bladder leiomyoma of size 6.5 x 6.5 cm, rounded with greyish white and whorled appearance on cut section**



**Figure 7. Histopathology of leiomyoma showing whorled interlacing fascicles of typical smooth muscle cells. Immunohistochemistry were positive for smooth muscle actin.**

### **Discussion**

The urinary bladder leiomyoma's are rare tumors; even with increased use of ultrasound the incidence is still low. The aetiology of leiomyoma is unknown however few theories are hormonal imbalance, chromosomal alterations, chronic cystitis etc. (3)

Most patients with leiomyoma present with obstructive urinary tract symptoms, hematuria, and pain. (4)

Leiomyoma's are divided into intravesical (65-86%), intramural (3-7%) and extravesical (11-30%). (4, 5)

The diagnosis depends upon ultrasound and cystoscopy. Endovesical leiomyoma arises from the sub mucosal region and may be

pedunculated, intramural are in detrusor muscle fibres. The endovesical tumors will cause irritative and obstructive symptoms and hematuria resulting in early diagnosis. The intramural tumors are less symptomatic until their size increases.

The initial diagnosis is by ultrasound suggestive of smooth, well circumscribed, well defined masses in the bladder wall. Cystoscopy aids in diagnosis with normal mucosa with bulge into lumen.

CT scan further helps in diagnosis and confirms it. MRI is more specific for leiomyoma. The leiomyoma are hypointense in T1 and T2 weighted sequences. (6)

Bladder leiomyoma's are managed according to size and location. The option ranges from

TURBT, excision to partial cystectomy. The exact location, size, extent and potential involvement of the ureters or sphincter will determine which of these therapies is the most appropriate. Small tumors may be resected endoscopically, whereas tumors at dome may be excised laproscopically.

The endoscopic resection is not difficult as tumor is well circumscribed with vascularity at surface. The tumor could be easily separated from detrusor muscle fibres. The excision is usually complete as tumor tissue is distinct with well defines plane in between. The large tumors require open excision due to lack of space in urinary bladder, location near ureteric orifices and chances of perforation of urinary bladder. (7)

According to Goluboff et al 62% of the patients required open resection, while 38% were treated with TURBT. (3)

Our case of leiomyoma presented with flank pain which is extremely rare, in view of hydronephrosis possibility of other tumor was kept. After biopsy of tumor, patient was planned for excision and possible ureteric implantation. Intraoperative finding suggest no invasion of ureteric orifice but only compression. This case highlights that despite being a large leiomyoma these tumor can easily be resected and ureter involvement is seldom.

**Conclusion**

	Contributor MK	Contributor KB	Contributor GK	Contributor KMP	Contributor or PR
Concepts	√-	√	-	√	-
Design	√	√	√	√	-
Literature search	√	√	√	-	-
Clinical studies	√	√	√	√	--
Manuscript preparation	√	√	-	-	-
Manuscript editing	√-	-	-	-	√
Manuscript review	√-	√	√	√	-

Leiomyoma are rare tumors which may be diagnosed by ultrasound, cystoscopy and confirmed by CT scan or MRI. The small tumors are resected endoscopically. However large tumors require open excision. The hydronephrosis is secondary to compression and managed mostly by excision of tumor and stenting. The resection is usually complete and rarely requires re excision. The recurrence rate is very rare so does not require regular follow up.

***Written informed consent was obtained from the patient for publication of this case report and any accompanying images.***

**Declarations**

Ethics approval and consent to participate Not applicable

Consent for publication yes

Availability of data and material yes

Competing interests The authors declare that they have no competing interests

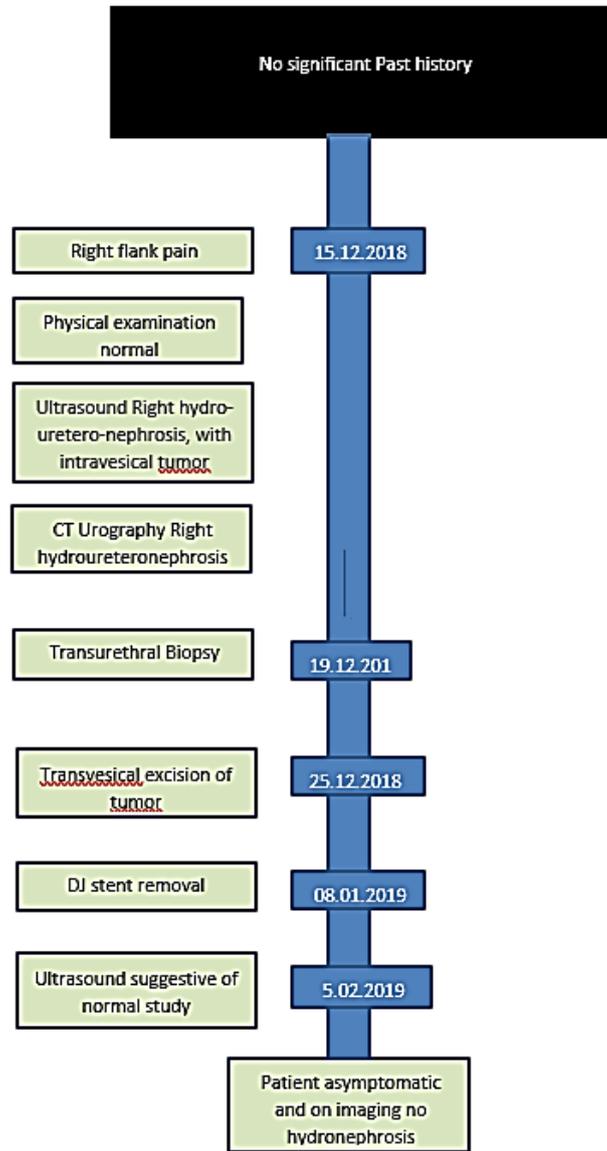
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Conflicts of interest

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Authors' information provided in 1<sup>st</sup> page

Authors' contributions mentioned in 1<sup>st</sup> page of manuscript



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