

## Leiomyoma of the urinary bladder

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**Section:** Uroradiology & genital male imaging

**Area of Interest:** Pelvis Oncology

**Procedure:** Staging

**Procedure:** Imaging sequences

**Procedure:** Removal

**Imaging Technique:** MR

**Imaging Technique:** PACS

**Special Focus:** Neoplasia Case Type: Clinical Cases

**Authors:** Abou-Bieh E1, Abd El-Hmeed M2

**Patient:** 32 years, female

### Clinical History:

A 32-year-old previously healthy female developed attacks of suprapubic pain for 1 month and haematuria for 2 weeks. She had no past history of stone disease, urinary tract infection or surgical intervention.

### Imaging Findings:

MRI was done on a 1.5 Tesla machine with the following imaging parameters; axial high resolution T2wi (HR-T2wi) (Fig.1&2) (Torso coil, TR/RE 4240/90, FOV=18 cm, Matrix size: 265 X 224, NEX: 4, Slice thickness: 3 mm, Intersection gap: 1), coronal (Fig. 3&4) and sagittal (Fig. 5) T2wi of the pelvis (Torso coil, TR/RE 3000/90, FOV=28 cm, Matrix size: 256 X 219, NEX: 2, Slice thickness: 10 mm, Intersection gap: 2) revealed large intravesical soft tissue mass with minute areas of cystic degeneration inside, this mass is seen arising from the bladder neck away from both ureteric orifices, it is seen arising from the mucosa of the bladder with no evidence of superficial or deep muscles infiltration, stage T1 bladder tumour. This mass was finally diagnosed radiologically as; intravesical mass likely malignant of stage T1.

### Discussion:

Most bladder tumours are derived from the urothelium. Benign mesenchymal tumours are rare and comprise 1 to 5% of all bladder neoplasms [1]. Most of these tumors are benign and include leiomyoma, neurofibroma, pheochromocytoma, hemangioma, fibroma, nephrogenic adenoma, Inflammatory pseudosarcoma, and rhabdomyoma [2]. Among them, leiomyoma is the most common benign neoplasm, accounting for 0.43% of bladder tumours [1].

About 250 cases of leiomyoma of the bladder have been previously reported in the English language scientific literature [3]. The incidence of leiomyoma of the bladder is approximately three times higher in women than in men [1].

Among the non-invasive imaging modalities, MRI is the modality of choice for imaging the urinary bladder cancer. Multi-planer capabilities and superior soft tissue make this technique a valuable tool for imaging the urinary bladder. In addition, recent advances such as high resolution fast imaging sequences, the use of pelvic phased array coils and contrast agents further improve the imaging quality and thus the diagnostic accuracy for staging urinary bladder carcinoma [4,5].

Non-degenerative leiomyomas are usually visualised on MRI as low-intensity masses both on T1 and T2 weighted sequences with a smooth surface, while degenerative leiomyomas have a heterogeneous signal intensity. A variable pattern of enhancement is observed after the injection of gadolinium: some leiomyomas are homogeneously

enhanced, while others are not [6,7].

Our patient underwent cystoscopic transurethral resection (TURBT) of nodular soft tissue growth. Post operative histopathology (Fig.6) was leiomyoma.

We must keep in mind that not all the urinary bladder tumors are malignant and no definite criteria of malignancy except in the aggressive infiltration to the bladder wall and pelvic lymphadenopathy.

**Differential Diagnosis List:** Leiomyoma of the urinary bladder, Malignant tumour of the urinary bladder, Benign tumour of the urinary bladder

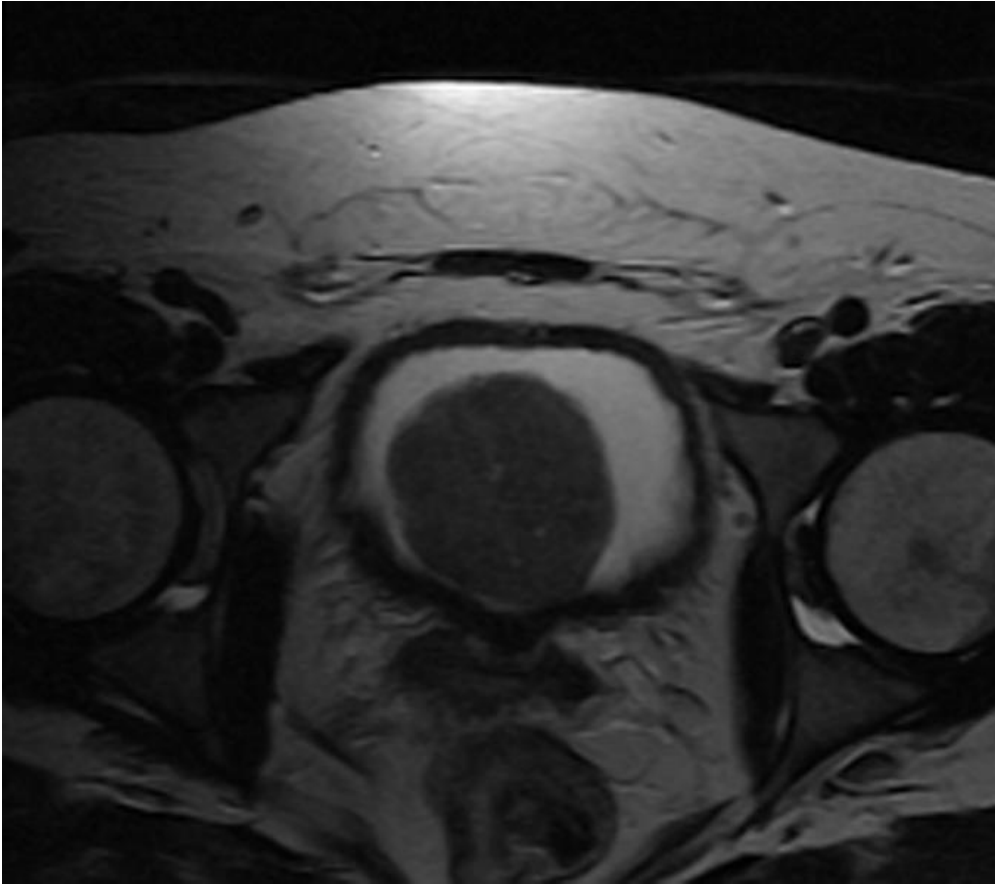
**Final Diagnosis:** Leiomyoma of the urinary bladder

## References:

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**Figure 1**

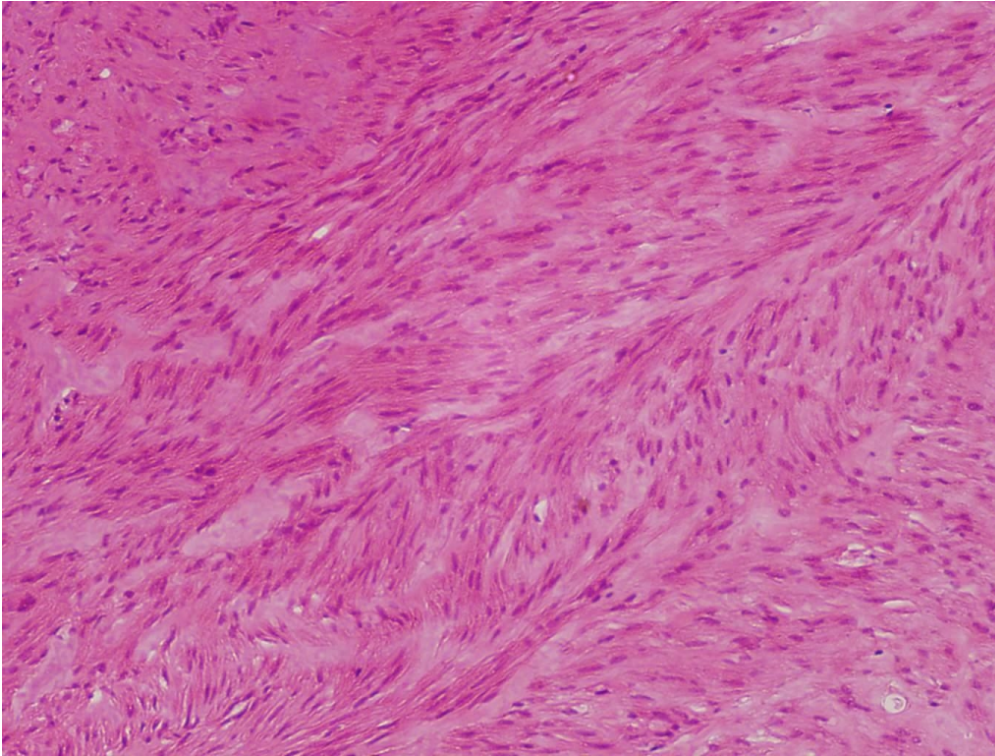
**a**



**Description:** Intravesical mass of intermediate SI arising from the mucosa of the urinary bladder base, no evidence of infiltration of the superficial or deep muscles. Stage T1 **Origin:** Abou-Bieh E, Departement of Radiology, Urology & Nephrology Center, Mansoura, Egypt.

**Figure 2**

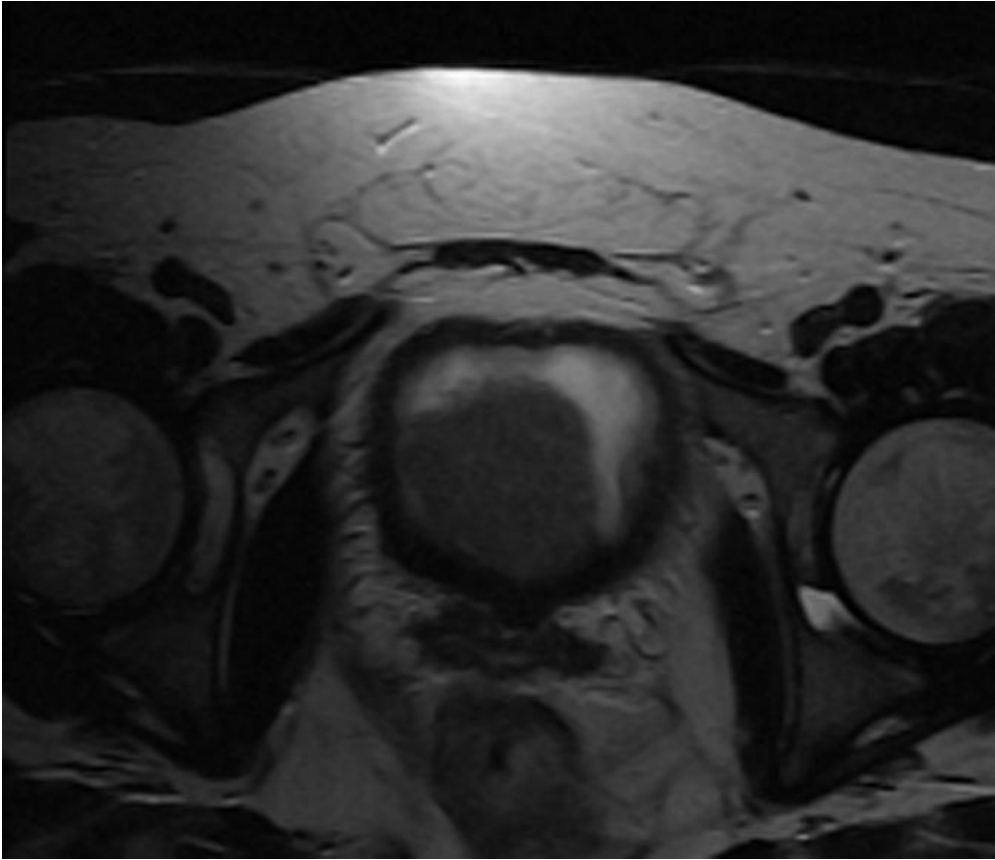
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**Description:** Post-operative histopathology: intersecting fascicles of smooth muscles cells with low cellularity and lacking mitotic activity which is diagnostic for Leiomyoma (Hx&E X100). **Origin:** Abd El-Hameed M, Department of Pathology, Urology & Nephrology Center, Mansoura, Egypt.

**Figure 3**

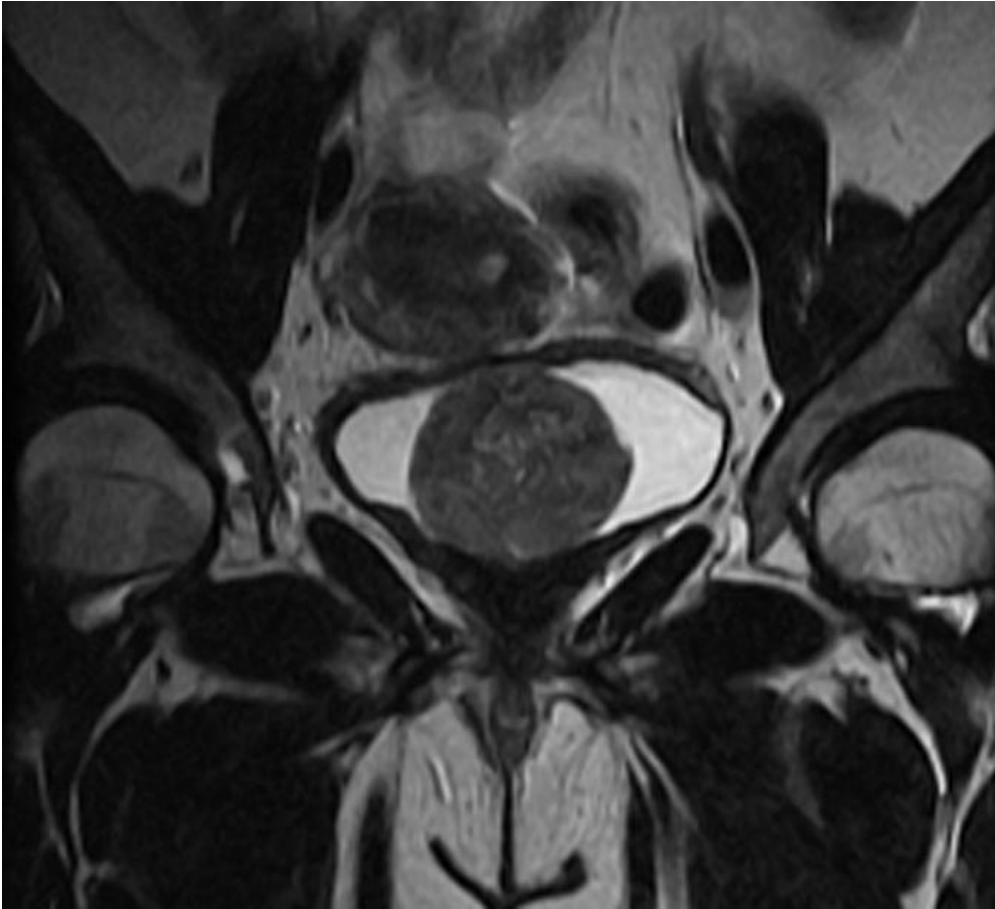
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**Description:** More caudal from high-resolution T2wi of the pelvis **Origin:** Abou-Bieh E, Departement of Radiology, Urology & Nephrology Center, Mansoura, Egypt.

**Figure 4**

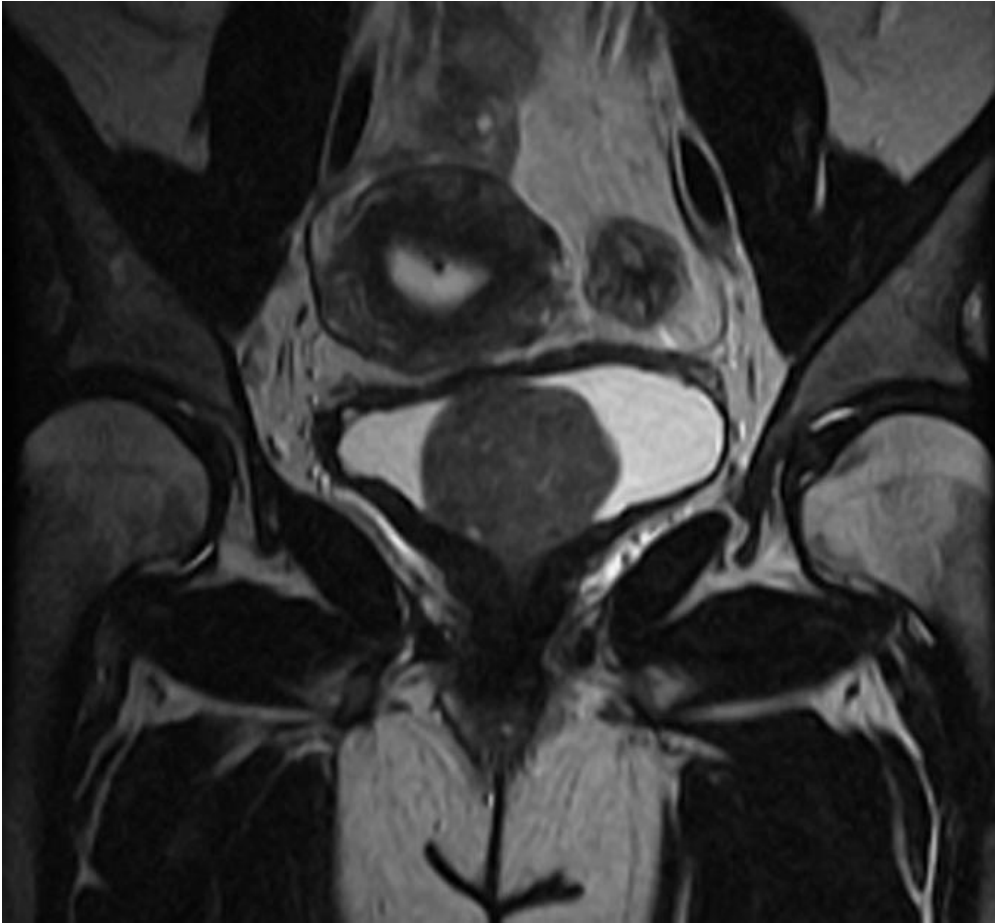
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**Description:** Coronal T2wi of the pelvis with the same intravesical soft tissue mass with the same staging. **Origin:** Abou-Bieh E, Departement of Radiology, Urology & Nephrology Center, Mansoura, Egypt.

**Figure 5**

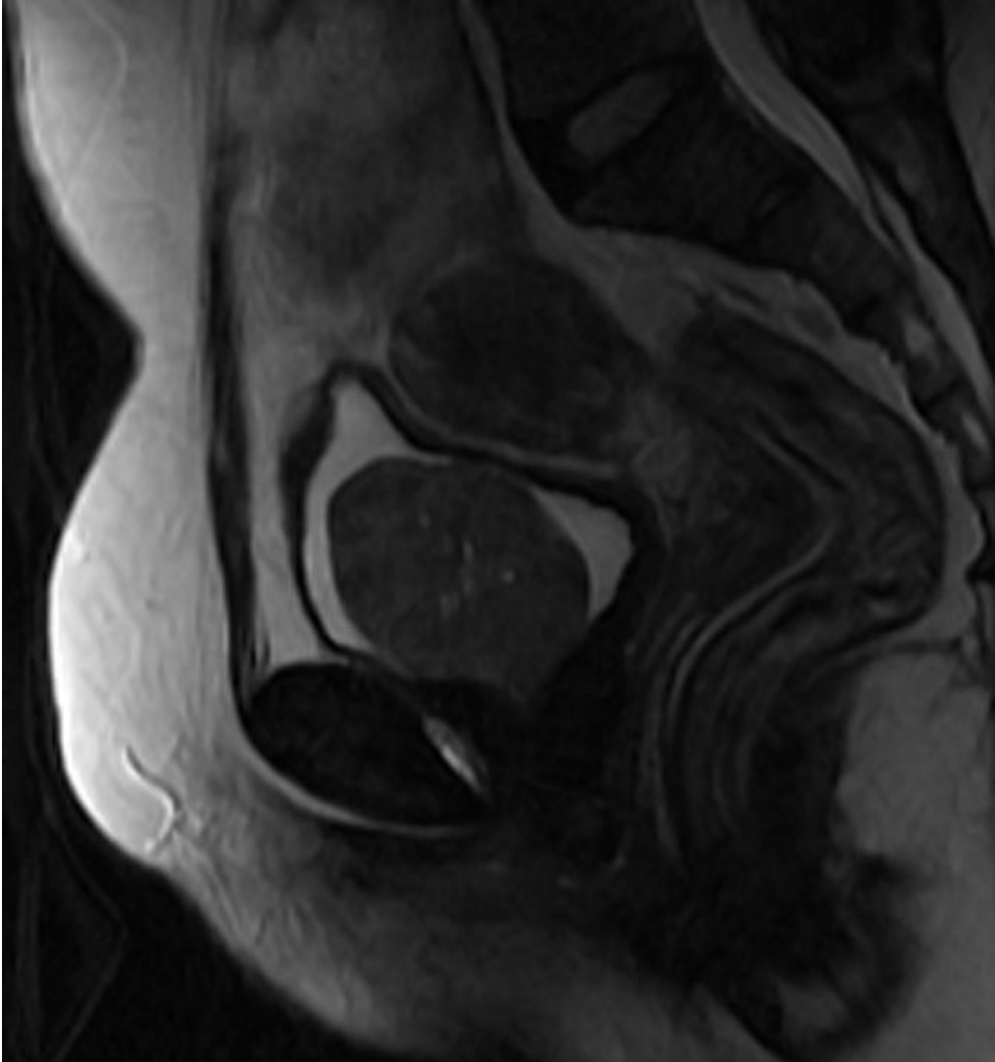
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**Description:** Coronal T2wi of the pelvis more posterior cut. **Origin:** Abou-Bieh E, Departement of Radiology, Urology & Nephrology Center, Mansoura, Egypt.

**Figure 6**

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**Description:** Sagittal T2wi of the pelvis. **Origin:** Abou-Bieh E, Departement of Radiology, Urology & Nephrology Center, Mansoura, Egypt.