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LETTER TO THE EDITOR

Prostate Disease

Prostatic stromal tumor of uncertain malignant potential presenting as a huge bladder mass: an unusual case

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Dear Editor,

We describe a rare case of prostatic stromal tumor of uncertain malignant potential (STUMP) presenting as a huge bladder mass. Based on the previous literature, prostatic STUMP has a low incidence of morbidity. To the best of our knowledge, this is the first report of prostatic STUMP presenting as a huge bladder mass.

A 53-year-old male patient did not have any antecedent injury, but complained of pain in his left back and lower urinary tract symptoms (LUTS) for 11 months. LUTS were manifested as nocturia, urinary frequency, and progressive urinary retention without hematuria. This patient also presented with fever and weight loss lasting for 1 month. His intermittent back pain was localized to the left lumbosacral region and usually triggered from hard labor. Digital rectal examination (DRE) revealed an enlarged prostate without perceptible nodules. The serum prostate-specific antigen (PSA) value was 3.23 ng ml^{-1} (normal range $<4.0 \text{ ng ml}^{-1}$), and no urinary tract infection was found by urine culture. B-ultrasonography and magnetic resonance imaging (MRI) showed a large, round, well-defined mass rooted in the transitional zone of the prostate, which protruded into bladder. The mass represented homogeneous low-signal on T1-weighted imaging and diffusely heterogeneous signal on T2-weighted imaging. The volume of the mass was estimated at $9.8 \text{ cm} \times 8.5 \text{ cm} \times 7.7 \text{ cm}$. A 2.1 cm nodular lesion in the left psoas major was presumed to be a metastatic lesion (**Figure 1**).

The patient underwent B-ultrasonography guided percutaneous needle biopsy of the prostatic mass and pathological examination suspected prostatic stromal tumor. Then, the patient underwent suprapubic transvesical adenectomy and laparoscopic resection of psoas major lesion. Pathological examination of the prostatic mass showed that the tumor was composed of a diffuse proliferation of spindle-shaped stromal cells with scattered atypical mitosis (**Figure 2**). Immunohistochemical examination indicated that the stromal cells were positive for CD34, desmin, diffusely CD117 and partly progesterone receptors (PR), whereas smooth muscle antigen was negatively stained. A final diagnosis of prostatic STUMP was determined by observation of microscopic appearance and immunohistochemical analysis. The

left psoas major lesion was neurofibroma, which excluded metastatic STUMP. After one year of follow-up, there was no sign of metastasis or recurrence.

Prostatic STUMP, arising from specialized hormone-dependent mesenchymal cells of the prostate, is a quite rare neoplasm. To our knowledge, prostatic STUMP presenting as a huge bladder mass has not been reported yet. Prostatic STUMP is manifested by mitotic figures, necrosis, and stromal over-growth, as distinguished from prostatic stromal sarcoma (PSS).¹ The ages of prostatic STUMP patients generally ranged from 25 to 83 years. The most common clinical symptoms are non-specific, including acute or chronic urinary obstruction, hematuria, hematospermia, dysuria, and rectal dysfunction. DRE may reveal perceptible nodule. The serum PSA level is usually at a normal level or elevated mildly, which could be distinguished from other prostatic adenocarcinoma. In our case, the patient, with normal PSA, was 53-year-old.

The MRI of our patient indicated a large mixed solid cystic mass rooted in the transitional zone of the prostate, which protruded into bladder. The mass had homogeneous low-signal on T1-weighted imaging, but it was diffusely heterogeneous signal on T2-weighted imaging. The prostatic STUMP usually localized in the peripheral zone and/or transition zone, based on previous reports.² There was no reports about the prostatic STUMP with characteristics of arising from the transitional zone, protruding into the bladder and presenting as huge bladder mass. Besides, the MRI feature of prostatic STUMP is different from low signal of prostatic adenocarcinoma on T2-weighted imaging.³ Since current radiology techniques are unable to differentiate STUMP from some other mesenchymal neoplasms, B-ultrasonography guided needle biopsy is usually necessary for diagnosis.

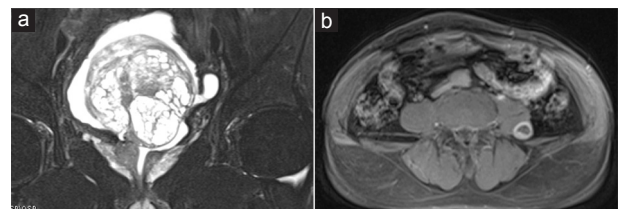


Figure 1: The pelvis and abdomen MRI. (a) An 8.0 cm heterogeneous mixed solid cystic mass in bladder, arising from the transitional zone of prostate in T2-weighted imaging, and (b) a 2.1 cm homogeneous low-signal lesion with high-signal thick capsule behind psoas major in T2-weighted imaging.

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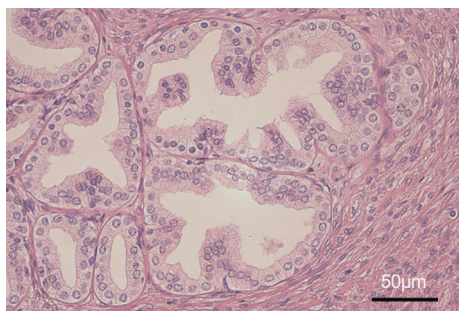


Figure 2: The tumor was composed of hypercellular stroma with scattered degenerative atypical cells admixed with benign prostatic glands, typically lacking mitotic figures. Scale bar = 50 μ m.

The final diagnosis of STUMP is typically based on both histopathology and immunohistochemistry. Four histological patterns of STUMP were defined, including degenerative atypia, hypercellular, phyllodes and myxoid pattern.² Similar to our case, the histological hallmark of degenerative atypia pattern, indicated scattered degenerative atypical cells admixed with benign prostatic glands.^{2,4}

The specific immune markers of prostatic STUMP, including CD117, CD34, desmin, and PR,^{1,2} are indispensable for differential diagnosis of spindle-like prostatic tumors, such as low-grade PSS, leiomyosarcoma, rhabdomyosarcoma and gastrointestinal stromal tumors. CD117 and CD34 are specific markers for stromal tumor, while the positivity of desmin and HHF-35 may differentiate STUMP from PSS. Unlike STUMP, leiomyosarcoma, rhabdomyosarcoma are usually negative for CD34 and strongly positive for desmin.^{1,2,5}

Owing to the rarity and controversial nature, there is no standard treatment for STUMP yet. Therapies vary from watchful waiting, transurethral resection or enucleation approach to radical prostatectomy, depending on patient's age, presence and size of the lesion on DRE or imaging studies, extent of the lesion on tissue sampling. Radical prostatectomy obtaining a tumor-free margin is the preferable therapeutic method for STUMP. Immunotherapy and radiotherapy for prostatic STUMP are still controversial.

Prostatic STUMP may infiltrate the prostate gland and extend into adjacent tissues, but most cases do not behave in an aggressive manner. However, local recurrence may still occur quickly even after resection and occasionally progress to PSS. After aggressive local resection or radical surgery, 46% of STUMP patients will present with local recurrence and 5% will progress to PSS in the literature.⁶ In our case,

our patient has not shown any evidence of recurrence or progression to malignant PSS for 1 year after resection of prostatic mass.

While prostatic STUMP is a rare disease, it should be considered in the differential diagnosis of a normal-PSA prostatic adenocarcinoma or glandular-stromal benign prostatic hyperplasia. Identifying a standard treatment for this disease still requires more attentions from further clinical studies.

AUTHOR CONTRIBUTIONS

MWW determined the clinical diagnostics, performed surgery, and drafted the manuscript. CL retrieved the clinical data and images. QZ participated in the study and helped draft the manuscript. PW performed the laboratory tests and the pathological analysis. XBJ performed the operation and took part in critical discussion. All authors have read and approved the final manuscript.

COMPETING INTERESTS

The authors declare no competing financial interests.

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