KJU
Korean Journal of Urology

www.kjurology.org
http://dx.doi.org/10.4111/kju.2011.52.8.578

Case Report

A Case of Laparoscopic Radical Prostatectomy for a Prostatic Stromal Tumor of Uncertain Malignant Potential

Kyung Won Kwak, Dae Jin Jo, Eun Hee Lee[1], Dong Soo Ryu, Tae Hee Oh

Departments of Urology and [1]Pathology, Sungkyunkwan University School of Medicine, Samsung Changwon Hospital, Changwon, Korea

Prostatic stromal tumor of uncertain malignant potential (STUMP) is a rare neoplasm with distinctive clinical and pathological characteristics. Here we report a case of laparoscopic radical prostatectomy performed in a patient with prostatic STUMP.

Article History:
received 24 March, 2011
accepted 12 July, 2011

Corresponding Author:
Tae Hee Oh
Department of Urology, Sungkyunkwan University School of Medicine, Samsung Changwon Hospital, 50, Hapsung-dong, Masan hoewon-gu, Changwon 630-723, Korea
TEL: +82-55-290-6057
FAX: +82-55-290-6059
E-mail: natisururo@yahoo.co.kr

Key Words: *Prostate; Prostatectomy; Prostatic neoplasm*

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Prostatic stromal tumor of uncertain malignant potential (STUMP) is a rare and distinctive proliferative lesion characterized by an expansion of the specialized prostatic stroma. The clinical significance and management of STUMP is uncertain because of its rarity and the lack of long-term follow-up. Here we report the case of a patient with prostatic STUMP treated by laparoscopic radical prostatectomy (LRP) together with a review of literature.

CASE REPORT

A 44-year-old male visited our hospital because of abnormal findings in a transrectal ultrasound (TRUS) of the prostate at another urology clinic. He presented with lower urinary tract symptoms (LUTS) including nocturia, urinary frequency, and the sensation of incomplete emptying of the bladder that had persisted for several months. He had no specific medical or family history. In the digital rectal examination, a 2 cm, tender, well-demarcated nodule was palpated in the left lobe of the prostate. The prostate-specific antigen (PSA) value was 1.0 ng/ml, and the urine culture showed no urinary tract infection. TRUS of the prostate revealed a prostate volume of 28 ml with a mixed echogenic lesion (17 mm) in the left peripheral zone of the prostate. The prostate was biopsied under TRUS-guidance and classified as benign prostatic hyperplasia with fibrosis. After this diagnosis, the patient intermittently took an alpha-blocker for his LUTS, which gradually were relieved.

Four years after the initial work-up of the prostate, the patient complained of aggravated LUTS (hesitancy and abdominal straining). There were no abnormal findings in the serum PSA level and urinalysis. TRUS of the prostate demonstrated a 35 mm heterogeneous echogenic lesion with an interval increase of size in the left peripheral zone of the prostate (Fig. 1A). The patient underwent TRUS-guided needle biopsy of the prostate with 12 cores. Pathological examination showed a spindle cell proliferative lesion with focal hypercellularity and moderate cellular atypia in multiple cores of the left prostatic lobe, favoring a malignant tumor. On immunohistochemical study, the atypical stromal cells displayed intense cytoplasmic immunoreactivity for vimentin and no significance for Ki-67. Prostate magnetic resonance imaging (MRI) revealed a 4.0 cm mass originating from the left lobe of the prostate without extracapsular extension (Fig. 1B) and a 11 mm lymph node in the right common iliac chain that was assumed to be a metastatic lesion. To differentiate this lesion from prostate sarcoma and to treat the severe LUTS of the patient, we decided to perform LRP.

Preoperatively, the International Index for Erectile Function Questionnaire-5 (IIEF-5) score of the patient was

© The Korean Urological Association, 2011

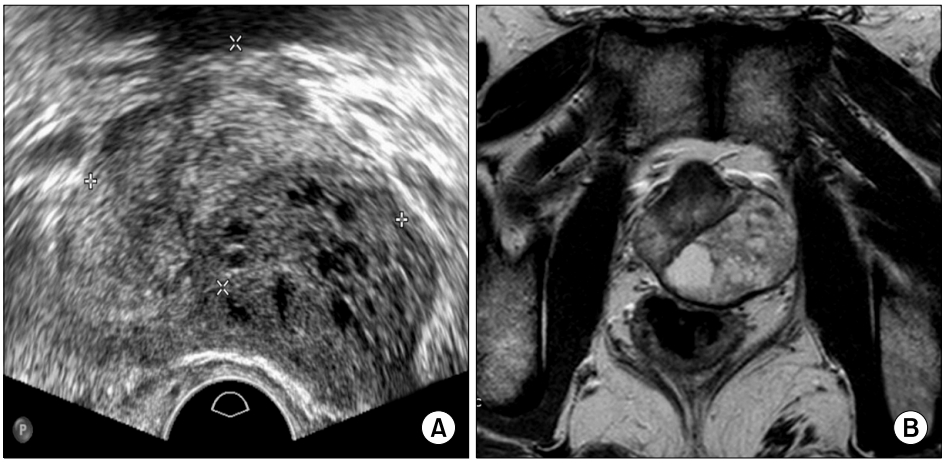

FIG. 1. (A) Transrectal ultrasound of the prostate showing a 35 mm heterogeneous echogenic lesion in the left peripheral zone of the prostate. (B) Prostate magnetic resonance imaging (MRI): A 4.0 cm mass originated from the left lobe of the prostate without extracapsular extension.

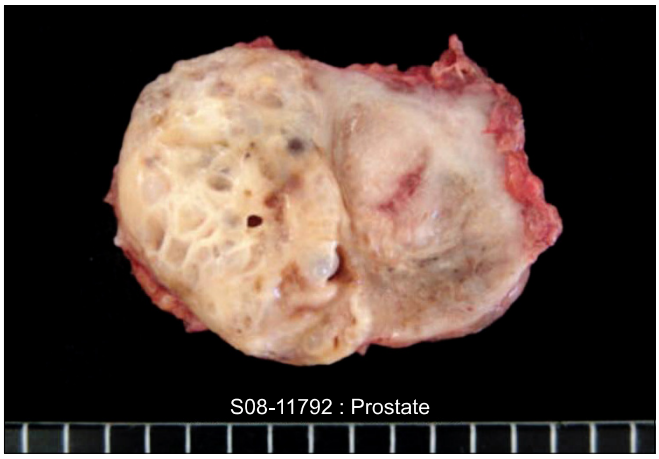

FIG. 2. Gross appearance of the prostate.

13, indicating mild to moderate erectile dysfunction, and he needed medication to maintain an erection for satisfactory sexual intercourse. We performed LRP with standard pelvic lymph node dissection; the right neurovascular bundle was spared and the left neurovascular bundle was widely excised. The total operative time was 250 minutes, and the amount of blood loss was 300 ml. The urethral Foley catheter was removed on day 7 after surgery, and the patient was discharged without any specific postoperative complications on day 8. Grossly, the prostate lesion was a well circumscribed mass, of which the largest measured 38x30 mm, containing dilated spaces (Fig. 2). The final pathologic results showed prostatic STUMP with moderate cellularity and marked pleomorphism, lack of mitotic figures, necrosis, and stromal overgrowth (Fig. 3). There was no tumor involvement in the pelvic lymph nodes. The weight of the prostate was 39 g, the tumor involved the left lobe within the capsule, and the resection margin was clear. The patient has been continent (never used pad) and capable of sexual intercourse with medication with tadalafil 20 mg since 6 months postoperatively. At the 24-month postoperative follow-up, there was no evidence of disease recurrence.

DISCUSSION

Stromal tumor of the prostate is a rare prostatic neoplasm that comprises a variety of forms with different histopathology. It has distinctive clinical and pathological characteristics and has been referred to by various terms, including atypical stromal hyperplasia, phyllodes type of atypical stromal hyperplasia, cystic epithelial-stromal tumor, prostatic stromal tumor of uncertain malignant potential, and cystosarcoma phyllodes [1]. Gaudin et al analyzed stromal tumors of the prostate to define a spectrum of histologic features [2]. The results of their study showed that stromal tumors of the prostate could be classified into prostatic STUMP and prostatic stromal sarcoma on the basis of the degree of cellularity and the presence of mitotic figures, necrosis, and stromal overgrowth. Prostatic sarcoma, of which histologic grade is predictive of patient outcome, is likely to develop local recurrence and distant metastasis, whereas the natural history of STUMP is uncertain. According to previous reports in the literature on follow-up studies of prostate stromal tumors, some authors recommended that the use of the term STUMP be discouraged because of its benign course and rare recurrence [3]. Others, meanwhile, reported that these tumors usually recurred and frequently showed the emergence of metastatic disease, and insisted on complete resection at the initial diagnosis [4]. Table 1 illustrates the various clinical courses of prostatic stromal tumors according to the prior literature [5-8]. Histological patterns of prostatic STUMP have been identified on the basis of stromal cellularity, the presence of atypia, and the appearance of nonneoplastic glandular elements. Prostatic STUMP is a histologically unique neoplasm associated with sarcoma, either concurrently or subsequently, indicating unpredictable behavior. In addition, the biopsy or transurethral resection (TUR) specimens showed the feature of a STUMP with atypia, yet the resected specimen showed not only STUMP but also areas with increased cellularity and increased mitotic activity,

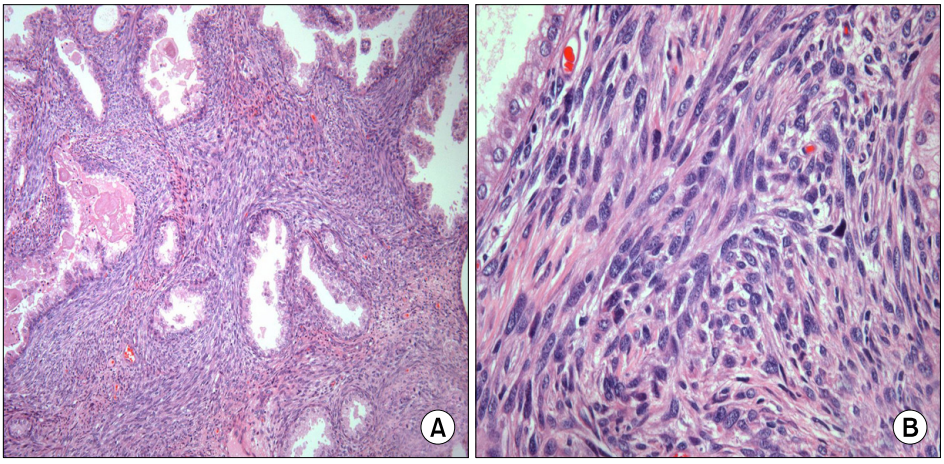

FIG. 3. Hematoxylin-eosin staining of prostatectomy specimen showing (A) moderate cellularity and (B) marked atypical cells in the stroma and around benign acini (A: x100, B: x400).

TABLE 1. Stromal tumors of the prostate reported in the literature

Reference	Clinical presentation	Diagnosis	Treatment	Follow-up (months)	Outcome
Klausner et al [8]	LUTS	STUMP	TURP	36	Recurrence
Bannowsky et al [5]	LUTS	PT	TURP	18	NED
Fukuhara et al [7]	Elevated PSA	STUMP	RP	10	NED
Colombo et al [6]	LUTS	STUMP, HG PSS	RP, RT, CT	25	DOD

LUTS: lower urinary tract symptoms, PSA: prostate-specific antigen, STUMP: stromal tumor of uncertain malignant potential, PT: phyllodes tumor, HG: high-grade, PSS: prostatic stromal sarcoma, TURP: transurethral resection of the prostate, RP: radical prostatectomy, RT: radiotherapy, CT: chemotherapy, NED: no evidence of disease, DOD: dead of disease

diagnostic of stromal sarcoma in some cases [9]. Histological features, including stromal cellularity, cytologic atypia, the number of mitotic figures per 10 high power fields, stromal-to-epithelial ratio, and necrosis have been quantified to assign a tumor grade and predict patient outcome. Close surveillance with cystoscopy and TRUS after TUR might be an alternative option to achieve local control in low-grade tumors [5]. However, tumor recurrence after TUR is common, and these tumors are often locally aggressive with time, showing frequent sarcomatous transformations as multiple recurrences occur [4]. Herawi and Epstein recommended definitive surgical resection in younger patients owing to the unpredictability of STUMP and the lack of correlation between histologic patterns and sarcomatous dedifferentiation [9], considering expectant management with close follow-up in older patients without lesions on the DRE or imaging studies. Most prostatic stromal tumors develop in the posterior portion of the gland, where they can adhere to adjacent organs or present retrovesical mass [10].

In our case, the patient had suffered from LUTS, occurring at a younger age than expected for typical benign prostatic hyperplasia. TRUS of the prostate revealed the increasing size of the lesion originating from the peripheral zone of the prostate. Patient age was an important factor in our decision for radical surgery to differentiate a prostatic lesion from a prostatic sarcoma, because Herawi and Epstein reported that men with prostatic sarcoma tend to be younger at presentation [9]. Immunohistochemical staining in the prostatectomy specimen revealed a focal positivity for CD34. Prostatic STUMP is a rare neoplasm with unique local morbidity and malignant potential; therefore, its recognition by urologists is essential. This case shows that a patient with prostatic STUMP treated by LRP has had tolerable oncologic and functional outcomes until the final follow-up. It might be valuable to study the clinical significance of this case through further long-term follow-up.

Conflict of interest

The authors have nothing to disclose.

REFERENCES

1. Bierhoff E, Vogel J, Benz M, Giefer T, Wernert N, Pfeifer U. Stromal nodules in benign prostatic hyperplasia. Eur Urol 1996;29:345-54.
2. Gaudin PB, Rosai J, Epstein JI. Sarcomas and related proliferative lesions of specialized prostatic stroma: a clinicopathologic study of 22 cases. Am J Surg Pathol 1998;22:148-62.
3. Hossain D, Meiers I, Qian J, MacLennan GT, Bostwick DG. Prostatic stromal hyperplasia with atypia: follow-up study of 18 cases. Arch Pathol Lab Med 2008;132:1729-33.
4. Bostwick DG, Hossain D, Qian J, Neumann RM, Yang P, Young RH, et al. Phyllodes tumor of the prostate: long-term followup study of 23 cases. J Urol 2004;172:894-9.
5. Bannowsky A, Probst A, Dunker H, Loch T. Rare and challenging

tumor entity: phyllodes tumor of the prostate. J Oncol 2009; 2009:241270.
6. Colombo P, Ceresoli GL, Boiocchi L, Taverna G, Grizzi F, Bertuzzi A, et al. Prostatic stromal tumor with fatal outcome in a young man: histopathological and immunohistochemical case presentation. Rare Tumors 2010;2:e57.
7. Fukuhara S, Matsuoka Y, Hanafusa T, Nakayama M, Takayama H, Tsujihata M, et al. A case report of prostatic stromal tumor of uncertain malignant potential (STUMP). Hinyokika Kiyo 2008; 54:377-81.
8. Klausner AP, Unger P, Fine EM. Recurrent prostatic stromal proliferation of uncertain malignant potential: a therapeutic challenge. J Urol 2002;168:1493-4.
9. Herawi M, Epstein JI. Specialized stromal tumors of the prostate: a clinicopathologic study of 50 cases. Am J Surg Pathol 2006; 30:694-704.
10. Hwang EC, Park JB, Jung SI, Im CM, Kim SO, Kang TW, . Retrovesical multilocular prostatic cystadenoma mimicking a pelvic cavity tumor. Korean J Urol 2009;50:1262-4.