CASE REPORT

Incidental seminal vesicle smooth muscle neoplasm of unknown malignancy following robotic-assisted laparoscopic prostatectomy

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SAMADI DB, CHUGHTAI B, AKHAVAN A, GURU K, REHMAN J. Incidental seminal vesicle smooth muscle neoplasm of unknown malignancy following robotic assisted laparoscopic prostatectomy. The Canadian Journal of Urology 2008;15(3):4109-4111.

Primary soft tissue sarcomas of the genitourinary tract are rarely seen, especially in the seminal vesicle. While sarcomas have been reported in the seminal vesicle, this is the first report of a smooth muscle neoplasm, of uncertain malignant potential, involving the seminal vesicle. The finding was incidental, following robotic-assisted radical retropubic prostatectomy for prostate cancer. To our knowledge, this is also the first report of a primary seminal vesicle tumor found following radical prostatectomy. A clinical case review and a brief review of the literature are presented.

Key Words: seminal vesicle, neoplasm, robotic prostatectomy, radical retropubic prostatectomy

Introduction

While extension of prostate adenocarcinoma into the seminal vesicles is a well-known phenomenon, primary tumors of the seminal vesicles are extremely rare. Soft tissue sarcomas of the genitourinary (GU) system account for 2.1% of all sarcomas, and only 1%-2% of all GU tract tumors.[1,2] The most common histological subtypes are leiomyosarcoma (29%), followed by liposarcoma (26%) and rhabdomyosarcoma (18%).[3] Sarcomas involving the seminal vesicles (SV) are even less common. A review of the literature reveals only 15 published cases of primary leiomyosarcoma of the seminal vesicle.[4] We report an incidental finding of a smooth muscle neoplasm, of uncertain malignant potential, involving the left SV found following robotic-assisted radical retropubic prostatectomy.

Accepted for publication March 2008

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Case report

A 61-year-old Caucasian man with a PSA of 6.36 ng/ml was found to have a Gleason 3+3 prostate adenocarcinoma by transrectal ultrasound-guided needle biopsy. The tumor involved 5% of the total tissue in one of three cores. He denied any pelvic pain, hematuria, hemaspermia, or any other lower urinary tract symptoms. His past medical history was significant for melanoma, status post excisional biopsy 20 years earlier. Physical exam revealed a 60 g prostate, smooth with no nodules. Computed tomography (CT) of the abdomen and pelvis without intravenous contrast illustrated an enlarged prostate, measuring 6.2 cm by 4.7 cm and normal-appearing seminal vesicles. Bone scan was negative for suspicious lesions. Preoperative staging was classified as T1c. Routine serum chemistries and blood counts were normal.

The patient underwent an uneventful robotic-assisted radical retropubic prostatectomy. A large median lobe was visualized intraoperatively and no invasion of cancer was seen at the bladder neck. Both sets of vas deferens and seminal vesicles were freed and dissected from their surrounding tissues. The seminal vesicles appeared grossly normal. No cancer penetration of the prostatic capsule was observed and the neurovascular bundles were preserved bilaterally. Final reconstruction of the bladder neck was performed without any difficulties, and the patient was transferred to the recovery room in stable condition. Ten weeks postoperatively the patient was doing well with an undetectable PSA level.

Surgical specimens were analyzed independently by two pathologists at different institutions. Pathology demonstrated a 98 g prostate and seminal vesicle specimen. Final histological analysis revealed prostate adenocarcinoma, Gleason's score 3+3, confined to the left lateral lobe of the gland. All margins were free of tumor, as were the right seminal vesicle and both vas deferens. The left seminal vesicle contained a 1.0 cm x 0.7 cm x 0.7 cm protruding nodule with a fibrous, tan, whorled surface. At the microscopic level, the mass was well-circumscribed, with proliferation of cellular smooth muscle spindle cells without necrosis. There was an abundance of atypical cells and hypercellular areas containing enlarged, pleomorphic, hyperchromatic cells. The mitotic index was undetermined secondary to degenerative changes. Immunohistochemical MiB-1 antibody staining revealed a proliferation rate of up to 5%. The lesion was immunoreactive for desmin and actin diffusely, and negative for S100 protein. The findings were consistent with a smooth muscle neoplasm of unknown malignant potential, Figure 1.

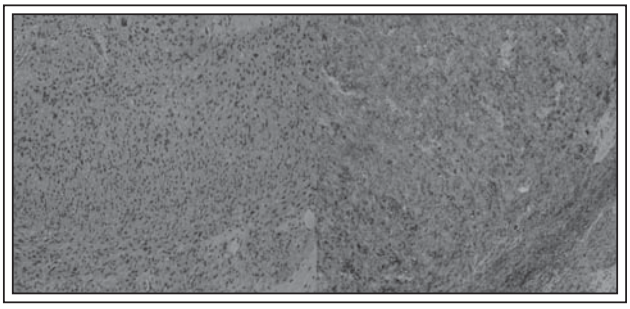

Figure 1. A. Hematoxylin and eosin staining of the seminal vesicle nodule illustrates hypercellular areas containing enlarged, pleomorphic, hyperchromatic cells. B. Immunohistochemistry staining of the seminal vesicle nodule for desmin reveals hyperproliferation of smooth muscle cells.

Discussion

Primary seminal vesicle tumors are rare, the vast majority are malignant adenocarcinomas or sarcomas.[5] Primary benign tumors are even more scarce, with few reports of cystadenomas in the literature.[6] When evaluating seminal vesicle masses, concern should always be present for secondary malignancies of prostatic, colonic, bladder, or lymphatic origins. Most tumors are discovered incidentally on CT. However, some patients present with pelvic pain, hemospermia or other lower urinary tract symptoms. Typical workup of SV mass includes serum PSA and carcinoembyonic antigen levels to rule out secondary malignancies. Elevated CA125 levels are sensitive for primary SV carcinoma.[7]

Recommendations for therapy are limited due to the paucity of cases. Given that the overwhelming majority of SV tumors are malignant, treatment of all incidental SV masses is surgical excision. The effects of hormonal manipulation, radiation, or chemotherapy have not been thoroughly investigated.[2,5]

To our knowledge, this is the first published account of a smooth muscle neoplasm of uncertain malignant potential in the SV. The diagnosis is a pathological entity distinct from other sarcomas. Smooth muscle neoplasms of uncertain malignant potential are diagnosed when the specimen lacks enough histological features to conform to other neoplastic subtypes. As such, its aggressive potential remains elusive to clinicians. While some pathologists rely on mitotic index as a prognostic feature, studies have concluded it to not be a reliable marker for malignancy.[8,9] We conclude that because of this uncertainty, routine surveillance following surgical excision is paramount. □

References

1. Stojadinovic A, Leung DH, Allen P et al. Primary adult soft tissue sarcoma: time-dependent influence of prognostic variables. *J Clin Oncol* 2002;20:4344-4352.
2. Russo P, Brady MS, Conlon K et al. Adult urological sarcoma. *J Urol* 1992;147:1032-1036.
3. Dotan ZA, Tal R, Golijanin D et al. Adult genitourinary sarcoma: the 25-year Memorial Sloan-Kettering experience. *J Urol* 2006;176:2033-2038.
4. Agrawal V, Kumar S, Sharma D et al. Primary leiomyosarcoma of the seminal vesicle. *Int J Urol* 2004;11:253-255.
5. Benson RC Jr, Clark WR, Farrow GM. Carcinoma of the seminal vesicle. *J Urol* 1984;132:483-485.
6. Lee CB, Choi HJ, Cho DH, Ha US. Cystadenoma of the Seminal Vesicle. *Int J Urol* 2006;13:1138-1140.
7. Ohmori T, Okada K, Tabei R et al. CA125-producing adenocarcinoma of the seminal vesicle. *Pathol Int* 1994;44:333-337.
8. Wile AG, Evans HL, Romsdahl MM. Leiomyosarcoma of soft tissue: a clinicopathologic study. *Cancer* 1981;48:1022-1032.
9. O'Leary TJ, Steffes MW, Can you count on the mitotic index. *Hum Pathol* 1996;27:147-151.