Malignant melanoma of the prostate: a case report

Jean Wong, MD, Gilbert J. Wise, MD, Bradly Clark, MD

Department of Urology, Maimonides Medical Center, Brooklyn, New York, USA

WONG J, WISE GJ, CLARK B. Malignant melanoma of the prostate: a case report. The Canadian Journal of Urology. 2008;15(2):4027-4029.

Primary genitourinary melanoma accounts for less than 1% of all cases of melanoma. Melanoma of prostatic origin is extremely rare. These patients are difficult to diagnose and carry a very poor prognosis. Aggressive surgical resection is the current treatment standard. We report a case of primary malignant melanoma of the prostate found during transurethral resection of the prostate.

Key Words: melanoma, prostate cancer

Case report

An 82-year-old man was sent to the emergency room by his urologist after he noticed gross hematuria for the first time. He had a history of two prostate biopsies in the past 11 years, both of which were negative for malignancy. His last PSA from June 2007 was 1.62 ng/ml. CT scan of the abdomen and pelvis revealed a mass-like structure along the right bladder wall. Initially a bladder tumor was suspected. Cystourethroscopy revealed a bladder filled with clots. The clots were evacuated and the bladder was inspected. Hyperemia was noted throughout the bladder. A papillary lesion was seen originating from the right bladder neck invading prostatic tissue. Prostatic regrowth was noted bilaterally.

Using a resectoscope, both the bladder tumor and prostatic tissue were resected around the bladder neck circumferentially. The prostatic lobes were also resected down to the prostatic capsule. There were no tumors or abnormalities in the urethra.

Multiple fragments of brown and hemorrhagic soft tissue, weighing 27.7 g, measuring 7 cm x 6 cm x 1 cm in aggregate were received by the pathology department from the prostate resection. The histopathology demonstrated a malignant tumor admixed with normal prostate tissue. The tumor cells appeared in sheets and dissected the fibromuscular tissue of the prostate. The malignant cells had a

Accepted for publication March 2008

Address correspondence to Dr. Jean Wong, Department of Urology, 4802 Tenth Avenue, Brooklyn NY 11219 USA

predominantly epithelioid morphology with areas of necrosis. On a cytologic basis, the tumor cells were occasionally multinucleated and had pleomorphic nuclei, with clumped chromatin and large red nucleoli, Figure 1. Mitotic figures were readily identified, some of them with bizarre forms. Many of the tumor cells had abundant, eosinophilic cytoplasm, mimicking a rhabdoid morphology. Light brown pigmentation was seen in the cytoplasm of occasional tumor cells. The histopathologic differential diagnosis included carcinoma (e.g., prostate, urothelial, metastatic from an extra-genitourinary primary) and melanoma. Normal prostate tissue was also recognized in this specimen, without atypia or carcinoma suggesting a prostatic origin.

Immunohistochemistry stains were performed on sections from the tumor. The malignant cells were positive for the melanoma markers pan-melanoma, Figure 2, MITF, tyrosinase, HMB-45, and A103. The tumor cells were negative for S-100 protein and for the epithelial markers pan-cytokeratin AE1:AE3, cytokeratin (CK) 7, and CK20. Furthermore, the tumor cells failed to label for TTF-1 (marker for lung and thyroid carcinoma) and PSA. With the combination of morphology and immunophenotype, this tumor was interpreted as malignant melanoma involving the prostate. The diagnosis of carcinoma of urothelial or prostatic origin could not be supported in this workup. The patient chose to followup at a cancer center for further workup and treatment. A PET scan revealed fluorodeoxyglucose (FDG) uptake in an inguinal lymph node, consistent with metastatic disease.

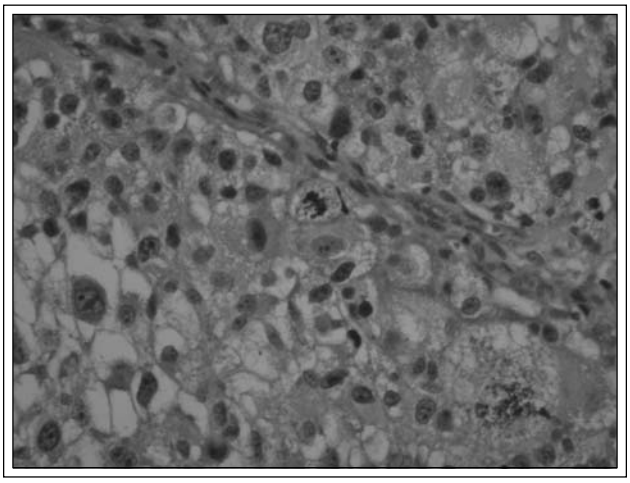

Figure 1. Malignant cells with rhabdoid cytoplasm, pleomorphic nuclei, enlarged nucleoli, and readily identified mitotic figures. H&E, 400x.

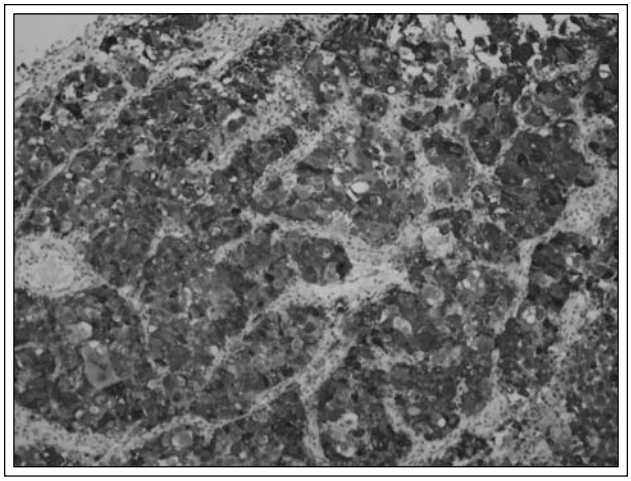

Figure 2. Pan-melanoma immunohistochemistry stain strongly labeling cytoplasmic contents of tumor cells. 100x.

Discussion

With melanoma proven in the prostate, the differential diagnosis includes a primary tumor in the prostate and a metastatic melanoma from an extra-prostatic source. Primary genitourinary melanoma is uncommon, accounting for less than 1% of all cases of melanoma.[1] The prostate is a rare site for primary malignant melanoma. Malignant melanoma of urethral origin is a more likely originating source. There have been a handful of documented cases of malignant melanoma of the prostatic urethra,[2] with purple-black discoloration of the urethra and verumontanum. [3] The presentation of a blue nevus in the distal urethra is more common than one in the proximal urethra.[2] Additionally, one case report of a patient with both malignant melanoma and prostate carcinoma demonstrated tumor to tumor metastases in which the melanoma metastasized to the prostatic adenocarcinoma.[4]

Radical prostatectomy followed by urethrectomy with or without chemotherapy is the standard treatment for melanoma primary to the prostate. The prognosis for these patients is very poor, with a 20% 5-year survival rate.[5]

On the other hand, a metastatic melanoma presenting from an unknown primary is not uncommon and approximately 4% of patients with metastatic melanoma have an unknown primary. The source of the melanoma may arise from a regressed skin lesion or an occult lesion in the gastrointestinal or respiratory tract which is clinically difficult to locate.[6] Patients with unknown primary melanoma

metastatic to only a lymph node fared better (39% 5-year survival) than patients with non-lymph node metastases (14% 5-year survival).[7] Patients with metastatic melanoma of unknown primary should receive aggressive surgery with intent to cure and are considered stage III for adjuvant therapy.[8] High-dose interleukin 2 therapy is an effective treatment for metastatic melanoma.[9] Our patient did not have a history of melanoma or any lesions appreciable on physical exam. Thus, to the best of our knowledge, this is the fourth reported case of primary malignant melanoma of the prostate.[10] □

References

1. Stein BS et al. Malignant melanoma of the genitourinary tract. *J Urol* 1984;132:859-868
2. Watanabe J et al. Primary malignant melanoma of the male urethra. *Int J Urol* 2000;7:351-353
3. Chung JW et al. Follow up of Primary malignant melanoma of the prostate. *J Urol* 2001;166:214.
4. Grignon D et al. Malignant melanoma with metastasis to adenocarcinoma of the prostate. *Cancer* 1989;63:196-198.
5. Nguyen AT et al. Primary genitourinary melanoma. *Urology* 2001;57:633-638.
6. Baab GH, McBride CM. Malignant melanoma: the patient with an unknown site of primary origin. *Arch Surg* 1975;110(8): 896-900.
7. Katz KA, Jonasch E, Hodi FS, Soiffer R, Kwitkiwski K, Sober AJ, Haluska FG. Melanoma of unknown primary: experience at Massachusetts General Hospital and Dana-Farber Cancer Institute. *Melanoma Res* 2005;15(1):77-82.
8. Cormier JN, Xing Y, Feng L, Huang X, Davidson L, Gershenwald JE, Lee JE, Mansfield PF, Ross MI. Metastatic melanoma to lymph nodes in patients with unknown primary sites. *Cancer* 2006;106(9):2012-2020.
9. Rosenberg SA, Yang JC, Topalian SL, Schwartzentruber DJ, Weber JS, Parkinson DR, Seipp CA, Einhorn JH, White DE. Treatment of 283 consecutive patients with metastatic melanoma or renal cell cancer using high-dose bolus interleukin 2. *JAMA* 1994;271(12):907-913
10. Wang C et al. Primary malignant melanoma of the prostate. *J Urol* 1995;154:1865.
13. Epstein J, Arora A, Ellis H. Surface anatomy of the inferior epigastric artery in relation to laparoscopic injury. *Clin Anat* 2004;17:400-408.
14. Lubavin BV. Retroperitoneal hematoma as a complication of coronary angiography and stenting. *Am J Emerg Med* 2004;22:236-268.
15. Johnson LW, Esente P, Giambartolomei A, Grant WD, Loin M, Reger MJ, Shaw C, Walford GD. Peripheral vascular complications of coronary angioplasty by the femoral and brachial techniques. *Cathet Cardiovasc Diagn* 1994;31:165-172.
16. Deurdulian C, Mittelstaedt CA, Chong WK, Fielding JR. US of acute scrotal trauma: optimal technique, imaging findings, and management. *Radiographics* 2007;27:357-369.