

Oncology

A Case Report of Primary Recurrent Malignant Melanoma of the Urinary Bladder[☆]Hong Truong^{a,*}, Debasish Sundi^b, Nikolai Sopko^b, Dongmei Xing^c, Evan J. Lipson^d, Trinity J. Bivalacqua^b^a Jefferson Medical College, Philadelphia, PA, USA^b The James Buchanan Brady Urological Institute, Johns Hopkins Medical Institutions, Baltimore, MD, USA^c Department of Pathology, Johns Hopkins Medical Institutions, Baltimore, MD, USA^d Department of Oncology, Johns Hopkins University School of Medicine and Sidney Kimmel Comprehensive Cancer Center, Baltimore, MD, USA

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ABSTRACT

Primary malignant melanoma of the urinary bladder is a rare neoplasm, with only 19 cases reported to date. We present a case report of an 84-year-old woman who underwent transurethral resection of a mucosal melanoma of bladder origin. She had no previous or concurrent diagnosis of cutaneous melanoma. The patient underwent transurethral resection of the tumor 5 months before presentation at our center with a recurrent, muscle-invasive tumor located in the bladder trigone, with evidence of bone metastasis. Malignant melanoma of the urinary bladder carries a poor prognosis and poses a therapeutic challenge to urologists who manage patients with this rare disease.

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Introduction

Primary melanoma of the genitourinary tract is extremely rare and accounts for less than 0.2% of all melanomas.¹ There have been only 19 cases of primary melanoma arising from the urinary bladder reported to date. The majority of malignant melanomas of the bladder are metastatic lesions from a distant primary site, more commonly of cutaneous origins. Here, we report the 20th case of primary malignant melanoma of the bladder and review published literature to describe the epidemiology, clinical features, and management of this rare and aggressive disease.

Case Presentation

An 84-year-old Caucasian woman with multiple comorbidities and past history notable for basal cell carcinoma presented to an outside urologist with complaints of vaginal spotting and gross hematuria. Outside cystoscopy records indicated a friable proximal urethral caruncle that impeded the visualization of the urinary bladder. Biopsy of the mass revealed malignant melanoma.

Physical examination was benign and did not reveal any suspicious skin lesions. The patient underwent a complete transurethral resection (TUR) of the melanoma of presumed urethral origin. Final surgical pathology demonstrated nodular invasive malignant melanoma, with a thickness of at least 5 mm and positive confirmatory S-100 and Melan-A stains. Subsequently, staging positron emission tomography/computed tomographic (CT) scans revealed a cecal mass, thus prompting a right hemicolectomy. On pathologic examination, the cecal mass was found to be a 5.0-cm adenoma with microscopic foci of intramucosal adenocarcinoma and negative regional lymph nodes.

Five months later, the patient presented emergently to our center with complaints of dysuria, gross hematuria, and urinary retention. CT scan showed a 3.8-cm lobulated mass in the posterior bladder with associated bladder wall thickening, a 1.8-cm urethral mass, and mediastinal lymphadenopathy (Fig. 1). Mediastinal biopsy revealed benign lymphoid tissue. Cystoscopy revealed a >5-cm friable flesh-colored spherical mass arising from thick fibrovascular stalk emanating from the left hemitrigone. The bulk of the mass was just proximal to the vesicourethral junction, obstructing the bladder neck (Fig. 2). There was no urethral scarring or evidence of previous TUR, which confirmed that the melanoma was of bladder neck origin but had masqueraded initially as a urethral mass. An extensive TUR of the tumor was performed to deep intravesical fat of the trigone. Examination under anesthesia demonstrated a mobile bladder with induration at the anterior surface of the vagina. Histopathologic examination of the tumor

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Figure 1. Computed tomography of the pelvis with intravenous contrast 5 months after complete transurethral resection of the tumor showing a malignant melanoma of the urinary bladder recurring in the bladder trigone.

specimen confirmed malignant melanoma. Despite intraoperative evidence of tumor invasion into the bladder wall and perivesical fat, muscle tissue could not be identified on histologic slide because of extensive necrosis (Fig. 3) with presumed erosion through the muscle layers of the bladder.

The patient recovered uneventfully and experienced complete resolution of her urologic symptoms. On follow-up CT scan 2 weeks after TUR, the patient was found to have a metastatic lesion and pathologic fracture at the right inferior pubic ramus. Her case was discussed at a multidisciplinary conference attended by dedicated genitourinary and melanoma oncologists. Surgery is not indicated for this patient who developed cT3N0M1 bladder melanoma. The patient was tested negative for both *BRAF* V600 and *c-Kit* mutations. She was recommended to undergo immediate immunotherapy with ipilimumab for control of disease progression.

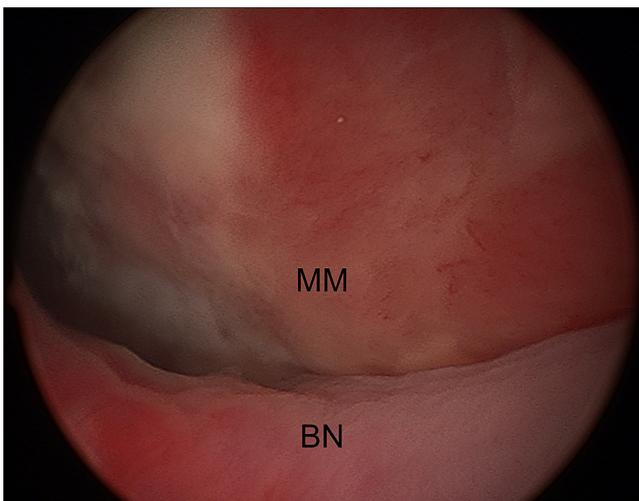


Figure 2. Cystoscopy performed 6 months from complete transurethral resection of malignant melanoma (MM) of the bladder recurring at the bladder trigone, obstructing the bladder neck (BN).

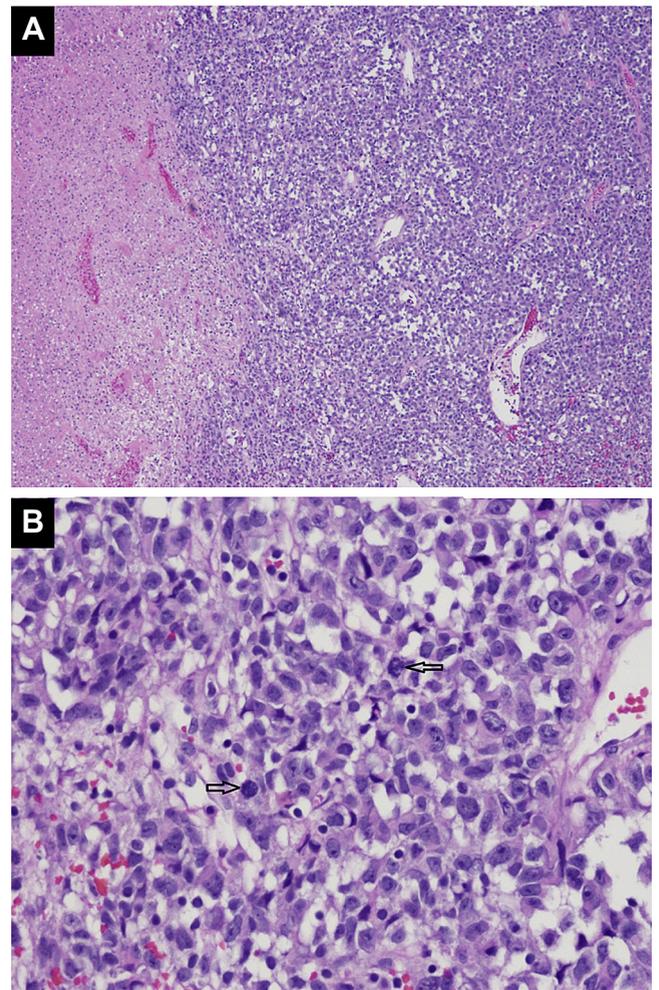


Figure 3. Histologic appearance of primary melanoma of the bladder. (A) Melanoma tumor with extensive necrosis, H&E, 4 \times . (B) Malignant melanoma cells showing multiple mitotic figures (arrows); H&E, 20 \times .

Discussion

There have been only 20 cases of primary melanoma of the urinary bladder reported in the medical literature to date, including this case report.¹ The mean age at diagnosis is 62 years (range, 34–84), with 75% of all cases diagnosed after 50 years. Eleven of 20 reported patients were female. The etiology and risk factors for primary bladder melanoma are unknown. Gross hematuria is the most common presenting symptom, which implicates advanced disease. Some patients might also present with voiding symptoms, such as dysuria, frequency, or urinary retention on the basis of tumor location and invasiveness.

Cystoscopy and transurethral biopsy is the primary method to diagnose bladder melanoma. Although primary bladder melanoma is rare, metastasis of primary cutaneous melanoma to the bladder is relatively common, affecting up to 18% of patients who die from metastatic melanoma.² Ainsworth et al³ initially proposed criteria to confirm location of the primary lesion. These criteria require the following: (1) a detailed history and physical examination of the patient to rule out active or regressed cutaneous, ocular, and other visceral primary melanoma, and (2) confirmation of a pattern of recurrence and local metastasis in the pelvis, which is consistent with primary bladder tumor rather than the pattern of widespread metastasis seen in secondary metastatic melanoma.

There is no standard guideline for staging in mucosal melanoma.⁴ We propose that the American Joint Committee on Cancer tumor, node, and metastasis staging system for bladder tumor should be applied to bladder melanomas. Clinical staging is determined by a combination of radiographic assessment for metastasis, TUR and biopsy of the tumor, and pathologic assessment. It is unknown whether measurements of Breslow thickness and mitotic rate that are traditionally used to risk stratify cutaneous melanoma are applicable in the assessment and management of primary bladder melanoma.

Primary melanoma of the bladder seems not to manifest itself until the disease progresses to advanced stages. Based on our review of the 20 known cases of primary bladder melanoma, at least 14 (70%) cases presented with muscle invasive disease.¹ Delayed diagnosis combined with locally advanced stage of disease at diagnosis leads to very poor prognosis, regardless of the treatment approach. Most patients die of metastatic disease within 3 years after initial diagnosis.¹ The first-line treatment of bladder melanoma is surgery. The options include TUR, partial cystectomy, and radical cystectomy based on the stage of the tumor. An important consideration in choosing an appropriate treatment for a patient is the patient's overall health status and life expectancy.

For patients who are poor surgical candidates, radical treatments should be avoided given significant treatment-related morbidities and the high risk of recurrence, despite aggressive extirpative surgery. It is reasonable to perform TUR of the tumor and administer immune or chemotherapy according to a patient's ability to tolerate medical treatment. Chemotherapy options include platinum-based regimens such as cisplatin/carboplatin with paclitaxel. Immunotherapy options include ipilimumab or, for patients with excellent

performance status, high-dose interleukin 2.⁵ Inhibitors of oncogenic BRAF should be considered for patients whose tumors harbor a *BRAF* V600 mutation.⁵ Radiation therapy has a limited role in the treatment of cutaneous melanoma, although might be considered for palliative purposes in patients with primary bladder melanoma.⁵

Conclusion

Malignant melanoma of the urinary bladder carries a poor prognosis and poses a therapeutic challenge to urologists who manage patients with this rare disease. Patients who present with suspected or confirmed primary bladder melanoma should be referred to a center that specializes in the multidisciplinary management of patients with melanoma.

Conflict of interest

The authors of this manuscript have no conflicts of interest.

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