






Radiological Findings of the Primary Female Urethral Malignant Melanoma: A Rare Case Report

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ABSTRACT

Primary malignant melanomas of the female urethra are rare tumors with poor prognosis. Biopsy of the detected urethral mass was performed in a 71-year-old woman who presented with hematuria and voiding dysfunction. No other localized lesions were detected. The patient was diagnosed with primary malignant melanoma of the urethra according to the histopathologic and immunohistochemical findings. Immunohistochemical staining revealed that the tumor cells were immunoreactive for vimentin, HMB-45, S-100, and Melan-A. The present study aimed to present radiological findings of very rare primary urethral malignant melanoma with histopathologic correlation and to review the relevant literature.

Keywords: Female urethra, radiological findings, urethral malignant melanoma

INTRODUCTION

Primary urethral malignant melanoma (MM) is an extremely rare tumor, accounting for 0.2% of all MMs and 4% of urethral cancers (1). Urethral MM is most common in the distal urethra and approximately 20% of them are located at the proximal urethra (2). The incidence of MM is three folds more common in women than that in men, which is similar to the incidence of other malignant urethral tumors such as urothelial carcinomas. Despite the fact that most MMs are diagnosed after 50 years of age, some cases of MMs have been reported in younger patients (3, 4). The symptoms of urethral MM include palpable mass, hematuria, dysuria, vaginal bleeding, incontinence, and pain (5). The clinical presentation of urethral MM is similar to that of urothelial carcinoma; however, the diagnosis of urethral MM is often delayed, and MM has poor prognosis than urethral carcinoma (4). Several studies, including case reports and literature review, have described the clinical and histopathologic features of urethral MM (2-6). However, knowledge about the radiological findings of this tumor is limited.

The aim of this case report was to present ultrasound, computed tomography (CT), and magnetic resonance imaging (MRI) findings of very rare primary urethral MM with histopathologic correlation and to review literature.

CASE PRESENTATION

A 71-year-old woman presented at our hospital with hematuria and voiding dysfunction since 3 months. Family history, smoking, and various occupational exposures were negative, with no comorbidities. After routine physical examination, cystourethroscopy was performed with the pre-diagnosis of urethral carcinoma. Biopsy of polypoid, brownish mass involving the proximal urethra was obtained, and histopathological diagnosis reported MM. Immunohistochemical staining revealed that the tumor cells were immunoreactive for vimentin, HMB-45, S-100, and Melan-A. Pancytokeratin, LCA, CK7, CK20, and uroplakin were negative. In histochemical studies, hemosiderin and occasionally melanin-pigmented staining in Prussian blue and Masson-Fontana was observed at different foci (Figures 1, 2).

A well-circumscribed mass with heterogeneous echogenicity due to its cystic and solid components was viewed adjacent to the inferior base of the bladder on ultrasound examination. Color Doppler ultrasound has revealed that the mass had predominantly peripheral vascularization (Figure 3).

A heterogeneous hypodense mass with cystic-necrotic components located on the proximal urethra with dimensions of

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Figure 1. The presence of melanin pigment on histochemical staining with Masson–Fontana (×200)

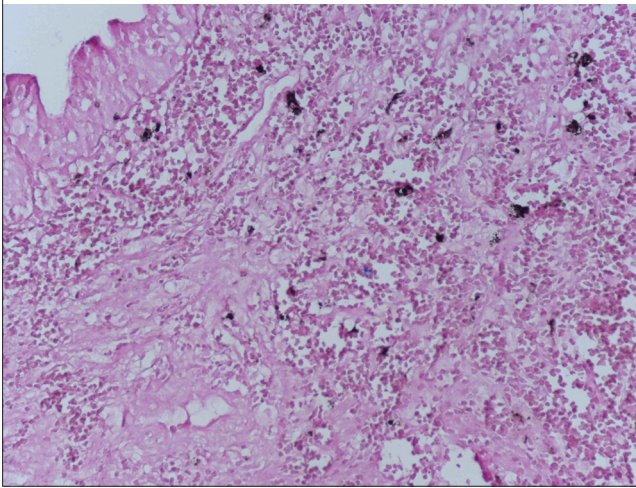


Figure 2. Strong staining of the tumor on immunohistochemical staining with HMB-45 (×200)

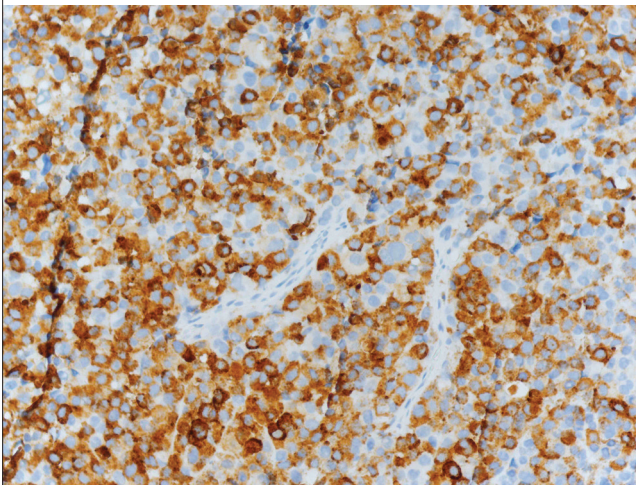


Figure 3. Color Doppler US view of the urethral mass located at the postero-inferior of bladder

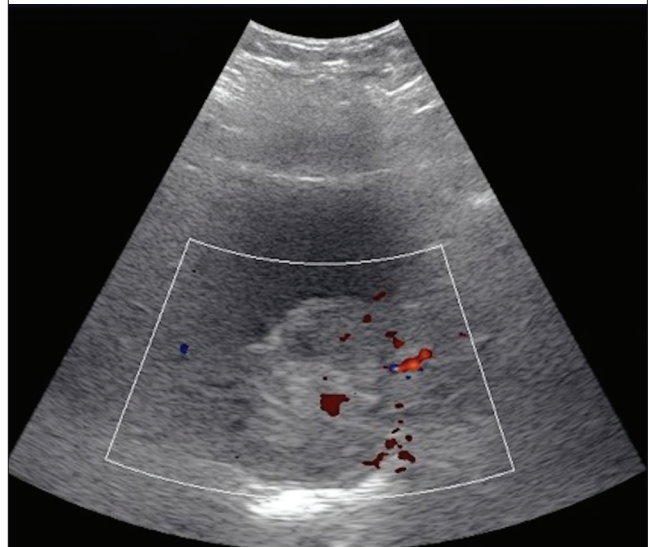


Figure 4. Axial contrast enhancement CT revealed mainly peripheral enhancing mass with cystic-necrotic components between the bladder and cervix uteri



3.3×3.5×5.3 cm (anteroposterior×transverse×craniocaudal) was detected on contrast-enhanced CT images. The mass was indenting towards the base of the bladder. The surrounding fat planes of mass were obliterated. The mass revealed peripheral-weighted contrast enhancement (Figure 4).

Forming indentation at the base of the bladder, with dimensions of 4.2×4.7×5.7 cm (anteroposterior×transverse×craniocaudal), T2W hypointense with a thin capsule, septated multiloculated mainly cystic, well-defined mass was observed on contrast-enhanced abdominopelvic MRI. A 2-cm solid component in the antero-inferior part of the lesion was detected (Figures 5, 6). Solid parts of the mass revealed contrast enhancement and diffusion restriction on DWI (Figures 7, 8).

Thorax and abdominal CT were performed for screening metastasis. No metastasis or pathological lymph nodes were detected

elsewhere. We decided to perform surgery for total resection of mass before chemotherapy and immunotherapy.

DISCUSSION

Urethral MMs are frequently polypoid mass and may be clinically confused with urethral polyps, caruncle, mucosal prolapse, chancre, or other common malignant tumors (6). Metastatic melanoma formation is more common than primary MM. Thus it should be determined whether there is any other lesion before primary MM is diagnosed (3, 7). In this case report, although urethral caruncle was considered as a preliminary diagnosis, radiologic examinations revealed that the tumor had malignant features. Radiological findings, especially MRI findings, are important in the diagnosis of urethral MM. The heterogeneous cystic structure of tumors, diffusion restriction in solid parts, and hypointense thin capsules in T2W images may provide differentiation of urethral MM from urethral carcinomas.

Figure 5. Coronal T2W fat-suppressed image revealed a septated, multiloculated, mainly cystic, well-defined mass forming indentation at the base of the bladder

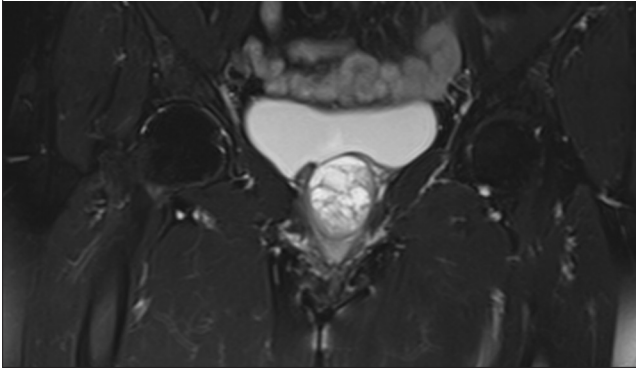


Figure 6. Sagittal T2W image revealed proximal urethral mass anterior to the cervix–vagina with solid component (*)

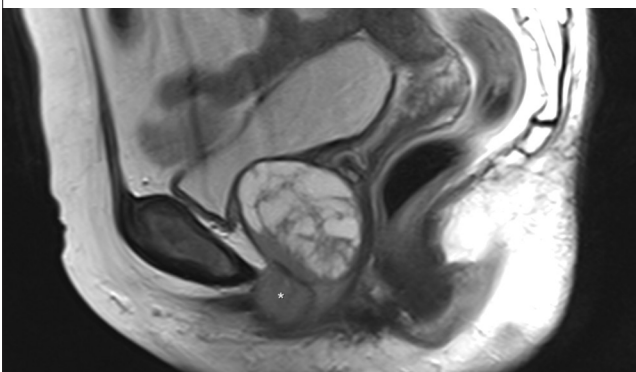


Figure 7. Postcontrast sagittal fat-suppressed T1W image revealed septal and peripheral enhancing heterogeneous mass and 2-cm sized enhancing solid component in the antero-inferior part of the mass (*)

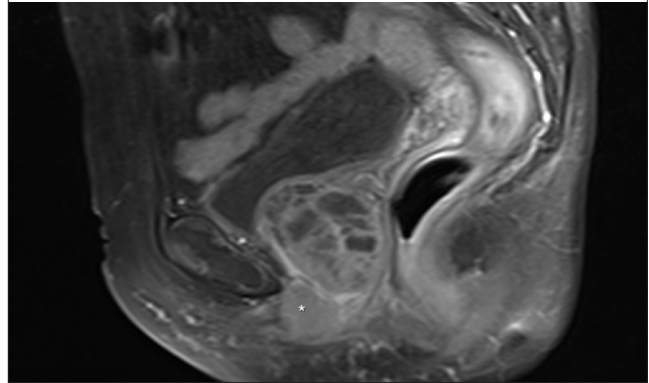
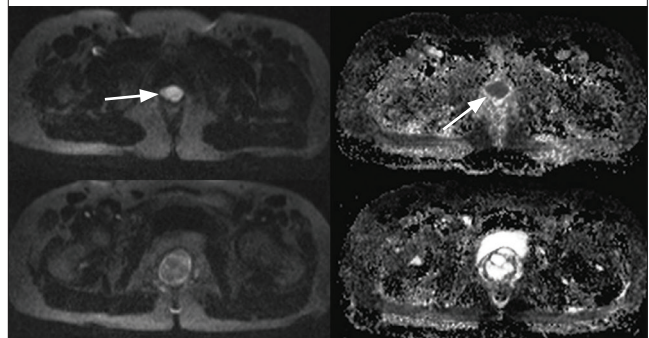


Figure 8. Diffusion and ADC images revealed diffusion restriction of the solid parts



This diagnosis was supported by immunohistochemical staining with a specific marker for melanoma (S-100, HMB-45, and Melan-A) (8). Therefore, these stains were used for immunohistochemical examination in our study, and positive results were obtained.

The urethral MM has a worse prognosis than that of cutaneous melanoma possibly because of the vertical growth phase of the tumor, lymph node metastasis at the time of initial diagnosis, and diagnostic delay (9).

Considering that the number of cases of urethral MM is limited, no clinical studies on the subject, and recommendations for treatment are based on small case series. Although experiences in treatment are reportedly limited, radical surgery is recommended after chemotherapy and immunotherapy (7).

Several articles have been published, mainly including case reports and literature reviews, describing the clinical and histopathologic features of urethral MM (5-9). However, knowledge regarding the radiological findings of this tumor is limited. These tumors may be easily misdiagnosed with clinical findings.

CONCLUSION

Consideration of this tumor in the differential diagnosis in patients with urethral mass provides correct diagnosis without progress in disease. The radiological features of urethral MM such as heterogeneous view, T2W hypointensity and diffusion restriction on DWI can contribute to the differential diagnosis.

Informed Consent: Written informed consent was obtained from patient who participated in this case.

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