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Case Report

# A rare cause of acute urinary retention—Primary malignant melanoma of prostate

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**Abstract** Acute urinary retention is commonly seen in elderly male patient due to benign enlargement of prostate. We report a 65-year-old male presenting with acute urinary retention diagnosed to have primary malignant melanoma of prostate. Primary malignant melanoma of genitourinary tract is very uncommon diagnosis in urology and prostate involvement is extremely rare. Till now only five cases have been reported.


## 1. Introduction

Acute urinary retention in elderly patient is commonly attributed to benign enlargement of prostate. Primary genitourinary melanoma accounts for less than 1% of all melanoma. Amongst them, melanoma of prostatic origin is very rare and most cases have been detected incidentally after transurethral resection of prostate. Due to its rarity, it presents a difficult diagnostic and management challenge. We present primary malignant melanoma of prostatic origin and review the medical and surgical management.

## 2. Case report

A 65-year-old gentlemen presented to our institute with complaints of spontaneous acute urinary retention. Patient had similar history 2 months ago with no background lower urinary tract symptoms (LUTS) and no surgery in the past. He was evaluated and transurethral resection of prostate (TURP) was done in private hospital. Intraoperative findings documented were brownish black friable tissue. Histopathology was suggestive of malignant melanoma of prostate. Patient was admitted in emergency in our institute and per urethral catheter was placed and 700 mL urine drained immediately. General physical examination of whole body skin surface, oral cavity and anal mucosa was normal. On digital rectal examination, prostate was firm in consistency, Grade 3 in size and appeared to be fixed to lateral pelvic wall. On investigation, hematology and biochemistry were normal. Serum prostate-specific antigen (PSA) was 0.6 ng/mL. Slide review of TURP

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done in private setup confirmed malignant melanoma of prostate. Dynamic contrast enhanced magnetic resonant imaging (MRI) revealed large heterogenous mass appearing hypointense on T2 and hyperintense on T1 weighted images. It showed evidence of local extension with loss of fat planes with rectum, base of urinary bladder, neurovascular bundle and levator ani muscle (Fig. 1). Further $^{18}$F fluorodeoxyglucose positron emission tomography computed tomography scan (FDG PET CT) was done which showed FDG avid heterogeneously enhancing soft tissue mass involving entire prostate gland with few foci of calcification. FDG avid external iliac, para aortic and aorto caval nodes were also noted (Fig. 2). In view of metastatic lymph nodal disease, patient was counselled for systemic chemotherapy and transurethral resection (TUR) channeling. Intraoperative findings noted were trilobar prostate enlargement with blackish brown friable tissue in its entirety. The prostatic urethral epithelium as well as stroma appeared black suggesting melanoma arising from epithelial and stromal origin. TUR channeling was done and prostate chips evacuated appeared blackish brown (Fig. 3). Histopathology specimen showed malignant cells present in sheets with many containing melanin pigment on H—E stain and on immunohistochemistry showing strong positivity for HMB45 (Fig. 4). Postoperative period was uneventful and per urethral catheter was removed on Day 4. Patient was voiding well and started on Dacarbazine based chemotherapy and under regular follow-up. However, in view of wide spread metastasis, patient succumbed within 3 months of starting chemotherapy.

## 3. Discussion

Primary genitourinary tract malignant melanoma is uncommon. Most cases reported involved distal penis and urethra, and prostate involvement is very rare [1]. Pigmentation is infrequent in prostate, however benign lesions such as melanosis and blue nevus have been reported. In our case, malignant melanoma cells were

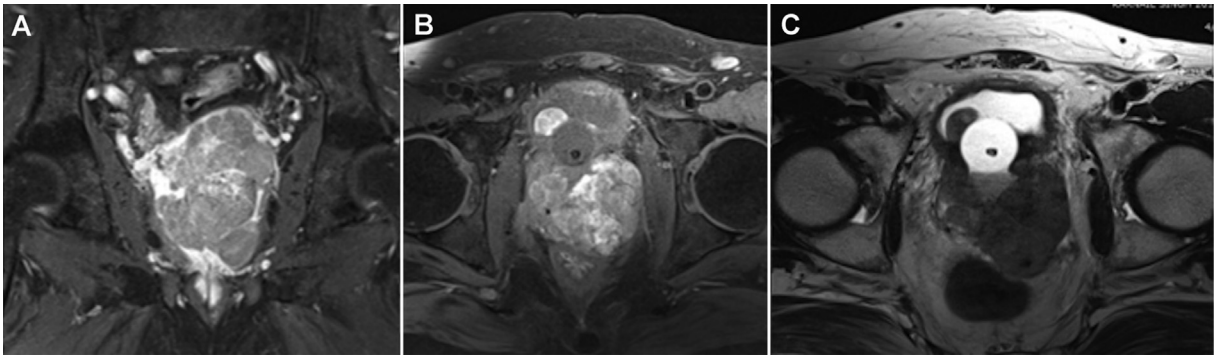


**Figure 1** Dynamic contrast enhanced MRI images showing a large (8.2 cm × 6.3 cm × 5.2 cm) heterogeneous signal intensity mass lesion replacing the prostate infiltrating into the bladder base, rectum and lateral pelvic walls which appears hyper intense in the T1 weighted images (coronal [A] and axial [B] sections) and hypo intense in the T2 weighted images (C). Foleys bulb is seen *in situ* (B,C). MRI, magnetic resonant imaging.

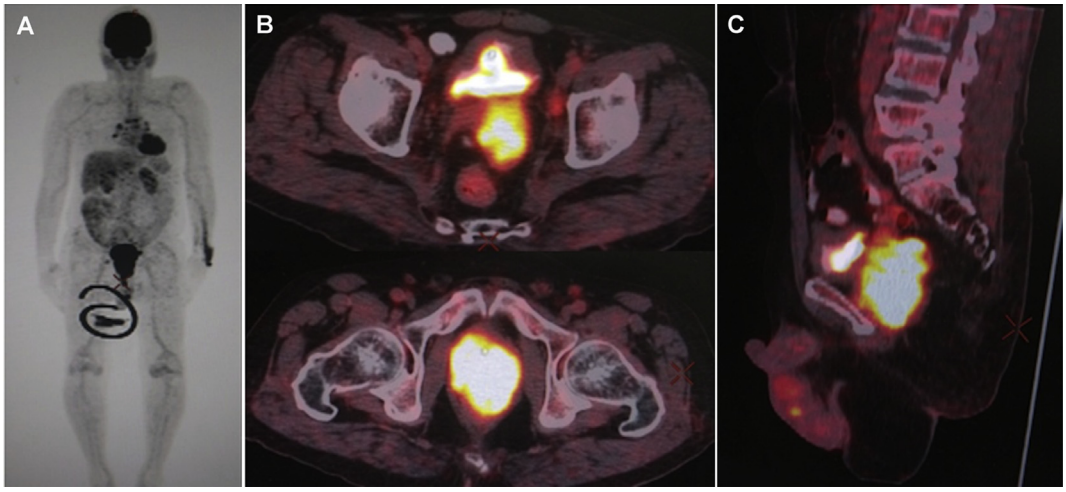


**Figure 2** $^{18}$F fluorodeoxyglucose positron emission tomography scan images—maximum intensity projection image. (A) Physiological uptake of tracer uptake in the brain, myocardium, liver and the bowel with intense tracer activity in the pelvic region centred over the bladder and prostate; Axial (B) and sagital (C) views demonstrate intense fluorodeoxyglucose avid lesion (SUV max 14.2) in the prostate. SUV, standardised uptake value.

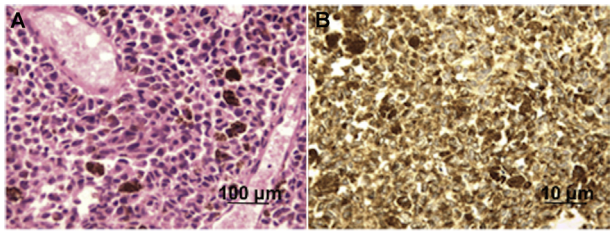


**Figure 3** Photomicrographic images. (A) Malignant cells containing melanin arranged in sheets (H—E 40×); (B) HMB 45 staining strongly positive (IHC, 10×).

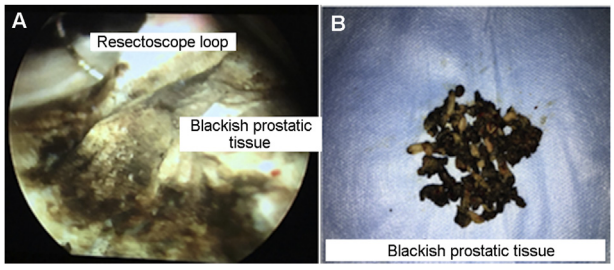


**Figure 4** Intraoperative image. (A) Blackish prostatic tissue being resected with the loop; (B) The melanoma prostatic tissue with its characteristic blackish appearance.

distributed in epithelium as well as stroma of prostate. Possible explanation could be malignant transformation of melanoblasts, which migrated from the neural crest in the embryological stage. Prostatic malignant melanoma is of clinical significance as it metastasizes widely and invariably has poor prognosis. Early diagnosis and prompt treatment are essential to reduce the mortality rates. Primary cause of mortality is metastasis, likely to bone [2].

Most cases reported are found incidentally after TURP for benign prostatic enlargement. Blackish brown tissue intraoperatively is a classical finding and immunohistochemistry should be done to confirm the diagnosis. Our index patient had presented within 2 months of TURP done outside with urinary retention. It shows the aggressive nature of the disease and need for early work-up and treatment. Staging work up should be done to find out the extent of the disease and treatment accordingly. For malignant melanoma of prostate, radical treatment in the form of radical prostatectomy, pelvic lymphadenectomy combined with or without adjuvant therapy, such as chemotherapy or immunotherapy should be done [3,4]. Our index case, in view of locally advanced disease was not suitable for radical surgery and advised for chemotherapy. TUR channeling was done and patient was started on Dacarbazine based chemotherapy and under regular follow-up, however succumbed within 3 months of starting chemotherapy.

To conclude, primary malignant melanoma of prostate is a highly aggressive tumor and has poor prognosis. Melanoma of prostate should be strongly suspected if blackish brown tissue is present during TURP. Combined surgery and chemotherapy should be considered.

This case is unique firstly due to its rarity and deserves special attention due to its highly aggressive behavior and need for prompt treatment.

## Author contributions

*Study design*: Kalpesh Parmar, Ashish Khanna.
*Data acquisition*: Ashish Khanna, Manjeet Sharma.
*Data analysis*: Kalpesh Parmar, Manjeet Sharma.
*Drafting of manuscript*: Ashish Khanna, Kalpesh Parmar.
*Critical revision of the manuscript*: Shrawan Kumar Singh.

## Conflicts of interest

The authors declare no conflict of interest.

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