



## Primary Malignant Melanoma of Urethra—Our Experience with 2 cases

Gaurav Mohan Sali<sup>1</sup> · Kannan R. Nair<sup>1</sup> · M. R. Bindhu<sup>2</sup> · Pooleri Ginil Kumar<sup>1</sup> · Kalavampara V. Sanjeevan<sup>1</sup> · Appu Thomas<sup>1</sup>

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### Introduction

Malignant melanoma of genitourinary region is not a common entity. About 200 cases of genitourinary malignant melanoma are reported. It comprises less than 1% of penile malignant melanoma and 0.2% of female urethral malignant melanoma. Due to rarity of cases, there is no standard protocol for the treatment of genitourinary malignant melanoma. Radical surgical excision is the initial choice of treatment followed by adjuvant chemotherapy or immunotherapy. We are presenting a case of a 59-year-old man with malignant melanoma of the glans penis and urethra and a 64-year-old female with recurrent malignant melanoma of the urethra.

### Case Summary

A 59-year-old man presented with growth over the glans penis with difficulty in micturition of 6-month duration. Local

examination revealed a fungating growth from the ventral aspect of the glans penis extending up to the fossa navicularis. There were multiple bluish-black coloured macular lesions over glans along with blackish nodules over prepuce and skin of the shaft of penis (Fig. 1a). Clinically, there was no regional lymphadenopathy. Cystoscopy revealed a black pigmented lesion extending proximally into the urethra 2 cm from the fossa navicularis. Punch biopsy of the lesion was done, which was reported as malignant melanoma. Whole-body PET-CT scan showed no evidence of distant metastasis. SPECT and lymphoscintigraphy (Fig. 1b) showed three active left inguinal lymph nodes. Total penectomy and left-sided sentinel biopsy were done. On frozen section histology, all three superficial inguinal lymph nodes were negative for malignancy, and hence, further inguinal lymph node dissection was not undertaken. Histopathological report confirmed the diagnosis of malignant melanoma. The second patient was a 64-year-old female who presented with painless haematuria and splitting of urinary stream. She had a history of excision biopsy of urethral lesion 1 year ago, which was reported as malignant melanoma. PET-CT showed FDG avid bilateral ilioinguinal (Fig. 2). She underwent radical cystectomy with ileal conduit with bilateral pelvic lymph node dissection. Histopathological report was malignant melanoma and immunohistochemistry was positive for HMB-45 (Figs. 3 and 4). She was planned for interferon therapy.

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✉ Gaurav Mohan Sali  
saligaurav@gmail.com

Kannan R. Nair  
kannannair@aims.amrita.edu

M. R. Bindhu  
bindhumr@aims.amrita.edu

Pooleri Ginil Kumar  
drginil@aims.amrita.edu

Kalavampara V. Sanjeevan  
sanjeevankv@aims.amrita.edu

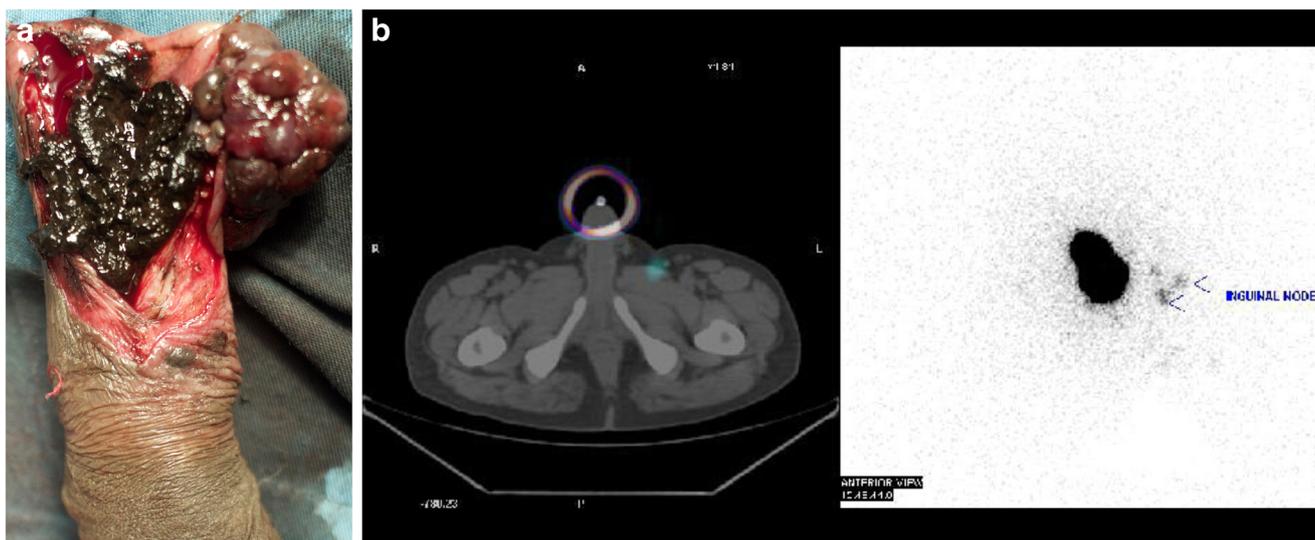
Appu Thomas  
apputhomas@aims.amrita.edu

<sup>1</sup> Department of Urology, Amrita Institute of Medical Sciences and Research Centre, Ponekkara, Kochi, Kerala 682 041, India

<sup>2</sup> Department of Pathology, Amrita Institute of Medical Sciences and Research Centre, Ponekkara, Kochi, Kerala 682 041, India

### Discussion

The first case of penile malignant melanoma was described by Muchison in 1859 while in 1871, Tirell reported the first case of melanoma of the urethra [1]. Malignant melanoma of female urethra was first reported by Reed in 1896. This disease is three times more common in women. It has a peak incidence in the 50- to 70-year age group. Malignant melanoma of the penis comprises less than 1% of all primary penile malignant lesions and less than 0.2% of all malignant melanomas in men



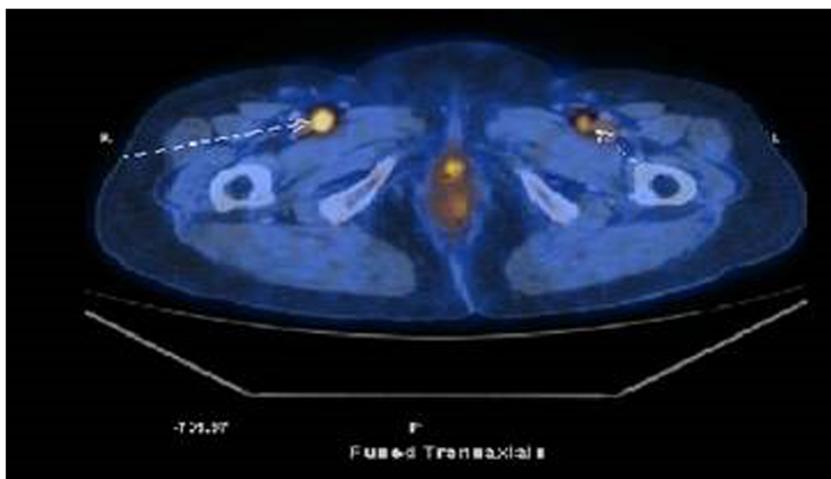
**Fig. 1** a Penile growth. b SPECT and lymphoscintigraphy showing active left inguinal lymph nodes

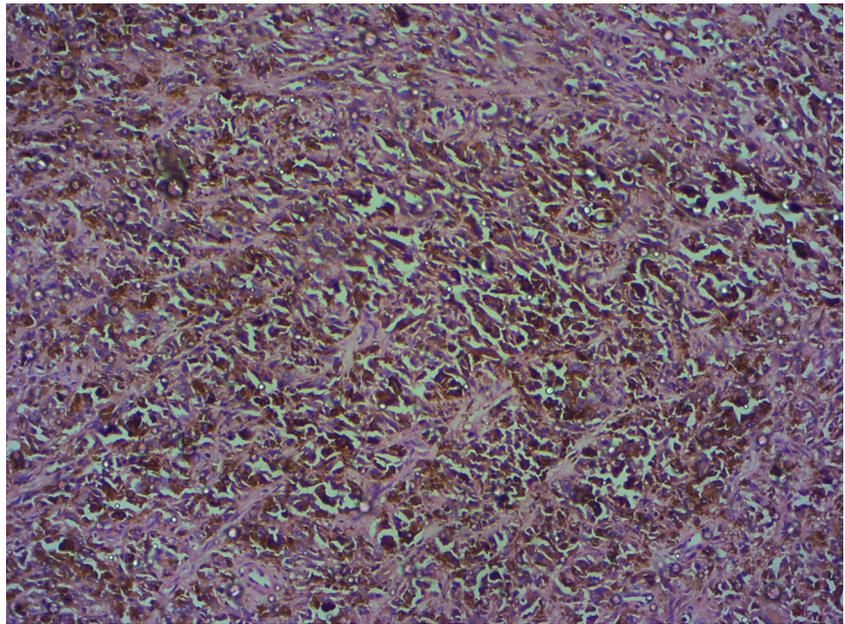
[2] while in female, its incidence is 0.2% of all malignant melanomas and 4% of all urethral cancers [3]. Most common site of occurrence of malignant melanoma of the penis is glans {55%} followed by the prepuce {28%}, penile shaft (9%), and urethral meatus {8%} [4]. In the urethra, the most commonly involved site is fossa navicularis {73%} followed by prostatic urethra {11%}, bulbous urethra {8%}, and penile urethra {8%} in that order. In female, distal urethra or meatus is the most common site of occurrence.

Melanoma is neuro-ectodermal in origin and arises from the malignant transformation of melanocytes. Melanomas are classified as mucosal and cutaneous. Presentation of urethral melanoma may be in the form of urethral mass, dysuria, obstructive voiding, splitting of stream, and symptoms due to metastatic disease while its appearance varies from bluish-black or reddish-brown pigmented papule, plaque, fungating growth, or ulceration. Due to the high risk of distant metastases, early diagnosis and treatment are very important [5].

Definitive diagnosis is by histopathological examination of the lesion. The more specific markers for melanoma are Melan A/MART-1, HMB 45, and S100a protein while aberrations of c-Kit gene in melanoma are under research. Prognostic criteria like depth of invasion (Clark staging) and thickness of the tumour (Breslow classification), which are used for melanoma in other sites, are not applicable to penile and urethral lesions within the confines of very limited experience. Some authors have reported that dermoscopy is useful for distinguishing a melanocytic from a non-melanocytic lesion and can play a role in establishing whether a melanocytic lesion is benign or malignant [4] but its potential role has been limited so far because of lack of evidence of the dermoscopic features of urethral melanoma. Commonly used staging of the malignant melanoma of male urethra is based on a system developed by Bracken et al. with stage I disease confined to the penis, stage II showing regional lymph node metastasis, and stage III representing disseminated disease [6] while in female, Chung's Index is applicable [7].

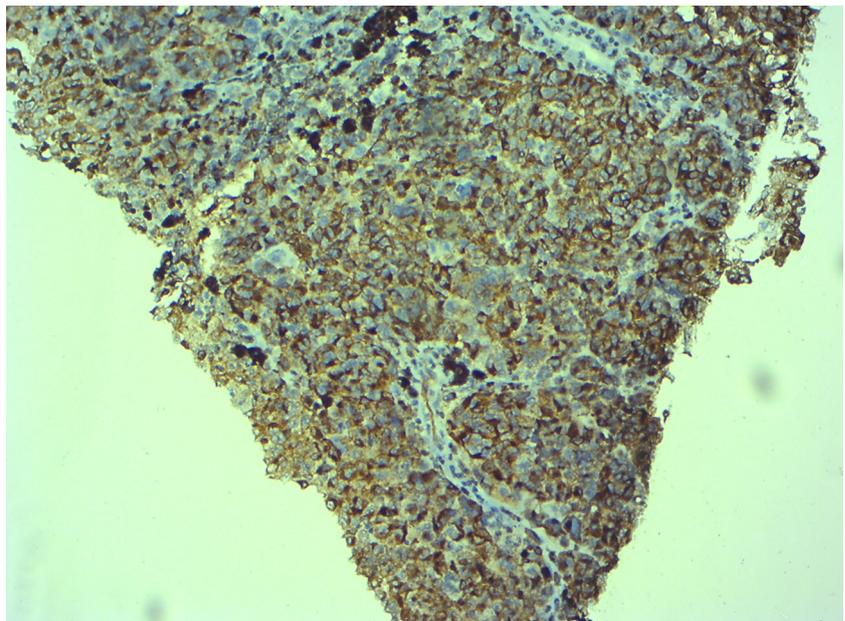
**Fig. 2** SPECT of female patient showing bilateral active inguinal lymph nodes



**Fig. 3** HPE image

The best treatment for genitourinary melanoma is unclear. Treatment is mainly surgical, but the controversy lies with the extent of surgery for localised disease. Sentinel lymph node biopsy plays an important role since it is a highly accurate method of staging lymph nodes [8]. Some authors recommend an aggressive surgical approach with total amputation of the penis and radical inguinal, iliac, and obturator lymph node dissection. However, Stillwell et al. recommend local excision or distal partial penectomy with 3- to 5-cm margin for lesions with thickness of less than 1.5 mm when inguinal nodes are non-palpable and prophylactic superficial inguinal node dissection for those lesions with thickness greater than 1.5 mm or

when regional inguinal lymph nodes are palpable [9]. Partial or total penectomy is done for control of local complications like bleeding, infection, and urethral obstruction in stage III disease. Regional lymphadenectomy is recommended only for palliation of complications from massive lymphadenopathy. There are various approaches described for treatment for female urethral malignant melanoma which includes local excision, urethrectomy, vulvectomy with groin lymphadenectomy, urethrectomy with vaginectomy, and even pelvic exenteration [10]. The prognosis for patients with melanoma is poor because of the lack of effective systemic chemotherapy. Combination chemotherapy consisting of six cycles of

**Fig. 4** IHC image

dacarbazine, carmustine, cisplatin, and tamoxifen gives the best results. An overall response rate of about 45% and a complete response rate of 12 to 14% have been reported.

To summarise, local excision or partial penile amputation with appropriate safety margin can be effective to control stage I and stage II penile melanomas. Extensive surgical excision to achieve negative margin is required in case of female urethral malignant melanoma. Whole-body PET-CT scan and SPECT with sentinel lymph node biopsy play an important role in the management of malignant melanomas. The treatment of patients without palpable lymph nodes is controversial. Due to the absence of standard guidelines for treatment, it is difficult to draw definitive conclusion.

Although there are 200 published cases of genitourinary malignant melanoma, we experienced that each case requires evaluation and tailoring of treatment according to the presentation, clinical stage, and general condition of the patient. Therefore, in absence of standard treatment guidelines, our cases may guide to treat the similar patients.

### Compliance with Ethical Standards

**Conflict of Interest** The authors declare that they have no conflict of interest.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

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