

Late metastatic recurrence of penile carcinoma after 10 years: Demonstration with ¹⁸F-fluorodeoxyglucose positron emission tomography/computed tomography

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ABSTRACT Penile cancer is rare cancer. While inguinal and pelvic nodal metastasis is common, distant metastasis is rare. We here present the interesting case of a 59-year-old male patient with penile carcinoma, previously treated with penectomy and inguinal lymphadenectomy 10 years earlier. He presented with bone pains and given history of malignancy he was referred for an ¹⁸F-fluorodeoxyglucose (¹⁸F-FDG) positron emission tomography/computed tomography (PET/CT). PET/CT demonstrated multiple ¹⁸F-FDG avid bone and lung metastases. No locoregional disease was seen. Biopsy from a lung nodule confirmed the diagnosis, and the patient was started on palliative chemotherapy.

Keywords: ¹⁸F-fluorodeoxyglucose, penile carcinoma, positron emission tomography/computed tomography, recurrence

INTRODUCTION

Penile cancer is relatively rare, representing about 0.5% of all male cancers.^[1] It has a higher prevalence in developing countries and older men. Various predisposing factors include some religious and cultural practices, personal hygiene, smoking, phimosis, inflammatory conditions such as lichen sclerosus or balanoposthitis, ultraviolet radiation, and the presence of human papillomavirus.^[2] Circumcision before puberty reduces the risk by 3–4 times.^[2] Squamous-cell carcinoma (SCC) is the major histopathological subtype accounting for 95% of all penile cancers.^[3] Regional nodes (inguinal and iliac) are the most common site of metastases. Distant metastasis to retroperitoneal nodes is still common, but to other sites such as lung, liver, and bones are rare.^[4] Recurrence is commonly locoregional and usually appears within 2 years of primary

treatment.^[5] Distant recurrence is rare affecting only 1.8% of patients in one series.^[5] ¹⁸F-fluorodeoxyglucose (¹⁸F-FDG) positron emission tomography/computed tomography (PET/CT) has shown promising role in the nodal staging of penile cancer.^[6] Here, we present a rare case of late recurrence (after a decade) of previously treated penile carcinoma presenting with distant metastases.

CASE REPORT

A 59-year-old male patient presented with multiple bone pains of 3 months duration. He was a follow-up case of penile cancer (SCC-G2; T2N2M0-Stage IIIB) for which he had undergone penectomy and bilateral inguinal nodal dissection 10 years back. This was followed by locoregional radiation. The patient was well for next 5 years but lost to follow-up thereafter. He was a chronic smoker. No other co-morbidity

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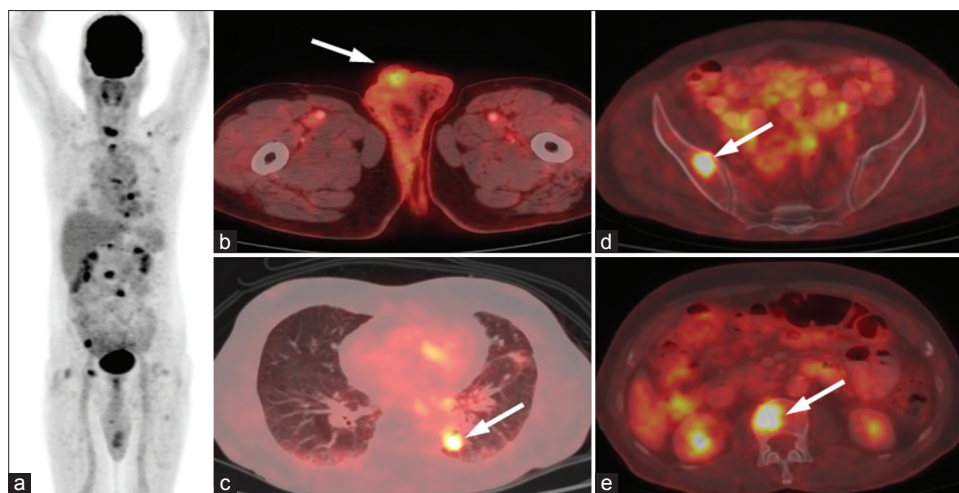


Figure 1: Maximum intensity projection positron emission tomography image. (a) Multiple hypermetabolic foci in thorax, abdomen and pelvis. Transaxial positron emission tomography/computed tomography image of pelvis (b) Postpenectomy status (arrow). No hypermetabolic lesion is seen in the penile stump, and no hypermetabolic inguinal node was seen. Transaxial positron emission tomography/computed tomography image of thorax. (c) Hypermetabolic pulmonary nodules (arrow). Furthermore, seen were multiple hypermetabolic lesions in multiple bones (d and e, arrows). Positron emission tomography/computed tomography findings suggested multiple skeletal and pulmonary metastases

was present. The bone pains were not relieved with pain killers. Given history of malignancy, he was advised for ^{18}F -FDG PET/CT. Contrast enhanced ^{18}F -FDG PET/CT was performed after intravenous injection of 370 MBq (10 mCi) of ^{18}F -FDG. PET/CT images [Figure 1a-e] showed multiple pulmonary (maximum standardized uptake value [SUVmax-6.2]) and bone metastases (SUVmax-11.3). No locoregional disease was seen. No other hypermetabolic lesion was seen in the body which would suggest a second primary tumor. Based on PET/CT findings, a diagnosis of metastatic relapse of penile cancer was made. However, given the long disease-free interval, a possibility of a second primary with metastases was considered by the treating oncologist. Biopsy from a pulmonary nodule was done which showed SCC, negative for thyroid transcription factor-1. Finally, a diagnosis of metastases from penile cancer was made. The patient was started on palliative chemotherapy with cisplatin and 6-fluorouracil.

DISCUSSION

Penile cancer is usually locoregionally confined with distant spread seen only in advanced disease and is relatively rare. In the present case, the patient was demonstrated to have multiple distant metastases to lungs and bones on ^{18}F -FDG PET/CT. While recurrence in penile cancer is not uncommon, presentation as distant relapse is very rare.^[4] Another interesting finding was the late presentation of the relapse, 10 years after primary treatment. Usually, recurrence in penile cancer is seen within 2 years of primary treatment.^[5]

The role of ^{18}F -FDG PET/CT in penile cancer is still not clearly delineated. Many studies have evaluated its role in nodal staging with variable success. A meta-analysis including seven studies addressed the accuracy of ^{18}F -FDG PET/CT for inguinal lymph node staging in penile SCC.^[6] It was found that the pooled

sensitivity and specificity were 80.9% (95% confidence interval [CI]: 69.5–89.4%) and 92.4% (95% CI: 86.8–96.2%), respectively. Pooled sensitivity was 96.4% (95% CI: 81.7–99.9%) for clinically node-positive patients, and 56.5% (95% CI: 34.5–76.8%) for clinically node-negative patients. Based on these findings, the authors advised against the routine use of ^{18}F -FDG PET/CT in clinically node-negative patients, while PET/CT was thought to be useful in clinically node-positive patients. Similar results were also reported by Scher *et al.*^[7] Another utility of PET/CT is detection of pelvic nodal metastasis in inguinal node-positive patients. Graafland *et al.*^[8] showed a sensitivity of 91% and a specificity of 100% in detecting pelvic nodal involvement in 18 patients with penile SCC with unilateral or bilateral cytologically tumor-positive inguinal disease. A recent study by Jakobsen *et al.*^[9] suggested that a combination of sentinel node biopsy and ^{18}F -FDG PET/CT to be more accurate than either alone in clinically inguinal node-negative penile cancer. In that study, four of 23 radiotracer-silent groins had an ^{18}F -FDG PET/CT positive node.

Although distant metastasis from penile cancer is rare, when present ^{18}F -FDG PET/CT can detect them with high sensitivity. Kaya *et al.*^[10] Reported a case where distant nodal metastases from penile carcinoma were detected on a staging PET/CT done after primary surgery. Similarly, distant metastases were also demonstrated in few patients on ^{18}F -FDG PET/CT in various other studies.^[7-9] ^{18}F -FDG PET/CT being a whole body imaging technique is useful in this regard. In the present case too, PET/CT demonstrated multiple bone and lung metastases, reaffirming its utility.

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Conflicts of interest

There are no conflicts of interest.

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