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## Case Report

# Relevance of computed tomography and magnetic resonance imaging for penile metastasis after prostatectomy: uncommon case report and brief review of the literature

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## ABSTRACT

Penile metastasis from prostate cancer represents a rare condition, associated with poor prognosis. In the literature, authors have reported less than 500 cases of secondary penile cancers, and among these cases of metastases, only 33% are from prostate cancer. Overall reported rate of survival is about 1-24 months. Here, we present an uncommon case of penile metastasis from prostatic adenocarcinoma, with particular focus on the role of computed tomography and magnetic resonance imaging in diagnosis and follow-up.

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## Case report

In December 2006, a 77-year-old male patient was treated with radical prostatectomy and dissection of lymph nodes, total adrenergic block (BAT), and cycles of radiation therapy for prostate adenocarcinoma (Gleason score 5 + 4 = 9; T3b NO Mx).

During routine oncologic follow-up, his levels of serum prostate-specific antigen (PSA) had remained below 1 ng/mL

for 6 years (normal values for PSA at our institution: 0-4.4 ng/mL). In March 2012, the patient's value of PSA was 0.98 ng/mL. In June 2012, laboratory tests revealed hematic level of PSA of 3.24 ng/mL. His value of PSA had tripled in only 3 months, about 5 years after radical surgery and therapies.

After this unexpected increase, complete clinical examination of the patient happened to be negative, without any skin alteration on the penile glans or any evidence of palpable inguinal lymph nodes.

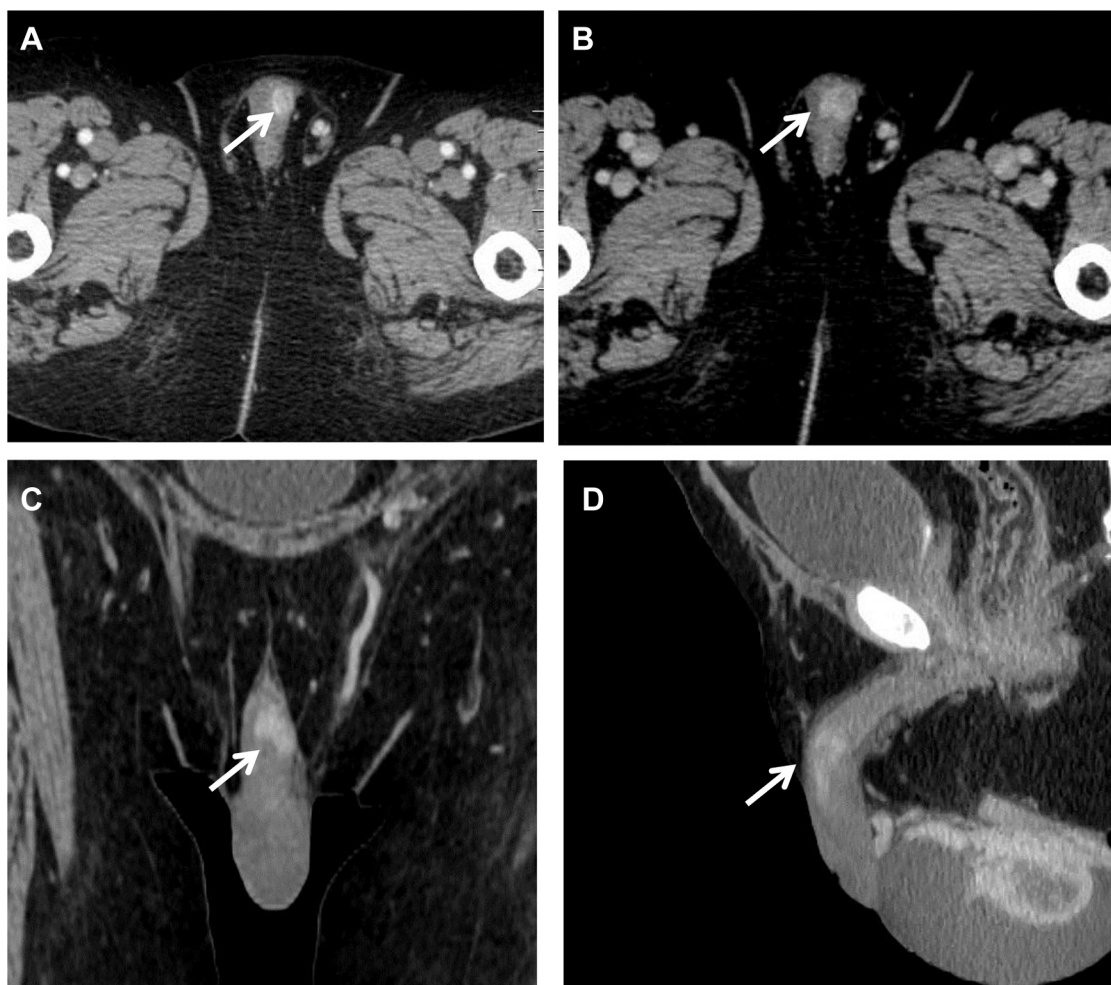
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**Fig. 1** – CT scan on axial (A, B) and multiplanar reconstruction in the sagittal and coronal planes (C, D) detects a nodule on the left side of corpus cavernosum (indicated by white arrow in all figures) with an early contrast enhancement after iodinated contrast agent injection. In addition, CT reveals an ipsilateral hydrocele (D). CT, computed tomography.

In October 2012, the value of PSA had reached 6.16 ng/mL, almost twice compared to June 2012.

Follow-up computed tomography (CT) scan did not reveal any metastatic localization in the abdomen, but scans showed osteolytic areas: one area with osteolytic features was visualized on the vertebral body of L2 and one on the left femur.

Bone scintigraphy confirmed the positivity of these 2 lesions. Thus, oral therapy with estramustine phosphate was started.

During further follow-up, the patient did not complain any local complications or penile pain, but a continuous increase of his values of PSA was observed.

Nevertheless, the disease remained stable until January 2013 (PSA values of 8.07 ng/mL), when another CT examination showed an oval subcutaneous nodule (maximum diameter 21 mm) that was located on the left margin of corpus cavernosum. After injection of iodinated contrast agent, this mass had homogenous and early contrast enhancement, indicating high angiogenesis. Furthermore, left scrotal hydrocele was observed (Fig. 1).

Magnetic resonance imaging (MRI) of the penis was performed on a 1.5-T scanner (GyroscanIntera; Philips Medical Systems, Best, The Netherlands) equipped with 8-channel

dedicated coil. MRI images were acquired on axial, sagittal, and coronal planes using T1-weighted and T1 spectral presaturation with inversion recovery–weighted sequences and T2-weighted and T2 spectral presaturation with inversion recovery–weighted sequences; T1-weighted dynamic study after injection of gadolinium was also performed. MRI confirmed the previous findings, showing nodular area of altered signal intensity, hypointense on T1-weighted and T2-weighted sequences, characterized by an early and persistent contrast enhancement on dynamic sequences after injection of gadolinium (Fig. 2).

In February 2013, penile biopsy was performed. Pathology report from biopsy specimens was fibromuscular adipose tissue with infiltration of poorly differentiated carcinoma, all positive for PSA at the immunohistochemistry (Fig. 3). Levels of PSA at this time were 8.81 ng/mL.

In August 2013, values of PSA reached 13.57 ng/mL and another bone scintigraphy revealed new sites of metastatic localization.

Twelve months after the diagnosis of penile metastasis, due to cardiologic toxicity and bad general conditions of the patient, multidisciplinary group of our institution decided to treat him with best supportive care. The patient died about

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