Detection of Penile Metastasis from Bladder Cancer Using F-18 FDG PET/CT

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Received: 27 July 2012 / Revised: 17 August 2012 / Accepted: 22 August 2012 / Published online: 28 September 2012
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A 74-year-old man who had experienced priapism for 2 months after radical cystectomy for bladder cancer visited our hospital, and underwent metastatic work-up. ^{18}F -fluorodeoxyglucose (FDG) positron emission tomography/computed tomography (PET/CT) showed diffuse hypermetabolic activity along the penis shaft, which was confirmed as a penile metastasis (Figs. 1 and 2).

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Fig. 1 A 74-year-old man who visited our hospital, had experienced penile edema and pain for 2 months. The subject had a surgical history of radical cystectomy, with the procedure having been conducted 4 months earlier, in a different hospital, owing to bladder cancer. Owing to concern about the possibility of penile metastasis, the subject underwent meta-static work-up procedures. Penile Doppler ultrasonography showed homogeneous echogenicity and normal blood flow with no definite mass lesion and no abnormal vasculature in the erect penis (a). However, ^{18}F -FDG PET/CT clearly showed diffuse, homogeneous and segmental hypermetabolic activities along the penis shaft (b). The presence of an ileal conduit excluded the possibility of any urine activity being present in the penis. Multiple hypermetabolic activities was evident at the bladder bed, pelvic lymph nodes, paracolic gutter and the skeletal system, manifesting regional tumor recurrence and systemic metastases

Fig. 2 Palliative radical penectomy was done to confirm the involvement of metastatic urothelial carcinoma and histopathology of the specimen revealed infiltration of metastatic carcinoma at stromal tissues surrounding the penile urethral epithelium. Metastatic tumors of the penis are extremely rare, with only approximately 300 cases reported in the clinical literature to date [1–5]. In general, conventional modalities, such as Doppler ultrasonography is regarded as an effective imaging tool for diagnosing the metastatic lesions of the penis [6, 7]. However, rather unexpectedly, Doppler ultrasonography could not reveal any diagnostic clues in this case. By contrast, ^{18}F -FDG PET/CT had showed FDG-avid lesion along the penis shaft, which was confirmed as a penile metastasis. To our best knowledge, our report is the first case report that showed penis metastasis from bladder cancer on ^{18}F -FDG PET/CT

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