

## Penile Metastases from Lung Squamous Cell Carcinoma Presenting as an Initial Manifestation

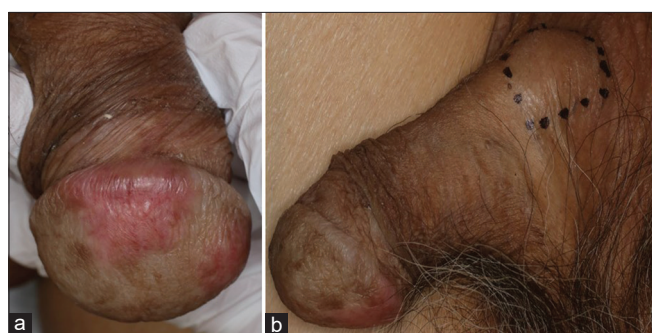
Editor,

A 74-year-old male had been suffering from persistent cough and back pain for three months. He had a smoking history of 50 years (20 cigarettes/day). He noticed nodules with pricking pain and urinary pain one month previously. Physical examination showed subcutaneous induration of the sulcus coronarius, infiltrative erythema on the glans, and firm nodule on the root of the penile shaft [Figure 1a and b]. Left inguinal lymph nodes were palpable. Histological examination revealed a number of irregular-shaped tumor islands unconnected to the overlying epidermis, with a sheet-like proliferation invading into the dermis. Atypical tumor cells showed keratinization with frequent atypical mitotic figures in the dermis, whereas the overlying epidermis did not have dysplastic cells [Figure 2a]. Immunohistological studies showed that the tumor cells were positively stained with pancytokeratin [Figure 2b], p40, and p63, whereas negative for vimentin, CEA, CK20, and GCDFP15. Laboratory examination showed elevated levels of squamous cell carcinoma (SCC) antigen (30.7 ng/ml; normal <1.5), and normal PSA (1.17 ng/ml). Pelvic computed tomography (CT) revealed vertebral and thoracic invasion. An (18)F-FDG PET/CT exploration showed hypermetabolic lymphadenopathies in the inguinal, pelvic, and mediastinal regions, and suggested metastases to the bone, liver, skin and lung. Bronchoscopic biopsy from pulmonary lymph node revealed undifferentiated SCC, with positive pancytokeratin and p40 stain [Figure 2c and d]. Radiation was started, but ceased at the total dose of 15 Gray due to worsening of general condition, and the patient was referred to palliative care.

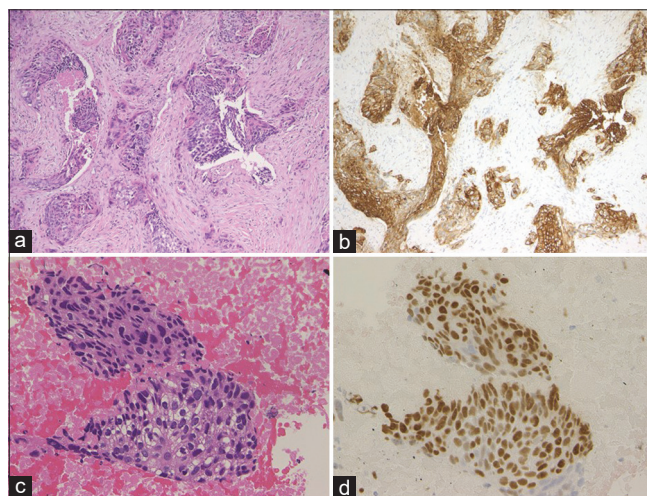
Although it is difficult to decide the origin definitely, we concluded that lung SCC was the origin and penile SCC was metastatic lesion, based on the fact that 1) histopathology from the skin showed SCC tumor islands unconnected to

the overlying epidermis without intraepidermal atypical cells, 2) lung involvement was rather severe than that of the skin, and 3) SCC primarily involving the penis is rare, and the patient was a heavy smoker. To date, there are no good immunohistopathological staining methods for differentiate the original cancer. Genital metastasis is relatively rare, and develops at the end-stage of cancer. In a review paper of over 300 cases of penile metastases, bladder cancer and prostate cancer accounted for 30% each, followed by gastrointestinal cancers, whereas lung cancer was as low as 4%.<sup>[1]</sup> The mechanism of distant metastasis to the penis remains unclear; however, retrograde venous, arterial, and lymphatic spread has been suggested. Metastatic penile cancer is most frequently developed in the shaft of the penis, and less commonly in the head of the penis or foreskin.<sup>[2]</sup>

Guo *et al.* reviewed 40 cases of penile metastases from primary lung cancer including their own case.<sup>[3]</sup> Among them, 34 cases (85%) involved the penis shaft. Multiple locations were involved in the penis in 18 cases, as was observed in the present case. The glans penis was involved in 10 cases, among which 4 cases involved the glans penis only. SCC is the most common, which accounted for nearly 60%. The metastases and primary lung cancer were diagnosed at the same time in nearly half of the cases (45%), and penile metastases were detected after the diagnosis of primary lung cancer in 22.5% of the cases. Another study showed that one-third of penile metastases were generally detected at the same time as primary tumor, whereas the



**Figure 1:** Subcutaneous induration on the sulcus coronarius and infiltrative erythema on the glans (a), and a firm nodule on the root of the penile shaft (b)



**Figure 2:** (a) Tumor islands of atypical squamous cells in the dermis (Hematoxylin and eosin stain, original magnification  $\times 200$ ), which were positive for pancytokeratin (b). Lung lymph node biopsy revealed undifferentiated tumor nests (c), which was positively stained with p40 (d). ( $\times 400$ )

remaining two-thirds were detected several months later than the discovery of primary tumor.<sup>[4]</sup> Mass and pain are the main initial symptoms, and after the diagnosis of penile metastatic cancer, more than two-thirds of the patients were dead within 6 months. In the present case, penile lesions were the initial manifestation, from which lung cancer and multiple metastases were discovered. It should be aware that the penis can be the only cutaneous site of distant metastasis.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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