CASE REPORT

Distant cutaneous metastases secondary to squamous carcinoma of the penis

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Penile cancer normally spreads in a predictable manner to the regional lymph nodes: first inguinal and then the pelvic nodes. We report a case where the patient presented synchronously with secondary skin metastases and primary high grade penile squamous carcinoma. In addition the patient also had pulmonary metastases, loco regional spread to the groin nodes, liver metastases and tumour erosion of a right sided rib. The skin metastases appeared nodular, were firm in consistency and appeared intradermal. Skin metastases have been described for a number of solid malignancies – the clinician must have an index of suspicion to relate a less obvious primary lesion with secondary skin lesions. The patient died before chemotherapy could be administered.

Key Words: penile cancer, skin metastases

Introduction

Secondary skin lesions from primary visceral and breast cancer are uncommon but not rare. However, this type of spread is exceedingly rare for penile cancer.

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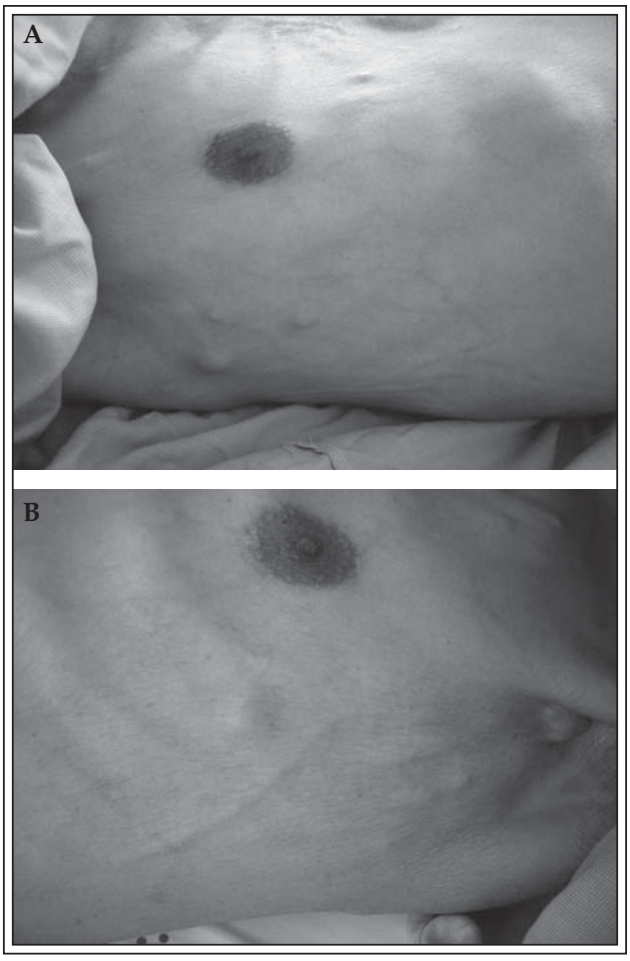
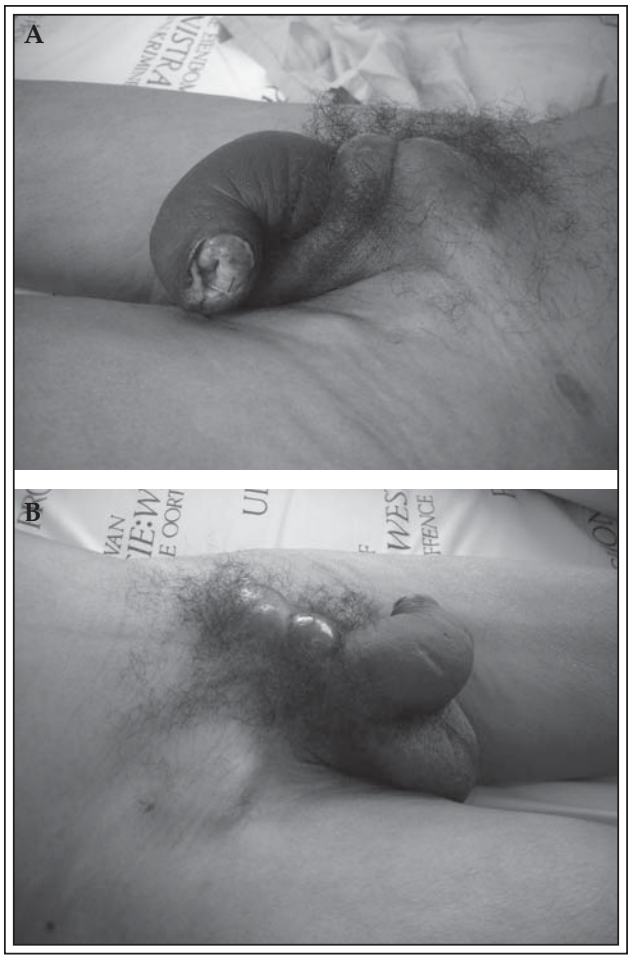
Case

A 59-year-old unemployed male patient presented with a 9 month history of a penile ulcer and swelling of the groin nodes, which had not responded to 4 weeks of antibiotic treatment prescribed by the referring doctor. The patient did not have urinary symptoms, but felt weak and had lost weight over the preceding months. Previous medical history included ethanol induced cerebellar dysfunction, pulmonary tuberculosis (fully treated) and a clavicle fracture sustained in a motor vehicle accident 5 years previously. The patient was on no regular medication. He had a 50 pack per year



Figures 1a and 1b. Cutaneous nodules shown on histopathological examination to consist of poorly differentiated squamous carcinoma.



Figures 2a and 2b. Squamous carcinoma involving the penile glans, foreskin and shaft, base of the penis and inguinal nodes.

history of cigarette smoking and was known to have chronically abused ethanol.

On examination the patient was cachectic. A hard lymph node was palpable in the left supraclavicular fossa. Several cutaneous nodules were visible over the thorax and in both axillary areas, Figures 1a and 1b. On palpation the nodules were hard and felt intracutaneous rather than subcutaneous. Abdominal palpation revealed a 13 cm enlarged, nodular liver. There was an exophytic tumor protruding from underneath the phimotic foreskin, Figure 2a. The penile shaft felt hard and nodular to the level of the bulbar urethra. In the midline at the base of the penis there was a hard nodule 4 cm in diameter, with shiny overlying skin. The inguinal lymph nodes were visibly enlarged (about 3 cm in diameter), hard and immobile on the left side, but only moderately enlarged and mobile on the right, Figure 2b. Digital rectal examination and urine dipstick analysis were normal.

Blood tests showed a raised white cell count of 15.9 x 10^9/L (normal 4-10), but normal hemoglobin and platelet count, normal serum urea, creatinine and electrolytes. Liver function tests were deranged with alkaline phosphatase(ALP) 800 U/l (normal 40-120), γ-glutamyl transferase (GGT) 757 U/l (normal 2-30), aspartate transferase (AST) 103 U/l (normal 8-20) and lactate dehydrogenase (LDH) 762 U/l (normal 100-190). The serum PSA was 0.1 µgm/l and the HIV-antibody test was negative. Screening for syphilis (RPR and FTA absorption test) was negative.

Chest and abdominal x-rays revealed multiple pulmonary metastases, small bilateral pleural effusions and a lytic lesion of the 12th rib on the right, Figure 3. Abdominal ultrasonography revealed a large liver with multiple metastases and free fluid in the pelvis. Incision biopsy of the penile lesion revealed high grade squamous cell carcinoma (SCC), Figure 4a. Excision biopsy of the most prominent skin nodule showed

Figure 3. Chest x-ray showing pulmonary metastases and pleural effusions.

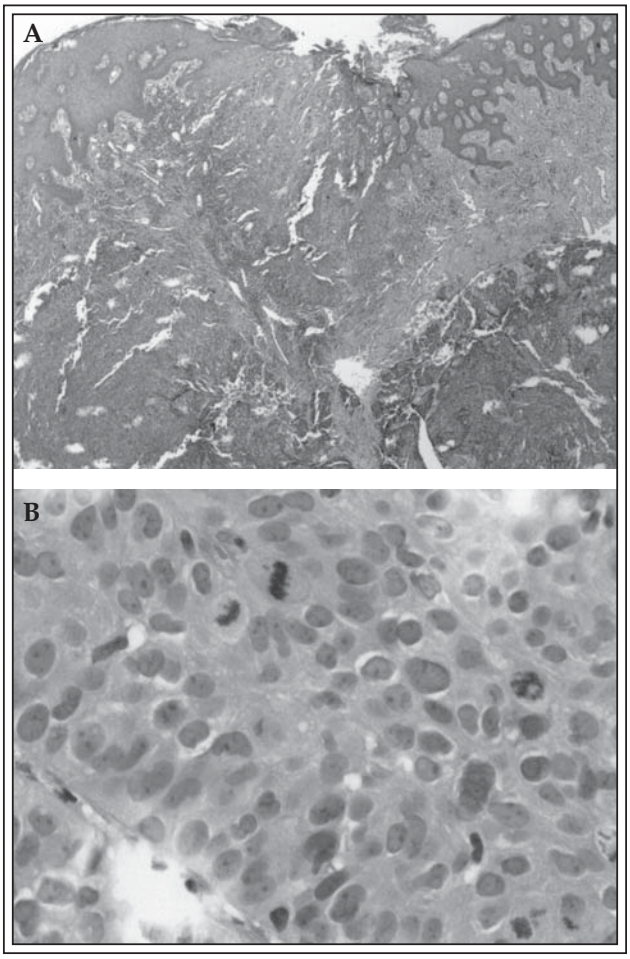


Figure 4. Microscopy of (a) incision biopsy of penile tumor and (b) excision biopsy of cutaneous nodule showing poorly differentiated squamous carcinoma.

poorly differentiated SCC, Figure 4b. The patient died 10 days after admission to hospital before chemotherapy could be administered.

Discussion

Local cutaneous invasion from inguinal lymph node metastases of penile SCC are well known. However, distant cutaneous metastases, presumably due to hematogenous dissemination, are extremely rare. Khandpur and colleagues[1] described a similar case with a short history and poorly differentiated penile SCC, in which the patient responded to chemotherapy. Their patient had no pulmonary or abdominal metastases on CT scan and the liver function tests were normal on presentation.

High grade penile SCC has also been reported to present with dermatomyositis.[2] Clinically, dermatomyositis is characterized by muscle weakness (progressive and often symmetric) preceded or accompanied by a skin rash. The exact pathogenesis of dermatomyositis is unknown, but an auto-immune origin is supported by the association with other systemic auto-immune-, viral- or connective tissue diseases.[3] This patient[2] had no distant cutaneous spread of disease, but had an aggressive SCC invading into the pubic bone as well as involving the inguinal and pelvic lymph nodes. An auto-immune mechanism is assumed, as this patient partially responded to high dose steroid treatment (but died 6 months later of disseminated SCC).

Metastases to the spine have been reported by Jacob et al[4] and Lal and associates.[5] However, metastatic spread of penile SCC to the ribs (as in our patient) appears not to have been described previously. Highgrade SCC of the penis has also been documented to metastasize to the heart.[6]

Retrospective studies over the last 65 years reviewed by Mueller revealed an incidence of 0.3% to 9% for skin metastases from visceral malignancies.[7] The most common primary lesions are breast (69%), colon (4%), lung (4%) and ovary in women and colon (19%) and head and neck cancers (12%) in men.[8] In Mueller's review he found 111 cases of genitourinary cancers spreading to the skin among a total of 10417 cases from different reports (1.1%). Adenocarcinoma of the kidney (63 cases), bladder transition cell carcinoma (38 cases), prostate adenocarcinoma (8 cases), germ cell tumor of the testis (7 cases) and penile cancer (1 case) were found.

Histologically these cutaneous metastases involve the dermis, with occasional extension to the subcutis.

There is usually a narrow zone of superficial dermis separating the lesion from the epidermis. Therefore an excision or punch biopsy is preferred to a superficial shave biopsy. Epidermiotropic metastases are often undifferentiated and immunostaining proved helpful to diagnose the type of primary lesion.[7]

The mechanism of how penile carcinoma spreads to skin is not clear, but grouped skin lesions from visceral malignancy (such as in our patient) have been attributed to perineural intralymphatic spread.[9] Distant skin spread in melanomas has been described with migration of cancer cells on the external surface of vessels (not intraluminal) – this mechanism of spread has not been described in any other malignancy.[10] □

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EDITORIAL COMMENT

This case is interesting in that the patient had multisite and multiorgan metastases. His 9 month history prior to presentation is typical of self-neglect associated with advanced penile cancer. Married men present significantly earlier than single men with penile as well as other cancers. This patient had a history of alcohol related illness and tuberculosis, both associated with poor self-care. It is unfortunate that he finally presented just 10 days before his death. The referring doctor had commenced him on antibiotics for 4 weeks presumable to treat the groin nodes as infected. We have shown that palpable nodes associated with penile cancer contain cancer in 72%,[1] rather than the 50% that is frequently quoted. This type of skin metastasis is seen in a subset of cases, usually as recurrence rather than on presentation. They are palpable initially within the skin and may ulcerate with the appearance of cigarette burns. They are visible and enhance on CT. It would be interesting to study the genetic signature and cell surface receptors of this subset. The liver metastases are particularly unusual and raise the possibility of hematogenous spread as well as lymphatic in this case. The rarity of this cancer in the western world means that preventative programs such as education, hygiene, circumcision[2] and HPV vaccination[3] are unlikely to materialize in the short term. Nonetheless overall patients who present early have an excellent prognosis, with over 90% survival in our series.[1] Neoadjuvant chemotherapy has promise in the management of patients with node positive disease.[4]

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