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Case Series

Prostate adenocarcinoma and cutaneous metastases

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Abstract

Prostate cancer is the second most frequently diagnosed cancer in men and the fifth leading cause of mortality worldwide. Men of African descent with prostate adenocarcinoma tend to present late with advanced, aggressive and often metastatic disease. Cutaneous metastases are extremely rare, with the incidence reported to be as low as 0.36%. We report a case of prostate adenocarcinoma with cutaneous metastases. A 69-year-old African male known to the urology unit, with metastatic adenocarcinoma of the prostate, presented with a two-week history of pale-to-purple large nodular lesions on the skin of his left hemiscrotum and smaller nodules on the penile shaft. Punch biopsies of the scrotal nodules revealed metastatic prostate adenocarcinoma. Bilateral orchidectomy and excision of the cutaneous lesions were performed. Although cutaneous metastases are rare, more so in patients with adenocarcinoma of the prostate, any skin lesions in patients with a known primary malignancy should raise a suspicion of metastasis. All physicians should therefore have a low threshold for the biopsy of any unusual skin lesion in patients with known prostate cancer.

Level of evidence: 5.

Keywords

Oncology (prostate), prostate cancer, education, other, other investigation

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Introduction

Prostate cancer is the second most frequently diagnosed cancer in men and the fifth leading cause of mortality worldwide.¹ Men of African descent usually present late and with advanced, aggressive and even metastatic disease. Metastases to the bone or pelvic lymph nodes are common. Lung, liver and brain metastases have also been reported. Cutaneous metastases from prostate adenocarcinoma, however, are extremely rare, with the incidence reported to be as low as 0.36%.² We report a rare case of prostate adenocarcinoma with cutaneous metastases.

Case presentation

A 69-year-old African male known to the urology unit, with metastatic adenocarcinoma of the prostate and no other underlying health conditions, presented with a

two-week history of pale-to-purple large nodular lesions on the skin of his left hemiscrotum and smaller nodules on the penile shaft.

At first presentation to our unit 16 months earlier, he had been referred with lower urinary tract symptoms and found to have a prostate-specific antigen (PSA) >150 ng/mL and a suspicious T2c lesion on digital rectal examination.

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Prostate biopsy had confirmed adenocarcinoma of the prostate, Gleason grade 4+3 with 40% tumour involvement and perineural invasion. Thoracolumbar X-rays at that stage revealed sclerotic changes of T12, L1 and L2 vertebrae. The patient had been counselled with regard to the need for androgen deprivation therapy in the form of a bilateral orchidectomy. However, despite intensive counselling, he had declined any medical treatment and discharged himself from our unit with the view to seeking traditional/alternative therapies. Now he appeared chronically ill, weak, wasted and anaemic, with an indwelling urethral catheter placed by the local clinic where he had presented with retention of urine.

Large firm asymptomatic nodular lesions of the left hemiscrotum and similar smaller pale nodules on the skin of the penile shaft were noted (Figure 1). Punch biopsies of the scrotal nodules revealed histopathology consistent with metastatic prostate adenocarcinoma (Figure 2 and 3). In addition, PSA immunohistochemical marker was positive.

The patient finally agreed to a bilateral orchidectomy with excision of the cutaneous lesions. He also received palliative radiotherapy to the spine. He was not deemed a candidate for further systemic chemotherapy due to his poor performance status and renal dysfunction, and he demised five months post orchidectomy.

Discussion

Although prostate cancer is the commonest genitourinary malignancy, it is very rarely associated with cutaneous metastases. The incidence rates of cutaneous metastases from malignancies of the kidney, bladder, prostate and testes are reported as 3.4%, 0.84%, 0.36% and 0.4%, respectively.² Adenocarcinoma is the most common histological subtype of prostate cancer associated with cutaneous metastases, accounting for >90% of cases reported. Other less common histological subtypes of prostate cancer include small-cell carcinoma, transitional-cell carcinoma and a mucinous adenoma subtype with signet ring cells.³

Cutaneous metastases from prostatic adenocarcinoma may resemble common primary dermatologic conditions and have a wide spectrum of appearance. No clear mechanism for cutaneous spread has been established, but theories include dissemination via lymphatics, spread through perineural lymphatics, haematogenous spread and embolisation of vessels.^{4,5} Our patient exhibited the more common presentation of multiple pink-coloured firm and indurated fleshy skin nodules. A second variant of clinical presentation are erythematous plaques. These nodules or plaques predominantly occur in the suprapubic, genital and groin areas as well as the anterior thigh – as seen in the index case.

Prostatic cancer cutaneous metastasis may occur at any time during the disease process. A commentary by Brown et al. noted that cutaneous eruption occurred an



Figure 1. Preoperative photograph showing nodular lesions of the left hemiscrotum and smaller pale nodules of the skin of the penile shaft.

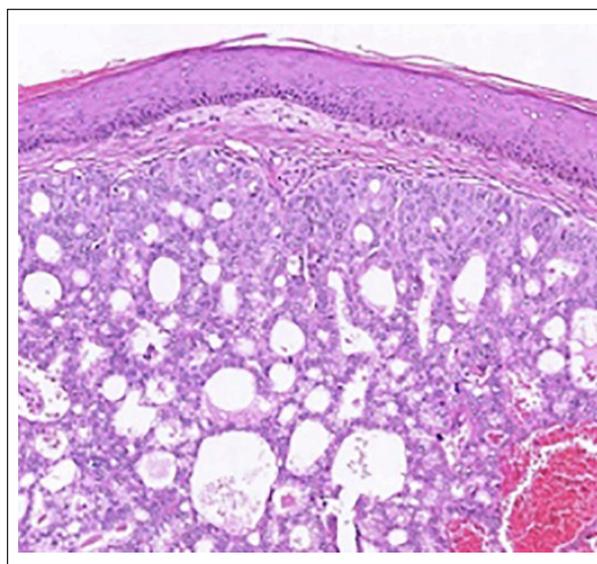


Figure 2. The skin shows metastatic adenocarcinoma with a characteristic acinar growth pattern. The crowded glands exhibit straight luminal borders (100× magnification).

average 54.4 months after initial prostate cancer diagnosis (range 3–192 months). However, in 11 cases, the cutaneous eruption was the primary presenting complaint in the absence of any prior diagnosis of prostate carcinoma.³

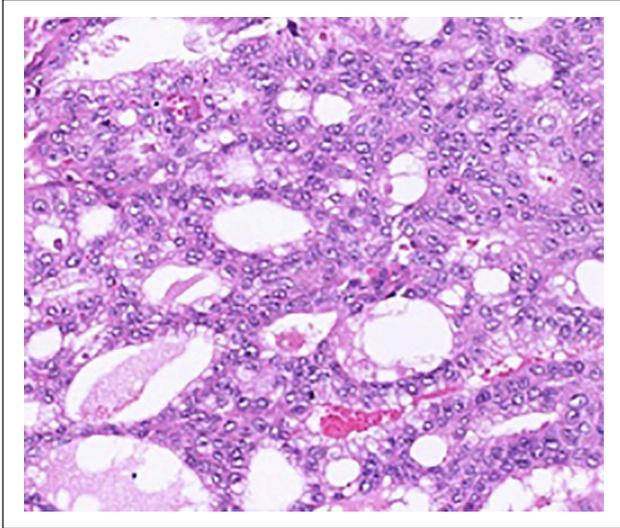


Figure 3. The tumour cells show enlarged nuclei with prominent nucleoli and amphophilic cytoplasm. Occasional mitoses and dense pale eosinophilic secretions are present (200× magnification).

There have been reports of cutaneous metastasis as the first evidence of recurrence after both radical prostatectomy and radical radiotherapy.^{6,7} In 1995, Bangma et al. reported the only known case of cutaneous metastasis after transabdominal laparoscopic surgery. A staging laparoscopic pelvic lymphadenectomy was performed on a 66-year-old gentleman with known T3 Nx M0 adenocarcinoma of the prostate. Six months later, a cutaneous nodule was palpated at the trocar site that had been used for tissue removal. Aspiration cytology confirmed metastatic adenocarcinoma.⁸ Due to rapid advances in the diagnostics of prostate cancer, a staging laparoscopic pelvic lymphadenectomy is no longer performed in the modern era. This isolated case report is likely to remain the only such case reported.

Skin biopsy will provide a definite diagnosis of cutaneous metastasis immunohistochemistry and is useful to confirm the tumour of origin. Prostate cancer cells show positivity for PSA and cytokeratin. There have been reported cases of prostate cancer biopsy specimens showing weak or negative staining for PSA, but the absence of positivity for PSA does not necessarily exclude a prostatic origin of a tumour, since undifferentiated tumours can lose the ability to express PSA.⁹

Our patient was treated with a bilateral orchidectomy and excision of his scrotal and penile lesions but was deemed a poor candidate for other systemic chemotherapy due to his renal dysfunction and poor performance status. Other described treatment options for cutaneous metastases include radiation therapy and intralesional therapy (leuprolide).¹⁰ Spontaneous resolution of cutaneous prostate metastatic nodules have also occurred post bilateral orchidectomy.¹¹

Prostatic cutaneous metastases are rarely present as a single metastatic manifestation. Other sites, especially bone and lymph nodes, are often involved, concurrently or preceding the cutaneous metastases. The manifestation of these lesions in a patient with prostate cancer is associated with a poor prognosis, and patients expire on average six months later.¹²

Conclusion

We report a rare case of prostatic adenocarcinoma with cutaneous metastases. Any skin lesion in a patient with a known primary malignancy should raise suspicion of metastasis, and all clinicians need to have a low threshold to biopsy any questionable skin lesions in these patients.

Conflicting interests

The authors declare that there is no conflict of interest.

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Ethical approval

Our institution does not require ethics approval for reporting individual case reports.

Informed consent

Written informed consent was obtained from the patient for the anonymised information and the accompanying images to be published in this article.

Guarantor

K.K.

Contributorship

J.J. reviewed the literature and drafted the manuscript with input and images from T.W. J.L. and K.K. reviewed and edited the manuscript. All authors issued final approval for the version to be submitted for publication.

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