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CASE REPORT

An unusual presentation of metastatic prostatic adenocarcinoma: a case report

A Omar,[1] J Lazarus,[1] CN Jackson,[2] R Roberts[2]

[1] *Division of Urology, Groote Schuur Hospital, University of Cape Town, South Africa*
[2] *Division of Anatomical Pathology, National Health Laboratory Service and University of Cape Town, South Africa*

Corresponding author, email: amaanomar01@gmail.com

Prostate cancer is the most common cancer in men and the second most common cause of cancer-related death. Cutaneous metastases from prostate cancer are exceptionally rare with the incidence reported to be 0.36%. A 58-year-old male presented with a three-month history of multiple widespread firm pink-to-purple subcentimetre nodules. A punch biopsy confirmed a diagnosis of metastatic prostate adenocarcinoma. Androgen deprivation therapy and bilateral orchidectomy were performed. While cutaneous metastasis is rare, clinicians should consider it as one of the differential diagnoses when assessing a patient with multiple skin nodules and, therefore, have a low threshold for biopsy.

Keywords: prostate cancer, oncology, cutaneous metastases, education, other investigation

Case presentation

A 58-year-old male, not known to have any chronic medical conditions, presented to the dermatology clinic at Groote Schuur Hospital (GSH) with a three-month history of multiple asymptomatic skin nodules and unquantifiable weight loss. The nodules started as a single truncal lesion which gradually progressed in size and number to involve the skin of his abdomen, chest, arms, neck and back. He admitted to a six pack-year history of cigarette smoking. There was no reported family history of prostate or breast cancer. His HIV rapid test and *Treponema pallidum* antibodies serum test were both negative.

On physical examination, he was cachectic and there were multiple firm pink-to-purple subcentimetre nodules noted over his trunk, back, neck and extremities (Figure 1). These lesions were non-tender and non-blanching on palpation.

Differential diagnoses which were considered included cutaneous involvement by lymphoma, vascular neoplasia (including Kaposi sarcoma) and cutaneous metastasis.

A subsequent punch biopsy of one of the skin lesions was taken and sent for histopathologic assessment.

Histopathologic evaluation of the skin punch biopsy showed extensive dermal infiltration by nests, trabeculae and linear cords of pleomorphic epithelial cells with intracytoplasmic vacuoles (Figure 2). These malignant cells showed strong immunoreactivity with prostate-specific antigen (PSA) and androgen receptor (AR), confirming the diagnosis of a metastatic prostate adenocarcinoma.

The patient was referred to the urology service with a diagnosis of metastatic prostate cancer to the skin. A history of lower back pain and poor urinary stream was reported. Digital rectal examination of

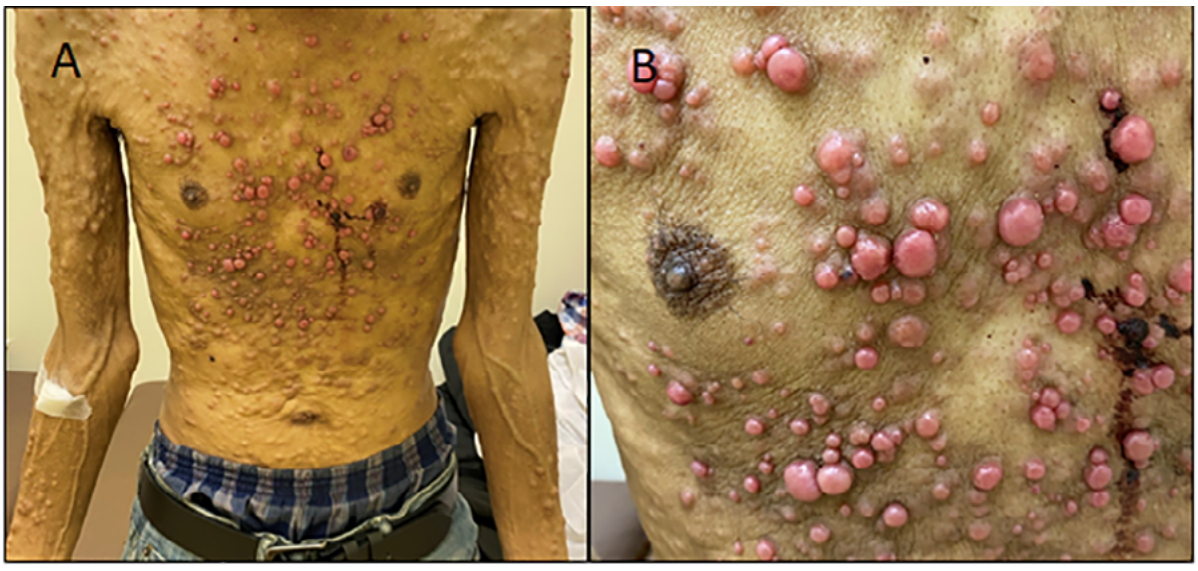

Figure 1: A – multiple nodules over trunk, back, neck and extremities; B – multiple firm pink-to-purple subcentimetre nodules

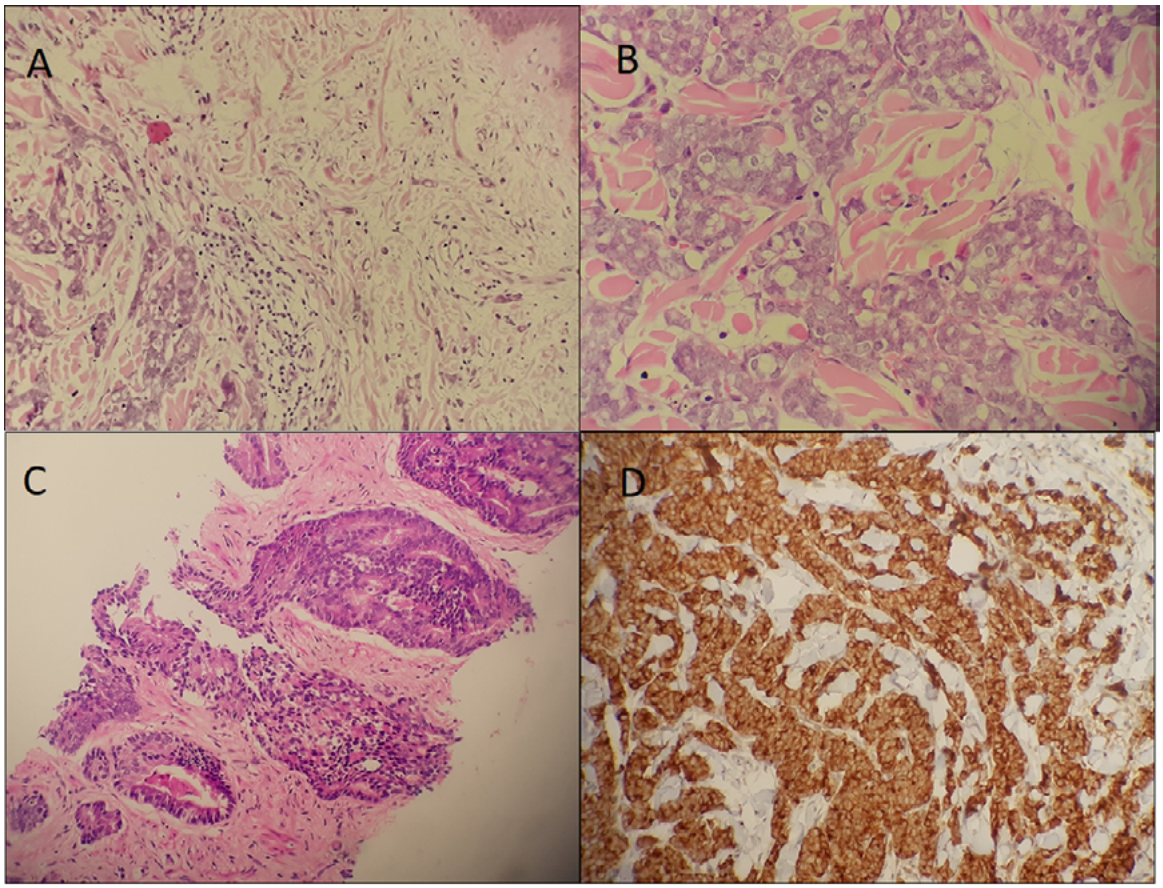

Figure 2: A – 200x micrograph from the skin showing a dermal-based epithelioid malignancy with vacuolated cytoplasm and pleomorphic hyperchromatic nuclei; B – 400x micrograph from the skin highlighting the metastatic prostate epithelial cells with cytoplasmic vacuolisation, pleomorphic nuclei and prominent nuclei; C – 200x micrograph of the prostate needle core showing an acinar adenocarcinoma with cribriform architecture (Gleason pattern 4) and irregular tubular structures (Gleason pattern 3); D – 400x micrograph of the prostate-specific antigen (PSA) immunohistochemical stain showing cytoplasmic staining of the dermal malignant cells confirming prostatic origin

the prostate was performed and a 40g cT4 firm irregular prostate was palpated.

Laboratory findings

Table I: Laboratory findings

Investigation	Value	Normal range
Serum prostate-specific antigen enzyme (PSA)	497.10 ug/L	< 4.00 ug/L
Alkaline phosphatase (ALP)	10 183 U/L	53–128 U/L
Haemoglobin (Hb)	8.8 g/dL	13.0–17.00 g/dL
Normal renal function		
HIV and *T. pallidum* antibodies were non-reactive		

A limited 4-core transrectal ultrasound-guided prostate biopsy was performed. This confirmed a prostatic adenocarcinoma (Gleason score 4 + 3 = 7, Grade Group 3) involving all the submitted cores. Neither seminal vesicle nor perineural invasion were noted in the submitted histopathologic core biopsy samples.

An abdomen-pelvis computed tomography (CT) for staging showed suspected pulmonary and confirmed skeletal sclerotic bone metastatic lesions. The sclerotic lesions were noted throughout the visualised axial and appendicular skeleton. No associated fractures were identified. Additionally, a splenic hypo-attenuated lesion was identified, strongly suspected to represent a metastatic focus.

A nuclear bone scan showed extensive skeletal metastases. In addition, uptake was symmetrically pronounced in the articular or epiphyseal regions, suggestive of bone marrow involvement.

A definitive diagnosis of cutaneous prostatic adenocarcinoma metastases was made.

The patient was initially managed with androgen deprivation therapy (Premarin, Ketoconazole and Aspirin) and he was offered a bilateral orchidectomy. The patient was also referred to the combined Oncology/Urology multidisciplinary team for further management.

Discussion

Prostate cancer is the most common cancer in men and is the second most common cause of cancer-related death after lung cancer.[1,2] Approximately 220 000 new cases of prostate cancer are reported in the United States each year, with the most frequent histological type being adenocarcinoma which represents 80–85% of new cases.[3] Prostate cancer is known for its excellent survival rates with data showing a 98.9% overall 5-year survival between 2005 and 2011.[2]

The usual sites of metastasis from prostate cancer are bones, lung, liver and adrenal glands.[1,3] Cutaneous metastases from primary carcinomas are uncommon with an overall incidence of 5.3%.[3] Regarding urological cutaneous metastases, the incidence rates of kidney, bladder and testes are reported as 3.4%, 0.84% and 0.4%,

respectively.[4] The skin is a rare site of metastasis from prostate cancer and less than one hundred cases have been reported in the literature.[2] The published incidence of prostatic cutaneous metastasis is 0.36% with patients presenting late with associated poor prognosis (average survival of 6 months).[1-3] Histologically, cutaneous metastases may demonstrate classical acinar adenocarcinoma morphology.[3]

Cutaneous prostatic metastases most commonly present as nodular lesions which may be diffuse or infiltrative nodules.[2,3] Less common are clinical lesions that may be violaceous or erythematous plaques.[4,5] The nodules or plaques frequently occur in the suprapubic, genital, groin and anterior thigh areas but can be widespread as seen in our patient.[4]

There are four mechanisms in which prostate cancer metastasis occur: local extension from underlying tumour, implantation within a surgical scar, lymphatic spread and haematogenous spread.[6] The mechanism of cutaneous metastases is thought to be via lymphovascular dissemination.[6,7]

Currently, most case reports describe cutaneous prostatic metastases occurring in patients with known prostate cancer. However, as in this case, Brown et al.[5] noted that in 11 cases cutaneous lesions were the presenting feature. The onset of cutaneous metastasis appears at any point in the course of the disease and are often abrupt and progressive. In patients with an established diagnosis of prostate adenocarcinoma, lesions occurred on average 54.4 months after the initial diagnosis.[5]

Conclusion

In this case report, we discussed an unusual presentation of prostate adenocarcinoma as cutaneous metastases. Clinicians should keep in mind cutaneous metastasis as part of the differential diagnosis when assessing a patient with a multiple skin nodules and have a low threshold for biopsy.

This patient was followed up six weeks post initiation of androgen deprivation therapy. There was a marked reduction in size and distribution of lesions.

Conflict of interest

The authors declare no conflict of interest.

Funding source

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Informed consent

Written informed consent was obtained from the patient for the anonymised publication of material related to him in a scientific journal or for use as clinical teaching material. This includes photographs used in this case report.

ORCID

A Omar https://orcid.org/0000-0003-4651-0981
J Lazarus https://orcid.org/0000-0003-2417-8332
CN Jackson https://orcid.org/0000-0002-5945-9014
R Roberts https://orcid.org/0000-0002-5609-8591

References

1. Gupta S, Morgaonker M, Jain SK. Cutaneous metastasis from prostate carcinoma. Indian Dermatol Online. 2017;8(1):73-4. https://doi.org/10.4103/2229-5178.198763.
2. Telis L, Wolf V, Yaskiv O, et al. Skin metastasis, an uncommon course of prostate carcinoma: a report of two cases. Malaysian J Pathol. 2016;38(2):165-8.
3. Raghavan D. Cutaneous manifestations of genitourinary malignancy. Semin Oncol. 2016;43(3):347-52. https://doi.org/10.1053/j.seminoncol.2016.02.027.
4. John J, Wantenaar T, Lazarus J, Kesner K. Prostate adenocarcinoma and cutaneous metastases. J Clin Urol. 2021;14(6):395-8. https://doi.org/10.1177/2051415820954755.
5. Brown G, Kurtzman D, Tourville E, Sligh J. Review of the literature regarding metastatic prostate carcinoma to the skin, 'Beyond the Abstract'. UroToday [Internet]. 2015 Jan. Available from: https://www.urotoday.com/recent-abstracts/urologic-oncology/prostate-cancer/77811-review-of-the-literature-regarding-metastatic-prostate-carcinoma-to-the-skin-beyond-the-abstract-by-gabrielle-e-brown-ms-et-al.html.
6. Reddy S, Bang RH, Contreras ME. Telangiectatic cutaneous metastasis from carcinoma of the prostate. British J Dermatol. 2007;156:598-600. https://doi.org/10.1111/j.1365-2133.2006.07696.x.
7. Pal D, Talwar V, Doval DC, Jalpota YP, Kumar N. Cutaneous metastasis in prostatic carcinoma. Indian J Dermatol Venereol Leprol. 2009;75(3):311-2. https://doi.org/10.4103/0378-6323.51274.