

An Unusual Lymphatic Metastasis of Cancer of the Prostate: A Report of 3 Cases.

A.A. Ajape¹, S.A. Kuranga¹, K.O.O. Ibrahim², A, Babata¹

¹Division of Urology, Department of Surgery, University of Ilorin, Ilorin

²Department of Morbid Anatomy and Pathology, University of Ilorin, Ilorin.

Correspondence to: Dr. A.A. Ajape, E-mail: ajsnrkudimoh@yahoo.co.uk,
ajsnrkudimoh@gmail.com

Cancer of the Prostate is the most common cancer among men. An era of prostate specific antigen has changed the pattern of presentation in many parts of the world; with screen-detected diseases constituting the significant proportion. The pattern of cancer of the prostate progression is well defined and documented, however, atypical manifestation of lymph node and cutaneous metastases are not uncommonly encountered in clinical practice. We present three case reports of such an atypical presentation of cancer of the prostate to further highlight the existence of such manner of presentation and management challenges, in addition to the late presentation in our environment. It is also met to increase the index of suspicion in the diagnosis of atypical presentation of cancer of the prostate.

Introduction

Cancer of the prostate (CaP) have been documented to be the most commonly diagnosed cancer in American men and in many other parts of the world. It is the second leading cause of cancer-death in America^{1,2}.

The tumour volume of CaP and the degree of differentiation of the cancer cells have a direct relation to the likelihood of local extension and distal metastasis; in addition, the patterns of CaP progression have been well defined and documented. The lymphatic metastases are most often identified in the obturator lymph node chain. Other sites of lymph node metastases include the common iliac, the presacral and the paraaortic lymph nodes³⁻⁶. Occasional spread to the inguinal lymph nodes³, the supradiaphragmatic lymph nodes⁷ and the supraclavicular lymph nodes have been sparsely documented⁸; and in rare cases these forms of lymphatic spread constitute the initial presentation of such patient⁹⁻¹².

We present three case reports of an unusual lymphatic and cutaneous metastasis from CaP; this is to underscore the importance of high index of suspicion of CaP in adult men presenting with lymphadenopathy.

Case Reports

Case 1

A 58-year-old farmer was referred on account of progressive left supraclavicular swelling of 9-month duration. The swelling was painless, with no other constitutional symptom. The initial evaluation of the supraclavicular mass by fine-needle aspiration for cytology showed malignant epithelial cells that were suggestive of adenocarcinoma. Further radiologic and endoscopic evaluations of the upper gastro-intestinal system were normal. He had been coping with some lower urinary tract symptoms which were not bothersome to him. There was no history of low back pain or difficult with walking.

The clinical examination revealed a left supraclavicular mass that measured about 6 X 4 X 3cm in dimensions (Fig. 1 a & b). The respiratory and cardiovascular systems are normal. The prostate was of normal size but it was hard and nodular in consistency. The abdomino-pelvic ultrasound showed irregularity of the prostate capsule with mixed echogenicity of the parenchyma. The prostate specific antigen (PSA) was elevated at presentation (PSA = 45ng/ml).

A sextant prostate needle biopsy (PNB) confirmed adenocarcinoma of the prostate [Gleason's score of 6 (4+2)].

He consented and had bilateral subcapsular orchidectomy. The supraclavicular mass reduced remarkably and disappeared after six months at which point the serum PSA was 6ng/ml. He was subsequently lost to follow up.

Case 2

A 65-year-old retired civil servant presented to our facility with 6-month history of recurrent episodes of initial and painless haematuria. There was no history of passage of blood clots, stone or necroturia in the urine and he never experienced childhood haematuria. He had associated moderate lower urinary tract symptoms (LUTS) but had never gone into urine retention. There was associated low back pain but no difficulty with walking. He had swelling of the right lower limb and external genitalia. He neither had cardiopulmonary nor gastrointestinal symptoms. There was no premorbid pathology of note. He had right inguinal herniorrhaphy about twelve-years prior to the present illness.

At presentation, he was healthy looking middle-age native Black-African man. He was not in obvious distress. The left supraclavicular lymph node and both inguinal lymph nodes were palpably enlarged and they were matted together. The supraclavicular node measured 1.5cm by 1cm, the left inguinal nodes measured about 12cm by 8cm and the right inguinal nodes 8cm by 6cm respectively (Fig. 2 a& b). Both lower limbs are oedematous but more marked on the left. The cardiovascular, respiratory and nervous systems examinations were essentially normal. There was a right groin scar (Fig. 2c); however, no intra-abdominal organ was palpably enlarged and no clinically demonstrable ascite. The anal sphincter was normal and the prostate was enlarged, hard and craggy with obliteration of the median sulcus. A clinical diagnosis of advanced CaP was made.

The abdomino-pelvic ultrasound revealed grossly hydronephrotic right kidney with mild calyceal fullness on the left kidney. The bladder was of adequate capacity, the wall was thickened but no intravesical lesion. The prostate gland was enlarged (53X45X54mm in dimension), it has irregular capsular outline and the parenchyma was of mixed echogenicity. The post void residual was significant (95millilitre). There was biochemical evidence of azotaemia (serum urea was 13.2mmol/L and creatinine was 146mmol/L), the serum electrolytes were within normal range of limits at presentation; however, the serum urea and creatinine became normalised after four weeks of continuous-bladder-drainage. The appropriate haematologic, microbiologic and plain radiographs were normal. In addition, diagnostic urethroscopy was essentially normal. The initial PSA was 100ng/ml and the histology of sextant PNB confirmed adenocarcinoma of the prostate with Gleason score 7 (3+4). In addition, the fine-needle aspiration cytology of the supraclavicular and the inguinal nodes were positive for malignant epithelial cells.

The patient initially declined surgical castration, he could not afford LHRH agonist and thus, he was placed on antiandrogen (flutamide) alone. He responded well to flutamide as evident by remarkable reduction in the lower limb and genital oedema and nadir level of PSA was 25ng/ml; these responses were sustained for about 11-months despite the fact that the patient was not regular on the drug. The need for additional therapy was discussed when the oedema recurred and the repeat PSA was 40ng/ml. He consented for surgical castration at this point. The patient was clinically stable and the PSA was on the downward trend (PSA=16ng/ml) three months post orchidectomy. He did well for yet another six months before noticing evidences of disease progression and absconded from the clinical. He was later reported to have died.

Case 3

A 60-year-old farmer presented to our facility with a year history of progressive difficulty with micturation and a recent onset of penile mass. There was associated obstructive and irritative

LUTS. The penile mass was painless and does not interfere with sexual activity. He had taken several herbal medications to no avail.

He was not in any distress, not pale and he was well hydrated. The pulmonary and cardiovascular system was within normal. The abdominal examination was normal; however, the prostate was mildly enlarged, nodular with obliteration of the median sulcus. The examination of the external genitalia revealed a circumcised penis with a non tender, hard but well circumscribed mass on the left side of the penis; it measured about 1.5cm in its widest dimension and seated over the mid part of the corpus cavernosa (Figure 3). The serum PSA was elevated (PSA = 85ng/ml), the prostate was enlarged with areas of hypoechoic on ultrasound evaluation and the fine-needle aspiration cytology of the penile mass was positive for malignant epithelial cells. The histology of prostate needle biopsy confirmed adenocarcinoma of the prostate Gleason's score 8 (5+3). He responded well to bilateral subcapsular orchidectomy as evident by improvement in LUTS, disappearance of the penile mass and reduction in the serum PSA to 32ng/ml at 3 months post orchidectomy. He is still being seen at the surgical out-patient and doing well.



Figure 1a.



Figure 1

Figure 1 a & b: Shows the anterior and lateral views of the left supraclavicular lymph node enlargement. Note the scarification marks on it.

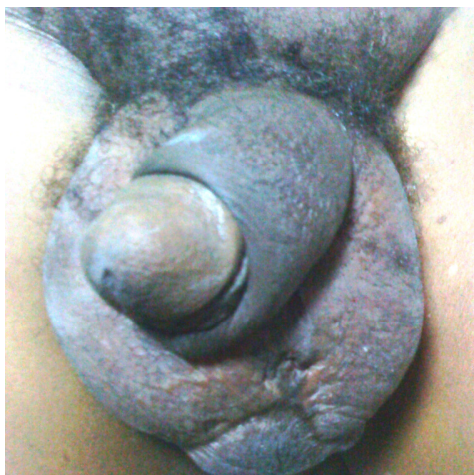


Figure 2a.



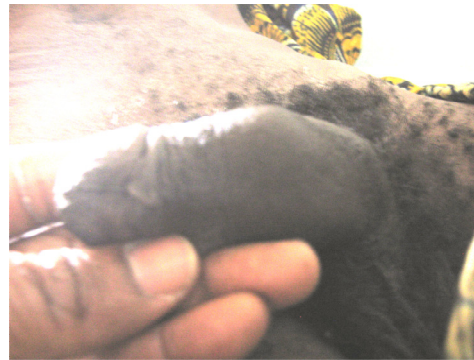
Figure 2b**Figure 2c.**

Figure 2a: Shows the non-pitting oedema of the external genitalia.

Figure 2b: Shows the fullness of the left groin from lymph node enlargement

Figure 2c: Showing the previous herniorrhaphy scar

Figure 3: Demonstrating the corpus cavernosa nodule along the left side of the penile shaft

**Figure 3.**

Discussion

Prostate carcinoma has a well recognized pattern of metastatic disease, most frequently involving the axial skeleton and the local lymph nodes¹³. The lymph node metastases initially involve the obturator and hypogastric nodal groups^{3,4} they typically progress in a vertical stepwise fashion from the pelvis to retroperitoneal nodes^{5,6}. Unusual metastases from prostatic carcinoma may be encountered in clinical practice¹³. Such unusual metastases may include atypical nodal metastases in forms of abnormal distribution, bulky lymph nodes and atypical morphology or enhancement pattern on radiological imaging¹³. Extranodal metastases to the skull, lung, liver, adrenal and others are occasionally encountered¹³. These atypical metastases are usually encountered in the presence of an advanced disease; however, it could be the presenting feature or the only sign of distant metastasis in some patients⁹⁻¹³.

The first case presented with clinical suspicion of metastatic carcinoma that required thorough clinical evaluation. The LUTS seems not to have been taken cognisance of until the upper gastrointestinal tract was endoscopically evaluated and found to be free of lesion. This manner of presentation was reported not to be as rare as clinicians would expect¹⁰; a review of nineteen of such cases, about four decades ago, affirmed that it is not uncommon¹². However, in the absence of high index of suspicion especially with omission of digital rectal examination in the clinical evaluation of the patients, the diagnosis might still be unsuspected and thus delayed. In addition, supraclavicular lymph node, especially the left supraclavicular fossa, have been reported to be one of the common sites of spread in those patients with non-regional lymphatic spread; as much as 25% to 60% of them may have normal digital rectal examination findings^{12,14}.

Although malignant cells staining positive for antibody against prostate-specific antigen, from the metastatic focus, is the mainstay of differentiating a metastatic focus arising from the prostate gland, this could not be done in our case reports due to lack of facility in our institution at the period the patients were managed. However, remarkable responses, in terms of improvement in LUTS, reduction in serum PSA value, and non-palpable of previously enlarged left supraclavicular node, to surgical castration and anti-androgen of these patients supported the prostatic origin of the metastasis. Thus the need for immunohistochemistry should not be a limiting factor in the initiation of therapy in this group of patients especially in resource-limited setting like ours.

The second case, in addition to supraclavicular lymph node enlargement, also presented with inguinal lymph node enlargement. Unlike the former case report however, this other patient presented with bothersome LUTS with haematuria which are the usual modes of late presentation in our setting^{3,9,15}. The inguinal nodal involvement in this patient may not be unconnected to the violation of the tissue plane in the groin, from the previous inguinal herniorrhaphy, thus affecting the classical stepwise fashion description of nodal metastasis in prostate cancer^{5,6}. Consequently, violation of the normal anatomy may affect the usual natural course of events in diseases. The patient responded both subjectively and objectively to the management offered until eleven month of commencement of treatment when he showed evidence of progression of the disease. This manner of response and progression are the usual order in advanced prostate cancer with eighteen months as the median time to progression³.

The modalities of treatment of hormone-resistance prostate cancer (HRPC) include anti-androgen withdrawal, cytotoxic chemotherapy, hormonal or chemohormonal therapy, growth factor inhibitors and others^{3,4}. Most of these modern methods of treatment of HRPC are out of reach for an average poor patient in our resource-limited setting^{3,15}. The patient had orchidectomy as a second line choice because there were limited options occasioned by the financial constraint on the part of the patient and the unavailability of other next line drugs. He responded well to the option offered but later succumbed to the disease.

The third patient presented with penile metastasis. Despite the rich vascularisation and extensive circulatory communication between the penis and the neighbouring organs, metastatic carcinoma of the penis has been reported to be uncommon¹⁶⁻¹⁸. The most common site of origin is the genitourinary system, although secondary from other sites of origin has been documented¹⁸. The classical route of tumour metastasis to the penis remained unclear. The proposed mechanism for this form of metastasis included retrograde venous spread, retrograde lymphatic spread, direct arterial spread, spread via implantation and spread by direct extension¹⁶. Involvement of the prostatic urethra by prostatic adenocarcinoma has also been thought to increase the likelihood of penile metastasis and it may spread from the prostatic urethra to the inguinal lymph nodes¹⁹.

Our patient presented with painless palpable penile nodule; this pattern of presentation was reported, in a review, to be the mode of presentation in about 16.3% of patients, among other modes of presentation¹⁷. The use of core-needle biopsy remains the mainstay of diagnosis because of its reliable assessment of the presence of malignant cell infiltration as well as the histologic extent^{20,21}. However, fine-needle aspiration cytology (FNAC) which has been used in many body sites for the investigation of suspected metastatic disease or recurrence was used in the index case to make the diagnosis of penile metastatic carcinoma from the prostate. The patient had bilateral subcapsular orchidectomy and the penile nodule resolved three months after the orchidectomy and he has remained stable.

Conclusion

In conclusion, the knowledge of different atypical manifestations of metastatic prostate cancer will go a long way in increasing the suspicion index of prostate cancer diagnosis, especially among men within the age group for CaP. This will result in early diagnosis of the already advanced disease and institution of management.

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