

## CASE REPORT

# Excisional biopsy and primary inguinal radiotherapy as definitive treatment for ulcerative invasive squamous cell carcinoma of the penis

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## Abstract

Penile cancer is a rare malignancy worldwide with a higher incidence in developing countries. Patients may present early with penile ulcer due to disfigurement, recurrent infections or discomfort. When the lesion is confined to the skin of the root of the penis, excisional biopsy of the ulcer may be a definitive surgical treatment. We present a 67-year-old man with a malignant penile ulcer at the ventral aspect of the root of penis who underwent excisional biopsy with wide margin and closure of the wound defect with a scrotal advancement flap. The histology revealed well-differentiated squamous cell carcinoma with free surgical margin. He developed left inguinal lymphadenopathy which resolved after external beam radiation of the left groin. He defaulted and subsequently developed right groin recurrence after 3 years which was excised and covered with an advancement flap.

**Keywords:** penile cancer, excisional biopsy, squamous cell carcinoma, groin radiotherapy

## Introduction

Penile cancer is rare disease, affecting only 1 in 100,000 men worldwide annually<sup>1,2</sup>. It accounts for 0.4-0.6% of malignancies among men in the western world<sup>2</sup>. In developing countries such as Africa, South America and India, it accounts for as high as 10-20% of cancers in men<sup>1,3</sup>. The commonest histological type is squamous cell carcinoma which occurs in 95% of cases<sup>4</sup>. Other histological sub-types include adenocarcinoma, basal cell carcinoma, melanoma and sarcoma<sup>4</sup>. Cubila and Colleagues<sup>5</sup> classified penile SCC into usual type, papillary, condylomatous, basaloid, verrucous and sarcomatoid. Penile carcinoma is a disease of elderly with abrupt increase in 6<sup>th</sup> and 7<sup>th</sup> decades of life but it is seen in younger population in Africa in 5<sup>th</sup> decade<sup>6</sup>. The incidence varies with geographic location, ethnicity, and race<sup>6</sup>.

The most important risk factor is the presence of intact prepuce<sup>8</sup>. Penile cancer is rare in Jewish population where neonatal circumcision is universal<sup>7</sup>. Other risk factors include phimosis, human papilloma virus infection, use of tobacco products, low-socio-economic status, lack of penile hygiene, multiple sexual partners and penile inflammation<sup>3,8</sup>. Penile cancer is highly aggressive and characterized by prolonged phase of loco-regional spread before distant me-

tastasis<sup>9</sup>. The presentation in Africa is late with advanced disease, poor outcome and prognosis<sup>7</sup>. The reasons for late presentation include feeling of guilt, embarrassment, fear, ignorance and presentation to general practitioners who will be treating them for infections<sup>6</sup>.

Superficial lesions are treated with penis sparing surgeries while deeper lesions usually are treated with glansctomy, partial or radical penile amputation<sup>4,7</sup>. Primary radiotherapy for penile cancer or inguinal lymph nodes is reported but has lower outcome as compared to surgical treatment<sup>4</sup>. Primary radiotherapy allows penile conservation or avoid lymph nodes dissection and its attendant complication<sup>4,8</sup>. It is usually done highly compliant patient<sup>4</sup>. Multimodal treatment that combine surgery, radiotherapy and chemotherapy produce better outcome in loco-regional or advanced disease<sup>4</sup>.

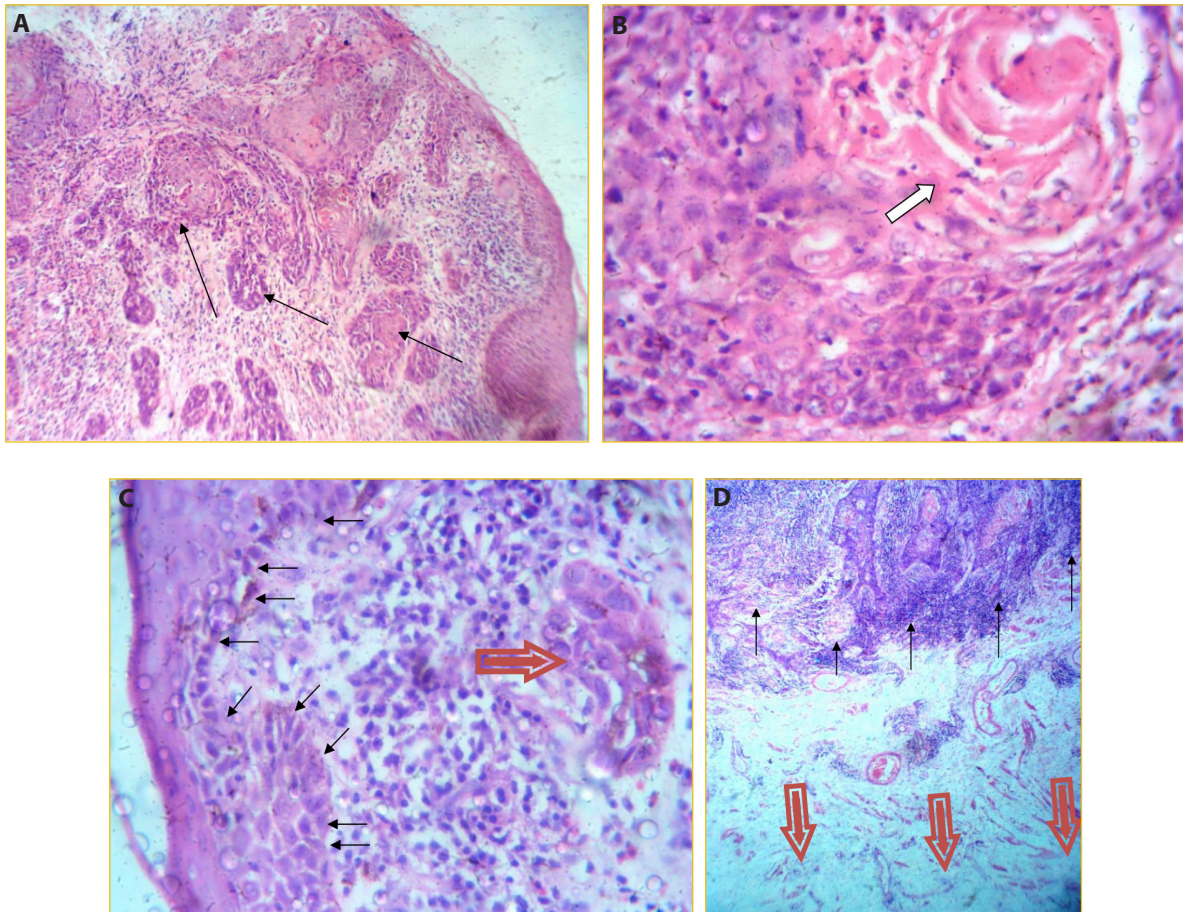
We present 67-year old man who had excisional biopsy of malignant penile ulcer and primary groin radiotherapy for invasive penile squamous cell carcinoma with left inguinal lymphadenopathy.

## Case presentation

A 67-year-old man presented to urology outpatient clinic with 3 months history of boil on the penis which sponta-



**Figure 1.** (A) Malignant fungating ulcer at the ventral aspect of the root of the penis (preoperative); (B) Postoperative picture showing scar of the ventral aspect of the distal penis and upper scrotum



**Figure 2.** (A) Section showing dysplastic stratified squamous epithelium with infiltrating nest of tumour cells (arrows), H&E  $\times 200$ ; (B) Section showing infiltrating nest of tumour cells forming keratin pearls (arrow), H&E  $\times 200$ ; (C) Section showing dysplastic stratified squamous epithelium and areas of basement membrane (black arrows) with infiltrating nest of tumour cells (pink arrow), H&E  $\times 200$ ; (D) Section show infiltrating nest of tumour cells (black arrows) deep within the dermis and free deep margin of resection (pink arrows), H&E  $\times 200$

neously ulcerated discharging pus. There was history of fever and cough and multiple sexual partners. No urethral discharge or lower urinary tract symptoms. He has smoked 6 pack years of cigarette 12 years ago.

General examination was essentially normal. Examination of the penis revealed an elliptical 2×2 cm ulcer on the ventral aspect of proximal 1/3 of the penis with raised and everted edges. The floor of the ulcer was made up of pus and necrotic tissue. The base of the ulcer was firm and freely mobile. The other parts of penis, scrotum, testes and digital rectal examination and groin were essentially normal. Chest x ray showed no evidence of metastasis. Retroviral screening was non-reactive. Other laboratory investigations were normal. The picture of the penile ulcer is shown in figure 1a below.

He underwent excision biopsy with 2 cm margin and primary closure of the defect using scrotal advancement flap. The post-operative picture of the penile scar is shown in figure 1b below. The histology of the penile ulcer revealed well differentiated invasive squamous cell carcinoma of the penis with free deep margin. This is shown in figure 2a-d below. He developed surgical site infection which resolved after use of appropriate antibiotics and dressing.

Post operatively, he developed unilateral mobile left inguinal lymphadenopathy post operatively which did not resolve with 6 weeks course of antibiotics. Diagnosis of invasive squamous cell carcinoma T1aN1M0 was made. Fine aspiration cytology of the left inguinal lymph node was requested but could not be done. Therefore, an empirical external beam radiotherapy (EBRT) and conventional electron therapy to the left groin and penile scar was prescribed. Total doses of 51Gy, 10 Mev and 45 Gy, 6Me were delivered to the left inguinal lymph nodes and penile scar respectively in 17 and 15 fractions respectively. The procedure was well tolerated, and the left inguinal lymphadenopathy resolved completely.

Post radiation therapy, the patient defaulted follow up. He presented 3 years after the treatment with right groin recurrence that was treated which excision and covered with advancement flap. Additional chemoradiation for the right groin was given due to residual tumor. The progression free survival was 36 months while overall survival is beyond 42 months.

## Discussion

Penile cancer is a very rare cancer in Sokoto, North Western Nigeria. There were only 2 cases of penile cancer seen over the last 10 years in our institution. The prevalence of the cancer in Kano, also North Western Nigeria is 0.7%, where 6 cases were seen over the last 15 years<sup>11</sup>. Worldwide penile cancer is a disease of the elderly and seen in the 6<sup>th</sup> and 7<sup>th</sup> decades of life<sup>3</sup> but in Africa the cancer is seen in the 5<sup>th</sup> decade of life<sup>6</sup>. The age of our patient is in keeping with what was reported worldwide<sup>4</sup>. Presentation is usually late due to embarrassment, guilt, and presentation to general physician as it happened to our patient who presented after 3 months of the onset of symptoms due to penile ulcer that is discharging pus<sup>1</sup>.

The risk factors for development of penile cancer in our patient included cigarette smoking and multiple sexual partners as reported by the previous studies<sup>4,7</sup>. The patient might have human papilloma virus infection due to multiple sexual partners which is found in 42% of patients with penile cancer<sup>1</sup>. But the patient was not screened for HPV infection, so his HPV status could not be ascertained.

The location of the ulcer in the index case was on the ventral aspect of the root of penis, which is rare. The commonest site for penile cancer is distal penis where 95% of the lesions is located<sup>14</sup>. The ulcer was mobile and limited to the subepithelial tissues which made it amenable to complete excision. This was confirmed by free margin after the histology.

Based on the 7<sup>th</sup> edition of International Union for the control of cancer (UICC), the stage of this patient is Ta, N1, M0 which is equivalent to AJCC stage IIIa. The initial plan was to give bilateral groin radiotherapy due to free communication between the two. Due to conflicting opinions among the radiotherapist the patient had only left groin radiotherapy. The patient defaulted follow up and subsequently developed right groin recurrence which was excised and covered with advancement flap and currently on chemoradiation. This showed that primary radiotherapy for the groin is a viable option in place of inguinal lymph node dissection as recurrence was not experienced on the left groin, which received EBRT and conventional electron therapy of 51Gy and 10Mev respectively. Here, the use of electron therapy helps to deliver more radiation to the inguinal lymph nodes and is therefore advocated to combine the two for primary radiotherapy to the groin. For right groin recurrence multi modal approach was done as reported in the literature<sup>1</sup>.

The most important prognostic factor is the presence of inguinal lymph nodes and extent of inguinal lymph nodes<sup>3</sup>. For low risk patients Ta, Tis, T1, G1-2 observation and less aggressive treatment of inguinal lymphadenopathy is advocated while aggressive treatment are done in high risk patients, T1G3 and T2-4 or vascular invasion<sup>13,14</sup>. Because the tumour of our patient was low grade, less aggressive approach was followed in which left inguinal nodes were irradiated and the patient was placed on follow up and observation. He developed recurrence due to inability to comply with the follow up, therefore more aggressive approach was pursued with excision of the right groin, flap cover and chemoradiotherapy. The benefits of primary radiotherapy or observation for inguinal lymph nodes include avoidance inguinal lymphadenectomy and its attendant's complications which include phlebitis, pulmonary embolism, wound infection, flap necrosis and permanent and disabling lymphoedema of the scrotum and lower limbs.

There are few studies that reported use of radiotherapy alone to treat palpable inguinal lymph nodes as done in our patient<sup>6,9,16</sup> that is why most of the recommendations such as that of European urologic association favor lymphadenectomy with adjuvant radiotherapy in extracapsular nodal extension (T3)<sup>17</sup>. But recommendations and guide lines may not always produce best outcome in the management of patients as in our patient<sup>15</sup>.

Aggressive follow up is recommended within this period 3 monthly. Follow-up may be omitted in some patients after 5 years if there is no recurrence<sup>18</sup>. Our patient did not adhere to the follow up protocol and so, he developed right inguinal recurrence after 3 months, giving progression free survival of 36 months and overall survival beyond 42 months. Primary radiotherapy should be done bilaterally in the presence of unilateral inguinal lymph nodes and should be reserved for complaint patient. This will avoid inguinal recurrence which may be incurable or difficult to manage even with multimodal treatment. Combination of EBRT and conventional electron therapy deliver more effective dose to the tumour and minimize toxicity to the surrounding tissues.

## Conclusions

Excisional biopsy when well-planned with enough surgical margins can be a definitive surgical treatment for low grade superficial invasive squamous cell carcinoma of the penis with satisfactory outcome. Primary inguinal radiotherapy is effective for inguinal lymphadenopathy and should be done bilaterally in a compliant patient. Multimodal treatment is advocated for inguinal recurrence.

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