Successful open partial cystectomy for muscle invasive squamous cell bladder carcinoma with negative surgical margin in a 32 years old female treated at a tertiary hospital. Case report and literature review.

CHARLES NHUNGO¹, Joseph Lori¹, JOHN KASHAIJA¹, SIRILI HARYA², RACHEL KATARAIA², Advera Ngaiza², ALLY MWANGA³, and Charles MKONY³

¹Muhimbili University of Health and Allied Sciences
²Muhimbili National Hospital
³Muhimbili University of Health and Allied Sciences School of Medicine

June 12, 2024

ABSTRACT.

Squamous cell carcinoma (SCC) of the bladder is a rare urologic malignancy, estimated to affect 3% to 5% of the bladder. Squamous cell carcinoma (SCC) of the bladder remains the most common subtype throughout Africa. Most literatures focused on management of Transitional cell carcinoma (TCC) with fewer discussion in SCC management. TCC typically presents with painless hematuria, whereas SCC presents with painful hematuria, bladder mass, and necroturia. SCC is mostly radioresistant and does not respond to chemotherapy. The mainstay treatment is Partial Cystectomy or radical cystectomy, which can be performed through open surgery, laparoscopic or robot-assisted approach, all techniques with acceptable results. We report a case with favourable outcome following partial cystectomy which was managed by open surgery. In a 12months follow up the patient remained asymptomatic with good surgical outcome.

KEY CLINICAL MESSAGE.

The "gold standard" treatment for SCC is a radical cystectomy, while different management approaches that combine chemotherapy and radiation in a neoadjuvant or adjuvant setting have been tried with varying degrees of effectiveness. For certain individuals, a partial cystectomy offers sufficient local control for muscle-invasive bladder cancer. Lifelong follow-up with cystoscopy is advised due to the possibility of a potentially fatal late recurrence.

KEYWORDS . Squamous cell carcinoma, Partial cystectomy, Radical cystectomy, Bilharzia.

INTRODUCTION.

Squamous cell carcinoma (SCC) of the bladder is a rare urologic malignancy, estimated to affect 3% to 5% of the bladder(1). The most common histological subtype of bladder cancer in developed countries is transitional cell carcinoma (TCC)(2). Squamous cell carcinoma (SCC) of the bladder remains the most common subtype throughout Africa(3)(4). Most of the literature has focused on TCC management of the bladder(5) with fewer discussion in SCC management. Urologists and surgeons practicing in Africa face the challenge of managing bladder cancer of the SCC subtype, which presents differentially as opposed to TCC(5). TCC is linked to both smoking and working in the dye industry. On the other hand, SCC occurs in countries with a high Schistosomiasis burden(4). TCC is common in more industrialized countries, whereas SCC is more common
in less industrialized countries (5). TCC typically presents with painless hematuria, whereas SCC presents with painful hematuria, bladder mass, and necroturia (5). SCC, like most urological diseases in developing countries, presents late to the urologist, when the disease has advanced to the stage of muscular invasion (5). SCC is mostly radioresistant and does not respond to chemotherapy. The mainstay treatment is Partial Cystectomy or radical cystectomy, which can be performed through open surgery, laparoscopic or robot-assisted approach, all techniques with almost acceptable outcomes (6). Solitary tumors without concomitant carcinoma in situ (CIS) that can be resected with 1-2 cm margins in a normally functioning bladder should be considered for partial cystectomy. Random bladder and prostatic biopsies can be performed in addition to the standard work-up (6). We report a case with favourable surgical outcome following partial cystectomy and 12 months follow up.

CASE HISTORY.

We report a case of a 32-year-old nulliparous woman who had hematuria and dysuria for three months. The patient complained of progressive, painful urinary that was accompanied by necroturia. She also noticed irritative lower urinary tract symptoms with urgency being the most bothersome symptom which was associated with initial and later progressed into total hematuria. Her condition was associated with on and off heartbeat palpitations, dull headache, and dizziness.

The patient attended several medical facilities and frequently diagnosed with chronic recurrent cystitis. For almost 3 months she has been switching to several antibiotics with no improvements. Patient denied history of cigarette smoking nor exposure to chemical materials however, she reported a positive history of schistosomiasis infections during her young age while working in rice plantations.

On physical examination she was pale on conjunctiva, not jaundiced, not cyanosed, her vitals were normal. Per abdominal examination revealed normal findings. Blood workups revealed moderate anemia of 9 g/dl and was transfused 2 units of blood products before surgery controlled hemoglobin was 11.8 g/dl. Renal and liver function tests, coagulation profile were all within normal range. Urinalysis showed positive occult blood in addition to red blood cell and presence of leukocytes. We collected a morning urine bacteriological cultures for drug susceptibility analysis after we identified a urinary tract infection.

INVESTIGATIONS AND TREATMENT.

Kidney, ureter and bladder ultrasonography revealed a bladder mass at the right anterolateral wall of the bladder. Metastatic work up such as chest x-ray revealed normal findings. After controlling the infection by antibiotics, we performed a cystoscopy. Through cystoscopy, intact urethra sphincter, normal bladder neck with mild trabeculations were observed. Solid ulcerative mass was located at the right anterolateral bladder wall with examination under anesthesia suggesting T2aNxMx. Almost three tissues were taken and sent for histopathology which revealed ulcerated transition epithelium with infiltrative tumor growing in keratin nests suggestive of bladder squamous cell carcinoma grade 1 (Figure 1A-B).

Abdominal pelvic T2 weighted MRI showed ulcerated bladder mass at the right anterolateral wall approximately 2 × 3 cm with no evidence of lymphadenopathy (Figure 2A-CA-B). After the relevant investigations were completed, Patient was planned for cystectomy with primary objective of orthotopic neo-bladder.

Through median extended incision, skin was opened in layers through an intraperitoneal approach. Dissection carried down through the fascia, followed by the opening of the peritoneum and development of the space of Retzius. Patient had normal bowel with no evidence of intraperitoneal organ metastasis. The colon was mobilized on each side along the white line of Toldt to expose the retroperitoneum. Ureters are identified and swept medially. Pelvic organs inspected with no evidence of mets, ovaries, fallopian tubes, uterus were all normal (Figure 3). The surgical team was confident that there was no sign of tumour spread, therefore they decided to perform a partial cystectomy. Bladder was identified and opened away from the tumor site, which was on the left anterior bladder wall. No stones or foreign bodies were seen in the bladder. A tumor identified intravesical with an exophytic growth of approximately 4.0 × 3.0 cm in diameter at the right anterolateral wall of the
bladder (Figure 4). The tumor was excised 2 cm from the edge of the tumor, reaching deep into the muscular layer (Figure 5A-B). In ideal settings intraoperative frozen section would be sent to confirm the absence of microscopic disease at the margin, however for our case this was not possible due to limited resource settings.

The bladder closed in three layers, which included a mucosal, seromuscular, and adventitial layer then was filled to confirm watertight closure by using mixture of saline and povidone (Figure 6). Dextrose 5% was used to irrigate the abdomen to cause lysis of remnants tumor cells. Foley catheter was left insitu for 21 days with no abdominal drainage placement. Approximately blood loss was almost 70mls. The wound was closed with interrupted sutures with 3/0 absorbable suture.

CONCLUSION AND RESULTS.

Post operative histological tissue results revealed an infiltrative neoplasia composed of pleomorphic cells with abundant eosinophilic cytoplasm. The tumor mass was forming atypical keratin pearls involving all layers of the bladder with no vascular invasion and 3cm negative surgical resected margins (Figure 7A-D). Patient bladder capacity was approximately 350-400mls after surgery. Post operative there was no complications, patient stayed in the ward for 7 days, the wound was healed, and discharged on 8th day. Patient was instructed to come after 21 days for urethral catheter removal. She was followed for 12 months, and control cystoscopy revealed normal bladder wall mucosa with adequate bladder capacity ranging 350-400mls no evidence of tumor residual was visualized. Control computed contrasted CT scan showed normal pelvic wall organs with no evidence of recurrent metastasis (Fig 8A-B).

Bladder SCC has a shorter survival period and a greater recurrence rate. Improving prognosis requires early diagnosis and treatment. Individualised treatment regimens ought to be devised based on the tumor’s stage and grading, tumour type, size, presence or absence of metastases, and the patient’s overall health. It is crucial that future research initiatives should prioritise the early diagnosis of squamous cell malignancies because bladder SCC typically manifests at a late stage and has a dismal prognosis. The “gold standard” treatment for SCC is a radical cystectomy, while different management approaches that combine chemotherapy and radiation in a neoadjuvant or adjuvant setting have been tried with varying degrees of effectiveness. For certain individuals, a partial cystectomy offers sufficient local control for muscle-invasive bladder cancer. Lifelong follow-up with cystoscopy is advised due to the possibility of a potentially fatal late recurrence.

DISCUSSION.

Bladder cancer ranks as the tenth most frequent cancer worldwide, according to the 2020 Global Cancer Statistics. Worldwide, bladder cancer cause death of about 200,000 people annually. Women are more likely to develop SCC, which may be related to their propensity for cystitis and recurrent UTIs (7). For men, the incidence rate is currently either steady or declining, but for women, it is rising annually (7). SCC is the most common histological type of non-UC of the bladder. Based on the findings, up to 85% of cases of SCC in Africa are still primarily linked to schistosomiasis infection. However, smoking, industrialization, and the management of schistosomiasis are all having an impact on the evolving pattern of SCC (8).

The percentages of SCC and TCC vary significantly between the African nations. In sub saharan countries specifically in Tanzania areas near inland freshwater lakes continue to have higher levels of SCC than locations farther away (9)(5). Since UC with squamous differentiation is far more prevalent than pure SCC, it is vital to distinguish between the two. SCC linked to schistosomiasis is referred to as bilharzial SCC, while SCC unrelated to the illness is referred to as non-bilharzial SCC (1). Schistosoma infestation is a risk factor for bilharzia, while non-bilharzial SCC risk factors include any trauma or insult that causes chronic inflammation, such as a history of spinal cord injury that results in neurogenic bladder and catheter dependence, recurrent UTIs, bladder calculi, cigarette use, or previous treatments such as intravesical BCG, pelvic radiation, and cyclophosphamide (1).

The pathology shows that SCC tends to be focally locate as an ulcerative and nodular mass in the bladder fundus. The mass being usually larger than 3 cm in size at first presentation (10). At the time of initial presentation, the SCC tend to be muscle invasive in 80% of cases (5). In contrast, TCC tends to be multifocal
small and papillary like with little or no muscle invasion at first presentation(11). SCC also has a lower grade usually Grade 1 when patients are first seen in the hospital(11). TCC on the other hand tends to be of Grade 2 or 3 at first presentation. TCC also spreads early to the lymph nodes, whereas SCC spreads late possibly due to fibrosis of the lymphatic channels caused by the Schistosoma eggs(5)(11). In SCC, only in 2% to 10% is lymph node spread observed(11).

The majority of SCC patients die within 1-3 years of diagnosis, making it a disease with a terrible prognosis(12). Due to the small number of clinical patients, there is a dearth of randomised prospective data to guide clinical treatment.

The mainstay treatment for SCC is PC or radical cystectomy, which can be carried out using a laparoscopic or robot-assisted technique with satisfactory results. SCC is primarily radioresistant and does not respond to chemotherapy(6). Solitary tumors without concomitant carcinoma in situ (CIS) that can be resected with 1-2 cm margins in a normally functioning bladder should be considered for partial cystectomy. However, the morbidity linked to a PC is significantly lower when compared to documented complications following RC.

According to a review by Shabsigh et al., there were 64% overall complications and 13% severe complications among 1,142 patients receiving RC(13)(6). Consequently, providing PC is a suitable substitute for RC in patients who are carefully selected and unable to tolerate the morbidity that comes with it. In our case, no evidence of cancerous growth had spread to nearby organs or beyond the bladder during the surgical procedure.

Additionally, the patient was young and of reproductive age, making PC to be suitable choice for her to avoid the morbidity complications that radical cystectomy would cause in the future. Studies examining the overall survival of patients with squamous cell muscle invasive bladder cancer following partial cystectomy are scarcer than those involving UC patients. Thirty-seven patients undergoing PC for urothelial muscle invasive bladder cancer were studied by Kassouf et al., and none of them had multifocal disease or CIS(14).

The overall, disease-specific, and recurrence-free 5-year survival rates were 67%, 87%, and 39%, respectively. Nineteen patients (51%), at a mean follow-up of 72.6 months, were clear of disease. Transurethral resection was used to treat a superficial recurrence in nine patients (24%) cases. Nine patients (24%) had metastases or an advanced recurrence of muscle-invasive illness. After 62 months, 18 patients (49%) still had an intact bladder and no disease. The calculated 5-year rates of recurrence-free survival (RFS), disease-specific survival (DSS), and overall survival (OS) were 39%, 67%, and 87%(14).

DISCLOSURE
This report has been published in accord with SCARE criteria (15).

Acknowledgements
We would like to thank the whole surgical urological team for the total support of our patient recovery.

Ethical Approval
This case report study was exempt from ethical approval at our institution, as this paper reports a single case that emerged during normal surgical practice.

Funding
There was no funding concerning this article.

Availability of data and materials
This is not applicable to this article because this is a case report.

Informed Consent and Consent for publication
Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.
Competing interests
The authors declare that they have no competing interests.

Authors contribution statement.
All authors read and approved final version of manuscript.
Dr. Charles Nhungo: Case report concept, Literature review, writing the initial and final manuscript.
Dr Joseph Lori: Initial manuscript corrections and data acquisitions.
Dr John Kashaija: Initial manuscript corrections and patient follow up.
Dr. Sirili Harya: Chief surgeon, final manuscript corrections.
Dr Rachel Katarina: Radiological images interpretation.
Dr Advera Ngaiza: Primary pathologist and Pathological image descriptions.
Dr Ally Mwanga: Supervisor, final manuscript corrections.
Prof Charles Mkony: Correction, editing and elaboration of the final manuscript.

REFERENCES.


Hosted file

Hosted file

Hosted file

Hosted file

Hosted file

Hosted file

Hosted file