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Squamous cell carcinoma of the bladder presented with spontaneous intraperitoneal bladder rupture: A case report

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ABSTRACT

INTRODUCTION: Spontaneous intraperitoneal bladder rupture can present with symptoms of acute abdomen. The associated high mortality rate is attributed to the delay in diagnosis, and the possibility of the presence of a bladder carcinoma contributes to high mortality as well.

CASE PRESENTATION: We present a case of spontaneous intraperitoneal bladder rupture associated with squamous cell carcinoma managed with partial cystectomy.

DISCUSSION: The incidence of this condition is (1:126,000) but with high mortality rate. It occurs more commonly in male [1]. It can be associated with carcinoma, chronic cystitis, chronic catheterization, bladder outflow obstruction and others. Standard management includes timely diagnosis of this condition, followed by bladder repair in the form of primary closure, partial cystectomy or radical cystectomy. However in the presence of carcinoma the prognosis is poor.

CONCLUSION: high index of clinical suspicion and the timely diagnosis can lead to a more favorable outcome.

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1. Introduction

Spontaneous bladder rupture is rare and life threatening event, with a high mortality rate reaching up to 50% [2]. It can occur as a direct or indirect consequence of other associated conditions such as Urothelial Carcinoma (UC), the less common squamous cell carcinoma (SCC), pelvic radiotherapy, chronic cystitis, bladder outflow obstruction, alcohol intoxication and others [3]. There is often delay in diagnosis as the clinical presentation is usually that of a peritonitis [4]. High clinical suspicion coupled with proper imaging can lead to timely diagnosis of the condition and more favorable outcome [5]. Here we report a case of intraperitoneal spontaneous bladder rupture with squamous cell carcinoma managed with partial cystectomy. Squamous cell carcinoma (SCC) of the urinary bladder is rare compared to urothelial carcinoma (UC). SCC accounts for 2–5% of cases in most contemporary cystectomy series in western countries, with stage T2 being the most presenting stage at diagnosis [6]. This case is reported in line with the SCARE criteria [7].

2. Case report

A 56 year old male patient presented to emergency department. He was complaining of diffuse abdominal pain started two hours prior to presentation after he strained during urination. The patient

reported hearing a popping sound from his abdomen followed by inability to urinate. There was no history of trauma, alcohol intake, smoking or drug abuse. He reported history of obstructive symptoms started within 6 months prior to his admission. He denied any episode of hematuria. During physical examination the patient looked ill. He had stable vital signs with blood pressure 115/80, pulse 90, and respiratory rate of 18. There was suprapubic and diffuse abdominal tenderness, distention and rigidity. His white blood cell count was $17.7 \times 10^9/L$, creatinine 3.53 mg/dl, serum sodium 131 mmol/L, potassium 4.3 mmol/L, His level of urea was 40 mmol/L. Acute urinary retention was suspected so foley's catheter was inserted. However only 200 ml of clear urine was drained. Urine analysis showed 3–5 pus cells and numerous RBCs.

Abdomen and pelvic CT scan without contrast was done and showed abdominal and pelvic fluid of low density (7HU), thickening of the bladder wall, however not all borders of the urinary bladder were clearly visualized. It also showed multiple liver metastatic lesions (Fig. 1).

Urinary bladder rupture was suspected and confirmed by retrograde cystogram which showed intra-peritoneal leak (Fig. 2). Few diverticula were also seen.

Treatment options were discussed with the patient and he refused radical cystectomy with ileal conduit. Emergency laparotomy was performed. Intraoperative findings included a defect (2 cm) at the bladder dome (Fig. 3). The bladder was filled with debris and urinary bladder tumor was suspected. Two large lateral diverticula were noted. Extended partial cystectomy with removal of the debris and peritoneal lavage was performed, tumor is shown

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Fig. 1. Showing thickened bladder wall (arrow) with pelvic (star) and abdominal (stars) fluid (ascites).



Fig. 2. Antero-posterior view of retrograde cystogram showing intraperitoneal contrast leak (arrows) more on the left side due to bladder rupture and few diverticuli (star).

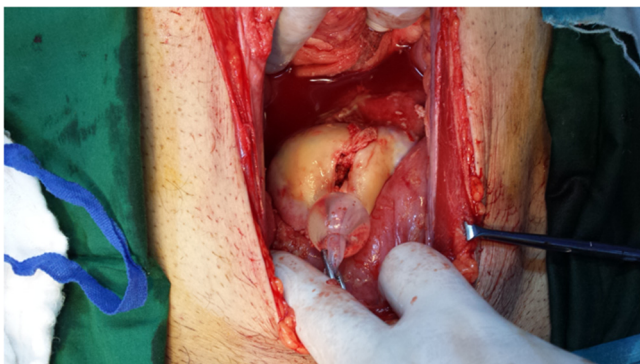


Fig. 3. Intraoperative findings included a defect (2 cm) at the bladder dome.



Fig. 4. The resected tumor.

in (Fig. 4). Bladder was closed in two layers, suprapubic and urethral catheters were inserted.

A histological examination of the specimen showed invasive squamous cell carcinoma pT4 pNx M1b (Fig. 5, 6).

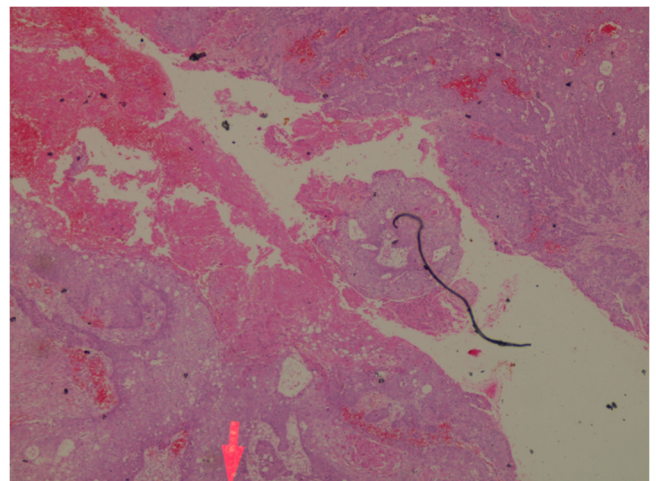


Fig. 5. Histological examination showed invasive SCC.

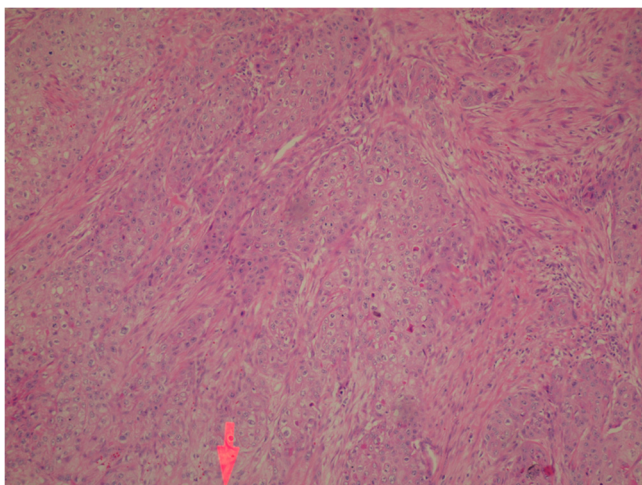


Fig. 6. Invasive SCC.

Post operative period was uneventful, creatinine returned to its normal range. Chest, abdomen and pelvis CT scan with contrast was performed one month after laparotomy and showed multiple liver metastatic lesions.

The patient was discharged from the hospital after one month with referral to oncology clinic which decided to start him on chemotherapy regimen of (MVAC) : methotrexate (30 mg /m²), vinblastine(3 mg /m²), doxorubicin(30 mg /m²) and cisplatin (70 mg /m²) for 4 cycles.

Unfortunately the patient died after 6 months due to overwhelming sepsis

3. Discussion

The main challenges expected in spontaneous bladder rupture is the delay in diagnosis and the potentially associated advanced diseases imparting a high mortality rate. Truly the incidence of this condition due to various reasons is very low (1:126,000). Spontaneous carcinomatous bladder rupture is very rare and most reported cases occur in men. The true incidence of the condition is not known but the mortality rate is around 47% [1,8].

Spontaneous bladder rupture occurs more in males than females, which could be attributed to the anatomy of the male urethra, making the male bladder more liable to distension and consequent perforation [4], in addition the dome or the posterior wall are the most common sites of perforation[9].

Nearly, this condition is always associated with underlying pathology such as UC, SCC, pelvic radiotherapy, chronic catheterization, chronic cystitis, bladder outflow obstruction, alcohol intoxication and others [10,11].

In our case, urinary retention and the presence of SCC may have collectively weakened the bladder wall and contributed to this condition.

The main presenting symptoms are mainly those of peritonitis and like with our case there may be indications of acute renal failure due to the peritoneal absorption of urine [12].

As mentioned earlier SCC is less frequent than UC, interestingly bladder rupture can occur more frequently with SCC than UC [5]. According to Hassan Abol-Enein [6], SCC carries poor prognosis and most of the patients died within 1–3 years. Locoregional recurrence was found to be the most common cause of death. Management strategies in general consist of radiotherapy, radical cystectomy and chemotherapy.

The most useful imaging studies to diagnose this condition are the combination of cystography and CT scan [13]. Once the

diagnosis is established, surgical intervention is indicated for intraperitoneal rupture, while the extra-peritoneal rupture is usually managed conservatively. However as mentioned before the intraperitoneal rupture is more common, bladder repair is indicated in the form of primary closure, partial cystectomy or radical cystectomy [14]. The prognosis of this condition when associated with carcinoma is very poor and in a literature review performed by Ahmed J et al. most patients died within 8–10 months [5].

After managing this acute condition, management of the underlying condition should be started and in this case was metastatic SCC, unfortunately no sufficient data on the most effective regimen of chemotherapy, and in general SCC is considered less responsive to chemotherapeutic agents than UC [15], however the patient was started on (MVAC) for 4 cycles, but with no effective response.

4. Conclusion

In spite of being a rare condition, spontaneous bladder rupture can present with symptoms of acute abdomen, and should be kept in mind especially if the patient had associated urinary symptoms or one of the aforementioned risk factors. Because timely diagnosis can lead to a more favorable outcome.

Conflicts of interest

The authors had no any conflicts of interest.

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Ethical approval

Our institution exempts ethical approval for case report

Consent

The authors had a written and signed consent to publish a case report from the patient's next of kin

Author contribution

Study conception and design: Ghazi Al Edwan.

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Literature review : Hammam Hasan Mansi, Omar N. Atta, Mazen Shaaban

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Registration of research studies

None.

Guarantor

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