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Case Report

A Rare Cause of Spontaneous Bladder Perforation due to Extrapulmonary Tuberculosis

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Abstract

Spontaneous intraperitoneal bladder rupture is rare and one of the cause is Tuberculosis. We report a case of spontaneous bladder rupture secondary to Tuberculosis. A 45-year-old male admitted with generalised abdominal pain and was suspected to have acute abdomen secondary to rupture of liver abscess. During surgery we noted that he has bladder rupture with fibrotic bladder and mesenteric lymph node enlargement. It raised the suspicion of Tuberculosis and tracheal aspirate AFB came back positive for ZN stain. Thus, he was started on antituberculosis medications. This case depicts the rarity of the cause and the need for high index of clinical suspicion.

Keywords: *Tuberculosis; TB Bladder; Spontaneous Bladder Perforation*

Introduction

Spontaneous intraperitoneal bladder rupture is very uncommon in daily clinical practice. Literature search reported the incidence is 1:126 000 [1] and overall mortality can be as high as 47% [1]. In majority of the cases, there is an underlying pathology that has caused bladder wall weakness [1] and leads to its perforation. As Tuberculosis (TB) being a rare cause of spontaneous bladder perforation, we could find only a few reported cases in literature.

We present our experience in managing a middle-aged man who presented with signs of perforated viscus and was only diagnosed with perforated bladder during emergency laparotomy.

Case Report

A 45-year-old man was presented with generalised abdominal pain which was associated with abdominal distension. He had history of intermittent fever, with loss of appetite and loss of weight for last 1 month. There was no haematuria. This was his first presentation to hospital.

Examination revealed that, he had fever, tenderness and guarding of the abdomen. His white cell count (WBC) was 20 × 10^9/l and platelet count was 126 × 10^9/l. His serum urea was 14 mmol/l and creatinine 149 mmol/l. He was intubated for respiratory distress. An emergency ultrasound of the abdomen revealed well defined lobulated echogenic lesion at segment VIII measuring around 1.6 cm and 2.1 cm with presence of free fluid at Mourisson's pouch, splenorenal pouch, left paracolic gutter and pelvis.

He was immediately posted for an emergency laparotomy as clinically he had peritonitis, with the provisional diagnosis of ruptured liver abscess.

During surgery, surgical team found that he actually had a bladder perforation at the dome. The bladder appeared fibrotic. He had enlarged mesenteric lymph node adjacent to terminal ileum and his sigmoid colon adhered to caecum. There was 200 ml of serous fluid in peritoneum.

The ruptured edges of the bladder were resected and bladder repair was done in two layers using vicryl 3/0 sutures. The resected bladder edges and mesenteric node were sent for histopathological examination (HPE). A peritoneal washout was done. A Foley's catheter was inserted for bladder drainage; a drain was also placed in the pelvis.

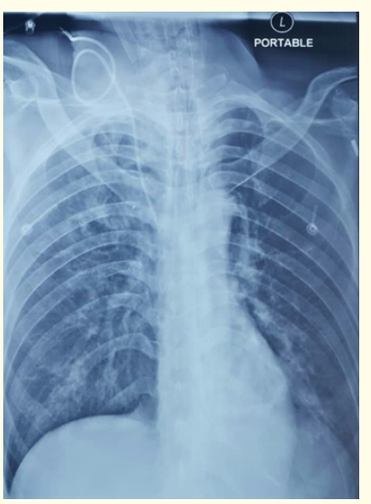

Figure 1: *Xray on admission shows patchy parenchymal infiltration over right hemithorax.*

The findings raised suspicion of tuberculosis thus tracheal aspirate for sputum AFB was sent and the results came back positive. He was started on anti-tuberculosis medication the very next day. The histopathological (HPE) examination was consistent with granulomatous inflammation with suppuration and acid-fast bacilli was seen under Ziehl Neelsen stain in mesenteric lymph node specimen. He was discharged after 2 weeks of hospital admission.

Histopathological examination

After correlating clinical and histopathological results, we concluded this spontaneous bladder rupture was due to Tuberculosis.

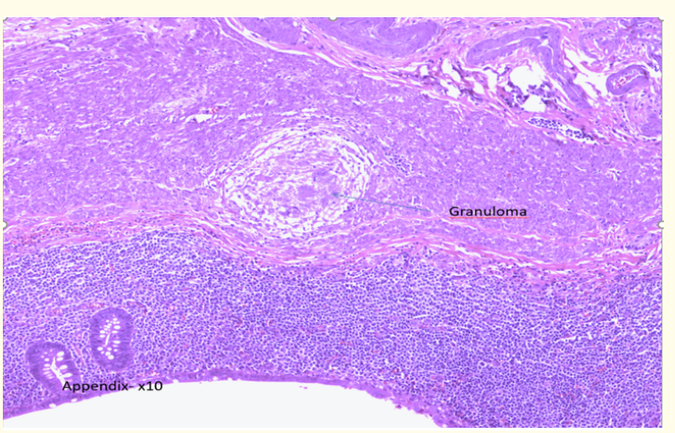

Figure 2A: *Sections from the appendix show multiple epithelioid granulomas with multinucleated giant cells in the submucosa, muscularis propria and serosa. One large granuloma showed central suppuration.*

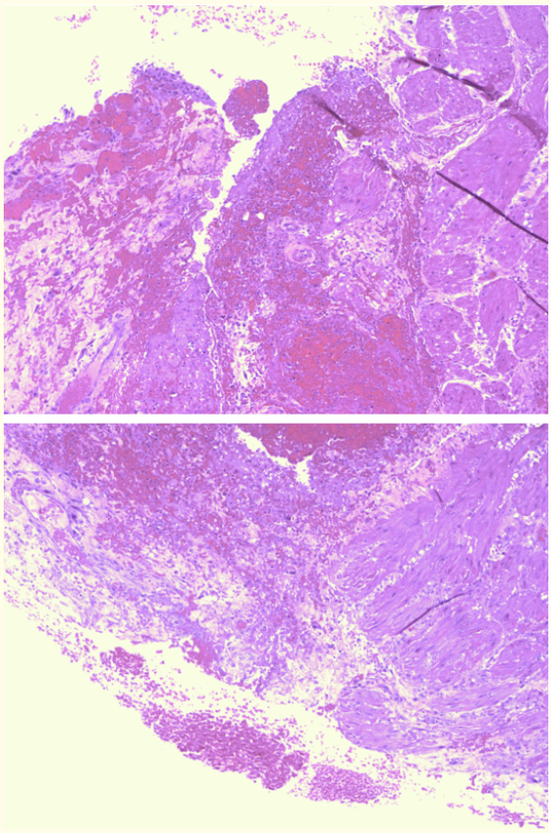

Figure 2B: *Levels of the section show (from bladder) a markedly congested and haemorrhagic bladder tissue. It is partly lined by benign transitional epithelium. Perforated edge is covered by acute inflammatory exudate. Adjacent stroma is edematous with reactive fibroblasts seen. No granuloma or malignancy seen.*

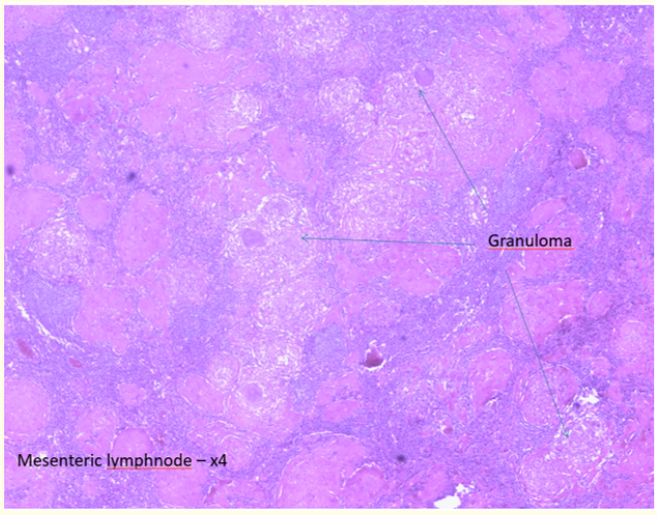

Figure 2C: *Sections from Lymph Node show numerous epithelioid granulomas with multinucleated giant cells within the parenchyma. One of the granuloma show central suppuration granuloma also seen beyond the capsule. Ziehl Neelsen stain revealed an occasional acid-fast bacilli.*

Discussion

Globally, 10 million people developed TB in 2017 and 1.6 million deaths occurred due to TB. Genitourinary TB is account for 20% of all cases of extrapulmonary TB in the world population. It usually affect the kidney (61%), ureter (19%), and urinary bladder (16%) [2]. Adults between second to 4th decades of life usually suffer from this illness [3]. TB frequently causes thickening and contracture of the bladder [2]. Besides that, central necrosis, inflammatory infiltration and perforation may occur [2].

Bladder TB occurs usually secondary to TB of the kidney. The source is from small granulomas in the kidney, which shed tuberculous bacilli intermittently. This bacilli are then washed along the ureter with the urine, to the bladder. Bladder infection starts initially around one or both ureteral orifices, which then turn erythematous, inflamed and edematous. Prolonged inflammation, cause exudates, ulcerations, fibrosis, and contracture of the bladder wall. Eventually, this will lead to small, contracted, damaged bladders with intolerable frequency, pain, urgency, and hematuria.

There were 5 cases only were published previously regarding bladder perforation secondary to TB [1]. A summary of their characteristics is presented in table 1. The mean age of the cases was 32.8 years (range, 22 - 45 years), and it usually perforate the bladder dome (4 out of 6 cases). It is difficult to draw conclusions from this small sample, but all these cases and related literature emphasize us that early diagnosis and treatment are crucial.

Year	First Author	Sex	Age (years)	Site	Time of Diagnosis	Outcome
1969	Doig CM	Male	34	Posterior wall	Intraoperative	Died
1997	Kumar RV	Female	22	Bladder dome	Preoperative	Favourable
2009	Pal RP	Female	28	Bladder dome	Preoperative	Favourable
2010	Kong CH	Female	25	Bladder dome; Anterior wall	Intraoperative	Favourable
2010	Sallami S	Male	43	Posterior wall	Intraoperative	Died
2019	Alaga A (present case)	Male	45	Bladder dome	Intraoperative	Favourable

Table 1: *Case of perforated urinary bladder secondary to tuberculosis. Reported in the literature since 1958 [2].*

The clinical features of spontaneous bladder perforation is usually lower abdominal pain, which later progress to peritonitis. Oliguria or anuria can present as well. Lab investigation may reveal renal dysfunction and on ultrasound may show evidence of free intraperitoneal fluid. A cystogram can be used for diagnosis. Most patients will require laparotomy to confirm the diagnosis and repair the perforation.

The treatment usually consists of a 2-month intensive phase of treatment with four drugs as anti-TB treatment (Rifampicin, Isoniazid, Pyrazinamide and Ethambutol). This is followed by a 4-month continuation phase with only two drugs (rifampicin and isoniazid) and up to 10 months in extensive or disseminated TB.

Conclusion

Although extremely rare, the diagnosis of bladder perforation, should be prompted in cases of acute abdomen with evidence of acute kidney injury. Typical surgical and HPE findings, can lead us to diagnosis and anti-tuberculosis medication should be started as soon as possible for a better outcome.

Disclosure

Informed consent from the patient has been obtained as per ICMJE guideline to publish this case report.

Competing Interests

Authors have no competing interests.

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