Rare disease

Gangrenous cystitis in a 42-year-old male

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Summary

Gangrenous cystitis is now an extremely rare condition since the widespread use of antibiotics. The authors report a case of gangrenous cystitis in a previously fit and normal 42-year-old male who presented in acute urinary retention. He underwent a partial cystectomy during an exploratory laparotomy for clinical deterioration and peritonitis. Diagnosis of this rare disease is challenged by its low incidence and lack of characteristic pathognomic features, resulting in delayed diagnosis and increased morbidity and mortality. The authors review the literature to date on the aetiology, presentation, diagnosis and management of gangrenous cystitis and emphasise the importance of early and aggressive surgical management.

BACKGROUND

Gangrenous cystitis is now extremely rare; since a review in 1934 of 209 cases,¹ only 30 cases have been reported in the literature.² Diagnosis is challenged by the presence of non-specific symptoms and signs making it indistinguishable from other common urological conditions. This is compounded further by its low incidence and subsequent lack of awareness among physicians. Diagnosis is often delayed, which contributes to the high morbidity and mortality of 35%.³⁻⁵ We report a case of gangrenous cystitis in a 42-year-old male who presented in acute urinary retention, whose condition rapidly deteriorated into peritonitis.

CASE PRESENTATION

A 42-year-old male airline steward presented with a 2-day history of urinary retention on a background of pyuria. He denied any other lower urinary tract symptoms and had no significant medical history. He was an ex-smoker with a 5-year pack history and consumed 12 units of alcohol per week.

On initial examination, he was afebrile and observations were normal. The lower abdomen was diffusely tender and a distended bladder was palpable. On rectal examination he had a small, benign prostate. He was catheterised and drained in excess of 2 litres of residual brown urine. Biochemistry demonstrated renal impairment with an estimated glomerular filtration rate of 17 ml/min/1.73 m², but his neutrophil count was within normal limits.

The working diagnosis was high pressure chronic retention; he was admitted overnight for urine output monitoring and repeat biochemistry.

The patient's clinical condition progressively deteriorated over the following 2 days; he developed urosepsis on day 2 and by day 3 had developed peritonitis. A CT KUB (kidneys, ureters and bladder) was performed and is shown below.

INVESTIGATIONS

A contrast CT KUB showed an inflammatory mass in the lower abdomen to the right of the midline, which extended

into the pelvis; the caecum was lateral to the mass and the appendix behind (figure 1).

DIFFERENTIAL DIAGNOSIS

Appendicitis as a cause of his peritonitis was the differential diagnosis given the CT findings of an inflammatory mass in close proximity to the appendix.

TREATMENT

He was taken to theatre for an exploratory laparotomy; the peritoneal cavity contained purulent, haemoserous fluid and the appendix was normal. He had a large redundant bladder with multiple patchy gangrenous areas and a retroperitoneal abscess arising from the anterior bladder (figures 2 and 3). On rigid cystoscopy the bladder mucosa was grossly abnormal with multiple petechial haemorrhages and necrotic areas. He underwent a partial cystectomy, removing non-viable detrusor with preservation of the trigone and ureters.

OUTCOME AND FOLLOW-UP

Postoperatively he was admitted to intensive treatment unit for fluid replacement, ventilatory support and treatment with broad-spectrum antibiotics. His urine and resected bladder tissue cultured *Escherichia coli* and histology diagnosed gangrenous cystitis. He was discharged on day 17 with a urethral catheter and an out-patient cystogram and clinic appointment.

DISCUSSION

Gangrenous cystitis or gangrene of the bladder was once commonly seen in obstetric cases, associated with the trauma of labour and delivery.⁶ In the few sporadic cases that have been reported during recent times iatrogenic causes such as pelvic radiation,³ pelvic surgery⁷ and the use of chemotherapeutic agents⁸⁻¹⁰ predominate. Other causes such as infection,^{6 11} urinary retention,^{6 12-14} pelvic thrombophlebitis¹⁵ and colovesical fistulae^{16 17} have also been reported.

Figure 1 CT KUB (kidneys, ureters and bladder). Contrast enhanced CT KUB sections from lower abdomen to pelvis (A–D).

Figure 2 Large floppy redundant bladder viewed through the laparotomy incision prior to partial cystectomy.

Although the exact patho-aetiology of gangrenous cystitis is unknown, compromised vascular supply to the bladder is thought to be the first initiating event. The resulting bladder wall ischaemia varies in severity from necrosis of the mucosa and submucosa to full thickness necrosis of the bladder wall as the disease progresses.³ Microbial superinfection hastens this progression and is marked by rapid clinical deterioration.

Early and accurate diagnosis is difficult as the symptoms of lower abdominal pain, frequency and pyuria are non-specific and resemble other conditions such as cystitis. Abdominal symptoms predominate as the disease progresses with the development of peritonitis. Evaluation with cystoscopy and CT may aid in the diagnosis of the stable patient. Surgical exploration is usually necessary and should be early and aggressive with debridement of

Figure 3 Internal bladder mucosa viewed during partial cystectomy showing petechial haemorrhages and necrotic areas.

all gangrenous necrotic areas of the bladder. Conservative management with antibiotics may be attempted in a stable patient with confined mucosal involvement as long as the clinical condition allows.

Although a rare clinical entity, clinicians should be aware of this potentially serious albeit rare complication of chronic retention, particularly when there is unexplained clinical deterioration. With earlier diagnosis and subsequent aggressive surgical management, it is hoped that the morbidity and mortality associated with gangrenous cystitis can be reduced.

Learning points

- ▶ Gangrenous cystitis is a rare clinical entity with non-specific symptoms that frequently resemble other urological conditions.
- ▶ Clinicians should be aware of this potentially serious albeit rare complication of chronic retention, particularly when there is unexplained clinical deterioration.
- ▶ Prompt and aggressive surgical management is essential to lower the high morbidity and mortality associated with this condition.

Competing interests None.

Patient consent Obtained.

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