

Emphysematous cystitis: diagnosed only if suspected

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DESCRIPTION

Emphysematous cystitis (EC) is rare and has a varied clinical spectrum ranging from incidental diagnosis to fulminant sepsis.¹ Prompt diagnosis, bladder drainage and broad-spectrum antibiotics form the crux of management to prevent urosepsis and mortality.² A 68-year-old man with diabetes and hypertension presented to the emergency department with a history of vomiting, giddiness, fever and urinary frequency of 1 day duration. He gave a history of undergoing urethroplasty 10 years previously. He had a pulse rate of 92/min, blood pressure of 100/70 mm Hg, tachypnoea (24/min) and fever (39°C). He had leucocytosis (WBC-2.8 x 10⁹/L), high random blood sugar (480 mg/dL), albuminuria and glycosuria. He was started on an intravenous injection of 500 mg imipenem three times a day and sliding scale insulin. He underwent X-ray pelvis (figure 1) and CT abdomen (figure 2) on day 1. He required ionotropic support for management of sepsis. Urologist opinion was sought only after the final report of EC. On examination he had suprapubic fullness. Perurethral catheterisation had resistance to 14 Fr Foley catheter at the level of previous anastomotic site hence suprapubic catheterisation (SPC) was done. Around 500 mL purulent urine along with gas was drained after SPC placement. *Escherichia coli* was grown in the urine culture. His clinical condition improved with intravenous antibiotics and bladder drainage. He was tapered off from ionotropic support and discharged on SPC. He was planned for definitive management of urethral stricture on a later date.

EC is diagnosed by imaging but is usually underdiagnosed and under-reported.¹ Nearly half of the cases in the literature were reported only in the last decade.¹ *E. coli* is the most common culprit but various bacterial and fungal organisms were implicated in pathogenesis.¹ Patients

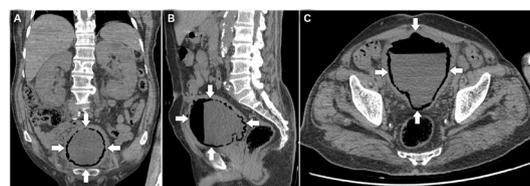


Figure 2 (A,B,C) Coronal, sagittal and axial views of plain CT scan of abdomen demonstrating air in the lumen and also within the bladder wall (solid white arrows).

Learning points

- ▶ CT scan is the gold standard in diagnosing a case of emphysematous cystitis but X-ray findings should not be overlooked.
- ▶ Prompt diagnosis with early bladder drainage and broad-spectrum antibiotics is mandatory to avoid morbidity and mortality.

with diabetic cystopathy, neurogenic bladder and urinary stasis secondary to urethral stricture or bladder outlet obstruction are more susceptible. Impaired host response and fermentation process leading to production of gas within the bladder is the most common factor in pathogenesis.¹ On clinical suspicion around 80% of cases can be diagnosed based on plain radiography.¹ Ultrasound findings may reveal abnormally thickened bladder wall and have low sensitivity, hence may be used for follow-up of recovering patients.³ CT scan is the gold standard in the diagnosis of this condition emphasising the low threshold for ordering the investigation for early successful management.³ Schicho *et al* reviewed the largest series on EC and concluded that despite the low mortality rate of EC a high degree of suspicion must be maintained to facilitate successful and conservative management.⁴ Delayed intervention can lead to emphysematous pyelonephritis, septic shock, bladder rupture and death.^{1,5} Patients not responding to medical management and those with necrotising infections might require surgical debridement.¹ Immediate bladder drainage along with broad-spectrum antibiotics should be initiated in high-risk patients without delay to avoid morbidity and mortality. We report this case to emphasise the importance of radiological findings and awareness among emergency physicians for prompt diagnosis and referral.

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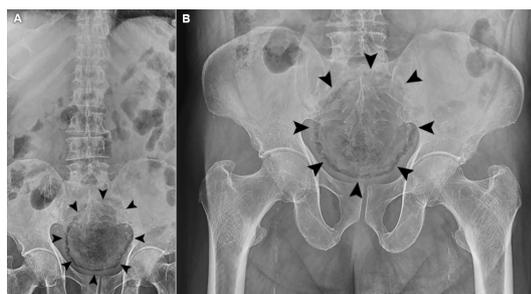


Figure 1 (A,B) Plain X-ray of pelvis revealing circumferential radiolucency in the outline of bladder (black arrow heads).



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