Introduction

Emphysematous cystitis is a rare complication of lower urinary tract infections. It is characterized by the presence of air within the urinary bladder wall and/or the presence of intraluminal air within the bladder.1 It is more common in patients that presented with multiple comorbidities and that are immunocompromised from these.

We present the case of a 64-year-old female who developed emphysematous cystitis whilst undergoing rehabilitation from her low speed motor vehicle accident.

This case represents a rare lower urinary tract infection complication that was diagnosed on abdominal plain x-ray with subsequent confirmation on CT imaging.

Case report

A 64-year-old female developed generalized abdominal tenderness on the 21st day of her admission under the general medical and rehabilitation team following a low speed motor vehicle accident. Her background history was significant for Child’s C Liver Cirrhosis, Chronic liver failure as a result of alcohol abuse, hypertension and depression with recent ascetic tap performed two days prior.

On initial physical examination she had a GCS of 13 and was haemodynamically stable. Further characterization of the pain identified that it was more localized suprapubically. Physical examination revealed marked suprapubic tenderness.

Bloods revealed an elevated white cell count of 13.5 × 10^9/L with neutrophils at 10.56 × 10^9/L and an elevated CRP of 14mg/L.

Urinalysis showed 390 leucocytes per high power field and greater than 500 erythrocytes per high power field with bacteria present.

An abdominal x-ray (Fig. 1) performed revealed gas in an oval distribution projected in the lower pelvis suspicious for emphysematous cystitis. This was confirmed on CT scan (Figs. 2 and 3).

Eventual culture of the urinalysis revealed *Klebsiella pneumonia* and *Proteus mirabilis* both sensitive to cephazolin. She was treated with an indwelling catheter for bladder decompression as well as to drain the urinary sepsis and long term IV cephazolin.

She recovered well and was subsequently reviewed in outpatients and had no further urological issues.

Fig. 1. X-ray image of emphysematous cystitis.

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Discussion

Emphysematous cystitis is predominantly diagnosed radiologically commonly with an abdominal plain film but more specifically with CT radiology.\(^2\,^3\) Occasionally it can also be diagnosed with ultrasound.\(^4\) It is mostly associated with debilitated immunocompromised patients as noted with the above case. Common underlying conditions are diabetes mellitus and chemotherapy-induced immunosuppression. It is the most common and least morbid gas-forming infection of the urinary tract and is associated with low mortality.\(^2\)

The most common organisms causing this disease are *E. coli* with *Klebsiella pneumoniae* and *Enterobacter aerogenes* also known to cause this.\(^2\,^5\) The gas fermenting fungus such as *Candida albicans* can also result in emphysematous cystitis.\(^2\,^5\)

If identified early it can be treated successfully with medical management consisting of antibiotics and bladder drainage. Those patients who do not respond to medical treatment may require surgical intervention. In rare severe necrotizing infections this may consist of partial cystectomy, cystectomy or surgical debridement.\(^2\)

Conclusion

Awareness of the possibility of the diagnosis of emphysematous cystitis can result in successful medical treatment of this condition with appropriate antibiotics and bladder drainage. However, the severity of the underlying predisposing immunosuppression together with the magnitude of comorbidities may influence ultimate patient outcomes.

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