

# A rare case of air cysto-uretero-pyelogram due to emphysematous cystitis

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## ABSTRACT

Emphysematous infection of the urinary tract is a hazardous condition and is life-threatening if not managed quickly. We report an 82-year-old woman with uncontrolled diabetes mellitus and urethral stricture who presented with emphysematous cystitis with the gas reaching up to the pelvicalyceal system on the left side (emphysematous pyelonephritis) and appearing in X-ray as air pyelogram. The patient was managed with drainage and intravenous antibiotics and she recovered.

## INTRODUCTION

Emphysematous infection of the urinary tract is a perilous condition with very high mortality rates. Emphysematous cystitis is characterized by gas in the bladder lumen or wall or both. It typically affects elderly women and patients with diabetes mellitus (DM).

## CASE REPORT

The patient was an 82-year-old woman with uncontrolled DM and lower urinary tract symptoms who presented with complaints of pain in the abdomen, fever, and decreased urine output for 7 days. She also complained of poor flow and straining during micturition for the last 1 year. She developed lower abdominal pain and fever for the last 7 days. She also had decreased urine output for the last 3 days. During examination, she was found to have tachycardia (112 beats per min), and blood pressure of 100/60 mmHg. There was suprapubic tenderness and no flank tenderness present. Her laboratory investigations revealed acidosis with pH 7.24, random blood sugar level of 376 mg/dl, total leukocyte count of 3100/cmm, blood urea 46mg%, and serum creatinine 3.76 mg%. Ultrasound

showed bilateral hydroureteronephrosis, smooth symmetrical thickening of the urinary bladder with air artifacts. Her X-ray of the kidney, ureter, and bladder (KUB) region revealed gas present in a well-defined round configuration in the urinary bladder region with gas traversing the left ureter and clearly delineating the left pelvicalyceal system like a “negative contrast” [Figure 1]. The right side lower and mid ureter region also showed gas, although the right kidney and pelvicalyceal systems were not affected. Noncontrast computed tomography scan also showed bilateral hydroureteronephrosis with gas in the left kidney collecting system and emphysematous pyelonephritis. No air was seen in the renal parenchyma or in the perinephric space. 14 Fr urethral catheter could be negotiated with some difficulty. She was then managed with hemodialysis, bilateral DJ stent placement and glycemic control. Broad-spectrum intravenous antibiotics were started. Gradually, her urine output improved and she was discharged on day 7 in a stable condition.

## DISCUSSION

Emphysematous conditions of the urinary tract have been reported with cases of pneumaturia dating back more

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**Received:** 30.01.2023, **Revised:** 11.03.2023,

**Accepted:** 20.03.2023, **Published:** 31.03.2023

**Financial support and sponsorship:** Nil.

**Conflicts of interest:** There are no conflicts of interest.

Access this article online	
Quick Response Code:	Website: www.indianjurol.com
	DOI: 10.4103/iju.iju_48_23



**Figure 1:** X-ray KUB showing air in the bladder region and in the left ureter and pelvicalyceal system. KUB = Kidney, ureter, and bladder

than a century.<sup>[1]</sup> However, such conditions were not necessarily due to infection. Gas within the urinary tract is usually demonstrated with imaging studies and is most often detected during an X-ray.<sup>[2]</sup> Emphysematous conditions are

relatively rare now and are usually seen in elderly patients with a history of DM.<sup>[3]</sup> Many gas-forming bacteria, in the presence of elevated sugar content in the urine, can give rise to emphysematous pyelonephritis. Our patient was an elderly woman with uncontrolled DM and also had urethral stricture. All these conditions lead to an unusual precarious combination, that gave rise to this condition.

## CONCLUSION

Gas in the urinary system can track into the pelvis and ureter from an emphysematous cystitis and may be seen on a plain X-ray film.

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**How to cite this article:** Sarangi SS, Bhirud DP, Navriya SC, Sandhu AS. A rare case of air cysto-uretero-pyelogram due to emphysematous cystitis. *Indian J Urol* 2023;39:169-70.