

Images in Nephrology
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Hydropneumonephroureter and emphysematous cystitis

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Case

A 64-year-old man presented to our emergency room due to hematuria, lower abdominal fullness and urinary frequency for 2 days. The patient had a past history of diabetic

nephropathy in chronic kidney disease, Stage 4, and benign prostate hypertrophy status posttransurethral resection of the prostate. Laboratory tests showed an elevation of the white blood cell count and C-reactive protein, acute deterioration of renal functions, combined pyuria, hematuria and proteinuria in urine analysis. A plain radiograph disclosed unusual gas distribution over the paravertebral region (Figure 1A). The computerized tomography (CT) of the abdomen further revealed gas in the genitourinary tract (Figure 1B), air-fluid level over bilateral ureters and renal pelvis (Figure 1C), air-fluid level over bilateral ureters and renal

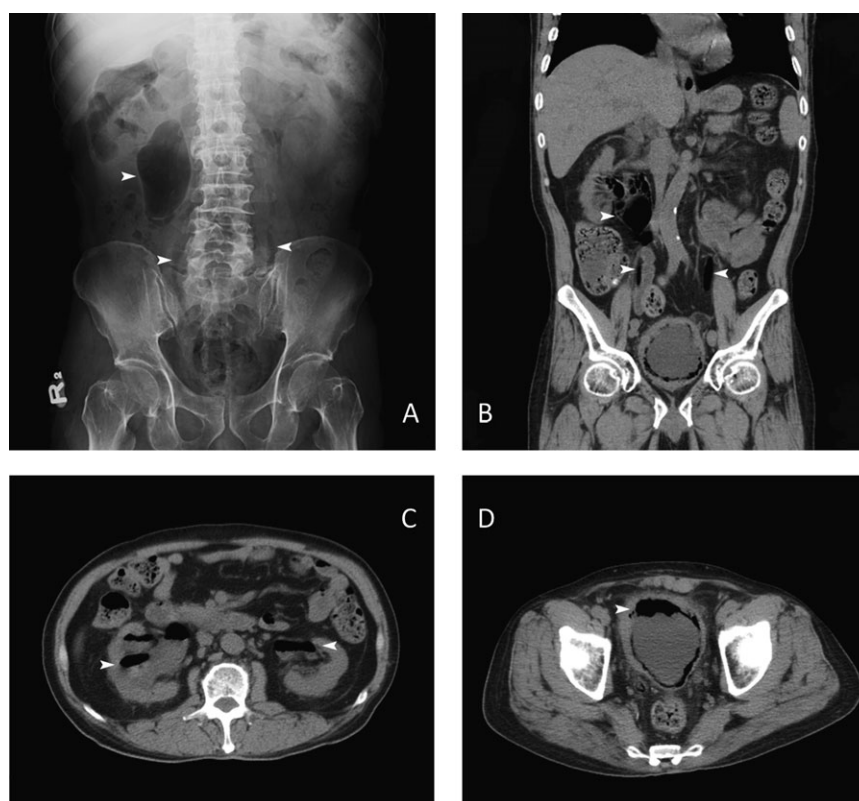


Fig. 1. (A) Unusual gas distribution over paravertebral region (plain radiograph); (B) unusual gas distribution over right renal pelvis, bilateral ureters and urinary bladder (CT of abdomen); (C) air-fluid level over bilateral ureters and renal pelvis (CT of abdomen); (D) diffuse amorphous gas shadows on the bladder wall (CT of abdomen).

pelvis (Figure 1C) with diffuse amorphous gas shadows on the bladder wall (Figure 1D), in favor of the diagnosis of bilateral hydropneumonephroureter and emphysematous cystitis. Percutaneous catheter drainage over the right kidney showed pus-like urine, and bacterial culture yielded *Citrobacter diversus*. Complete recovery in the systemic infection and improvement in renal function were achieved successfully in our patient after treatment with broad-spectrum antibiotics and percutaneous catheter drainage.

Emphysematous urinary tract infection is a rare, rapidly progressive, potentially lethal disease most commonly seen in patients with diabetes or urinary tract obstruction [1]. *Escherichia coli* and *Klebsiella pneumoniae* are the most common pathogens [1], but *Proteus mirabilis*, *Citrobacter*, *Enterobacter* and *Candida* are also occasionally isolated. Most patients have a unilateral lesion, but a few case reports show bilaterally involvement [2]. Diagnosis may be made easily by plain abdominal film, but less extensive lesions could be neglected in some cases. CT provides more detailed information about extension, position and content of lesions, thus leading to a precise diagnosis. In

terms of treatment, administration of broad-spectrum antibiotics is invariably needed; nevertheless, percutaneous drainage or nephrectomy still must be considered according to the patient's general condition and the respective function of each kidney [1, 3].

Conflict of interest statement. None declared

References

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