A 45-year-old Taiwanese man with a history of poor controlled diabetes mellitus presented to our Emergency Department with fever, gross hematuria and left flank pain for 1 day. He had undergone extracorporeal shock wave lithotripsy for renal stone 2 days ago. On examination, he was febrile to 40.1°C with a pulse rate of 126 beat/min and a blood pressure of 91/54 mmHg. Marked knocking pain over left costovertebral angle was also noted. Laboratory tests showed the following: white blood cell count, 1740/μl; serum urea nitrogen, 34.8 mg/dl; creatinine, 1.7 mg/dl; arterial blood gas, pH 7.34; PCO2, 27.4 mmHg; PO2, 69 mmHg; bicarbonate, 21.1 mEq/l; lactate, 4.6 mmol/l. An abdominal radiograph disclosed some radioopaque lesions and abnormal gas distributed over regions where kidney, ureter and bladder were located (Figure 1, arrowhead). Renal sonography demonstrated dirty echoes accompanying posterior sonic shadowing. The computed tomography (CT) revealed an enlarged kidney as well as dilated pelvis and ureter, and even the bladder was filled with air (Figure 2, arrowheads). In addition, a small stone impacting at the ureterovesical junction is depicted in Figure 2B (arrow).

Sepsis improved dramatically after conservative management. He received percutaneous nephrostomy and antimicrobial therapy. The blood culture

Figure 1. Plain abdominal radiograph revealed unusual bubbly pockets of air outside the bowel shadow, including renal pelvis, ureter and bladder regions (arrowhead). A radiopaque stone was noted in the abdominal ureter (arrow).

Figure 2. Abdominal CT. (A) Air pockets accumulated in left collecting system (arrowheads). (B) An air pocket accumulated in the bladder wall (arrowhead) and a small stone impacted at left ureterovesical junction (arrow).
yielded *Escherichia coli*. The impacted ureteral stone was treated with ureteroscopic lithotripsy successfully after 1 week.

Emphysematous pyelonephritis is a life-threatening, necrotizing renal parenchymal infection, characterized by accumulation of gas in renal parenchyma and within the surrounding tissues.\(^1\) The symptoms are vague and prodrome duration varies widely. Diabetes mellitus and urinary obstruction are the most important risk factors.\(^1,2\) CT scan is a definitive modality for diagnosis.\(^1\) However, plain film radiograph and sonography may play a role for evaluation.\(^1,4\) The management strategy is the combination of antimicrobial and early percutaneous drainage followed by elective nephrectomy if indicated.\(^2,3\)

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**References**


