Emphysematous pyelonephritis treated with percutaneous catheter drainage and antibiotics

Yun Kyu Oh¹, Young Ho Choi², Chang Kyu Sung² and Chun Soo Lim¹

¹Department of Internal Medicine and ²Department of Radiology, Seoul National University Boramae Hospital, Seoul, Korea

Keywords: diabetes mellitus; emphysematous pyelonephritis; Escherichia coli; percutaneous drainage

A 58-year-old woman presented acutely with a 3-day history of general weakness, vomiting and fever. For 2 years she had had untreated diabetes mellitus. On examination she was ill, blood pressure was 64/47 mmHg, heart rate: 111 beats/min, respiration rate: 28/min and body temperature was 37.2°C. The right upper abdomen was tender. There was right loin tenderness.

Investigations: white blood cell count 10 380/mm³; haemoglobin 7.8 g/dl; haematocrit 23.1%; platelet count 36 000/mm³; blood urea nitrogen 70 mg/dl; serum creatinine 6.2 mg/dl; glucose 302 mg/dl; C-reactive protein 21.4 mg/dl; sodium 129 mEq/l; potassium 4.1 mEq/l; chloride 98 mEq/l; and total CO₂ 8.9 mEq/l. An arterial blood gas pH 7.242, pO₂ 60 mmHg, pCO₂ 22 mmHg and bicarbonate 9.3 mEq/l.

A plain abdominal film showed air density in the right pelvocalyceal system and upper ureter (Figure 1). Computed tomography (CT) of the abdomen without contrast confirmed the presence of air in the pelvocalyceal system and upper ureter of the enlarged right kidney (Figure 2).

Six hours after admission, she became hypotensive and unconscious. She was intubated and ventilated. She received fluid resuscitation, emergency haemodialysis, and intravenous piperacillin and tazobactam. A percutaneous catheter was inserted into the pelvocalyceal system of the right kidney and drained turbid fluid. Blood and urine cultures grew Escherichia coli. The catheter was removed on day 12 because of disappearance of air in right excretory system at follow-up CT. Antibiotic therapy was continued for 4 weeks. She survived but did not recover renal function.

Discussion

Emphysematous pyelonephritis (EPN) is a rare and severe infection of the kidney and its surrounding...
areas, characterized by the presence of gas in the renal parenchyma, collecting system or perinephric tissue. It usually occurs in patients with diabetes mellitus or urinary tract obstruction. Because it has a life-threatening and fulminant course, immediate nephrectomy with appropriate antibiotic treatment should not be delayed [1,2]. Recent reports, however, suggest that percutaneous drainage results in a successful outcome in selected patients [3].

Conflict of interest statement. None declared.

References

Received for publication: 2.6.06
Accepted in revised form: 13.7.06