

Bilateral Emphysematous Pyelonephritis

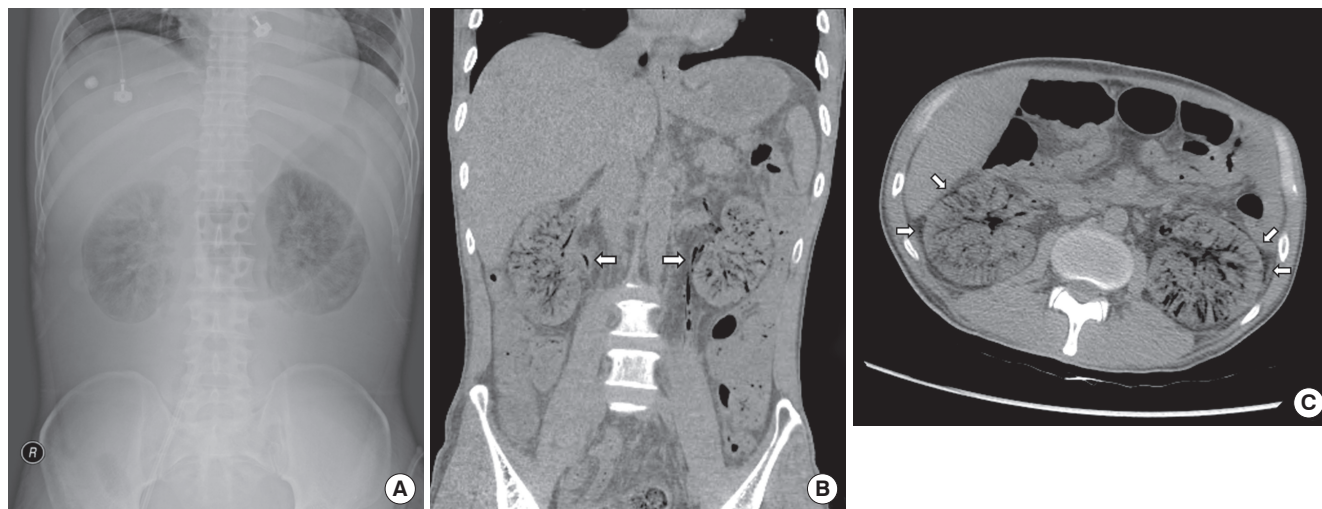


Fig. 1. Radiological findings of bilateral emphysematous pyelonephritis. (A) Plain abdomen showed extensive gas collection, (B) computed tomography scan showing gas collection in both ureters (arrows), and (C) extensive intraparenchymal and perinephric gas collections in both kidneys (arrows).

A 46-year-old man with poorly controlled type 2 diabetes mellitus and hepatocellular carcinoma with hepatitis B virus infection presented with general weakness and oliguria of 3-day duration. Serum creatinine was 6.6 mg/dL, blood urea nitrogen 112 mg/dL, leukocytes 37,600/ μ L, platelets 5,000/ μ L, and glycated hemoglobin 11.8%. He developed hypotension and metabolic acidosis. Continuous renal replacement therapy and inotropics were immediately initiated. Plain abdomen (Fig. 1A), and computer tomography (Fig. 1B and 1C, arrows) without contrast revealed extensive intraparenchymal and perinephric air collections in both enlarged kidneys that looked like wood charcoal, as well as air tracking in both proximal ureters. He was diagnosed with bilateral emphysematous pyelonephritis (EPN) and received intravenous meropenem, empirically. However, bilateral percutaneous drainage could not be performed due to hemodynamic instability. *Escherichia coli* was isolated in blood and urine cultures. He died of septic shock 3 days after admission.

EPN is a rare necrotizing infection of kidney predominantly seen in patients with diabetes. Although the left kidney is more frequently involved than the right, bilateral EPN is also reported to occur in up to 10% of patients. Although early nephrectomy has been considered the treatment of choice in EPN, bilateral

nephrectomy is associated with high mortality rate and would necessitate lifelong renal replacement therapy in patients with bilateral EPN (1). Successful management with antibiotics and percutaneous drainage have been reported in bilateral EPN patients. Nevertheless, the mortality has been reported at up to 50% for bilateral EPN (2).

Ethics statement

The authors obtained approval from the Institutional Review Board (IRB) of Chonnam National University Hwasun Hospital (CNUHH-2017-085), and informed consent was waived by the IRB.

DISCLOSURE

The authors have no potential conflicts of interest to disclose.

AUTHOR CONTRIBUTION

Conceptualization: Kim CS. Data curation: Kim CS, Ma SK. Investigation: Kim CS, Ma SK. Writing - original draft: Kim CS, Kim SW. Writing - review & editing: Kim CS, Kim SW.

ORCIDChang Seong Kim <https://orcid.org/0000-0001-8753-7641>Seong Kwon Ma <https://orcid.org/0000-0002-5758-8189>Soo Wan Kim <https://orcid.org/0000-0002-3540-9004>**REFERENCES**

1. Kumar S, Ramachandran R, Mete U, Mittal T, Dutta P, Kumar V, Rathi M, Jha V, Gupta KL, Sakhuja V, et al. Acute pyelonephritis in diabetes mellitus: Single center experience. *Indian J Nephrol* 2014; 24: 367-71.
2. Yao J, Gutierrez OM, Reiser J. Emphysematous pyelonephritis. *Kidney Int* 2007; 71: 462-5.

Chang Seong Kim, Seong Kwon Ma, and Soo Wan KimDepartment of Internal Medicine, Chonnam National University Medical School,
Gwangju, Korea

Address for Correspondence:

Soo Wan Kim, MD, PhDDepartment of Internal Medicine, Chonnam National University Medical School,
42 Jebong-ro, Dong-gu, Gwangju 61469, Republic of Korea
E-mail: skimw@chonnam.ac.kr

Received: 4 July 2017 / Accepted: 7 August 2017

Funding: This study was supported by the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT and Future Planning (MSIP) (2015R1C1A1A01051769), and by the Bio & Medical Technology Development Program of the NRF funded by the Korean government, MSIP (2017M3A9E8023001).