

LETTER TO THE EDITOR

EMPHYSEMATOUS PYELONEPHRITIS

Shanghai, October 1st, 2014

Dear Editor,

A 48-year-old female with poorly controlled diabetes mellitus (DM) presented herself with a five-day history of fever, chills, left flank pain and dysuria. On admission, her abdomen was mildly distended and tender over the left lumbar region. Laboratory data showed white blood cell count of $18.6 \times 10^9/L$ with 91.7% neutrophils, serum creatinine at 223 $\mu\text{mol/L}$, C-reactive protein at 168 mg/L and glycosylated hemoglobin (HbA1c) at 14.1%. Urine analysis showed turbid appearance with obvious pyuria, hematuria and proteinuria. A renal ultrasound scan revealed potential signs of gas in the parenchyma of the left kidney. A non-contrast computed tomography (CT) scan of the abdomen demonstrated swelling of the left kidney with visible gas in the renal parenchyma (Fig. 1), radiologically associated with emphysematous pyelonephritis (EPN, Class 2). The patient underwent CT-guided percutaneous catheter drainage (PCD) and was treated with broad-spectrum intravenous antibiotics and rigorous blood sugar control. The urine and pus cultures showed significant growth of *Escherichia coli* (*E. coli*). From the above medical procedures, the patient improved significantly and was discharged with an excellent prognosis.

EPN is an uncommon, but acutely severe and life-threatening necrotizing kidney infection, which is characterized by gas accumulation in the renal parenchyma, collecting system, or perinephric tissue^{1,2,4}. The disease usually occurs in female patients with poorly controlled DM, with or without urinary tract obstruction^{1,2,4}. *E. coli* is the most common pathogen, which has been extracted from urine or pus cultures in almost 70% of the patients⁴. EPN is a radiological diagnosis, with CT scan currently being the imaging procedure of choice for early diagnosis and assessment of the disease^{1,2,4}. Importantly, PCD is now the most appropriate strategy and the gold standard in management of EPN^{2,3}. Over the last two decades, improvements in management techniques have drastically reduced the mortality rate of EPN to 21%^{3,4}.

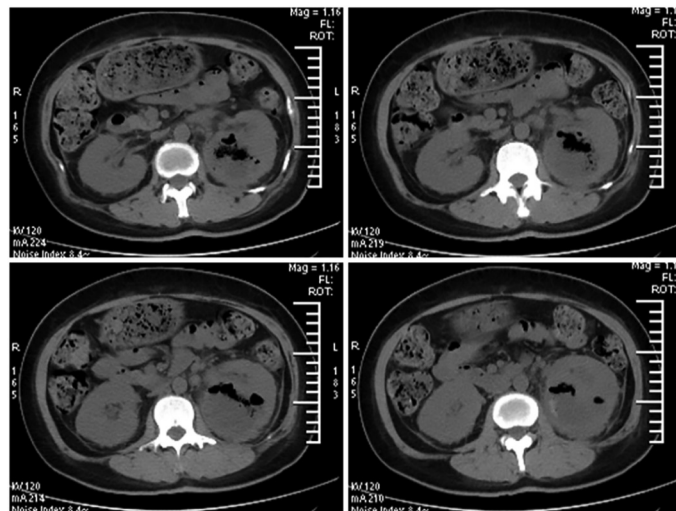


Fig. 1 - Computed tomography (CT) scan of the abdomen showing a mottled gas collection within the parenchyma of the swelling left kidney.

Yi ZHANG
Guo-Qing ZANG
Zheng-Hao TANG
Yong-Sheng YU

Department of Infectious Diseases, Shanghai Jiao Tong University
Affiliated Sixth People's Hospital, Shanghai, P. R. China

Correspondence to: Yong-Sheng YU, Department of Infectious Diseases,
Shanghai Jiao Tong University Affiliated Sixth People's Hospital,
600 Yishan Road, 200233 Shanghai, P. R. China
Phone: + 86 21 64369181-58673; Fax: + 86 21 24058384

E-mail: yuyongsheng@medmail.com.cn

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