

Yui-Rwei Young, MD
Bor-Fuh Sheu, MD
Chien-Chang Lee, MD, Msc
Shy-Shin Chang, MD
Pei-Lin Li, BD
Ya-Shen Wu, MD

From the Department of Emergency Medicine (Young, Sheu, Chang) and the Division of Urology, Department of Surgery (Wu), Chang Gung Memorial Hospital and Chang Gung University College of Medicine, Taoyuan, Taiwan; Department of Emergency Medicine, National Taiwan University Hospital Yun-Lin Branch, Douliou, Taiwan (Lee); Department of Nursing, Chang Gung Institute of Technology, Taoyuan, Taiwan (Chang); and the Chia-Yi School, Chang Gung Institute of Technology, Chia-Yi, Taiwan (Li).

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Figure. Plain abdominal radiograph. Used with permission of Bor-Fuh Sheu, MD, Department of Emergency Medicine, Chang Gung Memorial Hospital and Chang Gung University College of Medicine, Taoyuan, Taiwan.

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An 82-year-old woman with a history of diabetes mellitus and hypertension presented to the emergency department, complaining of general malaise, poor intake, dysuria, and low abdominal pain for about 7 days. The vital signs were normal. On physical examination, normoactive bowel sound, mild diffuse abdominal distention, and mild suprapubic tenderness without rebounding pain were observed. The remainder of the physical examination yielded unremarkable results. Laboratory evaluation revealed that the WBC count was 13,000 cells/mm³, segmented neutrophils 78%, and band cells 13%. The serum creatinine level was 1.5 mg/dL, and the C-reactive protein 291 mg/L (normal <5 mg/L). The urinalysis showed 222 RBCs/ μ L and 40 WBCs/ μ L. A plain abdominal radiograph (Figure) was obtained.

For the diagnosis and teaching points, see page 261.

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DIAGNOSIS:

Emphysematous cystitis. Emphysematous cystitis is a rare, necrotizing infection characterized by gas collection in the urinary bladder wall and lumen, resulting from gas-producing pathogen infection.¹ The risk factors are diabetes (up to 80%), bladder outlet obstruction, recurrent urinary tract infection, urinary stasis, neurogenic bladder, immunosuppression, female sex, and being a transplant recipient.² The mechanism and pathogenesis of emphysematous cystitis are still unknown. The gas is suggested to be produced by the infected organism by the fermentation of albumin or glucose in urine. The most common organisms are *Escherichia coli*,³ *Enterobacter aerogenes*, and *Klebsiella pneumoniae*. Emphysematous cystitis has nonspecific clinical features and is often misdiagnosed. Clinically, emphysematous cystitis is often diagnosed by the unanticipated imaging findings. Plain abdominal radiograph usually makes the diagnosis, with high sensitivity (97.4%),⁴ but abdominal computed tomography scan was the most sensitive and specific diagnostic tool.⁵

About 18.8% of emphysematous cystitis cases have complicated courses.⁴ Emphysematous cystitis demands prompt diagnosis and intervention,⁶ including aggressive parenteral antibiotics and even bladder drainage.⁷ Generally, emphysematous cystitis has favorable prognosis, whereas delays in diagnosis and treatment may contribute to high mortality rate, which approaches 20%.

A favorable prognosis may be achieved by early recognition of emphysematous cystitis, by clinical and radiologic assessment, by appropriate antibiotic use, and by timely surgical intervention when indicated.

This patient was administered empiric antibiotic and promoted surgical drainage. *Escherichia coli* was isolated subsequently from both urine and drainage pus cultures. The patient was discharged after a 2-week hospitalization.

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