A 95-year-old man with a past history of benign prostate hypertrophy had undergone transurethral resection and had osteoporosis which was under control with medication. He suffered from concomitant difficulty with micturition and urine retention about 1 week previously and an attack of progressive shortness of breath about 1 day prior to admission. Initial vital signs at the emergency department showed: body temperature, 35.8°C; respiratory rate, 21/minute; pulse rate, 117 beats/minute; and blood pressure, 74/45 mmHg. The initial serum biochemistry data revealed: hemoglobin, 15 g/dL; white cell count, 21.2 × 10^3/µL; neutrophil count, 90%; platelet count, 86 × 10^3/µL; blood urea nitrogen, 180 mg/dL; creatinine, 12.8 mg/dL; potassium, 6.9 mEq/L; and sodium, 152 mEq/L. Urine analyses revealed numerous red blood cells and white blood cells per high power field and two epithelial cells per high power field. There was no increased infiltration except for tortuosity of the thoracic aorta with atherosclerotic change on chest X-ray. Mild pylephlebitis was noted by kidney ultrasonography. Urosepsis complicated with septic shock was diagnosed, and a urine catheter was placed under the impression of urine retention. He was transferred to the intensive care unit under high dose of inotropic agent (dopamine). Meanwhile, medical therapy with intravenous piperacillin 2.25 g and metronidazole 0.5 g were administered every 8 hours. Acute renal failure and drug-intractable hyperkalemia developed soon after 1 day; thus, continuous renal replacement therapy was performed because of unstable hemodynamic status. We changed the antibiotics to ciproxin 200 mg every 12 hours intravenously on the fourth day of admission, according to the in vitro sensitivity of Proteus mirabilis which was cultured from blood. The condition stabilized and renal function returned to within the normal limit in the following days. The patient was transferred to the ordinary ward on the 10th day of admission, and the antibiotics were changed to oral form. Unfortunately, there was absence of sensation during micturition after clamping the urine catheter, despite the large amount of residual urine. Thus, the patient was discharged with the urinary catheter on the 17th day of admission.

The present case was of a 95-year-old man suffering from a life-threatening urinary tract infection (UTI) who had urine retention before. It emphasized that such a disaster as occurred in this patient could be prevented by early intervention if more attention is paid to patients with predisposing factors such as obstructive uropathy and neurogenic bladder.

UTI in the elderly patients with urinary tract abnormality or systemic comorbidity is clinically significant. Pyuria alone is not a good surrogate of UTI in this population. In contrast, the absence of pyuria is a good negative predictor. Confirmation of UTI depends on quantitative urine culture that has bacterial colony counts of over 1,000 colony-forming units/mL, which is sufficient with careful specimen collection. In the elderly, UTI could be lethal and requires prompt treatment, since the majority are asymptomatic. However, other nonspecific symptoms, such as lethargy, confusion,
anorexia and incontinence, may lead to missed or delayed diagnosis and increased morbidity and mortality. Even severe UTI may not present with fever or leukocytosis. Therefore, high level of suspicion in this population is required especially when predisposing factors are present.

Factors contributing to UTI in the elderly include age-related changes such as: decline in cell-mediated immunity; altered bladder defenses owing to obstructive uropathy; neurogenic dysfunction and increased receptivity of uroepithelial cells, an increased risk of contamination owing to fecal and urinary incontinence and urethral instrumentation and catheterization; and a decrease in prostatic and vaginal antibacterial factors associated with change in power of hydrogen. To prevent possible lethal infections in this population, self-catheterization or permanent urine catheter placement may be suitable in those with obstructive uropathy or neurogenic bladder.

References