Emphysematous pyelonephritis induced sepsis complicated with pulmonary thromboembolism

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Emphysematous pyelonephritis (EPN) is an acute severe necrotizing infection of the renal parenchyma and its surrounding tissues that results in the presence of gas. Patients with uncontrolled diabetes have a high risk of EPN. Severe EPN leads to sepsis. Activation of coagulation frequently occurs in severe infection and sepsis and may contribute to the development of thrombosis. A 61-year-old female with a medical history of hypertension, diabetes mellitus, and dyslipidemia, presented to the hospital with fever. She has already been diagnosed with EPN and sepsis at another hospital and was transferred to this hospital. On initial evaluation, both pretibial pitting edema was grade 4, her blood pressure was 143/107mmHg, pulse was 128/min, respiratory rate 22/min and body temperature was 39.0°C. Norepinephrine was given 14ug/min. Laboratory workup revealed the following data: white blood cells, 5, 300/uL; platelet 35, 000/uL; serum creatinine, 2.35mg/dL; blood urea nitrogen, 42mg/dL; HbA1c, 18.4%; serum glucose 338mg/dL; C-reactive protein, 35.57 mg/dL; D-dimer, 5.30ug/mL; Ketone body, exceeding 1000.0umol/L, and blood pH, 7.290. Her urinalysis showed proteinuria ++, urine red blood cells 10~29 of high-power field, urine white blood cells 10~29 of high-power field. Abdomen CT without contrast revealed massive air in collecting system of left kidney and ureter. Followed-up CT with contrast does not revealed only multifocal air bubbles but also non-enhancing parenchymal area (figure 1A). Antibiotic therapy was started and percutaneous catheter drainage was done many times. Initially, dyspnea was thought to be caused by metabolic acidosis and pulmonary edema, but dyspnea remained even after improvement. To check lung lesions, chest CT scans were performed at hospital day 6. CT chest revealed pulmonary thromboembolism (PTE) in left pulmonary arteries and anticoagulation therapy was started (Figure 1B). She was discharged with improved signs of infection and PTE disappeared in follow-up CT. PTE is a disease that is easily missed in diagnosis, and we want to inform physicians by introducing a rare case of emphysematous pyelonephritis accompanied by PTE.

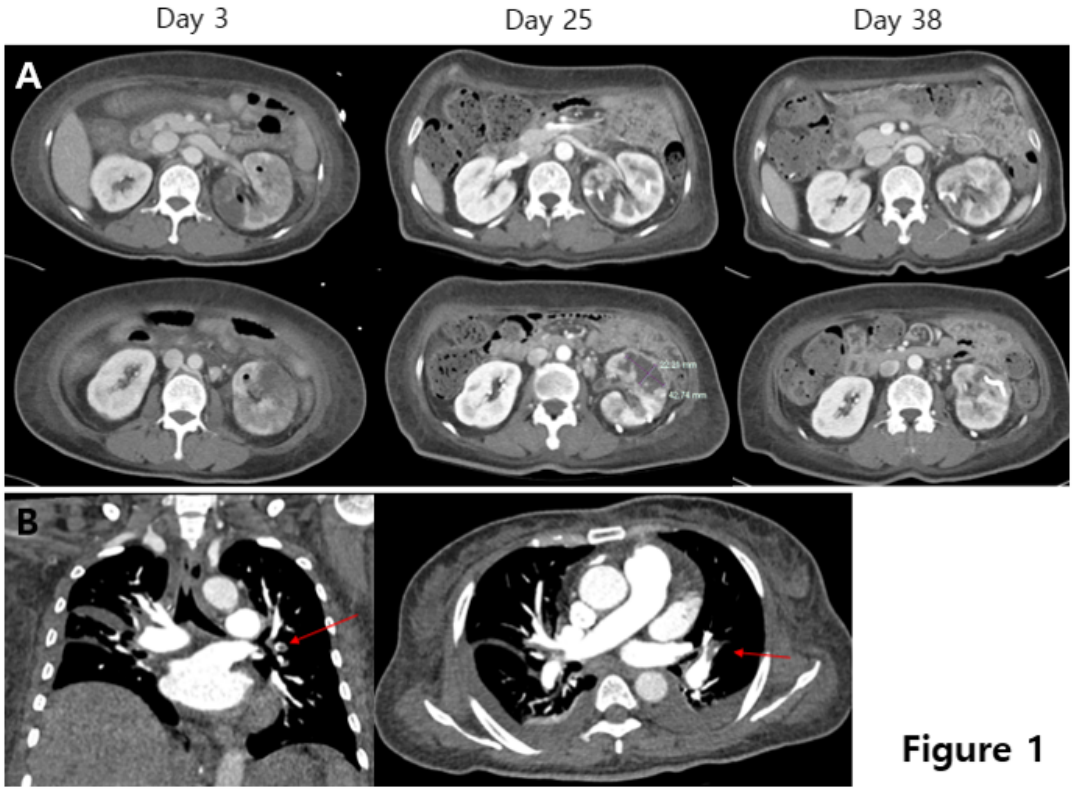

Figure 1