Clinical picture

Emphysematous pyelonephritis with flank rash

Case report

A previously healthy 56-year-old woman visited our emergency department because of fever, left flank rash for 5 days. Upon arrival, her vital signs were as followings: heart rate 98/min, body temperature 36.8°C and blood pressure 118/58 mmHg. Physical examinations revealed an erythematous patch over the left flank area and left flank knocking pain. Laboratory data showed increased white blood cell (WBC) counts (17 890/µl) and urinalysis showed pyuria (numerous WBCs/high power field). A plain abdominal X-ray revealed a left staghorn stone with air density in the calyx. Computed tomography (CT) scans of abdomen showed air collection inside the renal parenchyma, left psoas muscle and left flank area. CT scans revealed left emphysematous pyelonephritis (EPN), extending to left psoas and back muscle. Her urine culture yielded *Morganella morganii* and *Proteus mirabilis*. The patient received flomoxef and percutaneous drainage and was discharged on the 10th day. In addition, diabetes mellitus was newly diagnosed during admission.

EPN is a rare but potentially life-threatening disease that is characterized by gas accumulation in renal parenchyma or peri-renal space.\(^1\)\(^2\) It occurs mainly in diabetic patients around 90–96% and those with urinary tract obstruction.\(^3\)\(^4\) Patients with EPN usually presented with fever and flank pain, mimicking uncomplicated urinary tract infection.\(^3\)\(^4\) Air dissecting into psoas and back muscle and causing overlying skin reaction is very rare. The most common pathogen in EPN is *Escherichia coli* followed by *Klebsiella pneumoniae*, as urinary tract infection.\(^3\)
Diagnosis of EPN is difficult without the aids of imaging studies. Delay in diagnosis lead to increase morbidity and mortality. Mortality around 18–40% diagnosis based on air in renal parenchymal or perirenal space. CT is best modality for diagnosis of EPN. The treatment of EPN is strong antibiotics with adequate drainage. Selective nephrectomy should be considered in high-risk patients, combining with shock, thrombocytopenia, acute renal failure or disturbed consciousness. In our patient, antibiotic with flumarin and percutaneous drainage treat our patient successfully. Early diagnosis and adequate treatment with drainage can avoid nephrectomy.

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References