

## CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

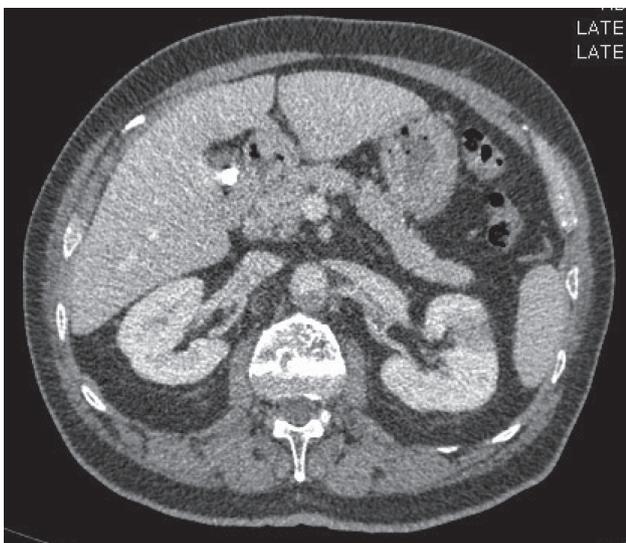
### Medical imaging Quiz – Case 64

A 25-year-old female with no past medical history presented to the emergency department with complaints of 2 days' fever and chills, left flank pain and dysuria. On examination she was in moderate distress from pain and she had left costovertebral angle tenderness. The vital signs showed a blood pressure of 126/72 mmHg, pulse rate of 95/min, respiratory rate 20/min, oral temperature 38.7 °C. Laboratory findings showed elevated white blood cell count and C-reactive protein (CRP). Urinalysis was positive for white cells, leukocyte esterase and bacteriuria.

Urine culture showed *Escherichia coli* >100.000 CFU/mL ESBL. Abdomen computed tomography (CT) revealed findings consistent with acute pyelonephritis on the left side with an area of low-attenuation (fig. 1).

#### Comments

Acute lobar nephronia (ALN) also known as acute focal bacterial nephritis is considered a midpoint in the spectrum of upper urinary tract infection (UTI) between acute pyelonephritis (APN) and intrarenal abscess and is a focal region of interstitial nephritis. ALN is a condition described mainly in pediatric patients with limited case reports in adults.



**Figure 1.** Abdomen computed tomography (CT) with intravenous contrast enhancement revealed left renal pyelonephritis with area of hypoenhancement and adjacent stranding (acute lobar nephronia).

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2020, 37(6):851–852

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ALN is defined as an acute focal bacterial nephritis and characterized by nonsuppurative focal acute bacterial infection, generally affecting one or more renal lobules. Histologically, ALN is characterized by localized hyperemia, interstitial edema and heavy leukocytic infiltration with focal areas of necrosis.

Clinical presentation including fever, flank pain and laboratory findings such as leukocytosis, pyuria, and bacteriuria are similar between patients with ALN and acute pyelonephritis, and differentiation of ALN and APN is not easy in the early stage of illness.

Diagnosis of ALN is based more on imaging than clinical presentation. The reported incidence of ALN has increased as a result of advancements in non-invasive imaging techniques of which renal ultrasonography is considered to be the best and most effective screening method. CT is recognized as the most sensitive and specific imaging modality to diagnose ALN which typically appears as wedge-shaped, poorly defined regions of decreased nephrogenic density after contrast medium administration and as mass-like hypodense lesions in the more severe form.

ALN is clinically difficult to distinguish from acute pyelonephritis and imaging plays a pivotal role in diagnosis. Imaging in adults with UTI is recommended only in certain situations; therefore, a high index of suspicion is required for the diagnosis of ALN. Timely diagnosis and treatment can prevent complications including abscess formation. Treatment of ALN requires longer duration of antimicrobial therapy than treatment for uncomplicated APN, indicating the importance of an adequate diagnosis.

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