FOCAL BACTERIAL NEPHRITIS MASQUERADING AS RENAL CELL CARCINOMA: CASE REPORT

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SUMMARY – Focal bacterial nephritis is a symptom associated with inflammation of the kidneys. It may occur in children, usually indicating abnormal urinary tract development. In adults, urinary tract infection is generally caused by gram-negative bacteria, with *Escherichia (E.) coli* accounting for 80% of all infections. This case report describes a female patient in whom *E. coli* urinary infection caused, *via* ascending route, focal bacterial nephritis masquerading as renal cell carcinoma.

Key words: Escherichia coli; *Bacterial infections; Nephritis*

Introduction

Focal bacterial nephritis (lobar nephronia) is a focal inflammatory process of the renal parenchyma affecting one or more of the renal lobules, which is believed to result from ascending infection, usually by gram-negative bacteria. Acute lobar nephronia, a term analogous to acute lobar pneumonia, refers to renal mass caused by acute focal infection without liquefaction[1]. The typical sonographic appearance of focal bacterial nephritis is a focal area of decreased echogenicity involving renal lobe, although in some cases it may present as a wedge-shaped echogenic mass[2].

Case Report

A-52-year-old woman presented with a 3-day history of fever up to 38.5 °C, dysuria, and left flank pain. Physical examination showed tenderness in the left lumbar region. Laboratory findings showed a white blood count of 7500/mm^3 and urinalysis showed 5-10 red blood cells with 10^6 *Escherichia (E.) coli*.

Ultrasonography revealed a hypoechogenic mass in the left kidney involving the parenchyma (Fig. 1). Color Doppler ultrasonography (US) showed no vascularity within the renal mass. Magnetic resonance examination after intravenous bolus injection showed a peripheral area of decreased parenchymal density in the left kidney (Fig. 2). Clinical and radiological investigation revealed hypoechogenic focal bacterial nephritis.

The patient was treated with appropriate antibiotics for two weeks and showed rapid and complete response. The patient was discharged home in stable condition. She was followed-up closely for a month and she reported no flank pain or dysuria. Follow-up imaging at 1 and 3 months showed no evidence of peripheral enhancement suggestive of focal nephritis.

Fig. 1. Ultrasonography revealed an echogenic mass in the left kidney involving the parenchyma.

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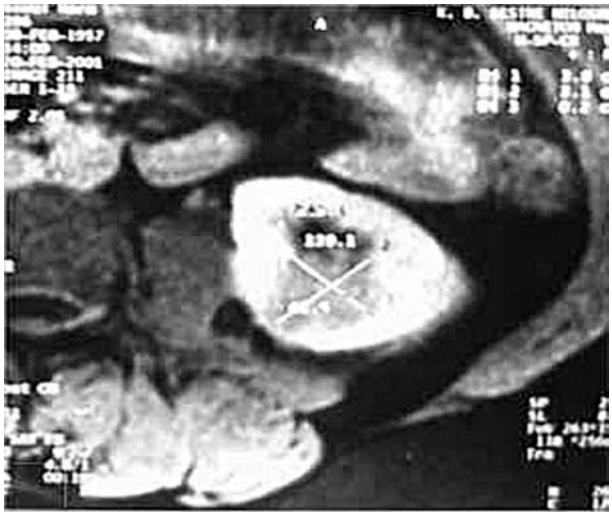

Fig. 2. Postcontrast magnetic resonance image showing a homogeneous mass in the left kidney.

Repeat magnetic resonance 3 months later showed normal left kidney with no evidence of renal mass.

Discussion

Most renal infections arise by the ascent of bacteria from the ureter, a process facilitated by the presence of obstruction, ureteric reflux or abnormality of the urinary tract; the infecting organisms are usually gram-negative bacteria. The diagnosis of acute pyelonephritis is usually based on clinical and laboratory findings, but it may be difficult, particularly in young patients, to establish the diagnosis. Acute bacterial infection of the kidney results in constriction of peripheral arterioles and reduced perfusion of involved segments, which can be identified by renal cortical scintigraphy, computed tomography and pulsed Doppler US[1]. Focal bacterial nephritis is known to produce irregularity, narrowing and obstruction of both small and large veins within the inflamed renal parenchyma on venography. This fact could explain the decreased renal perfusion in pyelonephritis and the lack of vascularity in inflammatory renal masses[2]. The characteristic US appearance of focal bacterial nephritis is that of a focal area of decreased echogenicity involving renal lobe with poorly defined margins and absence of corticomedullary definition[3]. Lobar nephronia may mimic tumor, abscess, or infection on US. An abscess or infected cyst can be sonolucent or contain echoes due to debris. If debris/fluid level is present, the diagnosis of acute lobar nephronia is excluded.

In our case, the US findings alone suggested a renal mass, although clinical and laboratory data pointed to an inflammatory renal process.

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Sažetak

FOKALNI BAKTERIJSKI NEFRITIS SLIČAN KARCINOMU BUBREŽNIH STANICA: PRIKAZ SLUČAJA

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Fokalni bakterijski nefritis je izolirana bakterijska upala bubrega i javlja se iznimno rijetko. Može se javiti u dječjoj dobi, kada je najčešće pokazatelj anomalija u razvoju urotrakta. U odraslih osoba infekcije mokraćnih puteva su najčešće uzrokovane gram-negativnim bakterijama, od kojih je za 80% svih infekcija odgovorna bakterija *Escherichia (E.) coli*. Prikazuje se slučaj bolesnice kod koje je uroinfekcija bakterijom *E. coli* uzlaznim putem izazvala fokalni bakterijski nefritis sličan tumorskoj promjeni bubrega.

Ključne riječi: Escherichia coli; *Bakterijske infekcije; Nefritis*