Case Report

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Acute xanhogranulomatous pyelonephritis with liver abscesss

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Introduction

Xanthogranulomatous pyelonephritis is a rare chronic pyelonephritis, mostly occurring in adults, with female predominance [1]. This infection is related to a total or partial obstruction of the urinary tracts and induces a loss of renal function by granulomatous destruction of the renal parenchyma. The treatment usually consists of an antibiotic therapy associated with partial or total nephrectomy, regarding the partial or diffuse involvement of the kidney [2].

Case summary

A 45-year-old woman with a history of recurrent urolithiasis was referred to the emergency department for subfebrile dyspnea with increased D-dimers and increased C-Reactive Protein. Urine culture showed elevated leukocytes with gram-negative bacilli on direct examination.

An abdominal contrast-enhanced computed tomography (CT) was performed. This examination depicted focal dilated calyces, loose of the renal outline and decreased enhancement of the upper right kidney. These abnormalities were upstream of a Staghorn calculus of the caliceal superior group. Thus, the diagnosis was segmental xanthogranulomatous pyelonephritis (Figure 1). The lower caliceal group showed a normal appearance on the different enhanced acquisitions performed, in particular no excretory delay compared to left kidney (Figure 2).

Furthermore, a non-enhanced hepatic round lesion with a large and regular capsule, measuring 78 mm, presented close relationship with the pyelonephritis, in favor of hepatic abscess (Figure 3).

The patient was first treated with double antibiotic therapy (Ceftriaxone + Metronidazole during 14 days) before a transfer in urology for derivation of hydronephrosis by a double-J probe. During the surgical procedure, purulent urines were collected. Urine culture showed a wild Proteus Mirabilis infection sensitive to amoxicillin.

Then, interventional radiologists achieved a percutaneous hepatic abscess drainage. An opacification of the abscess by the

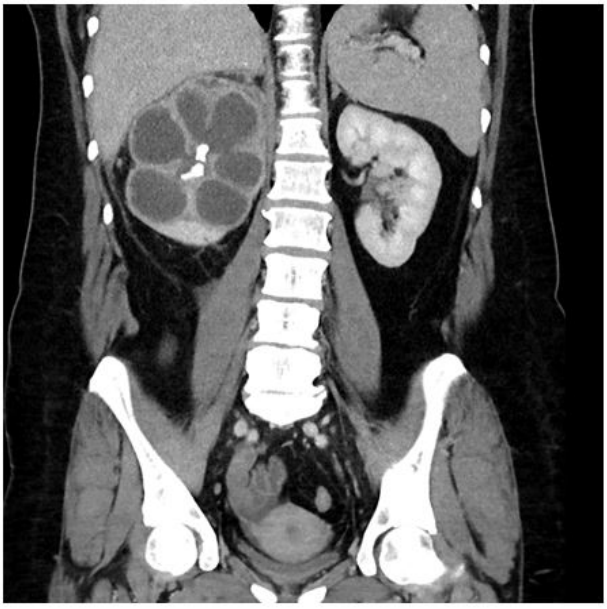

***Figure 1:** CT coronal reconstruction showing upper segmental xanthogranulomatous pyelonephritis pattern.*

***Figure 2:** CT coronal reconstruction with MIP-mode showing a defect in the excretion of the upper caliceal group.*

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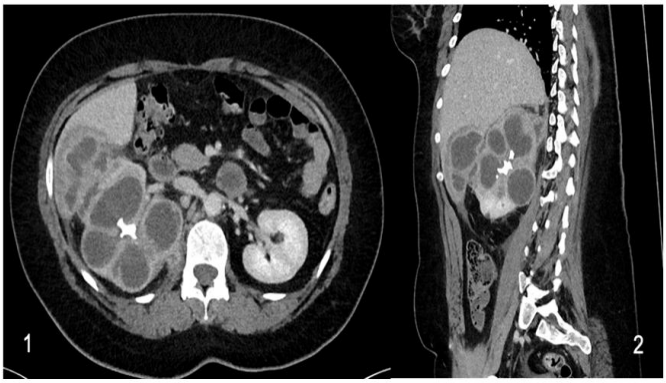

Figure 3: *Axial (1) and Sagittal (2) CT views showing a hepatic abscess in contact with the renal lesion.*

Figure 4: *3D and coronal MIP views showing the communication between the hepatic abscess and the renal lesion with opacification of the upper caliceal group and the ureter.*

hepatic drain was performed using iodine contrast media. It demonstrated an opacification of the upper calyx group of the right kidney, proving a communication between the hepatic abscess and the kidney (Figure 4).

Control CT-scan after 21 days of Amoxicillin showed favorable evolution with decreased size of the hepatic abscess without significant improvement of the kidney lesions.

Discussion

Xanthogranulomatous pyelonephritis is an infection causing granulomatous kidney parenchyma destruction due to chronic urinary tract obstruction. It is uncommon, as it represents approximately 1 % of patients referred for acute pyelonephritis [3]. It can be focal (10%) or diffuse (90%) to the whole kidney, depending on the level of urinary obstruction [4].

A staging method based on the involvement of perirenal tissues was described (Ref: Malek RS, Elder JS. Xanthogranulomatous pyelonephritis: a critical analysis of 26 cases and of the literature [5].

The differential diagnoses include renal tuberculosis, renal abscess and renal neoplasia such as clear cell renal cell carcinoma, papillary renal cell carcinoma, sarcomatoid renal cell carcinoma and leiomyosarcoma, due to enlarged renal parenchyma [1].

The most common clinical symptoms are abdominal pain, urinary functional signs, fever, or weight loss. A few previous cases showed fistulation of kidney lesions to adjacent organs: Titus et al. reported a similar case of hepatic abscess [6], while Kudalkar et al. reported a case of psoas abscess (7) and Anandh et al. a case of pleural and hepatic abscess [8].

CT-scan is the main primary diagnostic tool, which shows dilated multilobulated calyces ("bear's pow sign"), and allows the assessment of the level of obstruction and possible damage to adjacent organs [9]. Germ identification is performed with urinary samples, revealing mostly Escherichia Coli or Proteus Mirabilis infection. Pathological examination exhibits xanthomatous cells.

The treatment includes targeted antibiotic therapy as well as a partial or total nephrectomy depending on the extent of the lesions, and a preventive treatment of the causal abnormality, most often lithiasic disease [10].

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