

LETTER TO THE EDITOR

ACUTE RENAL FAILURE DUE TO BILATERAL URETERAL STONE: A RARE OCCURRENCE

I. Mocanu¹, N. Verbeeck¹, F. Prospert²

Dear Editor,

If urolithiasis is a common disease with a lifetime risk of stone development in about 12% of the population, concomitant bilateral obstructing urolithiasis causing acute renal failure (ARF) is much rarer (1).

ARF is defined as an increase of nitrogenous waste products in serum due to deterioration of renal function. There are three kinds of ARF: prerenal failure due to decreased renal perfusion, intrinsic renal failure due to nephrotoxins and, seldom, postrenal failure due to obstruction of the urinary outflow tract (2).

We present such a case of postrenal ARF due to bilateral obstructive ureteral stone.

Case report

A 55-year-old man presents to the emergency room complaining of total anuria for two days. He has no other urinary symptom such as renal colic, dysuria or hematuria. He had received a flu vaccine one week previously and has a fever (39°C) with little chills, polyarthralgia and nausea. His medication is diclofenac, a non-steroidal anti-inflammatory drug (NSAID), occasionally completed with paracetamol and aspirin, for repeated tendinitis. Physical examination shows some rhonchi at pulmonary auscultation, the rest being unremarkable. Digital rectal exam fails to show prostate anomaly. Blood pressure is at 160/60 mm Hg with a heart rate at 84 bpm. Urinalysis cannot be performed because of the total anuria. The laboratory tests reveal increased uremia (67 mg/dL) and creatinemia (7.42 mg/dL), hyperkalemia (5.4 mmol/L), hyponatremia (126 mmol/L) and hypocalcemia (8.4 mg/dL). Macrocytic anemia and thrombocytopenia are also found.

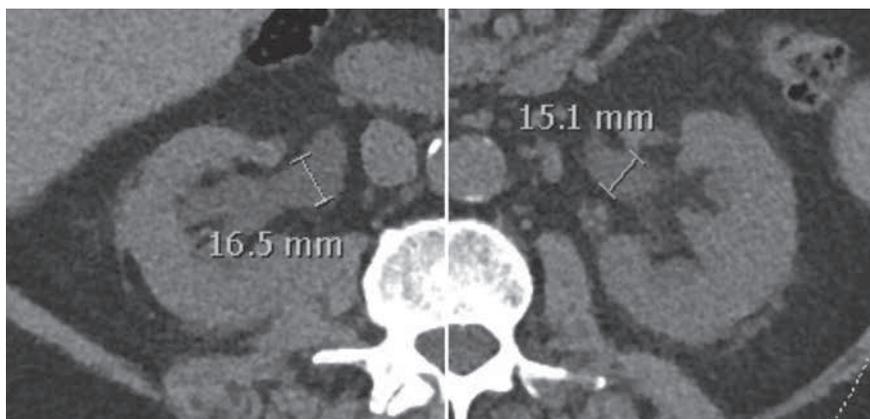


Fig. 1. — Bilateral hydronephrosis demonstrated by unenhanced CT



Fig. 2. — 3D «bone» reconstruction with the red coloured bilateral mid ureteral stone.

Prostate specific antigen level remains normal (0.26 ng/mL).

A renal ultrasonography (US) is performed and shows a slight right pyelocaliectasis with no other anomaly.

Given the chronic intake of NSAID, the ARF with total anuria without renal colic as well as the anemia and the thrombocytopenia, the patient is diagnosed with acute tubulointerstitial nephritis and likely medullar aplasia secondary to NSAID. A treatment by dialysis and corticosteroids is started.

Two days later, considering the lack of sustained improvement, a second US is done and reveals major bilateral pyelocalyceal dilation. An unenhanced computed tomography (CT) is immediately performed and displays bilateral mid ureteric stone with bilateral hydronephrosis.

The patient is then successfully treated by bilateral double J catheter.

Discussion

There are very few publications about bilateral urolithiasis causing ARF in the urological or radiological literatures. Whereas prerenal and intrinsic renal failures are responsible for most episodes of ARF (respectively 85 and 10%), ARF has a postrenal origin in only 5% of cases (2). In

the majority of the cases, bilateral ureteral obstruction resulting in ARF is due to malignant disorders such as prostate and cervix cancers or benign disorders like retroperitoneal fibrosis and prostatic hypertrophy (3, 4). Rarer causes are neurogenic bladder and bilateral clots, papillary necroses or ureteral calculi (2).

Our patient has been initially diagnosed with intrinsic ARF because of the nearly normal US and of the known link between NSAID and acute interstitial nephritis (4). Based on a second US and an unenhanced CT, final diagnosis is a rare occurrence of bilateral obstructing ureteral stone in a patient without any pain or history of kidney lithiasis.

Ultrasonography is a non irradiating technique required in ARF since it can detect stones or signs of obstruction as pyelocalyceal dilation but mid ureters remain hard to access and hydronephrosis can be missing at an early stage. Unenhanced CT of the abdomen has a high sensitivity in the diagnosis of urolithiasis (96%) and is the reference-standard examination when lithiasic obstructive uropathy is suspected (5). Moreover, Dual Energy CT is able to characterize the composition of urinary tract stones, which may have an impact for treatment. Since it remains more irradiating, we apply Dual Energy, in our Institution,

only to the segments of the abdomen where the stones are detected.

Given the rising stone prevalence due to dietary risks factors (6), ARF secondary to bilateral stone occlusion will probably become more frequent, so that we must attentively track it with US examination. Unenhanced CT must be performed in complex cases.

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Contact details of advertising firms

Bayer n.v./s.a.

Mommaertsiaan 14
1831 Diegem
Tel. 02/535.65.08
Fax 02/537.57.53
Mr. W. De Plecker

Bracco Imaging Europe n.v./s.a.

Belgian Branch
Avenue Pasteurlaan 6
1300 Wavre
Tel. 010/68 63 76
Fax 010/68 63 63
Mrs. N. Maes

GE Medical Systems

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1831 Diegem
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3020 Herent
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Fax 16 22 44 23

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