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Acute pyelonephritis revealing an intraprostatic obstructive megaureter in an adult: A rare finding

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ABSTRACT

INTRODUCTION: Duplicated renal collecting system is one of the most common congenital upper urinary tract abnormalities. Duplex system with ectopic obstructive megaureter in the prostatic urethra is rare and exceptionally revealed in adulthood.
PRESENTATION OF CASE: We present a rare case of a 72-year-old man without any previous history of urinary symptoms, admitted through the emergency department for altered general condition associated with fever for several days. Investigations have identified left complete duplex system and intraprostatic obstructive megaureter manifesting as acute pyelonephritis. The evolution of acute pyelonephritis was favorable under urine drainage by percutaneous nephrostomy tube and antibiotherapy.

Given the multiple comorbidities of the patient, radical surgical treatment by left upper pole nephrectomy was ruled out and we opted for an iterative change of percutaneous nephrostomy tube.
DISCUSSION: We briefly review the pathophysiology, diagnosis and therapeutic aspects.
CONCLUSION: Early diagnosis and treatment of complicated duplex system is important. Urologists should keep this anomaly in mind.

1. Introduction

Duplicated renal collecting system is one of the most common congenital upper urinary tract abnormalities [1]. Estimated prevalence ranges between 0.3–6% in the general population [2,3]. Although considered an anatomical variant, duplex collecting system may be complicated by vesicoureteral reflux, ureterocele, or ectopic ureter [4]. Recent progress in the fetal medical imaging makes its discovery in adulthood increasingly rare.

Here, we report a case of duplicated renal collecting system with ectopic obstructive megaureter in the prostatic urethra discovered late to adulthood.

The work has been reported in line with the SCARE: Agha RA, Fowler AJ, Saetta A, Barai I, Rajmohan S, Orgill DP, for the SCARE Group. The SCARE Statement: Consensus-based surgical case report guidelines. International Journal of Surgery 2016 [10].

2. Presentation of case

A 72-year-old Caucasian male patient admitted through the emergency department for altered general condition associated with a fever for several days. Past medical history includes: hypertension, two cerebrovascular accidents with persistent deficits and chronic alcohol consumption. The patient has no previous history of urinary tract infection or urinary incontinence. Previous renal function (creatinine and creatinine clearance) was normal. Further questioning of family members showed that the patient did not complain of hesitancy in urine flow, interrupted flow, or difficulty to start urinating which was affirmed by the patient once he was stabilized and able to provide reliable medical history.

Clinical examination at the time of admission revealed altered mental status (Glasgow Coma Scale at 9), altered hemodynamic conditions (blood pressure at 70/40 mmHg with a heart rate of 120 beats per minute), fever at 38.5 °C, signs of peripheral hypoperfusion (cold and mottled ends) and diffuse abdominal pain in addition to post-CVA deficits.

Laboratory work-up was significant for a marked leukocytosis (White Blood Cells (B) = 24,700 cells/mm3 – Polymorphonuclear leukocytes (PMN) = 21,300 cells/mm3), acute kidney injury (creatinine = 288 μmol/L – creatinine clearance = 20 ml/min/1.73 m^2)

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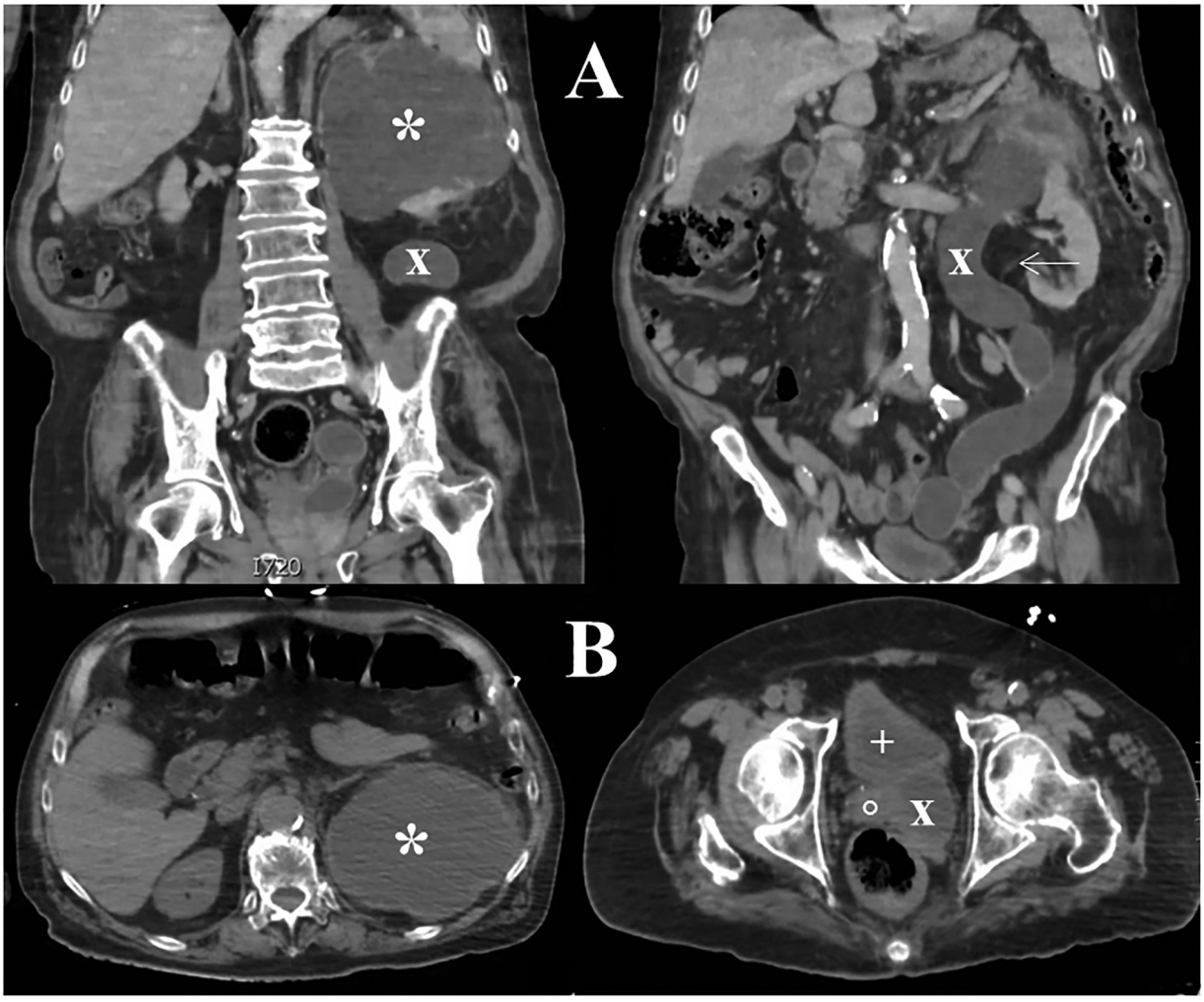

Fig. 1. CT Abdomen and Pelvis without Contrast. (A): Coronal view. (B): Axial view.
* : Hydronephrosis of the upper pole (140 mm).
x : Upper pole ureter massively dilated (30 mm).
→: Lower pole ureter thin.
O : Prostate.
+: Bladder.

and major biological inflammatory syndrome (C-Reactive Protein = 140 mg/L). Urine analysis was positive and urine culture was positive for *Escherichia coli*.

First, Patient's blood pressure was stabilized and adequate pain control was achieved. Then patient underwent Computed Tomography (CT) Abdomen and Pelvis without Contrast (Fig. 1). This CT showed left complete duplicated collecting system with ectopic obstructive upper pole ureter in the prostatic urethra. This was responsible for a significant left uretero-hydronephrosis complicated with acute pyelonephritis with severe sepsis. The transverse diameter of the ectopic ureter was 3 cm. Upper pole of left kidney was atrophic. The right kidney was normal.

Since the patient was on anti-platelet therapy, we initially considered an endoscopic drainage of urine faced with the impossibility of percutaneous drainage by nephrostomy. During cystoscopy under general anesthesia, ureteral meatus of the Lower pole was found at the level of the vesical trigone, retrograde ureteropyelography showed no dilatation. Ureteral meatus of the Upper pole was found over the prostatic utricle. 1.2 L of purulent urine was drained, but we could only set up that an endovascular probe 5F × 100 cm in the Upper pole considering the multiple siphons. This treatment was not optimal as purulent urine persisted despite the intervention.

After 5 days of discontinuation anti-platelet therapy, we performed a percutaneous drainage of the Upper pole by setting up a nephrostomy tube 8F × 35 cm.

The evolution of severe sepsis was favorable under drainage and third generation cephalosporin antibiotherapy adapted to antibiogram.

Given the multiple comorbidities of the patient, radical surgical treatment by left upper pole nephrectomy was ruled out and we opted for an iterative change of percutaneous nephrostomy tube. This practice reduces the risk of bacterial colonization and emergence of resistant bacteria. Patient was closely followed up by surgical team and ID and frequently cultured to adjust the antibiotic therapy accordigly.

After several hospitalizations for recurrence of acute left pyelonephritis, patient died of septic shock 9 months later.