CLINICAL IMAGE

Renal abscess complicated by duodenal obstruction in a patient with obesity and type 2 diabetes mellitus treated with gliflozin

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Acute mechanical small bowel obstruction is a common surgical emergency, which typically results from intra-abdominal lesions, usually in patients with a history of prior surgery.¹ According to the literature, duodenal obstruction very rarely results from pathologies in the retroperitoneal space. There have been a few reports on this complication as a manifestation of polycystic kidney diseases,² but we were unable to find a description of duodenal obstruction in an unoperated patient with a renal abscess.

A 42-year-old woman presented to our hospital with fever up to 39°C, right flank pain, nausea, vomiting, and diarrhea (up to 12 stools per day, including some containing blood. During the preceding month, her weight reduced by 20 kg, down to 160 kg. She denied dysuria but mentioned urinary incontinence and recurrent urinary tract infections. She reported taking medications recommended in type 2 diabetes mellitus³: metformin, canagliflozin, gliclazide, and also levothyroxine and allopurinol. Her heart rate was 100 bpm; blood pressure, 120/90 mm Hg; respiratory rate, 20 breaths/min, and oxygen saturation, 94% on breathing ambient air. Morbid obesity (body mass index, 67 kg/m²) was notable. There were no signs of obstruction or acute abdomen. Of note, the patient did not pass gas and stool following admission. Laboratory studies revealed elevated inflammatory markers with a white blood cell count of 19200/ mm³ (81% neutrophils) and C-reactive protein concentration of 133.6 mg/l (normal range, 0 to 10 mg/l). Urinalysis was indicative of an infection. Blood and urine cultures were drawn. Plain abdominal radiography showed a short air-fluid level in the mesogastrium, with no apparent signs of obstruction. Abdominal ultrasound was nondiagnostic. Subsequently, contrast-enhanced computed tomography was performed, revealing a fluid collection with enhancing wall, probably originating from the right kidney's upper pole, with concomitant infiltration involving the duodenum and causing its obstruction (FIGURE 1A).

A diagnosis of renal abscess complicated by duodenal obstruction was made. Computed tomography-guided drainage was performed (FIGURE 1B). In cultures obtained from urine and abscess, extended-spectrum-beta-lactamases producing *Escherichia coli* were identified. Meropenem (1 g 4 times daily) and amikacin (1 g once daily) were introduced. The patient's condition improved, with fever resolution and reduction in the volume of drained pus. Oral fluids and diet were gradually restored. Subsequently, drainage was removed, dietary consultation was provided, canagliflozin was replaced with linagliptin (the patient refused subcutaneous injections), and the patient was discharged.

Diabetes is one of the most common predisposing states to genitourinary infections,⁴ and their risk may be augmented by use of gliflozins (sodium-glucose transport protein 2 inhibitors), a novel group of molecules commonly used in clinical practice in patients with diabetes.⁵ Risk of urinary tract infections should be considered before treatment initiation. In the presented case, obesity, poor diabetes control, gliflozin, and prolonging infections led to duodenal obstruction, which is an uncommon manifestation of renal abscess. Considering that anorexia, nausea, and vomiting are common symptoms of renal abscess, and that the workup was hampered by the patient's obesity, the diagnosis was not obvious. The computed tomography scan enabled us to establish the diagnosis and introduce an appropriate treatment.

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FIGURE 1 A – contrast-enhanced abdominal computed tomography, venous phase; an abscess (black arrow) adjacent to the lower border of the liver and inflammatory infiltrate (white arrow), causing narrowing of the duodenum (grey arrow) with its prestenotic widening; B – a 6F pigtail drain (white arrow) inserted percutaneously under computed tomography guidance, which led to removal of 70 ml of pus. Decrease in volume of the abscess, along with antimicrobial therapy, released the pressure from the duodenum—no stenosis is visible (grey arrow). No concomitant pathologies were revealed.

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