Never underestimate renal colic: a case of pelvic rupture

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Abstract

Authors describe a case of pelvic rupture as a consequence of renal colic. Pelvic rupture is an unusual condition that often is not considered in patients suffering renal colic. In this case diagnosis was not considered on ultrasonography, it was suspected when acute abdominal symptoms began and it was confirmed by computed tomography.

Introduction

Spontaneous rupture of the renal pelvis with urine extravasation into peripelvic and retroperitoneal spaces is not a common pathologic event. Symptoms may be various, going from mild diffuse pain, typical renal colic to acute abdomen, so that diagnosis is often delayed. It is due, in most cases, to an ureteral obstruction by calculus; other causes are trauma, tumors, pregnancy, diagnostic and interventional procedures.1-4 Diagnosis, as reported in literature, is often difficult and has to be differentiated with numerous causes of abdominal pain due to involvement of perirenal abdominal structures and organs. It is usually recognized with a contrast-enhanced computed tomography (CT) showing passage of contrast medium into peripelvic, perirenal and retroperitoneal spaces.5 Few cases are reported in literature6 and we report our experience in a case diagnosis was not considered on ultrasonography, it was suspected when acute abdominal symptoms began and it was confirmed by computed tomography.

Case Report

A 61-year-old man presented in our Emergency Room (ER) complaining of diffuse abdominal pain. Two days previously he had suffered from a sudden severe typical renal colic pain with vomiting and sweating.

In his past history he had been affected by hypertension, gastroesophageal reflux disease, right renal calculi treated with a temporary stent implantation because the location of stones did not allow him to be treated with extracorporeal ultrasound.

Renal colic, immediately recognized by the patient, was treated at home with intramuscular administration of diclofenac and subsequently, due the resumption of pain, with some intravenous infusions of spasmylic, ketorolac, ranitidine at home. The next day, the pain disappeared and a renal echo was performed showing no pelvic dilatation nor renal-ureteral stones. However, in the evening, diffuse abdominal pain began with difficulties to get rid of fæces and gas. Moreover, poor diuresis was noted in spite of much liquid being administered. Next morning, the patient enters our ER. Physical examination reveals an alert and collaborating patient with stable vital parameters, tight but handling abdomen, closed for faeces and gas, rectal digital exploration negative for fecal impaction; an abdominal ultrasound confirmed the presence of a radiopaque ureteral stone about 7mm large.

Because of sudden evolution of symptoms, immediately a double J ureteral stent is delivered and antibiotic therapy with piperacillin and tazobactam i.v. is prescribed: so there is a prompt resolution of symptoms. Also, laboratory exams, after peaking on the second day, quickly normalize. After a week on antibiotic infusional therapy, a CT-scan is performed to verify a good stent position (Figure 2) no trace of the stone is noted and the patient is discharged and advised to continue oral antibiotic therapy with ciprofloxacind for seven days. After two months, the stent is successfully removed without any complications.

Discussion

Spontaneous rupture of renal pelvis is an unusual event that is difficult to recognize because of its painful abdominal symptoms and the possibility of further complications due to peritoneal involvement and the development of a septic state. Its recognition is diagnostically challenging (taking into account that in literature a delayed diagnosis is reported in over 50% of cases11) and may be life-saving.

Clinical presentation may be aspecific, often indistinguishable from a simple renal colic and the prognosis depends on underlying disease, degree of renal damage, location of rupture and infection occurrence.12

An accurate medical history is mandatory as well as a careful clinical examination. We want to stress the importance of the differential diagnosis in an emergency setting, because it is fundamental to treat patients with this condition as soon as possible.

In some cases symptoms mimic pain related to other abdominal pathogenesis, such as pylonephritis, appendicitis, duodenal ulcer, biliary colic and cholecystitis.

Rupture of renal pelvis very often occurs in the setting of trauma, cancer, invasive or diagnostic procedures (the risk of extravasation during i.v. pyelogram is about 3% without any obstruction, while the risk increases from 5 to 33% when an obstruction is present) and also

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may be due to benign extrinsic compression of the ureter by a gravid uterus (it is rarely seen and is a significant complication in pregnancy). In absence of such conditions, spontaneous rupture at any level of urinary collecting system is generally due to an obstruction of urinary tract by calculus, with sudden increase of intraluminal pressure and this can cause rupture of its thin wall.

In our patient, absence of hydronephrosis on the ultrasound scan due to extravasation of urine in the perirenal space, observation of diverticula, peritoneal involvement and fever, at first confused the diagnosis, attributing it towards diverticulitis or other causes of acute abdomen or fever. In fact, clinical presentation in ER really was difficult to recognize because the renal symptoms were less intense while symptoms related to peritoneal involvement and incipient sepsis developed.

But, keeping in mind the most important initial clinical sign, that is typical renal calculotic pain complained of by patient at home and oliguria, the investigation continued with a contrast-enhanced CT making diagnosis clear. Subsequently, timely antibiotic and percutaneous interventional therapies have permitted pelvis detension and sepsis treatment.

In case of small ruptures a double J stent implantation or percutaneous nephrostomy is suitable; in the case of large ruptures a surgical intervention is mandatory. Dimensions of kidney calculus are important for its evolution: in fact small urinary stones (<4 mm) are ejected in 30-40 days; stones > 5 mm need an intervention (lithotripsy, ureteroscopy for ureterolithotomy) in over 50% of cases in a second step.

**Conclusions**

In conclusion, in a patient showing symptoms of renal colic with peritonitis syndrome and/or overlapping fever, one must keep in mind the possibility of a urinary tract rupture because a delayed diagnosis may be life-threatening for the patient.

**References**