Rare disease

Ruptured renal calyx mimicking leaking abdominal aortic aneurysm

Benjamin Allin,¹ Andrew Chetwood,² Bijan Khoubehi,² Ranan DasGupta³

¹Accident and Emergency Department, Chelsea and Westminster Hospital, London, UK

²Department of Urology, Chelsea and Westminster Hospital, London, UK

³Department of Urology, Imperial Healthcare NHS Trust, London, UK

Correspondence to Dr Benjamin Allin, benjaminallin@doctors.org.uk

Summary

The case of an 81-year-old man with a known 5.2 cm abdominal aortic aneurysm (AAA) and transitional cell carcinoma of the bladder who presented to the emergency department in painful clot retention is described. Approximately 5 h after starting bladder irrigation he developed a sudden onset of severe abdominal pain radiating to his back. Urgent CT scan (AAA protocol) revealed a rupture of the lower pole calyx of his right kidney and a stable aneurysm. Bladder irrigation was stopped and the patient settled with a catheter and simple analgesia. Given his significant co-morbidities, it was felt that surgical intervention for the underlying malignancy was inappropriate and the patient was discharged home. At last outpatient review, his renal function was at its baseline and he was suffering no ill-effects from the ruptured kidney.

BACKGROUND

Spontaneous renal rupture is very rare. It has been documented previously in patients with known pyonephrosis, renal stones and rarely malignancy, but to our knowledge has not been seen in relation to the use of bladder irrigation (figure 1). As urologists, we are constantly wary of the ruptured abdominal aortic aneurysm (AAA) mimicking ureteric colic and the catastrophic consequences of missing this diagnosis. However, we felt that this interesting case provided an unusual example of where a patient presenting acutely with symptoms of a ruptured AAA in fact had a urological cause for their symptoms.

Figure 1 Coronal section showing right sided ruptured renal calyx and left sided hydronephrosis.

CASE PRESENTATION

We describe an 81-year-old gentleman who presented to A&E with clot retention. He was an ex-heavy smoker and drinker with a known transitional cell carcinoma of the bladder for which he had undergone two trans-urethral resections. His past medical history included ischaemic heart disease, peripheral vascular disease and a 5.2 cm AAA. His mobility was poor, being limited by both claudication and osteoarthritis.

Following insertion of a three-way irrigation catheter, bladder irrigation was commenced in A&E with the patient initially passing clots followed by rose and then clear urine. Five hours after irrigation was begun, the patient suddenly developed severe tearing central and right-sided abdominal pain spreading through his back. He was tachypnoeic and tachycardic, but although tender throughout and with a large easily palpable pulsatile, expansile mass in the left upper quadrant, his abdomen was soft. His blood pressure remained stable at 140 systolic.

INVESTIGATIONS

Because of his symptoms and history an urgent CT aortogram was performed to rule out aneurysmal leak. While this revealed an increase in the size of the aneurysm, no leak was identified. However, extravasation of contrast around the inferior pole of a hydronephrotic right kidney was noted, with accompanying free fluid in the right upper quadrant, right iliac fossa and posterior pelvis. As per previous CT scans, significant bladder wall thickening was noted involving both vesico-ureteric junctions but local progression of the disease was identified.

DIFFERENTIAL DIAGNOSIS

The admitting diagnosis for this patient was clot retention secondary to haematuria from his bladder cancer. However, it was the reason for his sudden onset of severe

Figure 2 Coronal section showing abdominal aortic aneurysm.

abdominal pain that was of more concern. Despite remaining haemodynamically stable the primary differential diagnosis was a ruptured AAA (figures 2 and 3).

TREATMENT

It was felt that ongoing bladder irrigation may have increased pressure in his upper urinary tract and led to worsening of the extravasation of fluid from the ruptured kidney and hence this was stopped. The catheter was left in situ to allow decompression of the obstructed system and prevent a recurrence of the patient's initial clot retention. In the long term, following discussion at the local multi disciplinary team (MDT) and with the patient, a palliative approach was adopted, both for his bladder cancer and for his AAA.

Figure 3 Transverse section showing ruptured renal calyx and abdominal aortic aneurysm.

OUTCOME AND FOLLOW-UP

The patient's pain settled well with simple analgesia and he was discharged home without any serious consequences from the calyceal rupture. The community palliative care services ensured optimal symptom control from the bladder tumour. Although no surgical input is planned, he continues to be followed up by both urologists and vascular surgeons.

DISCUSSION

In previously reported cases, spontaneous renal rupture has most commonly been seen in association with underlying pyonephrosis/hydronephrosis, occasionally with renal stones and very rarely with underlying malignancy.^{1,2} There are approximately 50 cases of rupture associated with malignancy reported, most commonly in patients with a sarcomatoid neoplasm.³ In almost all identified cases there has been an element of chronic infection or obstruction,⁴ with most patients presenting post-rupture with symptoms of generalised peritonitis.⁵

While our patient fits with these cases in that he had a degree of chronic obstruction and an underlying malignancy, both the way in which he presented, with symptoms of a rupturing AAA and the way in which the rupture appeared to be triggered by bladder irrigation appear unique. We feel that the large underlying tumour bulk was a pre-disposing factor in the rupture, but that the bladder irrigation may have contributed to rupture of a kidney already weakened by chronic hydronephrosis.

Learning points

- ▶ That although rare, renal rupture should be considered in patients presenting with severe abdominal pain on the background of a known obstructed system.
- ▶ That care should be taken when initiating bladder irrigation for patient's with a known urological malignancy, especially those with large tumour bulk or multi-focal disease.
- ▶ That while 'renal colic' is often an indicator of a rupturing abdominal aortic aneurysm, sometimes, abdominal pain in a patient with significant urological disease does in fact represent a urological problem.

Competing interests None.

Patient consent Obtained.

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