

Massive hematuria due to ruptured iatrogenic aortic pseudoaneurysm: A case report

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Summary

We report an interesting case of massive haematuria secondary to a rupture of a pseudoaneurysm of the abdominal aorta below the renal vessels. A 65-year-old woman presented at our institution with a painful massive haematuria and anaemia. Two months before, she undergone a pelvic surgery complicated by an accidental injury of the right ureter sutured with a end-to-end anastomosis. An abdominal computed tomography (CT) scan with intravenous contrast showed a right-sided hydronephrosis with clots in the lumen of the right pelvis with a massive retroperitoneal hematoma due to a rupture of a iatrogenic pseudoaneurysm of the abdominal aorta below the origin of the renal arteries.

KEY WORDS: Haematuria; Aortic pseudoaneurysm; Pelvic surgery.

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INTRODUCTION

Rupture of an aneurysm of the retroperitoneal or pelvic vessels represents an extremely rare cause of macroscopic haematuria (1, 2). The diagnosis is difficult but should be considered whereas conditions as neoplasms, lithiasis or infections have been excluded and there is a history of retroperitoneal/pelvic surgical treatment.

CASE REPORT

In the present report, we describe the case of a 65 years-old-woman who underwent a diagnostic laparoscopy for a suspected ovarian cancer. The procedure consisted in a peritoneal washing, right oophorectomy and multiple biopsies of the right and left diaphragmatic dome of the peritoneum with an intraoperative diagnosis of peritoneal carcinomatosis. The histological examination confirmed the presence of an ovarian serous carcinoma. The patient underwent an operative laparoscopy with extrafascial radical istherectomy, left oophorectomy, pelvic peritonectomy and pelvic-lomboarctic lymphadenectomy. During the procedure the right ureter was acciden-

tally injured; therefore a laparotomic surgery has been required and an end-to-end ureteral anastomosis with placement of a renovesical "JJ stent" was performed.

The stent was removed after 45 days and after 65 days from surgery the patient presented at our institution with massive haematuria and severe anaemia (haemoglobin 7.6 g/dl, haematocrit 23%). Bladder irrigation was initiated and cystoscopy showed a little clot from the right ureteric orifice in the absence of urothelial bladder lesions: a right ureteral catheter was inserted, some clots were removed from the right pelvis and a right retrograde pyelography showed the dehiscence of the ureteral anastomosis with a mild passage of contrast medium in the left retroperitoneum; thereafter, a second renovesical "JJ stent" was inserted.

An abdominal computed tomography (CT) scan was performed: we noted a right-sided hydronephrosis with clots in the lumen of the right pelvis and the presence of a massive hematoma between the abdominal aorta and the vena cava, ahead the ileo-psoas muscle in the left retroperitoneum (Figure 1); after the administration of

Figure 1.

Non-enhanced abdominal CT scan in the axial plane showing a right-sided hydronephrosis with clots in the lumen of the right pelvis.

**Figure 3.**

Contrast enhanced abdominal CT scan in arterial phase (MIP-reconstruction in oblique coronal plane) showing the pseudoaneurysm below the right renal artery in the context of a massive retroperitoneal hematoma.



the intravenous contrast (arterial phase), we noted the presence of a breach of the right wall of the abdominal aorta, 4 cm below the origin of the renal arteries, with a large loculated pseudoaneurysm (axial diameters 37 x 22 mm) (Figures 2-3) in the right retroperitoneum with a massive hematoma due to a recent rupture of the aneurysm. Hematuria caused by an aorto-ureteral fistu-

la due to the rupture of a iatrogenic pseudoaneurysm of the abdominal aorta was diagnosed and, after consulting the vascular surgeon, the patient underwent an urgent placement of aortic endoprosthesis. Afterwards, the hematuria was controlled. A further CT exam showed the correct positioning of the prosthesis and the patient was discharged with ureteral stent.

Figure 2.

Contrast enhanced abdominal CT scan in arterial phase (MPR-reconstruction in oblique axial plane) showing the abdominal aortic pseudoaneurysm in the context of a massive retroperitoneal hematoma. Note the metallic clip utilized during pre-aortic lymphadenectomy and the right ureteral stent (red arrow).



DISCUSSION

We described an extremely rare cause of macroscopic hematuria due to the rupture of a iatrogenic pseudoaneurysm of the abdominal aorta. The recent uretero-uretero-anastomosis due to the accidental injury of the ureter was the obligatory condition in order to have an aorto-ureteric fistula after the rupture of the aneurysm. The iatrogenic injury of the aortic wall during the lymphadenectomy may explain the pseudoaneurysm. Surgical treatment procedures like vascular reconstructive surgery or retroperitoneal/pelvic surgery for urogynecologic or abdominal malignancies represent conditions with a potential risk for a hemorrhagic fistula from an artery into the urinary outflow tract; furthermore, previous radiation therapy or presence of aortic or iliac aneurysm may represent a potential risk conditions for the development of a fistula between an artery and the urinary tract; in the latter cases the pathophysiology is unclear but seems to be related to the inflammatory reaction around the aneurysm caused by surgery, radiation, malignancy, pulsatile trauma with the fixation and subsequent perforation of ureteral or bladder wall (1, 2). Also the endourological treatment such as holmium laser endoureterotomy or acucise ballon endopielotomy for ureteropelvic junction obstruction may represent a rare cause of iatrogenic arterio-urinary fistula (3). In the present case, hematuria represented the sole symptom. However the passage of the clots in the renal pelvis and ureter could have been the cause of the abdominal pain. In literature is anecdotally reported that, in the absence of

a correct diagnosis of the arterio-ureteral fistula, a nephro-ureterectomy has often been performed, in emergency and life-threatening cases (2, 4); however, it is clear that the goal of the treatment is to solve the vascular lesion. Open or endovascular procedures generally allow to stop the hematuria even if postoperative morbidity and mortality still remains high but less than thirty years ago.

In conclusion, the present case report represents a rare cause of massive hematuria due to a double iatrogenic surgical injury of the aortic wall and the right ureter. After the initial rupture of the pseudoaneurysm (with subsequent spontaneous closing), a massive hemorrhage of the retroperitoneum and the dehiscence of a recent uretero-ureteral anastomosis caused a massive aorto-ureteral fistula that was promptly corrected by the placement of aortic endoprosthesis.

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