CASE REPORT

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

Valerio Vagnoni 1, Caterina Gaudiano 2, Giovanni Passaretti 1, Riccardo Schiavina 1, Eugenio Brunocilla 1, Cristian Vincenzo Pultrone 1, Marco Borghesi 1, Giuseppe Martorana 1

1 Department of Urology, University of Bologna, S Orsola-Malpighi Hospital, Bologna, Italy; 2 Department of Radiology, Bologna, S Orsola-Malpighi Hospital, Bologna, Italy.

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 hydrenephrosis 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-year-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 hysterectomy, left oophorectomy, pelvic peritoneectomy and pelvic-lomboaortic lymphadenectomy. During the procedure the right ureter was acidentally 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 hydrenephrosis 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 ilio-psoas muscle in the left retroperitoneum (Figure 1); after the administration of
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 fistula 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.

**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 uro-gynecologic 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 endoureterolithotomy or acuice ballon endopelitotomy for ureteropelvic junction obstruction may represent a rare cause of iatrogenic artero-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 anecdotaly 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 mor-
tality 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 place-
ment of aortic endoprosthesis.

REFERENCES
1. Honma I, Takagi Y, Shigyo M, et al. Massive hematuria after cy-
toscopy in a patient with an internal iliac artery aneurysm. Int J
2. Bergqvist D, Parsson H, Sherif A. Arterio-Ureteral fistula - a sys-
clinical trial investigating the use of a fluoroscopically controlled
cutting balloon catheter for the management of ureteral and
artery pseudo-aneurysm into a ureter - Case Report. Eur J Vasc

Correspondence
Valerio Vagnoni, MD (Corresponding Author)
vagno07@libero.it
Giovanni Passaretti, MD
giovannipassaretti@hotmail.it
Riccardo Schiavina, MD
rschiavina@yahoo.it
Eugenio Brunocilla, MD
Eugenio.brunocilla@unibo.it
Cristian Vincenzo Pultrone, MD
cristian28@libero.it
Marco Borghesi, MD
Mark.borghesi@gmail.com
Giuseppe Martorana, MD
Giuseppe.martorana@unibo.it
Department of Urology, University of Bologna,
S. Orsola-Malpighi Hospital, via P. Palagi 9 - 40138, Bologna, Italy
Caterina Gaudiano, MD
Department of Radiology, Bologna,
S. Orsola-Malpighi Hospital, via P. Palagi 9 - 40138, Bologna, Italy
Caterina.gaudiano@ao.sp.bo.it

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