LIFE THREATENING RETROPERITONEAL HEMATOMA: RENAL CYST RUPTURE INDUCED BY LAPAROSCOPY?

TUNA MUT1, MEHMET ÇETINKAYA1, RÜŞTÜ TÜRKAY2, NEŞAT ÇULLU3, LEYLA TEKIN4

1Training and Research Hospital of Mugla Sıtkı Koçman University, Department of Urology, Mugla/Turkey - 2Çekirge State Hospital, Department of Radiology, Bursa/Turkey - 3Training and Research Hospital of Mugla Sıtkı Koçman University, Department of Radiology, Mugla/Turkey - 4Training and Research Hospital of Mugla Sıtkı Koçman University, Department of Medical Pathology, Mugla/Turkey

ABSTRACT

We report a case of spontaneous renal cyst rupture which ended up as a life threatening retroperitoneal hematoma. A 61 year-old female patient was admitted to our Department suffering from severe left flank pain due to massive hemorrhage caused by a left renal cyst rupture possibly after a laparoscopic intervention. Spontaneous renal cyst rupture is a very rare event but it may be a life threatening condition when it is associated with massive bleeding.

Key words: Retroperitoneal hematoma, renal cyst, laparoscopy.

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Introduction

Spontaneous retroperitoneal hemorrhage (SPH) is a rarely encountered clinical condition. Etiologies as well as the pathophysiological mechanisms of this rare event are unclear. Renal cell carcinoma (RCC), angiomylipoma (AML) and cysts are considered as the usual underlying reasons. While the overall prevalence of AML causing SPH is up to 10%, for RCC this rate is around 0.3-1.4% (1,2). On the other hand, abdominal diseases such as abdominal aortic aneurysm, adrenal gland disorders and pancreatitis may represent the minority of the etiologic spectrum. Herein, we give the clinical details of a patient who was treated in our hospital due to a retroperitoneal bleeding and was initially misdiagnosed as pyelonephritis.

Case presentation

A 61 year-old female patient was admitted to our clinic suffering from sudden-onset left flank pain. Past medical history was unremarkable. There was no history of trauma or renal disease. She denied using any drugs with anticoagulant activity nor had any family members suffering from bleeding diathesis. Apart from left costovertebral angle tenderness, physical examination findings were normal. Her initial laboratory test results; showed a mild leukocytosis (leucocytes count: 14800/mm3), anemia (hemoglobin: 11 g/dl, hematocrit: 34%) and spot urine sample positive for pyuria. Ultrasonography revealed a suspicious hypoechoic area, which was located in the lower pole of the left kidney, measuring 30x40 mm in its greatest dimension. This finding was reported to be a focal pyelonephritic focus which seemed adequate to explain the whole clinical picture. Upon admission to our clinic, her vital signs were as follows: blood pressure: 102/57 mmHg, pulse rate: 103 beats/min, respiratory rate: 24/min and core temperature: 37.1 °C. Physical examination confirmed left costovertebral angle tenderness. She was hospitalized for pain stabilization and treated with wide-spectrum antibiotics, after obtaining urine sample for culture and antibiotic sensitivity testing.
Afterwards, her pain increased in intensity and radiated to cover the left upper quadrant. Repeated blood count revealed a major drop in hemoglobin (7.3 g/dl) and hematocrit (21%). Ultrasonography confirmed the presence of a 51*65 mm mass bulging from the lower pole. Computerized tomography demonstrated a dense fluid containing cyst originating from the upper pole and filling the pararenal region. Additionally, there was a contour disorganization on the inferoposterior aspect, being suspicious for a parenchymal rupture or laceration (figure 1).

A total of 5 units of packed red blood cells and 3 units of fresh frozen plasma were transfused. Hematoma showed a minimal expansion on repeated CT scan. However, hemodynamic findings as well as hemoglobin and hematocrit values remained stable. Further inquiry of the patient’s medical history clarified that she underwent a laparoscopic cholecystectomy one month earlier. Abdominal ultrasonography, which was performed before cholecystectomy, showed a 29*30 mm, complex cystic lesion which deserved further investigation by means of a magnetic resonance imaging (MRI) as reported by the radiologist, but it was not performed (figure 2).

Considering aforesaid, the patient underwent to a contrast enhanced MRI, revealing the etiology of retroperitoneal hemorrhage of this particular case. There was a complicated cyst that ruptured from its inferior aspect and contained a contrast enhancement on its superior side (figure 3).

Based on these findings she was scheduled for renal exploration. During the operation, the massive perirenal hematoma (15 cm) rendered any kind of nephron-sparing surgery impossible. Therefore, we performed radical nephrectomy and the contrast enhancement of the cystic mass figured out as a solid component which was reported to be a Fuhrman grade 2, clear cell RCC on final histopathologic examination (figure 4, 5).

Discussion

Massive spontaneous retroperitoneal hemorrhage is a relatively rare event most of the cases
have a predisposing renal or extra-renal disorder. The definitive etiology remains ill-defined in the majority. Vascular malformations, medications with anticoagulant or antiplatelet activity drugs, pyelonephritis, urinary tract calculi, glomerulonephritis or renal cysts may lead to retroperitoneal bleeding of renal origin²⁰.

Renal cysts are quite common and their incidence increases with aging. About 50% of the people over 50 years of age are affected with this disease¹. They are usually asymptomatic and often diagnosed incidentally on imaging studies that are ordered for non-urologic complaints. Unlike simple renal cysts, complicated cysts possessing certain radiologic features (contrast enhancement, thick and calcified septa formations) may be considered as pre-malignant. However, spontaneous rupture of a renal cyst, either benign or malignant appearing, is an uncommon phenomenon and its mechanism is not clearly understood.

Urinary tract infection or other pathologies inducing inflammatory changes along the urinary tract can lead to a rise in pyelocalyceal system pressure which in turn effects the intracystic pressure. The cyst wall, which has been weakened by the inflammatory changes, may disintegrate as soon as the pressure inside the cystic cavity rises¹⁰.

Increased intraabdominal pressure may also lead to renal cyst rupture. During laparoscopic procedures, intraabdominal pressure is usually increased to a level of 12-14 mmHg for the sake of pneumoperitoneum maintenance. Additionally, patient positioning during certain abdominal surgeries (flank position, steep trendelenburg) may augment the pressure effect on the renal tissue.

A PubMed search revealed no other reports considering that “complicated” cysts could be more prone to rupture with such external forces than simple cysts. In our patient, given the absence of any traumatic insult or a predisposing medical condition, cyst rupture can be attributed to the intraabdominal pressure changes due to the previous laparoscopic intervention.

Conclusions

Renal cystic masses with suspicious ultrasonographic features should be investigated with contrast enhanced tomography and/or magnetic resonance imaging. The durability of complex versus simple cysts against intraabdominal pressure changes may be a subject of future studies but so far it is necessary to keep in mind that laparoscopic interventions may induce the destabilization of renal cystic masses.

References