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Case Report

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Renal subcapsular hematoma secondary to coronary angiography

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ARTICLE INFORMATION

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The authors declare no competing interests

Acronym
RSH: renal subcapsular hematoma

ABSTRACT
A 72-year-old woman, with a history of stable effort angina, who was performed, after presenting a non-ST segment elevation acute coronary syndrome, a conventional coronary angiography (invasive) that evidenced the multivessel coronary artery disease with significant stenosis of the left main coronary artery, therefore, a surgical treatment was decided. At 70 minutes she presented pain in the left side and ipsilateral lumbar region, nausea and vomiting. The initial physical examination evidenced a palpable, painful mass in the left side. The tomography showed the presence of a left subcapsular renal hematoma. To the acute abdomen pattern was added a hypovolemic shock, thus, the patient underwent surgery, confirming the tomographic diagnosis and performing a nephrectomy. This particular case presented predisposing factors for spontaneous and traumatic cause; however, based on the findings in the anatomopathological study, the conclusion was a renal subcapsular hematoma of traumatic origin.
Keywords: Acute abdomen, Coronary angiography, Hematoma, Kidney, Nephrectomy

Hematoma renal subcapsular secundario a angiografía coronaria

RESUMEN
Mujer de 72 años de edad, con antecedentes de angina de esfuerzo estable, a quien tras presentar un síndrome coronario agudo sin elevación del segmento ST, se le realizó angiografía coronaria convencional (invasiva), donde se evidenció enfermedad arterial coronaria multivaso con estenosis significativa del tronco coronario izquierdo y se decidió tratamiento quirúrgico. A los 70 minutos presentó dolor en el flanco izquierdo y región lumbar ipsilateral, náuseas y vómitos. Al examen físico inicial se evidenció masa palpable, dolorosa, en flanco izquierdo. La tomografía demostró la presencia de un hematoma renal subcapsular izquierdo. Al cuadro de abdomen agudo se sumó choque hipovolémico, por lo que la paciente fue intervenida quirúrgicamente, donde se comprobó el diagnóstico tomográfico y se realizó nefrectomía. Este caso tiene la curiosidad de presentar factores predisponentes para causa espontánea y traumática; sin embargo, en base a los hallazgos en el estudio anatomopatológico se concluyó como hematoma renal subcapsular de origen traumático.
Palabras clave: Abdomen agudo, Angiografía coronaria, Hematoma, Riñón, Nefrectomía

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INTRODUCTION

Renal subcapsular hematoma (RSH) is an infrequent complication and may have a traumatic or spontaneous cause (etiology)[1]. Among the first are renal tumors, renal vascular diseases and the use of anticoagulants, among others. Traumas usually occurs in the context of urological interventions, and procedures such as cardiac catheterization; RSH typically presents through Lenk's triad, which consists of sudden flank pain, symptoms suggestive of internal bleeding (hypotension, tachycardia, filiform pulse, hypovolemic shock) and local heat on palpation[1,2].

This article presents the first case of RSH secondary to coronary angiography, with contralateral arterial access to the affected kidney, reported in our center.

CASE REPORT

We present the case of a72-year-old, mixed race woman with a history of hypertension and stable angina, with unknown coronary anatomy, who was treated with 125 mg/day acetylsalicylic acid, 40 mg/day atorvastatin, 40 mg/day enalapril, 25 mg/day atenolol, and 30 mg/day nitrosorbide. She presented to the Emergency Department with chest pain and was diagnosed with non-ST-segment elevation acute coronary syndrome (unstable angina). She was stratified as an intermediate-risk (TIMI score 3). Hence, specific treatment with dual antiplatelet therapy and anticoagulation with low-molecular-weight heparin was initiated. Furthermore, conventional (invasive) coronary angiography was performed. Right femoral arterial access was attained by the modified Seldinger's technique; a 6F sheath was placed and unfractionated heparin (2500 IU) was administered.

The catheters were advanced without complications under intermittent fluoroscopic guidance. Iodinated contrast was injected into the coronary tree revealing a multivessel coronary artery disease, which included significant left main coronary artery stenosis. She was discussed by the heart team and was subsequently referred for elective coronary artery bypass surgery.

The patient was transferred to the cardiac intensive care unit where she remained hemodynamically stable until approximately sixty minutes after coronary angiography, when she suddenly began with left flank pain radiating to the ipsilateral lumbar region, which rapidly worsened accompanied by nausea and vomiting.

Physical examination revealed a palpable and painful mass in the left hemiabdomen, with peritoneal reaction. Blood pressure and heart rate were normal: 120/80 mmHg and 80 beats per minute, respectively. The clinical picture, interpreted as acute abdomen, led to a computed axial tomography being performed, where left RSH was observed (**Figure 1**).

The patient presented hemodynamic decompensation and had a hypovolemic shock shortly afterwards. Hence general therapeutic measures were taken and an emergency exploratory laparotomy was decided. During the surgery, a small amount of free fluid was visualized in the abdominal cavity and left RSH was verified. The retroperitoneal space was full of blood and clots, the left kidney presented a

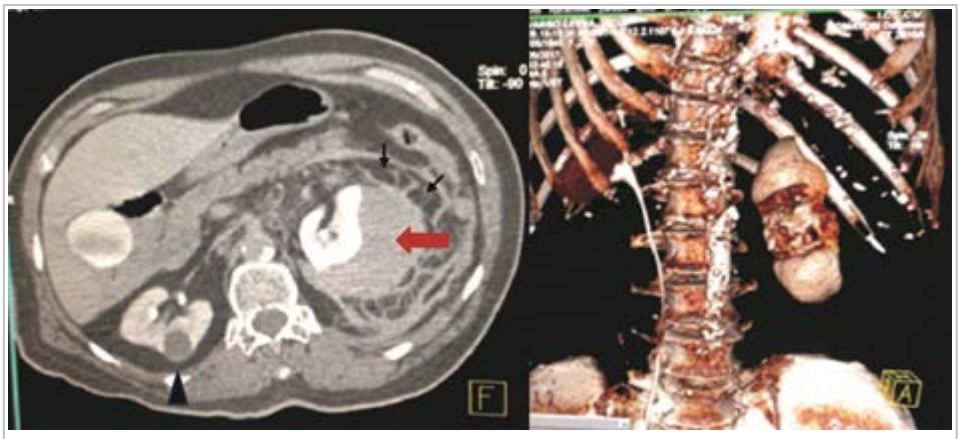

Figure 1. Abdominal computed tomography (CT) with 3D reconstruction. A large left perirenal homogeneous hypodense image is observed, with density 67 to 82 UH at subcapsular level, possibly related to blood collection (red arrow), with altered left renal parenchyma apparently linked with contrast retention used in coronary angiography; also associated with diffuse alteration of perirenal fat (black arrows). A cystic image is observed in the upper pole of the right kidney (arrowhead).

wine-red color with necrotic appearance and excessive bleeding; so a nephrectomy was performed and the surgical sample was sent for pathological study where diagnosis was confirmed (**Figure 2**). The patient had a favorable outcome and was discharged without other complications.

Figure 2. Fresh sample of left kidney. On the left, macroscopic hemorrhagic dotting in all its extension. On the right, after cutting, presence of haemorrhage in the renal pelvis with poor delimitation.

COMMENTS

The renal subcapsular area is a space that can potentially accumulate fluids in such a way that it may compress the renal parenchyma. According to Ayhanet *et al*[3], the first case of a spontaneous RSH was described in 1679 by Bonet and later defined by Wunderlich, who would ultimately give the name to this syndrome. Renal subcapsular hematomas are more related to kidney trauma and are also an uncommon complication of extracorporeal lithotripsy or femoral cardiac catheterization. The association of the latter with the RSH can be considered anecdotal, since RSH basically does not appear in the large series that break down the complications related to this procedure[3,4].

Initially this case was interpreted as having a spontaneous cause related to the use of anticoagulants, such as the cases described by Greco *et al*[2], Mabjeesh and Matzkin[5], and Ferrando *et al*[6]. However, the patient's immediate coronary angiography by femoral approach suggested a traumatic etiology, such as the cases reported by Fang *et al*[7] and Yi *et al*[8]; although no direct trauma was evident during the procedure, but this cannot be ruled out since the fluoroscopic visualization of arterial catheterization was intermittent.

Based on the above, added to the acute hemodynamic decompensation, the findings in surgery and the result of pathological anatomy, it was defined as RSH of traumatic etiology.

The importance of maintaining this diagnostic suspicion is emphasized above all in patients with acute flank pain and anticoagulant treatment, especially in those who have undergone invasive coronary angiography, since early suspicion, confirmation with imaging tests and timely treatment, even surgical, are the mainstay for favorable outcome and prognosis.

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