SKILL AND TALENT

Subepithelial pelvic hematoma

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KEYWORDS
Antopol–Goldman lesion; Subepithelial pelvic hematoma; Kidney; Pseudotumor

Abstract
Introduction: Subepithelial pelvic hematoma (Antopol–Goldman lesion) is a rare condition that clinically simulates a renal or pelvic neoplasm, whose final diagnosis is established in most of the cases by the pathologist after the nephrectomy. To avoid this, imaging tests and high diagnostic suspicion are essential.

Material and methods: The case of a 43-year-old female patient is presented. She had no background of interest and she came due to experiencing an acute pain in the left renal fossa after a physical effort. This patient was studied by Ultrasonography, Computed Tomography (CT), and evolutively with magnetic resonance (MR).

Results: The X-ray studies showed a lesion in the left renal sinus with characteristics suggestive of subepithelial renal pelvis hematoma, without data suggesting underlying lesion. The treatment of the patient was conservative, confirming the disappearance of the lesion in the follow-up studies.

Conclusion: Knowledge of the X-ray findings of the Antopol–Goldman lesion in different imaging tests and an elevated index of suspicion are crucial in the management of patients affected by this uncommon condition. These make it possible to avoid an unnecessary nephrectomy.

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PALABRAS CLAVE
Lesión de Antopol–Goldman; Hematoma pélvico subepitelial; Riñón; Pseudotumor

Hematoma pélvico subepitelial

Resumen
Introducción: El hematoma pélvico subepitelial (lesión de Antopol Goldman) es una rara entidad que clínicamente simula una neoplasia renal o pélvica, cuyo diagnóstico definitivo se establece en la mayoría de las ocasiones por el anatomopatólogo tras la nefrectomía. Para evitar ésta, son esenciales las pruebas de imagen y una alta sospecha diagnóstica.

Material y métodos: Se presenta una paciente de 43 años sin antecedentes de interés que acudió con un cuadro de dolor agudo en la fosa renal izquierda tras un esfuerzo físico y que fue estudiada mediante Ecografía, Tomografía Computarizada (TC) y evolutivamente con Resonancia Magnética (RM).

Resultados: Las exploraciones radiológicas mostraron una lesión en el seno renal izquierdo con características sugestivas de hematoma subepitelial de la pelvis renal, sin datos que sugiriesen...
Introduction

The subepithelial pelvic hematoma is a rare entity that clinically simulates a renal or pelvic malignancy. In 1948, Antopol and Goldman first described a series of 7 cases characterized by hematuria and filling defect in the renal pelvis by urographic study, secondary to subepithelial hematoma of the renal pelvis, which gave them a tumoral aspect. This condition is not specific of the kidney; the esophageal intramural hematoma simulating a gastric cancer with esophageal extension has also been described in the literature. The diagnosis of this entity is based on imaging tests. The knowledge of this rare benign pseudotumoral lesion can prevent an unnecessary surgery. However, in the published literature, the difficulty of this preoperative diagnosis is pointed out, which in most cases has led to nephrectomy, establishing the definitive diagnosis by means of the pathological examination.

Casuistry

We present a 43-year-old female patient who came to the Emergency Department with pain in the left flank radiating to the inguinal region, of 24 h of evolution, without fever or urinary symptoms. On examination, she had positive left fist percussion, referring a physical effort as the only significant history. The hemogram, the coagulation study, and the serum biochemistry were normal. Abundant scaly cells were detected in urine and several red blood cells per field.

Diagnostic technique

Among the complementary examinations, ultrasound and computed tomography (CT) were performed urgently without and with intravenous contrast. The ultrasound showed an enlarged left kidney, associated with an oval image in the renal sinus, not vascularized in Doppler mode (Fig. 1). The basal phase CT showed a high-attenuation round lesion in the left renal sinus that did not enhance after contrast, showing in excretory phase an extrinsic compression on the renal pelvis, without obstructive effect (Fig. 2). The findings were considered of probable hemorrhagic etiology.

To rule out any underlying injury, we performed a magnetic resonance imaging (MRI) 8 days after the previous scans. Weighted axial sequences were performed in T1, T2, thick-cut basal URO-RMI, and after intravenous furosemide, dynamic study in coronal gradient echo T1 with fat suppression, and image subtraction dynamic study in T1-gradient coronal echo section with fat suppression, and images of subtraction of the dynamic study which showed a lesion with well-defined margins, indicative of subacute hematoma that compressed the collecting systems and left renal pelvis, without ectasia (Fig. 3). The image of subtraction of the dynamic study showed complete absence of contrast uptake of the lesion; therefore, it excluded the existence of an underlying vascularized lesion.

Results

We kept watchful waiting with conservative treatment (rest, analgesia, and antibiotic therapy), with the patient being discharged 3 days later. In a subsequent ultrasound scan, at 3 months, the complete resolution of the lesion became evident. The patient remains asymptomatic 3 years after the episode.

Comment

The subepithelial pelvic hematoma is a rare lesion that can simulate a neoplastic process, which may lead to an unnecessary nephrectomy. Many of the reported cases, before the emergence of the most recent diagnostic techniques, have been diagnosed after the extraction of the surgical specimen. There is an increased incidence of bleeding in anticoagulated patients ranging from 4 to 24%, with the urinary tract bleeding complications being the most frequent, documented in up to 40% of the patients receiving long-term anticoagulant therapy. The location of the bleeding can be intrarenal (also called pseudotumor), subcapsular,
perinephric, pararenal, intraluminal, and rarely intramural on the wall of the renal pelvis, the ureter, and the urinary bladder.\textsuperscript{5,7} The patient whom we present did not have any type of anticoagulant therapy.

Traumatic events, congenital malformations, diabetes, hypertension, renal colics, or drug abuse\textsuperscript{1} have been described as precipitating factors. From a clinical point of view, the most frequent is gross hematuria and flank pain, providing no significant data to the medical history.\textsuperscript{1} In the histological study, changes secondary to a large subepithelial hemorrhage and the subsequent elevation of the overlying epithelium, which results in the pseudotumoral aspect in radiological examinations,\textsuperscript{9} are noticeable. The microscopic examination shows an area of submucosal hemorrhage and hematoma in organization, characterized by fibrinoid material containing extravasated fibroblasts and erythrocytes.

The transitional epithelium may present focal ulcerations\textsuperscript{8,9} with inflammatory reaction of particular interest to the lamina propria. The hemorrhagic extension can affect the entire pelvis, the major calyces, and even the proximal ureter.\textsuperscript{5}

In imaging tests, urography shows a ureteropelvic junction syndrome and a defect concentration of the contrast,\textsuperscript{10} this image is nonspecific, so the differential diagnosis should be performed with other entities such as renal vein thrombosis, submucosal pyelic edema, vascular impressions, cystic pyeloureteritis, and mainly, with an upper urinary tract tumor. The ultrasound may show mural thickening of the renal pelvis and/or ureter but, however, it cannot distinguish the hemorrhage of the edema or fluid collection.\textsuperscript{6} It is therefore necessary to extend the radiological study by CT with and without contrast. The CT without contrast shows a lesion of the pelvic and/or ureteral wall with high-attenuation values because of the blood remnants that will allow to determine its chronological evolution.\textsuperscript{6,11} The lesion does not enhance with contrast\textsuperscript{6,7,11,12} unlike a neoplastic lesion. Repeating an imaging test (CT without contrast) several weeks after the acute process is indicated to confirm the resolution of the subepithelial hemorrhage.\textsuperscript{5,12}

The MRI has a high negative predictive value to exclude urothelial neoplasms, especially in the upper urinary tract.\textsuperscript{13} It can provide data for the lesion characterization as hematoma, assess the urinary tract by URO-MRI sequences in T2 or T1 sequences in the elimination phase of the contrast using MIP postprocessing. The possibility of performing subtraction sequences in the dynamic study enables us to rule out the existence of underlying hypervascularized lesions.

In its evolution, the subepithelial hemorrhage may compress the renal pelvis or have a break to the collecting system that is accompanied by blood clots.\textsuperscript{5} However, the evolution is usually rapid, favorable, with spontaneous resolution in a few weeks, and the hematuria and the anomalies described in imaging disappear.\textsuperscript{10,12} In short, only the knowledge and a high index of suspicion of an Antopol–Goldman lesion can avoid an unnecessary nephrectomy, especially in patients with a non-uptake of renal mass and that originates an extrinsic compression of the collecting system.\textsuperscript{12,14}

Figure 2  (a) Baseline CT showing a rounded high-attenuation lesion in the left renal sinus; (b) in the nephrographic phase with contrast, the lesion is not enhanced, showing an attenuation similar to that of the muscle and (c) in the excretory phase, it produces an extrinsic compression on the collecting systems and the renal pelvis, without obstructive effect.

Figure 3  (a) MRI, T1 axial sequence, showing a lesion with well-defined margins, and hyperintense periphery, indicative of subacut hematoma and (b) axial T2 sequence with discretely hypointense lesion displacing the renal hilar vessels and subcentimeter renal cysts.
Conflict of interest

The authors declare that they have no conflict of interest.

References