

unnecessary surgical interventions. The fundamental tools for making this distinction are imaging tests (mainly CT^a) and the assessment of the patient's clinical status.

REFERENCES

1. Reimunde E, Gutiérrez M, Balboa O, Espinel J, Rodríguez C. Neumatosis gástrica. *Gastroenterol Hepatol*. 2002;25:458–61.
2. Johnson PT, Horton KM, Edil BH, Fishman EK, Scott WW. Gastric pneumatosis: the role of CT in diagnosis and patient management. *Emerg Radiol*. 2011;18:65–73.
3. Guillen Morales C, Manuel Vazquez A, Carrascosa Mirón T, Bañuls Laguna L, Jimenez Miramón FJ, Jover Navalón JM. Rara causa de abdomen agudo y tratamiento conservador: gastritis enfisematosa, a propósito de un caso. *Cir Esp*. 2014;92(Espec Congr):523.
4. Gutiérrez Andreu M, Otero Perpiñá B, Muñoz C, de la Cruz Vigo F. Neumatosis gástrica secundaria a estenosis pilórica de origen péptico. *Cir Esp*. 2011;89:188.
5. Alvarado Lezama J, Espinosa González O, García Cano E, Sánchez Córdova G. Gastritis enfisematosa secundaria a mucormicosis gástrica. *Cir Cir*. 2015;83:56–60.
6. Pueyo Pérez EM, Andrés Pérez S, García Tejero A, García Fernández C. Necrosis gástrica secundaria a incarceration inguinal. *Cir Esp*. 2016;94:180.
7. Sebastián C, Quiroga S, Espin E, Boyé R, Alvarez Castells A, Armengol M. Portomesenteric vein gas: pathologic mechanisms, CT findings and prognosis. *Radiographics*. 2000;20:1213–24.
8. Domínguez Jiménez JL, Puente Gutiérrez JJ, Marín Moreno MA, Bernal Blanco E, Gallardo Camacho JJ, Uceda Vañó A. Neumatosis gástrica y gas en el sistema venoso portal secundario a úlcera peptica. *Gastroenterol Hepatol*. 2008;31:494–6.

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Endovascular Repair of an Arterial Pseudoaneurysm Due to Ureteral-Iliac Fistula[☆]



Reparación endovascular de pseudoaneurisma arterial secundario a fístula iliaco-ureteral

The presence of an ureteroiliac fistula (UIF) is an unusual cause of hematuria that should be suspected in patients with a history of pelvic surgery, arterial revascularization, pelvic inflammatory processes, radiotherapy or ureteral stent placement¹; occasionally, it is also associated with the presence of an arterial pseudoaneurysm. One of the greatest advantages of endovascular procedures is the rapid control of bleeding with minimally invasive techniques.

We present the case of a 53-year-old male with a history of dyslipidemia, peritonitis due to acute gangrenous appendicitis requiring laparoscopic appendectomy, and bladder cancer treated by transurethral resection and endocavitary chemotherapy. Three years later, he presented recurrence of said neoplasm with infiltration of the ureteral wall and meatus, lymph node involvement and bone metastases (invasive bladder cancer pT4 pN3 M1). The patient was treated surgically by the urology department, who performed radical cystec-

tomy associated with extended bilateral iliac lymphadenectomy and cutaneous ureterostomy. The patient also required palliative chemotherapy.

One month later, the patient came to the emergency department due to colicky pain in the left iliac fossa and bleeding through the ureterostomy. The interventional radiology unit injected iodinated contrast through the ureteral catheter, observing the presence of a left UIF, which they treated with the placement of 2 Fluency[®] (Bard) 8×60 mm coated stents. Six months later, the patient once again presented the same symptoms. Computed tomographic (CT) angiography demonstrated a proximal leak of contrast material from the stents. The patient was again treated by the interventional radiology unit with the placement of another 8×60 mm Fluency[®] stent.

Two months later, the patient came to the emergency department again due to intense pain in the left hemiabdomen

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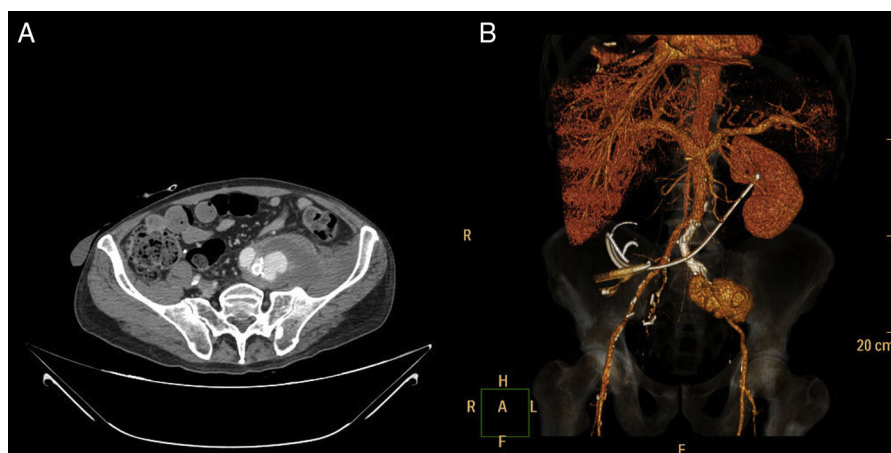


Fig. 1 – CT angiography images: (A) retroperitoneal bleeding due to rupture of the left iliac pseudoaneurysm; (B) previously placed iliac stents and pseudoaneurysm due to distal leakage.

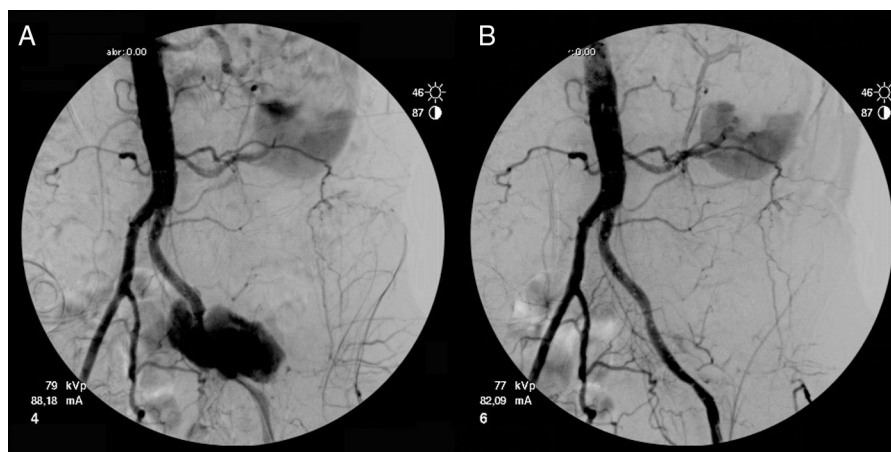


Fig. 2 – Diagnostic (A) and postoperative (B) arteriographies.

and thigh, which required the extremity to be maintained in flexion. CT angiography revealed a left common iliac pseudoaneurysm with a maximum diameter of 65 mm and active bleeding (Fig. 1A and B), so the patient was referred to our service. Given the patient's surgical history and high risk, we opted for endovascular treatment, reserving open surgery for use as a last resort. Due to the antalgic position of the limb, the procedure had to be done under general anesthesia. Using left retrograde femoral puncture and following Seldinger's technique, a diagnostic arteriography was performed through a 6 Fr introducer sheath, which revealed a contrast leak through the distal portion of the previously placed endoprostheses (Fig. 2A). With the help of a 0.035 inch hydrophilic guidewire and through a Vanschic II type catheter, the common iliac artery was canalized and 2 Fluency[®] coated stents were implanted (10×80 mm and 8×80 mm). As a prophylactic measure, 1.5 g of cefuroxime was administered according to protocol, and no anticoagulation therapy was applied due to the active bleeding.

The postoperative angiographic study confirmed the cessation of bleeding and the permeability of the iliac axis (Fig. 2B). The postoperative evolution was satisfactory, with no new episodes of hematuria.

The increased risk factors and the longer survival of patients with genitourinary neoplasms have increased the incidence of UIF in the recent literature, although it is still uncommon.²

In chronic inflammatory processes, fibrosis and precarious vascularization of the *vasa vasorum* create an adhesion between the ureter and artery, which is the main cause of the formation of fistulae. These are mainly located in the iliac axis, with a preference for the external iliac artery, and can be associated with abscesses or pseudoaneurysms.³ The latter are formed by localized arterial rupture with extravasation of blood encompassed by the layers of connective tissue.⁴ The persistence of the leak point makes them pulsatile, and the pseudoaneurysm may grow until it ruptures.⁵

UIF should be suspected in a patient with severe or microscopic hematuria over the course of several days and risk factors due to previous surgeries or inflammatory processes.⁶ In addition to hematuria, the patient may present with lumbar pain, urinary retention or infection. Pain in the flank may be secondary to obstruction of the ureter due to blood clotting² or the rupture of a pseudoaneurysm.

The technique of choice for the diagnosis of UIF is selective arteriography, as it identifies the exact location of the fistula.^{5,7} Meanwhile, CT angiography is selected for the diagnosis of a pseudoaneurysm as it offers preoperative information about possible rupture, size and relationship with neighboring structures.⁸

Classically, surgical repair of a UIF involves femorofemoral crossover bypass with exclusion of the affected iliac artery (embolization or ligation), or less frequently *in situ* reconstruction. Endovascular treatment with the placement of coated stents is a minimally invasive alternative that provides quick control of the bleeding and clear advantages in patients with unfavorable anatomy. The selection of patients for one procedure or another is based on comorbidity, clinical presentation, anatomical difficulties, presence of infection, enteric contamination or the need to preserve pelvic perfusion due to contralateral arterial disease.⁷

Although the risk of infection and recurrence of bleeding are not well defined, these procedures are safe and effective, although not free from complications that may become severe in certain cases.

REFERENCES

- Kim DH, Mahdy A, Mundra V, Berman M, Ghonie M. Ureteroarterial fistula. *Case Rep Med*. 2009;2009:326969.
- Hirsch LM, Amirian MJ, Scott GH, Das AK, Abai B, Lallas CD. Urologic and endovascular repair of a uretero-iliac artery fistula. *Can J Urol*. 2015;22:7661-5.
- Tselikas L, Pellerin O, di Primio M, Ben Arfi M, Joskin J, Beyssen B, et al. Uretero-iliac fistula: modern treatment via the endovascular route. *Diagn Interv Imaging*. 2013;94:311-8.
- Cronenwett JL. Aneurismas arteriales. In: Rutherford RB, editor. *Cirugía vascular* Madrid: Elsevier España; 2006p. 1403-7.
- Atmaca AF, Canda AE, Gumus M, Asil R, Balbay MD. Delayed massive hemorrhage due to external iliac artery pseudoaneurysm and uretero-iliac artery fistula following robotic radical cystectomy and intracorporeal Studer pouch reconstruction: endovascular management of an unusual complication. *Can Urol Assoc J*. 2013;7:E605-8.
- Aslam MZ, Kheradmund F, Patel N, Cranston D. Uretero-iliac artery fistula: a diagnostic and therapeutic challenge. *Adv Urol*. 2010;2010:276497.
- Malgor RD, Oderich GS, Andrews JC, McKusick M, Kalra M, Misra S, et al. Evolution from open surgical to endovascular treatment of ureteral-iliac artery fistula. *J Vasc Surg*. 2012;55:1072-80.
- Schermerhorn ML, Cronenwett JL. Aneurismas aórticos abdominales e ilíacos. In: Rutherford RB, editor. *Cirugía vascular* Madrid: Elsevier España; 2006; p. 1408-43.

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Post-Traumatic Rupture of a Suprarenal Metastasis of Hepatocarcinoma[☆]

Estallido postraumático de metástasis suprarrenal por hepatocarcinoma

Hepatocellular carcinoma (HCC) is the most common primary liver cancer; with a worldwide incidence of more than 500 000 cases per year, it is the third most common cause of cancer death.¹ Although imaging tests in patients at risk of HCC have provided diagnoses in more initial stages, long-term survival rates continue to be unsatisfactory due to local and distant recurrence. HCC is a tumor with metastatic potential that is most frequently located in the lungs (60%-70%), lymph node chains (30%-40%), bones (15%-20%) and adrenal glands (8.8%-19.6%).²⁻⁴ The treatment of HCC metastases varies from

resection (with a mean survival of 21.4 months) to non-surgical methods such as chemoembolization, percutaneous ethanol injection, radiotherapy, and systemic chemotherapy (with an average survival of 11.1-13.6 months).^{5,6}

Adrenal hemorrhage is a rare complication. A narrative review by Marti et al. demonstrated that the most frequent cause of adrenal hemorrhage was pheochromocytoma (48%), followed by metastasis (20%) and adenoma (17%).⁷ The hemorrhagic complication of HCC metastases in this region is anecdotal, with very few cases published in the literature.^{7,8}

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