

Hemorrhagic shock secondary to ruptured hypogastric artery pseudoaneurysm. A rare complication of colorectal anastomotic leakage

Shock hemorrágico secundario a pseudoaneurisma roto de arteria hipogástrica. Una complicación infrecuente de la fuga de anastomosis colorrectal

Cristina de la Cruz-Cuadrado^{1*}, Dácil Montesdeoca-Cabrera¹, Daniel Cubillo-Prieto²,
Esteban Pérez-Alonso¹, and Juan R. Hernández-Hernández¹

¹Servicio de Cirugía General y del Aparato Digestivo; ²Unidad de Radiología Intervencionista. Hospital Universitario Insular Materno-Infantil, Las Palmas de Gran Canaria, Spain

Abstract

Massive bleeding due to rupture of hypogastric artery pseudoaneurysm is an exceptional complication of colorectal anastomotic leakage. A 41-year-old woman with history of rectal cancer surgery, who debuted with massive rectorrhagia and hypovolemic shock due to rupture of a hypogastric artery pseudoaneurysm as a late complication of a colorectal anastomosis leak. The ruptured hypogastric artery pseudoaneurysm should be taken into account in the differential diagnosis of patients with massive rectorrhagia and history of colorectal anastomosis leak. Endovascular embolization is considered the first-line treatment.

Keywords: Hypogastric artery pseudoaneurysm. Hemorrhagic shock. Colorectal anastomosis leak.

Resumen

La hemorragia masiva por rotura de un pseudoaneurisma de la arteria hipogástrica es una complicación muy rara de la fuga anastomótica colorrectal. Mujer de 41 años con antecedentes de cirugía por cáncer de recto, que debutó con un cuadro de rectorragias masivo y shock hipovolémico secundario a la rotura de un pseudoaneurisma de la arteria hipogástrica como complicación tardía de una fuga de la anastomosis colorrectal. La rotura de un pseudoaneurisma de la arteria hipogástrica se debe tener presente en el diagnostico diferencial de pacientes con rectorragia masiva y antecedentes de dehiscencia de anastomosis colorrectal. La embolización endovascular es actualmente el tratamiento de elección.

Palabras clave: Pseudoaneurisma de arteria hipogástrica. Shock hemorrágico. Fuga de anastomosis colorrectal.

*Correspondence:

Cristina de la Cruz-Cuadrado

E-mail: cdelacruzcuadrado@gmail.com

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Introduction

Pseudoaneurysms are vascular lesions resulting from the complete rupture of all layers of the arterial wall and the extravasation of blood into the surrounding tissues, with the wall formed by neighboring structures. Among them, pseudoaneurysms of the hypogastric artery are rare and usually due to trauma, infections, or iatrogenic causes. We report the case of one patient who presented with hypovolemic shock due to the rupture of a hypogastric artery pseudoaneurysm as a late complication of a colorectal anastomosis leak.

Case Report

A 41-year-old woman with no significant medical history underwent anterior rectal resection with colorectal anastomosis and protective ileostomy for rectal adenocarcinoma T4N0M0 after receiving neoadjuvant chemotherapy and radiotherapy. After 2 years of follow-up, she began to experience neuropathic pain in the presacral region, which was difficult to control, and was diagnosed with a colorectal anastomosis leak by contrast-enhanced computed tomography (CT). Surgical treatment with transanal drainage and antibiotic therapy was performed, resulting in clinical improvement and resolution of the sacral collection. Three months later, the patient presented to the ER with a 24-hour history of a massive rectal bleed. On physical examination, she had a blood pressure of 85/50 mmHg and a heart rate of 130 beats per minute, with multiple clots in the rectal ampulla on digital rectal examination. Due to hemodynamic instability, volume resuscitation was performed, and an angiogram (CCTA) was conducted, which revealed a right hypogastric artery with very irregular walls, suggestive of a pseudoaneurysm, with contrast extravasation projecting medially into a 37 mm × 46 mm × 30 mm collection (AP × T × CC) at the presacral level adjacent to the anastomosis (Fig. 1). Because of these findings, an arteriography (Fig. 2) and embolization with cyanoacrylate from the origin of the right hypogastric artery to the distal pseudoaneurysm zone (Fig. 3) were performed. Control series showed no active bleeding points. The patient progressed favorably and was discharged after 5 days. No new bleeding episodes were recorded during subsequent radiological follow-up (Fig. 4).



Figure 1. Pseudoaneurysm with contrast density (arrow).

Discussion

Pseudoaneurysms of the hypogastric artery are very rare, barely described in the literature, and with an unknown incidence rate. The main etiological mechanism is trauma, followed by iatrogenic complications from endovascular procedures or pelvic surgeries¹. Chronic infections, connective tissue disorders, vasculitis, and secondary erosion due to malignancy can also be implicated in their formation². In our case, the pseudoaneurysm developed due to the erosion of the arterial wall in contact with the anastomotic leak area.

Risk factors for anastomosis dehiscence following anterior rectal resection include male sex, body mass index > 25 kg/m², ASA (American Society of Anesthesiologists) risk > 2, preoperative chemotherapy, tumor size > 5 cm, longer operative time, use of multiple stapling lines, intraoperative transfusion, and low anastomosis. TNM staging level was not related as a risk factor³.

The most common presentation is incidental findings without associated symptoms, but signs and symptoms from local compression can appear in up to 43% of cases⁴. Rupture occurs in 33% up to 40%



Figure 2. Right iliac with glue density (arrow).



Figure 3. Arteriography with pseudoaneurysm of the hypogastric artery (arrow).

of cases. Its location in the pelvis can make identification during physical examination difficult. In these cases, the clinical picture is characterized by sudden abdominal pain associated with hypotension, and mortality is high, ranging from 30% up to 50%⁵.

Diagnosis is based on imaging modalities, with Doppler ultrasound, CCTA, magnetic resonance angiography, and arteriography being highlighted^{5,6}. Doppler ultrasound is a non-invasive imaging modality that can, however, be limited by the depth of the arteries in the pelvis or the interposition of intestinal gas⁵. CCTA is the reference method, as it not only confirms the diagnosis but also assesses the morphological characteristics of the pseudoaneurysm, which will eventually determine the type of treatment to be administered^{5,6}.

Endovascular therapy is currently the first choice for treating arterial pseudoaneurysms and is used as an alternative to surgical treatment. In their series on endovascular treatment of isolated iliac artery aneurysms, Chemelli et al.⁷ reported a technical success rate of 90.1% and a clinical success rate of 93.4%. Therefore, the good intraoperative and early postoperative results, as well as the mid-term durable outcomes, confirm that endovascular therapy is, currently, the first-line therapy for hypogastric artery pseudoaneurysms⁸.



Figure 4. Excluded right hypogastric pseudoaneurysm (arrow).

There is a wide variety of embolizing agents, which can be categorized based on their action time into temporary and permanent. Among the permanent ones, the most widely used are soft platinum coils, cyanoacrylate, and Onyx®; the latter 2 are liquid agents widely used in distal arterial embolizations⁹.

In conclusion, the case presented here is a very rare complication of a colorectal anastomosis leak. To date, only 2 cases have been reported in the literature¹⁰. However, we recommend maintaining a high index of suspicion in patients with a surgical history of anastomosis dehiscence and massive rectal bleeding, as delayed diagnosis is associated with poor prognosis and higher mortality. Fortunately, in our case, the rapid diagnosis and timely treatment led to a good outcome.

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Conflicts of interest

None declared.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained the written informed consent of the patients or subjects mentioned in the article. The corresponding author is in possession of this document.

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