Secondary aorto-duodenal fistula: a diagnostic challenge in a patient with fever and anemia

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Abbreviations: CT, computerized tomography; SPECT, single photon emission computed tomography.

Dear Editor,

A 69-year-old male who underwent endovascular exclusion for an abdominal aortic aneurysm with an aortic graft three years ago, presented with asthenia and fever. Physical examination revealed pallor and a temperature of 37.8°C. Analytical tests showed hemoglobin 6.7 gr/dL, CRP 22 mg/dL, and procalcitonin 1.15 ng/mL. Blood
cultures revealed the presence of *Staphylococcus epidermidis* and *Escherichia coli*. Abdominal CT scan did not indicate abscess or contrast material extravasation. The Tc-99m-HMPAO-labeled leukocytes scintigraphy with SPECT/CT revealed increased uptake on the posterior surface of the aortic graft at the beginning of its bifurcation, along with the presence of air bubbles in its right iliac limb (Figures 1A and 1B). An upper gastrointestinal endoscopy was performed, revealing a 2-cm ulcer in the transition between the second and third duodenal portions. The ulcer exhibited in its center yellow graft tissue, and active bleeding was observed from the margins of the ulcer, so adrenaline was injected, achieving successful hemostasis (Figure 1C). The patient underwent in situ reconstruction (ISR), involving the replacement of the infected prosthetic graft and the duodenal defect was addressed through segmental resection, followed by duodenojejunual anastomosis.

Secondary aorto-duodenal fistula (SADF) is an infrequent but serious complication of abdominal and retroperitoneal vascular surgery, potentially resulting from factors like local infection, direct bowel injury, and fibrous contact between the graft and bowel. Anatomically, SADF tends to be predominantly located in the duodenum, though it has the potential to affect any segment of the digestive tract (1). Due to its high mortality, it must be ruled out early in diagnosis. Therefore, a standardized diagnostic algorithm is essential for a prompt and accurate diagnosis (2). Clinical presentation varies from significant upper gastrointestinal bleeding to obscured bleeding, often preceded by minor 'herald' episodes (1). The diagnosis is based on CT scan, with a rare but pathognomonic sign being contrast extravasation into the duodenum. Additional reported CT findings include extra-digestive air bubbles and adjacent duodenal thickening near the prosthesis (3, 4). Tc-99m-HMPAO-labeled leukocytes SPECT/CT has an elevated diagnostic accuracy in the diagnosis of aortic graft infections, a factor closely linked to SADF (5). The traditional approach to treating patients with SADF involves staged extra-anatomic reconstruction, but it is associated with high mortality and complications. ISR with prosthetic graft replacement is an alternative, however it has been associated to infection recurrence. A more recent focus is ISR using cryopreserved allografts which are relatively resistant to infection (1).

REFERENCES


Figure 1. Tc-99m-HMPAO-labeled leukocytes scintigraphy with SPECT/CT. (A) Axial plane reveals tracer uptake along the posterior surface of the aortic graft. (B) Coronal plane exhibits the detection of air bubbles within the right iliac limb of the aortic graft (arrowhead). Endoscopic images. (C) A duodenal ulcer with yellow graft tissue at its center, accompanied by active bleeding. (D) Image post-successful hemostasis and washing, revealing metallic strands protruding from the aortic graft.