



## Technic Note

### Patient with juxtarenal aortic aneurysm and bilateral iliac aneurysm. Complex endovascular treatment

#### *Paciente con aneurisma de aorta yuxtarenal e ilíaco bilateral. Tratamiento endovascular complejo*

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#### INTRODUCTION

In recent years, chimney endovascular aortic repair (Ch-EVAR) has become an alternative solution for the endovascular treatment of complex juxtarenal and pararenal aneurysms. Many studies indicate that Ch-EVAR is a safe and valid option for the treatment of AAAs with a short aortic neck. The inclusion of this technique in the 2019 clinical practice guidelines of the European Society for Vascular Surgery (ESVS) is a clear example of its growing role in the treatment of complex aortic diseases (1,2).

On the other hand, aneurysms of the common iliac artery are present in more than a third of patients with AAA. Although embolization of the internal or hypogastric artery is an established method, it may lead to complications such as gluteal claudication, erectile dysfunction, colon ischemia, and pelvic necrosis. Therefore, it is always recommended to maintain patency in, at least, one of hypogastric arteries.

To avoid these complications and preserve the patency of the internal iliac artery, the iliac branch technique has been developed (3).

#### DESCRIPTION

This is the case of an 83-year-old man with multiple comorbidities, being followed in consultations for juxtarenal aortic and bilateral iliac aneurysm. The patient is asymptomatic from a vascular perspective. In the last review with CT angiography (Fig. 1), the following findings were made:

- Infraarenal aortic aneurysm starting about 8 mm from the left renal artery and extending to the bifurcation. It has maximum diameters of 59 mm × 55 mm.
- Fusiform aneurysm of the right common iliac artery of about 38 mm.
- Fusiform aneurysm of the left common iliac artery of about 47 mm.

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**Figure 1.** CT angiography with anatomy of the case: juxtarenal AAA and both common iliac arteries.

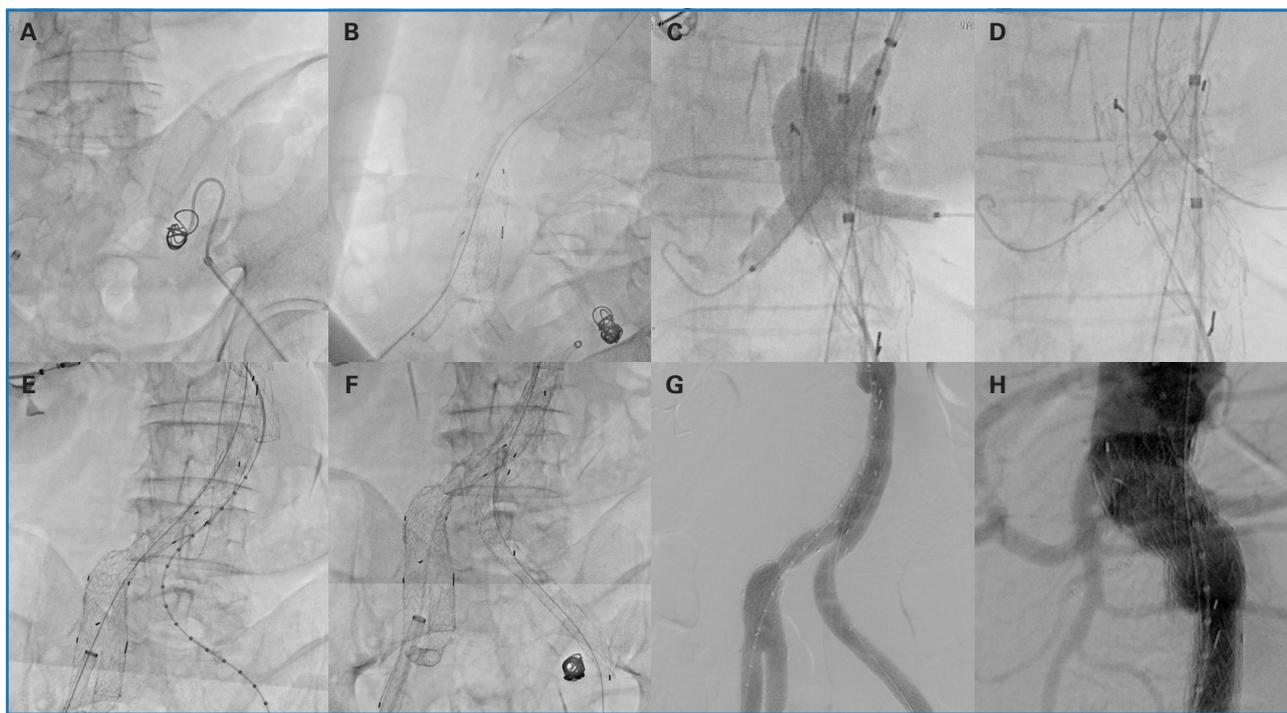
Given these findings, it is decided to proceed with complex endovascular treatment after performing the corresponding surgical planning: embolization of the left hypogastric artery + right iliac branch + Ch-EVAR.

### TECHNICAL PROCEDURE (Fig. 2)

The procedure begins with retrograde ultrasound-guided puncture of both common femoral arteries and placement of 5-Fr introducer sheaths. Percutaneous Proglide® closures are placed in both inguinal regions (two in each). Systemic heparinization with 7500 units is performed. Through the left groin, the left hypogastric artery is cannulated using a Simmons® catheter and embolization is performed with 13 mm Azur35® coils, with good angiographic results. Via the right groin, an Advantage® 0.035 in guidewire is advanced and an 18-Fr introducer sheath is placed. Dissection of the left humeral artery is performed proximally. An 80 cm 10-Fr introducer sheath is placed and cannulated using a RIM® catheter and an Advantage® 0.035 in guidewire to the AAA. A through-and-through technique is performed. Via the right groin, a 23 mm × 12 mm GORE® iliac branch is placed. Using the through-and-through, a 10-Fr introducer sheath is placed in the branch and the right hypogastric artery is cannulated. A VBX-GORE® 8 mm × 79 mm stent is

placed, with proximal balloon angioplasty using an Armada35® 14 mm × 40 mm angioplasty balloon, achieving good morphological results. Through the more distal left humeral artery, an 8-Fr 70 cm introducer is placed and cannulated with a RIM® catheter and Advantage® 0.035 in guidewire to the AAA. Both renal arteries are cannulated through the arm introducers and positioned—without deploying—a VBX-GORE® 8 mm × 59 mm stent in the right renal artery and a VBX-GORE® 7 mm × 59 mm stent implanted in the left renal artery. Via the right groin, the body of the GORE EXCLUDER® 32 mm × 14 mm prosthesis is placed, aligning with the superior mesenteric artery (SMA). A kissing balloon technique is used for both renal stents and the prosthetic body. Patency of renal arteries and SMA is confirmed. The right limb is finalized with a GORE® 16 mm × 24 mm bridging graft. Through the arm, the contralateral limb is cannulated, and the through-and-through technique with a loop is used. Two limbs (16 mm × 14.5 mm proximal and 16 mm × 12 mm distal) are placed, aligning with the left external iliac artery. A very good angiographic result is obtained without demonstrating endoleaks. Percutaneous closure of both femoral access sites is performed with Proglides®. The left humeral artery is closed with 6/0 Prolene® sutures. The skin is closed in layers with staples.

The patient is discharged on the second post-operative day completely asymptomatic, with the



**Figure 2.** Technical procedure. A. Left hypogastric embolization. B. Deployment of the right iliac branch. C-D. Deployment of renal stents and aorto-iliac stent-graft. E. Placement of the right bridging limb. F. Placement of the left limb. G-H. Final angiographic result.

presence of a left radial pulse and, at lower limbs level, right pedal pulse and left posterior tibial pulse. At the follow-up, the patient remains asymptomatic, and all stents are patent in the corresponding imaging tests.

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Branch ilíaco + ChEVAR



<https://vimeo.com/1051842917?share=copy>