Management of Aortoiliac Aneurysms: Preserve or Sacrifice the Hypogastric Artery?

Clinical experience with the GORE® EXCLUDER® Iliac Branch Endoprosthesis.*

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More than 30% of patients with abdominal aortic aneurysms have further aneurysmal changes in the common iliac artery or internal iliac artery.[1] Endovascular abdominal aortic aneurysm repair (EVAR) is frequently applied to a large variety of patients with aortoiliac aneurysms. The key question in the management of aortoiliac aneurysms is whether to preserve or sacrifice the hypogastric artery.

The EUROSTAR registry showed a significant risk for Type 1B endoleak, reintervention, and rupture when aortoiliac aneurysms were treated with standard endografts.[2]

Current literature indicates the frequency and intensity of pelvic ischemia resulting from embolization or from covering of the hypogastric artery remain unpredictable, and upon onset, there is no standard solution for an adequate technical repair.[3,4] In theory, the occlusion of the hypogastric artery can be well tolerated; however, in real life, the issue is more complex.

Different complications (e.g., buttock claudication, colitis, sexual dysfunction, and paraplegia) that can potentially occur after occlusion of the internal iliac artery can hardly be predicted or treated with standard procedures. In terms of individual treatment planning, it is in general agreement regarding these uncertain circumstances to preserve at least one hypogastric artery.[5] Iliac branched EVAR devices provide a completely endovascular method for treating extensive aortoiliac or iliac aneurysms (Figures 1–3) while concomitantly preserving hypogastric artery flow. Iliac branched device technology has evolved over the past decade and has demonstrated a low complication rate both during and after the procedure.[6]

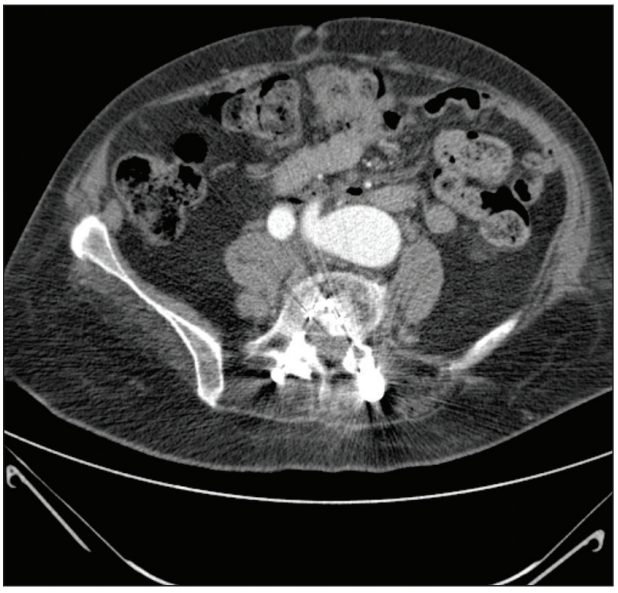

Figure 1. Preoperative computed tomography angiogram showing an isolated iliac aneurysm.

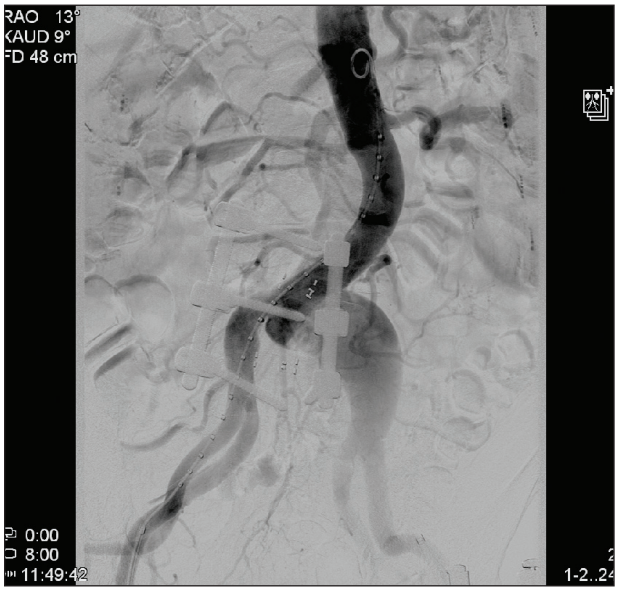

Figure 2. Intraoperative angiogram of the aneurysm.

*CE Mark approved.
Caution: Investigational Device. Limited by United States Law to Investigational Use.

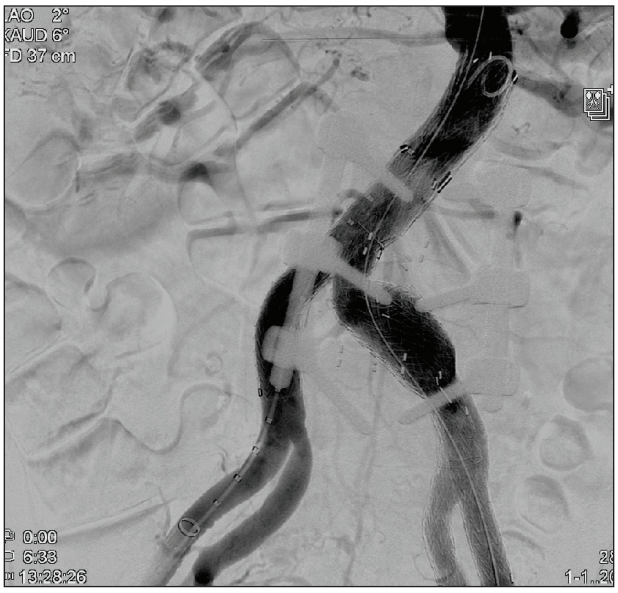

Figure 3. Final intraoperative angiogram showing the completely excluded aneurysm using the GORE EXCLUDER Iliac Branch Device without any endoleak.

DEVICE

The GORE EXCLUDER Iliac Branch Endoprosthesis has been available in Europe since November 2013 and is specifically designed to treat common iliac aneurysms and aortoiliac aneurysms while preserving flow in the hypogastric artery. This complete system is compatible with a 16 Fr introducer sheath and offers repositionability using a simple, two-stage deployment mechanism via a nested deployment knob. Based on the GORE EXCLUDER Device platform, the GORE EXCLUDER Iliac Branch Endoprosthesis is flexible and low profile and is intended to achieve high conformability and sealing in the often considerably tortuous iliac arteries (Figures 4A and 4B).

Required anatomical characteristics include a proximal diameter of the common iliac artery of at least 17 mm. There is no limitation regarding the length of the iliac common artery; the prosthesis can be deployed above the aortic bifurcation. It is recommended, however, that the distance between the renal artery and iliac bifurcation should be at least 16.5 cm.

DISCUSSION

Common iliac artery aneurysmal changes complicate standard EVAR. The hypogastric artery is at risk of occlusion in 20% to 40% of patients with abdominal aortic aneurysms.[7-9]

Occlusions of the internal iliac artery are associated with several potential complications. Regarding the morbidity that is associated with these complications, from today's perspective and technical feasibility, iliac branch technology for hypogastric preservation is a promising option for patients with appropriate anatomy. The GORE EXCLUDER Iliac Branch Endoprosthesis technology has the potential for an effective and safe treatment of most of the iliac artery aneurysms. In the short-term follow-up from our center's experience, the exclusion of the aneurysm, as well as prevention of ischemic complications, was effectively achieved. ■

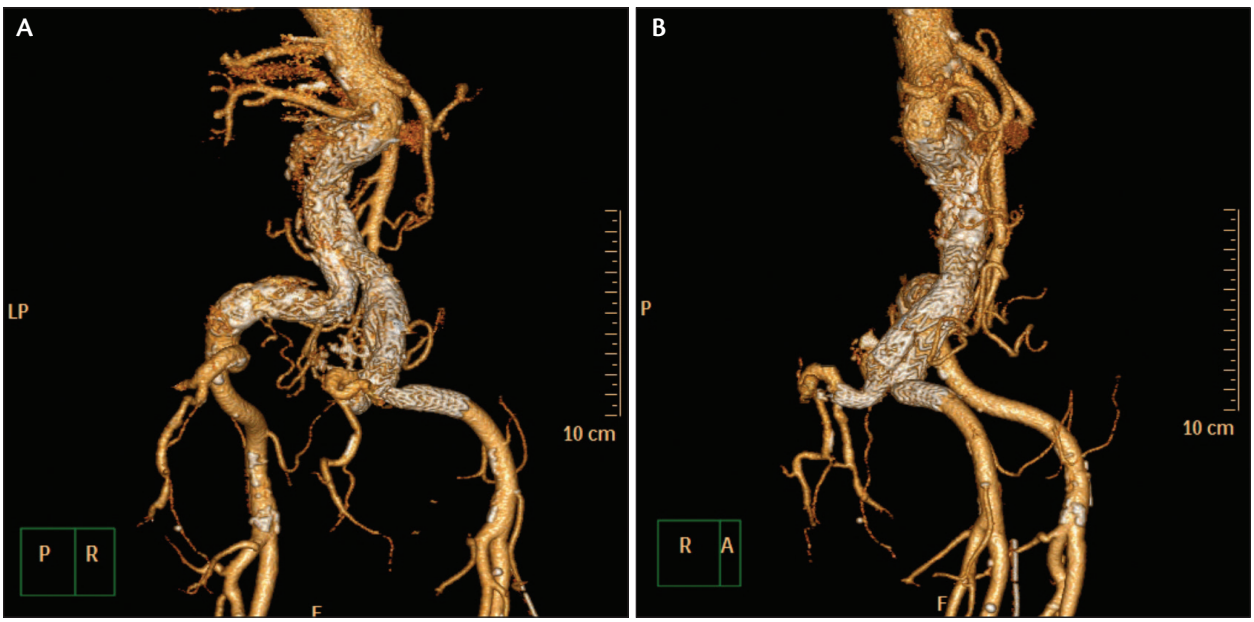

Figure 4. Considerably tortuous aortoiliac arteries demonstrate the flexibility of the GORE EXCLUDER Iliac Branch Endoprosthesis (A and B).

RESULTS

In November 2013, we performed the first implantation in Germany in our institution. Our initial experience with the GORE EXCLUDER Iliac Branch Endoprosthesis is based on 15 implantations that we have performed in the last 12 months.

- Aortoiliac aneurysms: n = 12
- Isolated iliac aneurysms: n = 3
- Mean age: 79 years
- Gender: five male, 10 female
- Mean follow-up (clinical visit, duplex ultrasound, postprocedural computed tomography angiography): five months
- Technical success rate: 93% (14/15 implantations)*
- Complications: no Type 1A or 1B endoleak; four Type 2 endoleaks, no reinterventions, no buttock claudication, and no iliac occlusion
- All iliac components are patent

** Due to severe calcification and challenging anatomy of the aortoiliac bifurcation that was underestimated in the case planning.*

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