Endovascular external-to-internal iliac bypass as an adjunct to endovascular aneurysm repair for patients with extensive common iliac artery aneurysmal disease

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A 78-year-old male with a history of a ruptured abdominal aortic aneurysm, repaired emergently with a tube Dacron graft, presented with bilateral common iliac aneurysms, 3.4 cm left and 2.9 cm right, and a 5-cm aortic bifurcation that extended to the iliac bifurcations. The patient underwent a diagnostic arteriogram (A) and selective embolization of the right internal iliac artery (IIA). He subsequently underwent exclusion of his common iliac artery (CIA) aneurysms by an aortouniiliac endograft with femorofemoral bypass and creation of an endovascular external-to-internal iliac bypass (B, Cover). This latter procedure was performed by accessing his left IIA via a retrograde approach and placing an 8-mm × 5-cm Wallgraft such that the distal extent was in the IIA just beyond its anterior and posterior division bifurcation and the proximal extent was in the very proximal external iliac artery (EIA). A 10-mm × 5-cm Wallgraft was then deployed to extend this graft to the distal EIA. This provided retrograde flow to the IIA from the femorofemoral bypass via the EIA (C).

With the advent of endovascular techniques, aortoiliac aneurysms have been approached with either aortouniiliac stent grafts and a femorofemoral bypass or bifurcated stent grafts. Aneurysmal degeneration of the entire length of the common iliac arteries bilaterally has been considered a relative contraindication to endovascular repair owing to the risk of pelvic ischemia with sacrifice of both hypogastric arteries. Several novel approaches have been described to preserve internal iliac flow. A bypass from the EIA to IIA can be created surgically so as to “relocate” the iliac bifurcation, providing a seal zone in the proximal, nonaneurysmal IIA. Another approach is to directly suture the distal end of the stent graft to the common iliac bifurcation via an extraperitoneal approach in situations where there are no distal landing sites. However, both of these techniques require an open procedure with cross-clamping of the iliac arteries. An endovascular approach, the bellbottom technique, provides an endovascular solution, but does not fully exclude the entire aneurysmal vessel from the circulation.

We employed a recently described method of preserving retrograde flow via an internally placed endograft bypass from the external to the internal iliac artery. This serves to preserve pelvic blood flow while excluding the CIA aneurysm through an entirely endovascular approach, thus avoiding the morbidity of an open procedure as well as potential injury from cross-clamping of the arteries. The rare occurrence of an endoleak in this excluded segment would most certainly be secondary to an inadequate seal or fabric defect, both of which could be corrected with either a simple stent or intussuscepted covered stent. Ultimately, direct puncture of the aneurysm sac would also allow correction of the endoleak.

REFERENCES


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