Internal Iliac Artery Flow Preservation During Endovascular Aneurysm Repair (EVAR) with Deployment of Iliac Leg from the Axillary Artery

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ABSTRACT

Endovascular aneurysm repair (EVAR) has become the treatment of choice for most surgeons and patients with an infrarenal abdominal aortic aneurysm (AAA). In 2007 87% of all aneurysms were repaired by an endovascular approach. Several anatomic parameters determine patient suitability for EVAR including existence of appropriate landing zones proximally and distally and adequate iliac conduit diameter. In selected cases, a retrograde access can be used through the femoral or iliac artery. The use of the axillary artery as a graft has been described before for complex endovascular procedures such as Thoracic Endovascular Aortic Repair (TEVAR) with poor anatomy for traditional deployment as well as femorotibial and brachial endografts. We report the first case where an iliac graft limb was deployed through the axillary artery during an EVAR case for maintenance of antegrade internal iliac flow on a patient with chronic ipsilateral occlusion of the external iliac and femoral artery.

INTRODUCTION

Endovascular aneurysm repair (EVAR) has become the treatment of choice for most surgeons and patients with an infrarenal abdominal aortic aneurysm (AAA). In 2007 87% of all aneurysms were repaired by an endovascular approach. Several anatomic parameters determine patient suitability for EVAR including existence of appropriate landing zones proximally and distally and adequate iliac conduit diameter. In selected cases, a retrograde access can be used through the femoral or iliac artery. The use of the axillary artery as a graft has been described before for complex endovascular procedures such as Thoracic Endovascular Aortic Repair (TEVAR) with poor anatomy for traditional deployment as well as femorotibial and brachial endografts. We report the first case where an iliac graft limb was deployed through the axillary artery during EVAR.

CASE REPORT

A 65 years old male patient with a previous history of coronary artery disease, heart failure, hypertension and COPD was referred to our institution for a symptomatic Abdominal Aortic Aneurysm (AAA) with a minimum diameter of 57 mm (Fig. 1, 2). Anatomically, this AAA was not suitable for EVAR as the proximal neck had an angle of 90 degrees. A bifurcated graft was also not indicated as the aortic bifurcation measured 11x11mm and there was occlusion of the left iliac and external iliac arteries. Nonetheless, due to patient’s symptomatic status and multiple comorbidities, we decided to proceed with endovascular treatment. Furthermore, we judged the patient’s left hypogastric artery as crucial for the viability of his bowel and left lower extremity (Fig. 3). Therefore, we attempted to treat him with a bifurcated graft and deployment of the left iliac limb through the left axillary artery. The operation lasted 7 hours and was successful with good sealing of the aneurysm after the addition of a prosthetic aortic cuff (Fig. 9). The patient required an axillo-unifemoral left bypass for warranting leg ischemia on day 2. At two months follow up the patient is doing well. On clinical examination there is no abdominal pulsatility and on CT scan the AAA has a reduced diameter (Fig. 10).

DISCUSSION

Preservation of the IIA is of particular importance during EVAR. The use of the axillary artery has been described before for complex endovascular procedures.1 The use of the axillary artery in our case allowed for use of a bifurcated graft although one iliac artery was not available for access. Although axillary artery access carries higher risk from a standard femoral access, it remains a safe and feasible option in selected cases.

Internal iliac artery access at the bifurcation of the common iliac artery, anterior to the sacral spine, protects the tissue at the public ileum. Several branches of the internal iliac artery, including the lateral sacral, superior gluteal, and middle rectal are important in perfusing the heart. Several branches of the internal iliac artery, including the lateral sacral, superior gluteal, and middle rectal are important in perfusing the heart. Several branches of the internal iliac artery, including the lateral sacral, superior gluteal, and middle rectal are important in perfusing the heart.

CONCLUSION

This is the first report of aneurysmal deployment of an iliac limb through the axillary artery during EVAR. The axillary limb allowed for completion of the endovascular operation and allowed the patient for an open operation in a patient with significant comorbidities. This technique requires careful preoperative planning and can be useful in selected patients.

REFERENCES