Case Report

Endograft Placement for Iliac Artery Pseudoaneurysm Following Graft Nephrectomy

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Abstract

Case report of iliac artery pseudoaneurysm from the nephrectomized site of transplant kidney. Endovascular management of iliac artery pseudoaneurysm after transplant graft nephrectomy is rarely reported. Patient presented with abdominal pain and pulsating mass in the right lower abdomen. The diagnosis of pseudoaneurysm was made with computed tomography angiogram. Iliac artery stent across the aneurysm excluded the sac and treated the compressive symptoms of patient. The endografting decreases intimal hyperplasia and allowing vascular conduit for the lower limb. The endovascular stent-graft placement in iliac artery is a reasonable and durable alternative in selected patients.

Key Words: iliac artery pseudoaneurysm, iliac artery stent graft, pseudoaneurysm after graft nephrectomy

Introduction

A case report of stent graft for the management of pseudoaneurysm of external iliac artery after graft nephrectomy is not a common procedure, and the endovascular approach for this reason is rarely reported in journals. There is no single report so far on endovascular stent-graft placement for pseudoaneurysm after graft nephrectomy.

Case Report

A 48-year-old female who was suffering from chronic kidney disease with chronic hepatitis C virus (HCV) infection for the past 5 years was getting renal replacement therapy through functioning left brachiocephalic fistula. She had live donor transplantation and had graft nephrectomized in the immediate postoperative period due to acute rejection. The patient presented to the physician 6 months later with severe pain in the right loin and fullness at the right lower abdomen. On examination, she was found to have a mass of 5 cm × 5 cm at the right iliac fossa region which was pulsatile with no sinus or dilated veins. The nephrectomy scar had healed well. There was no evidence of failure (Pedal edema, shortness of breath, and thrill).

Duplex ultrasound (USG) showed a saccular aneurysm at right iliac fossa arising from external iliac artery. Computed tomography angiogram was done showing the pseudoaneurysm at right external iliac artery [Figures 1-3]. As the patient had chronic kidney disease with renal replacement therapy for end-stage renal disease and chronic HCV infection with pseudoaneurysm at right iliac artery where two surgeries had been done previously, we decided to do endovascular stenting for this patient using stent graft. Through right transfemoral approach, 8 mm × 40 mm fluency stent graft was placed occluding the aneurismal opening in the external iliac artery [Figures 4-6]. Postprocedurally, patient responded well with the alleviation of symptoms and reduction in the size of the sac. There was no postprocedural complication.

Patient is on regular follow-up. The patient had periodic monitoring of limb vascular status and duplex USG to assess the size of sac. Duplex USG has been done before discharge and at follow-up after 4 weeks, 8 weeks, and 6 months. The sac has decreased with patent iliofemoral arterial system. Patient is free of symptoms.

Discussion

External iliac artery pseudoaneurysms following renal transplantation are uncommon, with an incidence rate of around 1%. Of these, most are complications of allograft nephrectomy.[1]

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which has been hypothesized are yet to be proven. Therapeutic options include conventional open repair (OR), endovascular repair (EVR),\cite{2,3} and more recently, USG-guided percutaneous thrombin injection.

Patient developed pain and discomfort at right loin region which was possibly due to the expanding pseudoaneurysm.
of right iliac artery in para-anastomotic region requiring treatment. The indications for pseudoaneurysm repair and treatment modalities are at present subject to debate. The patient having symptoms of expanding pseudoaneurysm requires treatment to prevent complications such as rupture, local pressure-related neurological-vascular symptoms, and to stop the inflammatory response that they can cause.

The patient did not have any febrile illness during this period, and patient had cultures taken to rule out infections. The patient having multiple issues with failed transplant and chronic HCV infection having a hostile surgical field makes endovascular intervention more acceptable and safe. Endovascular stent-graft placement was considered to be the optimal treatment option, thus avoiding the need for major vascular reconstructive surgery and its associated morbidity.

The patient is now on routine hemodialysis through left brachiophecal fistula. The long-term patency and durability of stent grafts are unknown, and therefore, patients require further follow-up and more studies to understand the patency of the endograft repair.

Atherosclerosis is the most common cause of iliac artery aneurysms, but the causes also include trauma (including unidentifiable trauma to the artery during the nephrectomy), fibromuscular dysplasia, cystic medial necrosis, infection, and Marfan syndrome. The conventional treatment of iliac artery aneurysm is open surgery. EVR is increasing and offer treatment with lesser morbidity and mortality. These techniques are indicated when the patient's anatomy is suitable and compressive symptoms are absent. In general, the presence of compressive symptoms leads to OR because an endovascular approach will not lead to immediate decompression. In patients at prohibitively increased operative risk with compressive symptoms, endovascular techniques for disease exclusion combined with ureteral or iliac vein stenting may prove sufficient as the aneurysm sac remodels and the immediate arterial pressure is removed.

In the case of renal allograft patients, the use of endovascular stent grafts should be considered in the treatment options for false aneurysms following transplantation nephrectomy. This result in a shorter hospital stay and decreased morbidity and mortality rates compared to OR. Endografting offers long-length (up to 15 cm) endoprostheses. We have also found the device to display excellent flexibility as one approaches the inguinal ligament in the distal external iliac artery with good patency rate.

**Conclusion**

The endovascular stent-graft placement is fast replacing the need for open surgical repair and decreases the morbidity and mortality. The patient acceptability is also good considering the high risk for open surgical procedure. The endografting decreases intimal hyperplasia and allowing patent vascular conduit for the lower limb. It needs close monitoring and follow-up for a longer duration to become gold standard until then it offers a good alternative to patient with high risk for open surgical excision.

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**Conflicts of interest**

There are no conflicts of interest.

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