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Is endovascular main renal artery embolization with kidney sacrifice a safe option? A case report of renal artery aneurysm

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Abstract

Treatment of renal artery aneurysm has traditionally been performed with conventional vascular reconstructive surgical repair. Endovascular treatment of renal artery aneurysm has been well described; however, embolization of the entire renal artery with subsequent infarction of the kidney has been infrequently reported.

We are presenting a case of a 65-year-old man with marked retro-peritoneal lymphadenopathy secondary to lymphoma. He was found incidentally to have 3.9 cm × 3.9 cm left main renal artery aneurysm which was not amenable to endovascular stent-grafting and an open surgical repair carried high risk. He was treated with endovascular embolization of the entire left renal artery with subsequent infarction of left kidney; this was tolerated well by the patient who made good recovery with moderate elevation of the serum creatinine.

This case illustrates that renal artery embolization is a safe option to treat renal artery aneurysm when conventional repair is problematic and other means of endovascular repair are not possible.

Keywords: Renal artery; Embolization; Aneurysm

1. Case report

A 65-year-old man with a history of hypertension and hypercholesterolemia presented to his family doctor with cervical lymphadenopathy, feeling of weakness and tiredness, otherwise asymptomatic with no history of coronary artery disease; stopped smoking 5 years prior to presentation. Medications include Candesartin and Lipidil.

Physical examination revealed easily palpable cervical lymphadenopathy. Abdominal examination showed no organomegally and no murmur was heard. His blood work revealed a creatinine of 130 μmol/L (1.47 mg/dL).

Bone marrow and open cervical lymph node biopsy revealed early staged non-Hodgkin's lymphoma. No medical treatment was recommended by hematology and good prognosis was anticipated. Staging CT scan of the abdomen and thorax showed marked retro-peritoneal lymphadenopathy and 3.9 cm × 3.9 cm left renal-artery aneurysm commencing at the ostium and extending to the hilum of the left kidney (Figs. 1 and 2).

The renal scan showed 62.4% function on the right and 37.6% on the left kidney with calculated creatinine clearance of 48 mL/min. The left kidney size measured 6.1 cm while the right kidney measured 10.3 cm. MRA confirmed the extensive intraperitoneal and retro-peritoneal lymphadenopathy, diffuse aortic disease with an ectatic abdominal aorta and right common iliac artery. There was evidence of saccular aneurismal dilatation of the descending thoracic aorta measuring 3.2 cm in diameter.

The surgical team decided that open resection carried a prohibitive risk given his paraaortic and renal hilar lymphadenopathy. In addition, to salvage the kidney, a left nephrectomy with auto transplantation into a diseased exter-

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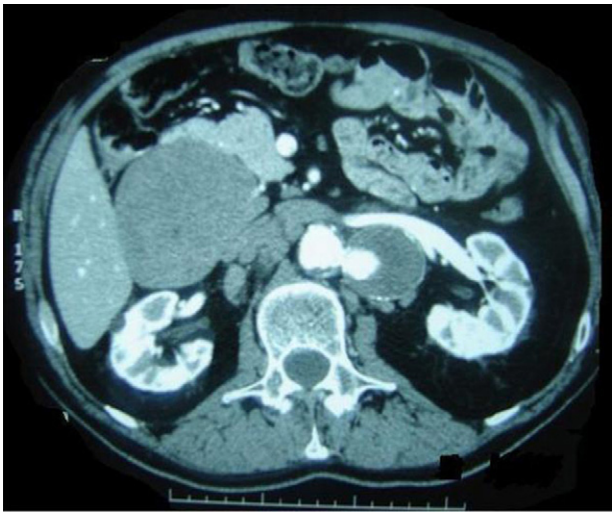

Fig. 1. Left renal-artery aneurysm commencing at the ostium and extending to the hilum of the left kidney.

nal iliac artery would have been required. The team also decided this was prohibitive. The decision was made to proceed with embolization of the left main renal artery aneurysm with intentional sacrifice of the left kidney.

The patient was consented for same day nephrectomy if he became septic or for uncontrollable pain. In addition the risk of deterioration of renal function and the potential need for dialysis secondary to contrast load and infarction of left kidney was explained to the patient. To minimize this risk peri-operative *N*-Acetylcysteine and intravenous fluid hydration was administered.

2. Procedure

Using a right femoral approach, an initial abdominal aortogram was performed using a 5F catheter (Omni-flush, Angiodynamics, Queensbury, NY) positioned in the suprarenal aorta in order to localize the origin of the left renal artery. This was subsequently selected following exchange for a 5F Simmons I catheter (Cordis, Warren, NJ) (Fig. 3). Embolization was then performed using multiple pushable fibred platinum and stainless steel coils (Cook, Bloomington, IN) ranging in size from 6 to 15 mm, in addition to several pledgets of gelatin sponge. A completion aortogram demonstrated complete occlusion of the renal artery with no flow into the kidney (Fig. 4).

Immediately post-op, the patient complained of left sided abdominal and left flank pain controlled with patient-controlled Morphine analgesia (PCA). On the next day the pain had decreased substantially and by the third day PCA was discontinued and started on oral analgesia. His serum creatinine level increased from pre-procedural level of 130 μmol/L (1.47 mg/dL) to 190 μmol/L (2.15 mg/dL) and remained stable at that level. In addition he experienced a low

Fig. 3. Pre-embolization angiogram.

Fig. 2. Wide-necked left renal artery aneurysm.

Fig. 4. Post-embolization angiogram.