

Large Kidney Graft Renal Artery Aneurysm: Excision and Vascular Reconstruction with Arterial Allograft

Introduction and Objectives: Kidney graft renal artery aneurysm is a rare condition. Associated complications include death (caused by aneurism rupture) and graft loss. Large (greater than 2 cm) and/or symptomatic aneurysms should surgically approached. Our objective was to review a successful case of surgical repair of such condition with an arterial allograft from a cadaveric donor.

Materials and Methods: A sixteen-year-old female patient underwent heterotopic kidney transplant at eleven years of age. Terminal kidney failure was caused by hemolytic uremic syndrome. Arising from the graft renal artery, immediately distal the anastomosis with the common iliac artery, a saccular aneurysm was diagnosed by routine ultrasound. The dimensions were 5,1 x 5.1 cm, with a 1.4 cm neck. The patient was asymptomatic, and graft function remained stable, with a creatinine serum level of 0.8 mg/dL. After dissection of the major vessels involved, and perfusion of the graft with cold preservation solution, we performed the aneurysm excision, followed by vascular reconstruction with an arterial allograft (common iliac artery bifurcation). Proximally, an end-to-end anastomosis was made between the "common iliac artery" of the patch and the common iliac artery of the patient. Distally, two end-to-end anastomosis were made, between the "external iliac artery" of the patch and the common iliac artery of the patient, and between the "internal iliac artery" of the patch and the remaining portion of the graft's renal artery. Warm ischemia time was 2 minutes, cold ischemia time was 60 minutes, and total surgery time was 345 minutes.

Results: After reperfusion, the renal graft immediately resumed red coloration and diuresis. The post-operative period was uneventful, and hospital discharge occurred 10 days after surgery, with a serum creatinine value of 1.1 mg/dL. Imaging studies subsequently performed (Angio-CT, Doppler ultrasound) showed no structural or functional abnormalities.

Conclusions: Kidney graft renal artery aneurysm is a rare condition, but may be associated to devastating complications. Although the surgical management is complex, the utilization of an arterial allograft for reconstruction proved to be an effective and safe technique, when performed in experienced centres.

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