15. **Ex Vivo Renal Artery Reconstruction Is the Treatment of Choice For Complex Renal Artery Pathology**
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**OBJECTIVE:** Evaluate long-term outcome of renal revascularization using ex vivo renal artery reconstruction for complex renal artery pathology.

**METHODS:** From 1987 - 2012, 23 patients (17 women, mean age 45) with complex renal artery lesions underwent open renal revascularization using ex vivo technique. Underlying disease included fibromuscular dysplasia with aneurysm (11), atherosclerotic aneurysm (6), Takayasu arteritis (3), other (3). Outcomes analyzed included primary, primary assisted and secondary patency rates, antihypertensive medication requirements, renal function/preservation, and mortality. Late graft patency, renal size and cortical thickness were analyzed by serial renal duplex ultrasound examinations.

**RESULTS:** Twenty-four kidneys in 23 patients were revascularized using ex vivo renal artery reconstructive techniques. Perioperative complications were limited to two patients requiring reoperation for bleeding. Renal function did not change and there were no in-hospital deaths. Over mean follow-up of 44 months, a single bypass graft occluded requiring a redo bypass, which was performed with renal preservation. Primary, primary assisted and secondary patency rates were 94% at 1 and 5 years. Compared to preoperative values, systolic/diastolic blood pressure and the number of antihypertensive medications were reduced (P<.05) in the 18 patients with hypertension. Late renal function was preserved as measured by no change in both serum creatinine and eGFR compared to preintervention values (p=0.25, p=0.35, respectively). In addition, there was no difference in treated kidney size or renal cortical thickness on follow-up compared to preoperative measurements (p=0.15, p=0.62, respectively). No patient required dialysis. There were 3 late deaths, none related to the renal procedure, providing 1 and 5-year actuarial survival of 94% and 85%, respectively.

**CONCLUSIONS:** Ex vivo renal artery reconstruction for complex renal artery pathology confers a benefit in blood pressure, while preserving renal mass and function. This technique should be considered the treatment of choice for complex renal artery pathology.