Marathwada Medical & Research Institute
Kamalnayan Bajaj Hospital
The Complete Hospital
(NABH ACCREDITED HOSPITAL)

CARDIOLOGY CHRONICLES

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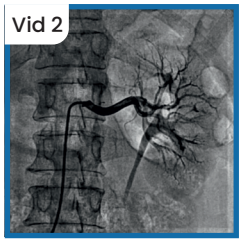
She Gave Away One Kidney — Then Nearly Lost the Other

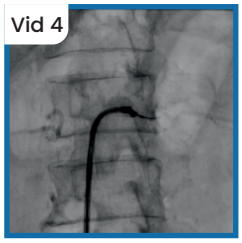
A 55 y old non diabetic non hypertensive female (from Chattisgarh) underwent workup at our hospital as a potential kidney donor to her son. Her biochemical parameters were normal with serum creatinine of 0.8 mg/dL. Ultrasound of left (Fig A) and right (Fig B) kidney revealed normal size and echo texture. Renal angiogram revealed presence of a minor plaque at the ostium of right renal artery (Vid 1). The left renal artery was normal (Vid 2). There was excellent nephrogram and renal excretion of contrast on both sides. Her right kidney was selected for transplant. The short ostial segment with plaque was excised and the kidney was successfully transplanted with rapid normalisation of renal function in the recipient. Both recipient and the donor were discharged from the hospital after a week.

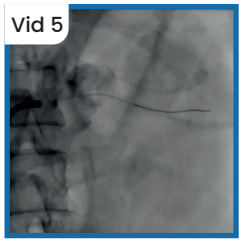
Two years after the operation the donor presented to the local hospital with 2 episodes of flash pulmonary edema. She soon became anuric, developed hyperkalemia and acidosis and was put on dialysis. She was transferred to our hospital for further management. Doppler evaluation revealed absence of any flow in her solitary left kidney. She was taken to the cath lab with an intention to open her occluded left renal artery which was her lifeline.

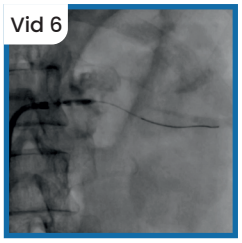
Technical details and clinical course

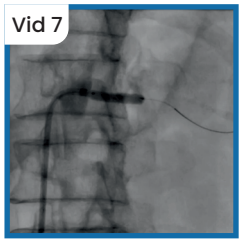
- Right Judkin's 4.0 guide catheter
- Lesion was crossed with Conquest pro (Asahi) guide wire with balloon support. We were unable to cross the lesion with any of our stiffer workhorse wires
- Lesion was serially dilated with balloons and a 4 mm stent was placed with excellent final angiographic result (Videos 3 to 9)
- Patient started pouring urine on the cath table
- Her renal function normalised within a week and she was discharged on dual antiplatelet therapy and statin.

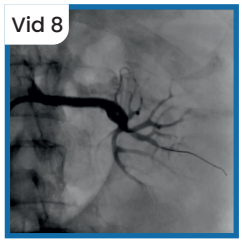


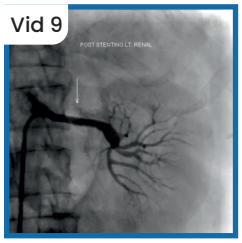


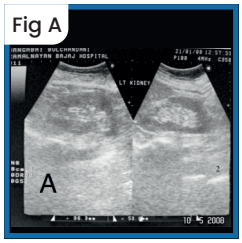


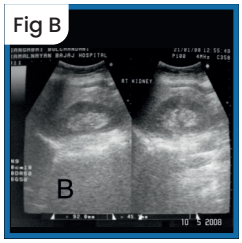












Discussion

The precise mechanism and timing of the left renal artery occlusion in this case remain uncertain. The artery, which was normal at donor evaluation, subsequently became critically occluded, possibly due to progression of atherosclerosis, de novo disease, thrombosis, or an acute-on-chronic process. Regardless of the mechanism, the case highlights that after nephrectomy, the remaining kidney becomes the donor's sole renal reserve, making even a small vascular risk clinically significant.

Revascularization was technically challenging, as the occluded renal artery represented the patient's only renal lifeline. Conventional stiff workhorse wires failed to cross the lesion, which was eventually crossed with an Asahi Conquest Pro wire using balloon support. Serial balloon dilatation followed by deployment of a 4-mm stent restored excellent flow. Remarkably, urine output resumed on the catheterisation table, and renal function normalised within one week, allowing her to avoid permanent dialysis.

This case carries two important messages. First, donor selection should be particularly conservative. Even mild renal artery atherosclerosis in a potential donor warrants careful assessment of vascular risk, lesion morphology and the quality of the contralateral kidney and artery. An angiographically "minor" lesion may have greater significance when the donor will be left with a single kidney. The donor's long-term safety should remain the overriding consideration. The case ultimately reminds us that living kidney donation is not merely an operation performed on a healthy person; it is a lifelong alteration of that person's renal reserve. In retrospect, the minor right renal artery plaque in this donor was a warning sign that deserved particularly careful consideration.

Second, renal artery occlusion in a patient with a solitary kidney is a renal emergency. Flash pulmonary edema followed by anuria and rapidly worsening renal function should prompt urgent evaluation for renovascular occlusion. Timely Doppler assessment, angiography and endovascular revascularisation can be kidney- and potentially life-saving. In this case, successful recanalisation produced immediate urine output and complete recovery of renal function.

The case therefore illustrates both the importance of meticulous donor selection and the potentially dramatic benefit of urgent renal artery revascularisation when the donor's solitary kidney is threatened.

The transplant surgery was done in 2008 and renal stenting was done in 2010. The donor is still alive and living alone at her home in Chhattisgarh. The recipient (her son) passed away a few years ago due to acute pancreatitis. Her husband died of oral malignancy.

Note: We thank our transplant surgeon Dr. Ajay Oswal for providing us with the clinical details and pre-operative images.