A chance to celebrate “golden mating” of life with a transplanted kidney

Authors: Ewa Wojtaszek, Jolanta Małyszko, Agnieszka Grzejszczak, Joanna Matuszkiewicz-Rowińska, Rafał Maciąg, Olgierd Rowiński

Article type: Clinical image

Received: March 5, 2019.

Accepted: March 28, 2019.

Published online: March 29, 2019.

ISSN: 1897-9483

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License (CC BY-NC-SA4.0), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material, provided the original work is properly cited, distributed under the same license, and used for noncommercial purposes only. For commercial use, please contact the journal office at pamw@mp.pl.
A chance to celebrate "golden mating" of life with a transplanted kidney

Ewa Wojtaszek¹, Jolanta Małyszko¹, Agnieszka Grzejszczak¹, Joanna Matuszkiewicz-Rowińska¹, Rafał Maciąg², Olgierd Rowiński²

¹Department of Nephrology, Dialysis & Internal Diseases, The Medical University of Warsaw, Warsaw, Poland
² Department of Interventional Radiology, The Medical University of Warsaw, Warsaw, Poland

Short title- late and severe renal artery stenosis in kidney transplant recipient

Corresponding author:
Prof. Jolanta Małyszko
Department of Nephrology, Dialysis & Internal Diseases,
The Medical University of Warsaw,
02-097 Warsaw,
Banacha 1a, Poland
e-mail  jolmal@poczta.onet.pl; jmalyszko@wum.edu.pl
Phone +48 (22)599 26 58, fax +48 (22)599 16 58

Conflict of interest: none declared
A 63-year old male, after cadaveric kidney transplantation 23 years ago was admitted to the hospital due to sudden and severe deterioration of kidney function (from creatinine 2.45 mg/dL to 7.06 mg/dL with corresponding estimated glomerular filtration rate-GFR 8 ml/min) with uremic symptoms, hyperkalemia, volume overload and refractory hypertension (180/90 mmHg). He had a history of transplant renal artery stenosis (TRAS) and double-angioplasty and stenting procedure 2 and 22 years after transplantation. Cyclosporine was discontinued, and therapy of hypertension was modified, however only slight improvement in laboratory parameters and blood pressure (BP) control was achieved. Re-initiation of dialysis therapy was considered assuming end-stage renal failure occurrence.

The ultrasound showed normal size and structure of the transplanted kidney with a length of 110 mm, parenchymal layer of 13-17 mm and normal echogenicity, without impairment of urine outflow (Fig 1 A,B). Doppler ultrasound revealed haemodynamically significant stenosis localized in the mid-proximal part of graft artery, most likely in the stent, with an increase in systolic peak velocity (SPV) up to 416 cm/s (Fig 1C) and reduced resistive indexes (RI) at parenchymal level to 0.53 and extended acceleration time to 0.09 s (Fig 1D).

Despite advanced graft failure but with the normal echogenicity on ultrasound, a decision on angioplasty was made.

Arteriography confirmed the presence of in-stent restenosis (ISR) implanted into the proximal segment of the renal artery (Fig 1E). The angioplasty of restenosis using a 5 mm diameter balloon and an IN PACT PACIFIC (drug coated) 5 x 40 mm balloon was performed with no residual stenosis after revascularization. (Fig 1F,G). In few days after angioplasty the recovery of graft function was achieved to stable values observed in recent years (serum creatinine 2.0 mg/dl), and blood pressure lowering allowing for reduction of antihypertensive drugs doses (130/80 mmHg).
TRAS represents approximately 75% of vascular complications after kidney transplantation, with the incidence ranges from 6% to 23%, depending on the diagnostic criteria and studied population. TRAS mainly occurs from 3 months to 2 years after transplantation, but it can present at any time leading to deterioration of function or even graft loss [1]. Doppler ultrasonography is used as initial imaging modality, and SPV > 2.5 m/s is the best discriminating index for TRAS [2,3]. Interventional treatment of choice is percutaneous transluminal angioplasty (PTA) with or without stenting [2,3]. Restenosis that develops within the first 6 to 9 months after primary intervention is the main complication of PTA, with the incidence ranging from 15% to 28% and increasing risk with second stenting [3]. The mechanism of ISR in the transplanted renal arteries is intimal hyperplasia, thus use of paclitaxel-coated balloon inhibiting arterial smooth muscle proliferation, migration, and extracellular matrix formation may be favourable in treating restenosis potentially decreasing the incidence of late thrombosis without antiplatelet therapy [4]. The presented case shows that even many years after transplantation, it is worth looking for the reasons for severe and sudden deterioration of allograft function, attempt treatment and give a chance to celebrate the next anniversaries of life with a transplanted kidney.

References


Fig 1. A, B - Ultrasonography of transplanted kidney; C - Doppler sonography - stenosis in graft artery with systolic peak velocity 416 cm/s; D - Doppler sonography - reduced resistive indexes at parenchymal level (0.53); E - Arteriography - restenosis in stent implanted to graft artery; F - Drug coated balloon angioplasty of restenosis; G - Angioplasty effect without residual stenosis