MedCrave
Step into the World of Research

Urology & Nephrology Open Access Journal

Mini Review

Open Access

CrossMark

Early endovascular treatment in renal transplant: a case report

Abstract

Background: A 46-year-old female kidney transplant recipient developed acutely impaired graft function on the first postoperative day and received early endovascular treatment.

Case report: The patient underwent living donor kidney transplantation from a sister in January 2011. She showed good diuresis during the early hours, followed by abruptly decreased urine output. Ultrasound examination suggested thrombosis of the intrarenal arteries or renal artery stenosis. Arteriography showed no stenosis at the site of anastomosis, but the presence of faint contrast filling the intrarenal arteries. She received intrarenal thrombolysis with 15 mg of recombinant tissue plasmin activator (rTPA), balloon angioplasty and a post anastomotic intra luminal renal artery stent with good perfusion and complete graft recovery.

Conclusion: Early endovascular treatment is a possible therapeutic option in acute vascular renal transplant complications like intrarenal arterial thrombosis or renal artery stenosis. Excellent results were achieved with the procedure in the present case.

Keywords: renal kidney transplantation, endovascular treatment, surgical complications

Volume 2 Issue 2 - 2015

Murilo Ferreira de Andrade, Marcelo Ferreira Cassini, Carlos Augusto Fernandes Molina, Minoru Morihisa, Edwaldo Edner Joviliano, Silvio Tucci

Department of Surgery and Anatomy, University of Sao Paulo (USP), Brazil

Correspondence: Murilo Ferreira de Andrade, Rua Elzira Sammarco Palma, 255 ap 234, Ribeirao Preto-SP, Brazil, 1402-680, Tel +55(16) 981154403, Fax +55(16) 36358224, Email mfda@usp.br

Received: January 11, 2015 | **Published:** March 17, 2015

Abbreviations: ESRD, end stage renal disease; US, ultrasound; rTPA, recombinant tissue plasminogen activator

Introduction

Kidney transplantation is the treatment of choice for patients with end-stage renal disease (ESRD). The success of transplantation and kidney graft survival depend both on factors related to immunosuppression and on the proper treatment of surgical complications. Vascular complications are among the most frequent complications.[1] Renal artery stenosis and renal artery thrombosis can potentially lead to immediate loss of the graft if not diagnosed and treated early. Open surgery is habitually used in these cases with success rates of up to 90% according to some authors.[2] In recent decades, endovascular techniques have been increasingly used for the treatment of surgical complications of renal transplantation.[3] In preliminary experience, endovascular treatment was reserved for late complications,[4] with few literature reports of early and successful use of endovascular procedures in renal transplantation.[5] The few published studies have reported the use of percutaneous endovascular therapy only 1 month after kidney transplantation.[5] Reports of the use of these techniques during the first postoperative days for acute vascular complications, as well as their results and possible complications are scarce.

Case report

A 46-year old woman underwent living donor kidney transplantation on 01/30/2012. The donor was her sister and the donated kidney had an inferior polar artery that was anastomosed to the main renal artery. The recipient showed good diuresis during the early hours, followed by an abrupt decrease of urine output. An ultrasound (US) revealed a renal-iliac resistance index and intrarenal resistance index of 1.34 and 0.5, respectively. However, intrarenal pulsatility determined by US Doppler showed a parvus et tardus pulse pattern suggesting thrombosis of the intrarenal arteries or renal artery stenosis. A diagnostic arteriography indicated less than 24 hours postoperatively revealed a full anastomosis contrast without stenosis, but a faint contrast filling of the intrarenal arteries (Figure 1A). These arteries were selectively catheterized and 15 mg of recombinant tissue plasminogen activator (rTPA) was injected for intrarenal thrombolysis (Figure 1B). There was some improvement in the intrarenal filling pattern, but there was also an area of spasm (stenosis) of the renal artery 1 cm from the anastomosis. Balloon angioplasty was performed, followed by an intra luminal post anastomotic renal artery stent (Figure 1C). An immediate control arteriography showed excellent perfusion (Figure 1D). Serum creatinine was reduced from 6.3 to 1.22 mg/dL within five days and remained at 1.16 mg/dL during the late postoperative period (Figure 2). The patient continues to have normal renal function and normal US Doppler. The only complication was an 11.3 by 5.2 cm graft site hematoma treated with percutaneous drainage using a Jackson-Pratt (Blake) drain.

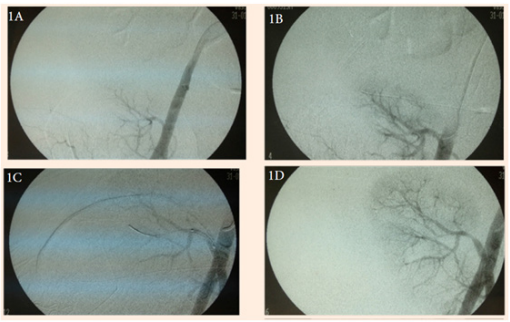

Figure 1(A) Initial arteriography showing impaired postanastomotic perfusion **(B)** Selective renal artery thrombolysis with 15mg rTPA. **(C)** Renal artery spasm (stenosis) before stenting. **(D)** Final arteriography showing normal renal transplant perfusion.

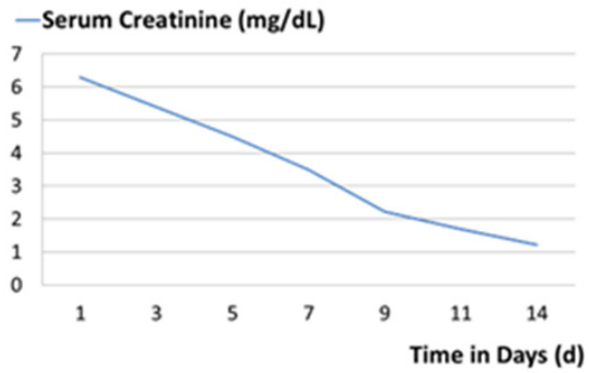

Figure 2 Evolution of serum creatinine after endovascular treatment.

Discussion

Endovascular treatment allowed early recovery of renal graft function even in the presence of impaired intrarenal micro thrombotic perfusion status associated with spasm or renal artery post anastomotic stenosis. The use of iodate contrast in a patient with depressed renal function was possible due to the realization hemodialysis in the first postoperative day. In these cases, due to the high risk of nephrectomy in the open approach, early endovascular treatment can be a useful minimally invasive and effective alternative for the management of these vascular complications.

Acknowledgements

None.

Conflict of interest

The author declares no conflict of interest.

References

1. Libicher M, Radeleff B, Grenacher L, et al. Interventional therapy of vascular complications following renal transplantation. *Clin Transplant*. 2006;20(17):55–59.
2. Shames BD, Odorico JS, D'Alessandro AM, et al. Surgical repair of transplant renal artery stenosis with preserved cadaveric iliac artery grafts. *Ann Surg*. 2003;237(1):116–122.
3. Arya S, Coleman DM, Osborne NH, et al. Outcomes of endovascular interventions for salvage of renal transplant allografts. *J Vasc Surg*. 2013;57(6):1621–1627.
4. Henning BF, Kuchlbauer S, Boger CA, et al. Percutaneous transluminal angioplasty as first–line treatment of transplant renal artery stenosis. *Clin Nephrol*. 2009;71(5):543–549.
5. Guzzardi G, Fossaceca R, Di Gesu I, et al. Endovascular treatment of transplanted renal artery stenosis with PTA/stenting. *Radiol Med*. 2013;118(5):826–836.

Citation: Andrade MF, Cassini MF, Molina CAF, et al. Early endovascular treatment in renal transplant: a case report. *Urol Nephrol Open Access J*. 2015;2(2):37–38. DOI: 10.15406/unoaj.2015.02.00029