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CASE REPORT

Percutaneous thrombus aspiration in renal artery stenosis after renal transplantation☆

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KEYWORDS
Renal transplantation;
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Abstract We describe the case of a patient with chronic renal failure under hemodialysis for five years who, after renal transplantation, developed acute renal failure and hypertension refractory to medical therapy. Given the clinical and imaging (renal ultrasound and computed tomography) suspicion of renal artery graft thrombosis, invasive angiography was performed, which confirmed the diagnosis. The therapeutic approach consisted of percutaneous thrombus aspiration and subsequent balloon angioplasty of the entire artery, followed by stent implantation in a second procedure. The clinical course was uneventful with improvement of renal function and normalization of blood pressure.

The case highlights the importance of percutaneous intervention in the management of patients with vascular complications after transplantation, with successful application of a procedure normally used in the setting of acute myocardial infarction – percutaneous thrombus aspiration and implantation of a drug-eluting vascular stent.

PALAVRAS-CHAVE
Transplante renal;
Estenose da artéria renal;
Aspiração de trombos

Aspiração de trombos por via percutânea em estenose da artéria renal após transplante renal

Resumo Descreve-se um caso de um doente com doença renal crónica sob hemodiálise durante cinco anos, que após transplantação renal desenvolveu um quadro de insuficiência renal aguda e hipertensão arterial refractária à terapêutica médica. Pela suspeita clínica e imagiológica (ecografia e tomografia computadorizada renal) de trombose da artéria renal do enxerto, realizou-se angiografia invasiva que confirmou o diagnóstico. A abordagem terapêutica efectuada consistiu em aspiração por via percutânea de material trombótico e subsequente angioplastia por balão em toda a extensão da artéria e em segundo tempo com implantação de

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um s*tent*. A evolução decorreu sem complicações, com melhoria da função renal e normalização do perfil tensional.

Este caso reforça a importância da intervenção percutânea na abordagem dos doentes com complicações vasculares após transplante, pela aplicação com sucesso de uma técnica habitualmente utilizada no contexto de enfarte agudo do miocárdio – aspiração de trombos por via percutânea e implantação de *stent* farmacológico vascular.

Introduction

There have been constant advances in percutaneous endovascular techniques in recent years. Their proven efficacy in various areas, with low rates of complications, has led to a widening of their indications.

Balloon angioplasty, with or without stenting, is frequently used to treat peripheral arterial thrombosis. This approach has an important role in the renal artery bed, particularly in cases of renal artery stenosis after renal transplantation, due to its efficacy and potential clinical impact.

A recently developed technique used in primary angioplasty to treat acute myocardial infarction is thrombectomy by percutaneous manual aspiration of intracoronary thrombi. We describe the case of a patient with renal artery thrombosis after renal transplantation who underwent successful percutaneous thrombus aspiration. Quite apart from its clinical interest, no previous cases have been reported of this technique being performed in the context of renal artery thrombosis after renal transplantation.

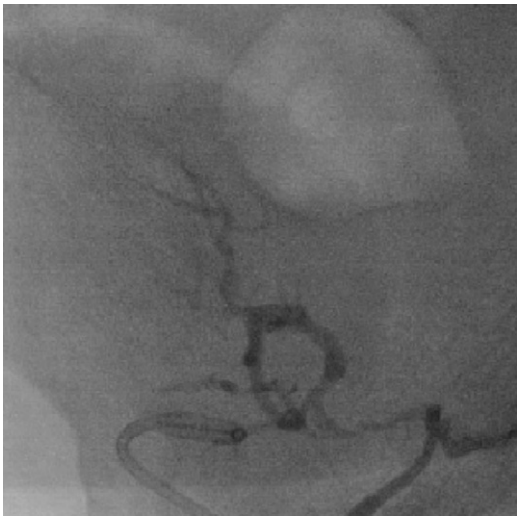

Figure 1 Digital subtraction angiography showing hypoperfusion of the renal graft, with heterogeneous diffuse images in the renal artery suggestive of organized thrombi.

Case report

We present the case of a 64-year-old man with a history of chronic renal disease due to IgA nephropathy, under hemodialysis for five years. He received a right kidney transplant from a cadaver donor in November 2010.

In the immediate post-transplant period, the patient developed oliguria and anuria, necessitating renal function replacement therapy by hemodialysis. Renal ultrasound identified a ureteral obstruction with hydronephrosis. Following implantation of a ureteral stent, diuresis was restored and the pyelocaliceal dilatation was reverted. Renography, which had initially revealed severe hypoperfusion and hypofunction of the transplanted kidney compatible with acute tubular necrosis, showed improved graft perfusion and function after the procedure.

He was discharged a month after transplantation, clinically stable, with serum creatinine 2.9 mg/dl.

On emergency re-evaluation a week after discharge, the patient presented signs of heart failure, with severe lower limb edema, orthopnea and persistently high blood pressure (BP) (mean BP > 180/90 mmHg). Despite diuretic and BP-lowering therapy, his symptoms did not improve, with worsening renal function (peak serum creatinine 8.64 mg/dl). Rapid urine testing revealed leukocyturia and microscopic hematuria. Renography showed good perfusion but graft dysfunction. Due to suspicion of transplant rejection, a renal biopsy was performed, which showed incipient acute tubular necrosis. Renal ultrasound revealed allograft renal artery stenosis; computed tomography (CT) enabled better characterization, showing slow uptake of contrast and an endoluminal image interpreted as a thrombus, partially occluding the renal artery.

It was therefore decided to perform invasive angiography via right femoral artery access, which showed reduced flow in the renal artery graft and multiple diffuse hyperdense images suggestive of organized thrombi along the entire course of the renal artery of the transplanted kidney (Figure 1). This was followed by selective cannulation of the renal artery using an internal mammary catheter and introduction of a 0.14″ Balance Middleweight Universal II Guide Wire (Abbott Vascular®); the intra-arterial material was aspirated using a Pronto V3 (Vascular Solutions, Inc.®) 6F extraction catheter. Macroscopically the aspirated material was of thrombotic appearance (Figures 2–4). Balloon angioplasty was then performed of the entire renal artery (Figure 5). There was immediate angiographic improvement, and the renal shadow could be visualized, but with slight