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CASE REPORT

Renal allograft anastomotic pseudoaneurysm presenting with acute renal failure: a case of surgical treatment with graft preservation



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KEYWORDS

Pseudoaneurysm;
False aneurysm;
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Renal artery patch

Abstract Renal allograft anastomotic pseudoaneurysms (AP) are rare though associated with high rates of graft loss and mortality. Intrinsic transplantation mechanisms regarding active immunosuppression and/or chronic rejection increase susceptibility for their development, having a prognostic impact. We present a case report of successful surgical treatment of a 6 cm right iliac transplant patch pseudoaneurysm, diagnosed following an episode of acute obstructive renal insufficiency caused by AP ureteral compression. Treatment consisted, by a transperitoneal approach, in partial AP resection, antegrade termino-terminal renal artery re-implantation in the external iliac artery and right lower limb revascularization with extra-anatomical femoro-femoral crossover 8 mm PTFE bypass. There were no post-operative complications and renal function normalized to previous values.

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PALAVRAS-CHAVE

Pseudoaneurisma;
Falso aneurisma;
Transplante renal;
Enxerto renal;
Patch artéria renal

Falso aneurisma anastomótico de transplante renal condicionando insuficiência renal aguda: um caso de tratamento cirúrgico com preservação do enxerto

Resumo Os falsos aneurismas anastomóticos (FA) de transplantes renais são raros. O seu tratamento está associado a elevadas taxas de perda do enxerto e mortalidade. Mecanismos intrínsecos à transplantação como a imunossupressão e/ou rejeição crónica aumentam a susceptibilidade para o seu desenvolvimento, tendo também impacto prognóstico. Apresentamos um caso clínico de tratamento cirúrgico de FA do *patch* de enxerto renal com 6 cm, diagnosticado

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na sequência de episódio de insuficiência renal aguda obstrutiva, condicionada por compressão ureteral pelo FA. O tratamento consistiu, por abordagem mediana transperitoneal, em ressecção parcial do falso aneurisma com re-implantação da artéria renal na artéria ilíaca externa topo-a-topo em posição anterógrada e revascularização do membro inferior direito através de bypass extra-anatómico femoro-femoral cruzado com prótese PTFE 8 mm. Não ocorreram complicações pós-operatórias e a função renal normalizou para valores basais.

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Introduction

Anastomotic pseudoaneurysms (AP) associated with renal transplants are relatively rare with an incidence <1%,¹ being however associated with high rates of complications such as allograft loss, infection, rupture and even death. There are few cases described in the literature. Treatment challenge is to perform AP exclusion, preserving the renal graft, avoiding injuries to adjacent structures or repercussions for lower limb arterial and venous circulations.

Case report

48 year-old male patient, history of chronic renal insufficiency due to chronic glomerulonephritis, hypertension, dyslipidaemia and erectile dysfunction. After an initial period of renal substitution therapy by peritoneal dialysis submitted to renal transplant in right iliac fossa, in August 2005. Kidney donor was a cadaver. Acute tubular necrosis was registered after graft implantation. Patient was immunosuppressed with tacrolimus, mycophenolate mofetil and prednisone, developing chronic graft dysfunction [basal creatinine (Cr) 1.5 mg/dl].

Six years after transplant patient presented acute worsening of renal insufficiency (Cr 3 mg/dl), oliguria, without symptoms of graft pain. Etiological investigation concluded the origin was obstructive, post-renal, with the presence of significant uretero-hydronephrosis (renal pelvis diameter of 4 cm). Eco-guided percutaneous urinary derivation nephrostomy was performed, not improving renal function. Repeated ultrasonographic kidney analysis revealed focal dilation of graft artery. CT-angio diagnosed a 6 cm anastomotic pseudoaneurysm (AP) of renal artery implantation patch (*Carrel* patch), without evidence of rupture (Figs. 1 and 2) but leading to compression of the ureteral system. It was afterwards performed an angiographic study to obtain a better characterization of AP morphology and to plan intervention (Fig. 3).

Surgical treatment consisted, by a median laparotomy transperitoneal approach, in a termino-terminal antegrade re-implantation of the renal artery on the external iliac artery (time of renal warm ischaemia <10 min) (Fig. 4), followed by partial aneurysm resection and right lower limb revascularization with extra-anatomical femoro-femoral left > right crossover 8 mm PTFE bypass (Fig. 5). Extensive retroperitoneal fibrosis was encountered which made the dissection of renal vessels particularly difficult. Kidney perfusion solutions were not used since it was performed a



Figure 1 Renal artery allograft anastomotic pseudoaneurysm (CTA).

single rapid anastomosis to perfuse the kidney as first stage of the procedure.

Post-operative period was uneventful and Cr rapidly lowered to basal levels. Patient had an isolated fever peak on the 3rd post-operative day with analytic elevation of inflammatory parameters, reason for which was started empiric antibiotherapy (amoxicillin/clavulanate). Hemocultures and aneurysm thrombus were negative for infection. Nephrostomy and algaliation were removed on the 9th post-operative day after a pyelography confirmed inexistence of extrinsic ureteral compression.

The patient is being followed-up for 4 years, with a stable renal function (Cr 1.3 mg/dl), patent crossover bypass with bilateral palpable normal pedal pulses.

Discussion

Due to the relative low incidence of AP in renal allografts (small series or isolated cases reported in literature) the

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