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Case Report

Effective Endovascular Therapy in Post-Renal Transplantation Patients with Sustaining The allograft.

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ABSTRACT

After kidney transplant surgery, vascular problems are incredibly rare; the incidence of pseudoaneurysm is even lower, at 0.3%. The symptoms might range from sudden, severe bleeding to long-term, dull, throbbing pain, anorexia, etc. The majority of pseudoaneurysms have a connection to allograft failure. We describe a successful endovascular management of an anastomotic pseudoaneurysm. On post-operative day 159 following cadaveric kidney transplantation (end-to-end anastomosis between the renal artery and right internal iliac artery), a 54-year-old female patient complained of fever and chills. After receiving conservative antibiotic treatment, the temperature went down, but it returned five days later. Additional research revealed that the level of c-reactive protein (CRP) was consistently high. Repeat blood culture was used to look into the patient's fever, which had an unclear cause. Combining computed tomography (CT) and positron emission tomography (PET) using fluoro-D-glucose (FDG). A 5 cm aneurysm of the juxta anastomotic portion of the right internal iliac arteries, possibly a pseudoaneurysm, was shown by FDG-PET testing, and a blood culture test revealed the presence of Klebsiella pneumoniae, which is susceptible to tigecycline and colistin. Following a multidisciplinary consultation, the patient had renal angiography, which allowed for the delineation of the aneurysm and the placement of a covered stent that largely excluded it. The intervention was favourably received by the patient. A rare and sometimes fatal complication that can occur even in the late stages of recovery is pseudoeurysm development. When used sparingly and with the utmost care to preserve allografts, endovascular treatment can be a safe strategy.

Keywords : *Endovascular; Pseudoaneurysm; Renal transplant; C-reactive protein (CRP).*

INTRODUCTION

In extremely rare cases, vascular problems occur during kidney transplant surgery. Renal vein thrombosis, renal artery thrombosis, aneurysm formation, and other conditions are among the consequences. With an overall frequency of 3–14%, renal artery and vein stenosis and thrombosis are the most prevalent of these, whereas the creation of pseudoaneurysms accounts for less than 1% of all vascular problems.

On October 13, 2022, a 54-year-old lady who had a documented case of hypertension and chronic kidney disease (CKD) and was receiving maintenance hemodialysis three times a week had a cadaveric donor kidney transplant at our institute. The post-operative period went without incident. She had no urine production prior to the transplant, but after it, her serum creatinine levels returned to normal and she had good allograft function.

The patient adhered to the recommended immunosuppressive regimen with good compliance during the ensuing months, receiving monthly check-ups. The patient had fever and malaise on post-operative day (POD) #159, six months following the transplant. After receiving antibiotic treatment, the temperature eventually went down, however it subsequently came back. The patient underwent a comprehensive evaluation. She had an increased total leucocyte count and raised values of the inflammatory marker CRP. Klebsiella pneumoniae, which was susceptible to tigecycline and colistin, was identified using

urine culture. Her body temperature returned to normal after receiving antibiotics tailored to her culture for a few days. She then experienced a fever flare-up, reaching a temperature of 101 F. Aside from being feverish, the patient's clinical checkup revealed nothing noteworthy. Her creatinine and other serum chemistries were both within normal ranges. Renal angiography combined with a digital subtraction angiography of the right common iliac artery revealed a significant pseudoaneurysm and the right proximal internal iliac artery. There was no visible transplant renal artery. After inserting a 5 F diagnostic Judkins right catheter into the pseudoaneurysm, the angiography once more revealed the absence of a transplant renal artery. After inserting a PROGREAT® microcatheter into the transplant renal artery, a second angiography revealed a patent artery with a slow-flowing branching pattern (Figures 3A and 3B).

Fluoro-D-glucose (FDG) positron emission tomography (PET) and computed tomography (CT) were performed on the patient (Figure 1), which showed a well-defined, highly enhancing non-FDG avid region that measured approximately Pseudoaneurysm-consistent 50x46 mm lesion in the right renal pelvis, close to the external iliac arteries. An aneurysm of 50 x 46 mm was seen in the 3D reconstruction (Figure 2) of the CT plates. It originated from the juxta anastomotic location, which is the area between the right internal iliac artery and the graft renal artery. Considering the patient's favourable anatomy and hemodynamic stability, a multidisciplinary team decided to move forward with endovascular therapy.

To completely enclose the pseudoaneurysm, three Graftmaster (coronary stent graft systems) systems measuring 16 mm in length and 2.8 mm in diameter were implanted. Right common iliac artery post-procedure angiography demonstrating excellent and timely renal artery transplant filling via patent stent graft with low endoleak. After the stent was implanted, the flow of the right external iliac artery remained patent.

Following the procedure, everything went according to plan. The renal allograft had normal filling on colour mode, and the colour Doppler revealed no aneurysm filling. Perinephric collection, thrombosis, or arterial stenosis were not evident. After five days, the patient's renal and hemodynamic indicators were stable enough to allow for discharge. saved with the pseudoaneurysm successfully repaired.7. In our instance, an endovascular management strategy was developed with the help of a multidisciplinary opinion, leading to the effective exclusion of the pseudoaneurysm and the well-preserved renal arterial blood flow in the allograft.

Although vascular problems following kidney transplantation are uncommon, they lead to a significant loss of allograft. With pseudoaneurysms, the overall incidence rate of loss is 6-30%.1. Renal artery pseudoaneurysm, arteriovenous fistulas, arterial/venous thrombosis, and renal artery stenosis are examples of vascular problems. where the most common conditions are renal artery stenosis, renal vein thrombosis, renal artery thrombosis, and aneurysm formation.2. An intrarenal or extrarenal aneurysm may exist (EPSA). Renal biopsy is the most common cause of intrarenal aneurysms.

Extra-renal aneurysms occur less frequently than 1% of the time.1. Either an infectious or non-infectious aetiology may be present.3. EPSA is often the result of a bacterial or mycotic infection and can happen at or near the surgical anastomosis. According to earlier literature reviews, the incidence of allograft failure is 56%, the concurrency rate with an infectious disease is 62%, and the death rate is 14%. The method by which infections lead to the creation of pseudoaneurysms involves an inflammatory process that infiltrates and undermines the structural integrity of the artery wall.4 Vascular problems typically arise during the first several days following surgery. but can potentially show up later, like in the case of our patient, who showed up six months later. The presentation may take the form of an emergency situation, such as an abrupt collapse of the cardiovascular system due to an aneurysm rupture, or it may be more subtly manifested as abdominal pain, a pulsatile mass, an infection that spreads slowly, anaemia, and allograft malfunction. The last presenting type is chronic, or late stage, and it usually manifests as decreased allograft function.

In our instance, the patient's subtle presentation occurred nearly six months following the transplant. Klebsiella pneumoniae, the most prevalent bacterial infection linked to EPSA development, was detected in her urine culture. This information was based on a review of the literature.4 Antibiotics sensitive to culture were used in her treatment. A Doppler ultrasound can help simplify the diagnosis, and a CT scan or traditional angiography can provide extra information. In order to determine the exact therapy strategy, our patient underwent conventional angiography after undergoing a CT angiogram to outline the

anatomical characteristics. Open surgery or less invasive techniques like endovascular therapy can be used to effect the repair.5 Symptomatic aneurysms, a size greater than 2.5 cm, the existence of an infection, and a gradual enlargement that leads to a potentially fatal rupture are indications for correction.6 EPSA that are smaller than 2 cm can be handled cautiously.

The most conclusive course of treatment mentioned in the current research on this subject is allograft nephrectomy. Nonetheless, as endovascular methods have improved, more allografts can be that improved the solubility. Although the dosage may have been excessive, the degree of hypercalcemia rather than the rate of absorption should have been impacted by this. In the future, AICB use is advised in conjunction with pre- and post-operative testing for renal function, phosphate levels, and post-operative hypercalcemic symptoms. Serum ionised calcium levels should also be monitored during the days following the procedure. If fluids are insufficient to alleviate the hypercalcemia, it may be necessary to explore alternative treatments like loop diuretics or hemodialysis.

Hip arthroplasty is a frequent surgical surgery; in 2010, there were an estimated 168,000 cases performed on those over 65.2. By 2030.

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