

Graft Loss Due to Extrarenal Pseudoaneurysm in a Case of Delayed Graft Function: Case Report

Gecikmiş Greft Fonksiyonu Olgusunda Ekstrarenal Psödoanevrizmaya Bağlı Greft Kaybı

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ABSTRACT The purpose of this study is to emphasize that extrarenal pseudoaneurysm (ERPA) should also be considered as an etiology of delayed graft function or graft loss. The 28-year-old patient who had been on hemodialysis for 10 years underwent renal transplantation. The graft came from a 72 year old cadaver donor. During post-operative follow-up, the patient had urine output, but his serum creatinine level did not fall as expected. No pathology was detected on doppler ultrasonography (DUSG). The patient who was followed up with the prediagnosis of delayed graft function had low urine output on the 36th postoperative day followed by anuria. Thereupon, examination with computed tomography and kidney scintigraphy showed renal ERPA and kidney graft with no perfusion respectively. The patient underwent graft nephrectomy and primary aneurysm repair. We suggest advanced imaging methods in delayed graft function and patients with risk factors.

Key Words: Kidney transplantation; delayed graft function; aneurysm, false

ÖZET Bu çalışmanın amacı ekstrarenal psödoanevrizmaların (ERPA) gecikmiş greft fonksiyonu ve greft kaybı etiyolojileri arasında düşünülmesi gerektiğini vurgulamaktır. On yıldır hemodiyaliz programında olan 28 yaşındaki erkek hastaya böbrek nakli yapıldı. Greft, 72 yaşındaki kadavra donörden elde edildi. Postoperatif takiplerde idrar çıkarımı gözlemlendi. Ancak beklenen kreatinin düşüşü sağlanamadı. Doppler ultrasonografide (DUSG) patoloji gözlemlenmedi. Olgu gecikmiş greft fonksiyonu olarak kabul edildi. Postoperatif 36. günde hastanın idrar miktarında azalma ortaya çıktı ve takiben anuri gelişti. Bilgisayarlı tomografi ve böbrek sintigrafisi ile yapılan değerlendirmede sırasıyla renal arter psödoanevrizması ve kan akımı olmayan böbrek gözlemlendi. Eksplozasyonda kanlanma tespit edilmeyen iskemik böbreğe, greft nefrektomi ve anevrizmaya primer onarım uygulandı. Gecikmiş greft fonksiyonu ve risk faktörü bulunan olgularda ERPA'nın ön tanılar arasında bulunmasını ve tanı amaçlı ileri görüntüleme yöntemleri kullanılmasını öneririz.

Anahtar Kelimeler: Böbrek transplantasyonu; gecikmiş greft işlevi; anevrizma, yalancı

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Extrarenal pseudoaneurysm (ERPA) following renal transplantation is a rare complication seen in 0.3% of renal transplant patient.¹ Arterial wall injuries, bad suture techniques and immunological factors are among the etiological factors.² This complication may cause hypertension, aneurysm rupture, delayed function and even loss of graft.³ The purpose of this study is to emphasize that ERPA should also be taken into consideration as an etiology of delayed graft function or graft loss.

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CASE REPORT

The patient is a 28-year old male, who had been on hemodialysis for 10 years after being diagnosed end stage renal failure secondary to vesicoureteral reflux. The patient underwent renal transplantation in the right iliac fossa. The kidney graft came from a 72-year-old female cadaver donor. There were atherosclerotic changes in kidney vasculature. Blood cultures taken from the donor came out clean. The cold ischemic time of the transplant kidney was 20 hours. During the postoperative period the diuresis of the patient increased gradually and on day 15 reached a volume of about 1000 mL/day. In the days that followed urine output showed a dramatic increase reaching >3000 mL/day. In addition serum creatinine did not decrease as expected; thereupon, the patient was put on hemodialysis with certain intervals according to his clinical parameters. The transplanted kidney was examined using Doppler ultrasonography (DUSG) once every three days. The DUSG images did not show any pathology in the transplanted graft. The upper, middle, and lower pole resistive index (RI) values were found to be between 0.6 and 0.7. Upon the decreased urine output on the 35th postoperative day, DUSG was repeated. The DUSG indicated a high flow rate in the renal artery. This is followed by a CT angiography that revealed a 5x4 cm ERPA with orificium located 5mm distal to the anastomosis between the renal artery and the external iliac artery (Figures 1, 2). The patient's urine output decreased dramatically within hours and anuria developed. Kidney scintigraphy (DTPA) performed upon the detection of the absence of blood flow in the transplanted kidney, and the patient was immediately taken into surgery. Surgical exploration revealed an ischemic kidney with no renal blood flow, graft nephrectomy and primary repair of the pseudoaneurysm were performed. Pathology report was consistent with pseudoaneurysm. Informed consent was obtained from the patient.

The other kidney taken from the donor was transplanted to a 38 year old female patient who has been on hemodialysis for 10 years. Although delayed graft function was observed during the



FIGURE 1: Extrarenal pseudoaneurysm origin.



FIGURE 2: Extrarenal pseudoaneurysm.

postoperative period, the patient is discharged with no problem. The patient's creatinine level during discharged was 2 mg/dL.

DISCUSSION

Pseudoaneurysms after renal transplantations are complications seen in less than 1% of cases.⁴ The locations of aneurysms might be intrarenal, extrarenal or on the iliac side of the anastomosis between the iliac artery and the renal artery.⁵ Pseudoaneurysms of the transplanted kidneys renal artery often lead to graft loss, even though different repair techniques are available. Transplants renal artery pseudoaneurysms are often asymptomatic.

Impairment of graft function, pulsatile mass, abdominal pain, lumbosacral plexopathy, chronic fever, and anemia are among the symptoms of extrarenal pseudoaneurysms.⁶⁻⁸

Delayed renal function, chronic fever, and low hemoglobin levels were observed in our patient. The fever was attributed to the growth of *Klebsiella pneumoniae* in blood and urine cultures. In abdominal and DUSGs there was no pathology that explains the low hemoglobin value. The pain on the right thigh and leg of the patient was evaluated as uremic myopathy on neurological examination.

Transplant kidney pseudoaneurysms should be treated in order to avoid probable rupture. Current data suggest that symptomatic, large (>2.5 cm), infected or progressively growing pseudoaneurysms should be treated. Small asymptomatic pseudoaneurysms may be managed conservatively.⁹⁻¹¹ The alternatives of therapy are; open surgical repair, endovascular repair, and ultrasound-guided percutaneous thrombin injection. DUSG was performed on regular intervals, and the

diagnosis of pseudoaneurysm was not reached. ERPA was diagnosed at CT angiography performed upon detection of low urine output. Renal scintigraphy revealed renal blood flow and the patient was urgently taken into surgery and because oliguria developed within hours. During the operation irreversible graft ischemia was observed, as a result, graft nephrectomy and primary repair was performed at the origin of the aneurysm as the aneurysm originated distal to the anastomosis.

CONCLUSION

ERPA is a rare seen complication in which graft loss can be avoided with early and appropriate therapy. In cases with delayed graft function, abdominal pain, unexplained extremity pain or high levels of serum creatinine pseudoaneurysms of renal artery should be considered and necessary imaging techniques should be employed for diagnosis. In our case could not be diagnosed by USG. We suggest advanced imaging methods in delayed graft function and patients with risk factors.

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