



Nephrology

SPONTANEOUS RETROPERITONEAL HEMORRHAGE FROM LUMBAR ARTERY RUPTURE FOLLOWING RENAL TRANSPLANTATION IN A LONG-TERM HEMODIALYSIS PATIENT: GRAFT SALVAGE WITHOUT NEPHRECTOMY

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ABSTRACT Spontaneous retroperitoneal hemorrhage after renal transplantation is exceedingly uncommon and may be misinterpreted as graft-related pathology. Prolonged dialysis predisposes patients to vascular fragility due to atherosclerosis and medial calcification. We describe a case of a 29-year-old man on long-term hemodialysis who developed acute retroperitoneal bleeding from ruptured lumbar arteries one week following deceased donor transplantation. The patient presented with abdominal distension, shock, and precipitous hemoglobin drop. Urgent CT angiography identified active extravasation from the 1st, 3rd, and 4th lumbar arteries. Successful transarterial embolization was achieved using metallic coils and polyvinyl alcohol particles, avoiding graft nephrectomy. Renal function subsequently recovered, and the patient was discharged with stable graft function. This report emphasizes the diagnostic importance of vascular imaging and highlights interventional radiology as a lifesaving strategy in post-transplant hemorrhage not attributable to the allograft.

KEYWORDS : Renal Transplantation, Retroperitoneal Hemorrhage, Lumbar Artery Rupture, Graft Salvage, Delayed Graft Function, Dialysis Vasculopathy, Interventional Radiology

INTRODUCTION

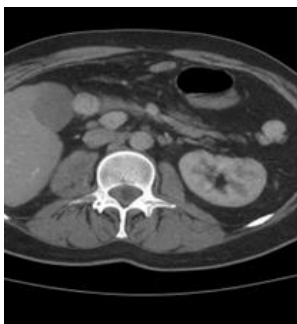
Retroperitoneal hemorrhage in the immediate post-renal transplant period is a rare but potentially fatal complication. Most commonly, hemorrhage is attributed to surgical site bleeding or graft-related causes [3]. However, long-term hemodialysis is associated with vascular wall changes, including medial calcification, fibrosis, and fragility, which may predispose to spontaneous arterial rupture [2,6]. Prompt recognition is critical, as unnecessary graft nephrectomy is often performed under hemodynamic instability [7].

Case Presentation

A 29-year-old male with end-stage renal disease secondary to dengue-associated sepsis and hypertensive nephrosclerosis had been on maintenance hemodialysis for six years. He underwent a deceased donor renal transplant with low-dose anti-thymocyte globulin (ATG, 50 mg) induction.

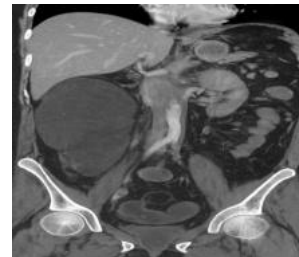
In the early postoperative period, he developed delayed graft function (DGF) due to biopsy-confirmed severe acute tubular necrosis, requiring three hemodialysis sessions. On postoperative day seven, he developed sudden painless abdominal distension, anuria, hypotension, and a sharp fall in hemoglobin.

Emergency CT angiography revealed large retroperitoneal hematoma with active contrast extravasation from the right 1st, 3rd, and 4th lumbar arteries. The allograft showed no vascular compromise.

Figures:

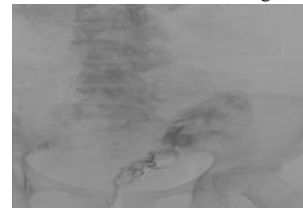
Panel (a) – Axial CT: shows a hypodense retroperitoneal collection

(hematoma) compressing the kidney, in line with “large retroperitoneal hypodense collection ~30 HU.”



Panel (b) – Coronal CT: demonstrates downward extension of the hematoma into the pelvic cavity, (“another collection extending into the pelvis”).

The patient underwent urgent transarterial embolization with three 80-mm and two 20-mm metallic coils along with polyvinyl alcohol (PVA) particles. Hemostasis was achieved without surgical intervention.



Panel (c) – Angiography: depicts active lumbar artery bleeding with embolization coils in place, managed with coil + PVA embolization.

Over the next week, urine output improved and serum creatinine stabilized at 1.8 mg/dL. He was discharged in stable condition with preserved graft function

DISCUSSION

Spontaneous lumbar artery rupture is exceedingly rare in renal transplant recipients. Only a few reports exist in literature describing spontaneous lumbar artery hemorrhage in dialysis patients [4,8].

Long-term dialysis patients are prone to arterial wall degeneration due to chronic uremia, secondary hyperparathyroidism, and vascular

calcification, which may contribute to unexpected arterial fragility [1,2,6].

This case highlights several key points:

- Retroperitoneal bleeding in post-transplant patients may not always originate from the graft [3,7].
- Misdiagnosis can lead to unnecessary nephrectomy and loss of functioning grafts [7].
- Urgent CT angiography is critical in differentiating graft versus non-graft sources of hemorrhage [3].
- Interventional radiology offers minimally invasive and highly effective management for vascular ruptures, avoiding high-risk surgery [5,7,8].

Our management was consistent with prior case reports where transcatheter embolization successfully controlled life-threatening hemorrhage while preserving graft function [7,8].

CONCLUSION

Retroperitoneal hemorrhage from lumbar artery rupture is a rare but important cause of hemodynamic collapse after renal transplantation, particularly in long-term dialysis patients. Early CT angiography and prompt embolization are crucial in ensuring graft salvage and patient survival. Adherence to case reporting guidelines, such as SCARE [9], enhances the reproducibility and educational value of rare case documentation.

Figure Legends

Figure 1: Radiological findings in a 29-year-old renal transplant recipient presenting with spontaneous retroperitoneal hemorrhage.

(a) Axial contrast-enhanced CT image demonstrates a large hypodense retroperitoneal collection (hematoma) displacing the transplanted kidney in the right iliac fossa.

(b) Coronal reconstructed CT image shows extension of the hematoma into the pelvic cavity, compressing adjacent structures.

(c) Digital subtraction angiography (DSA) reveals active contrast extravasation from the lumbar artery with successful coil embolization, resulting in cessation of bleeding.

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