

Trauma and reconstruction

## Spontaneous lumbar artery rupture in a kidney transplant patient: A case report

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### ABSTRACT

We experienced a case of retroperitoneal hematoma secondary to spontaneous lumbar artery rupture in a kidney transplant patient. A 48-year-old woman underwent kidney transplantation for end-stage renal disease. Fifteen days after transplantation, the patient presented with strong abdominal and back pain on the right side, and blood examination showed severe anemia. Contrast-enhanced computed tomography and emergent angiography was performed, which showed extravasation from the lumbar artery. Selective angiographic embolization of the lumbar artery was performed, and the patient received a transfusion of red blood cells, following which, hemoglobin increased to 7.6 g/dl. Renal function then stabilized, and anemia improved.

### Introduction

We experienced a case of retroperitoneal hematoma due to spontaneous lumbar artery rupture in kidney transplant patient. The lumbar artery bleeding was successfully controlled by intravascular embolization.

### Case report

A 48-year-old woman underwent kidney transplant for end stage renal disease due to IgA nephropathy. She was hospitalized 2 weeks before transplantation and performed immunosuppressive therapy. For ABO-incompatible transplantation, induction therapy consisted of basiliximab, rituximab, plasma exchange (PE) and double-filtration plasmapheresis (DFPP) followed by maintenance immunosuppression with tacrolimus, mycophenolate mofetil, and methylprednisolone. Because of delayed renal function, hemodialysis restart was needed in five days after transplantation. On the eighth day after transplant, spike wave form was recognized with Doppler echo in renal allograft. As a result of renal biopsy, we diagnosed acute antibody mediated rejection, and steroid pulse, intravenous immunoglobulin, PE, and rituximab injection was performed. Fifteen days later after transplant, she presented strong abdominal and back pain in the right side and hemoglobin dropped to 4.1 g/dl from 7.5 g/dl. Two hours later, hemoglobin further dropped to 3.7 g/dl and her systolic blood pressure decreased to 90/43

mmHg, we took a computerized tomography (CT) of the abdomen with rapid blood transfusion. A contrast-enhanced CT showed a large retroperitoneal hematoma and leakage of contrast medium (Fig. 1). Angiography was performed, which showed extravasation from the lumbar artery (Fig. 2). Selective angiographic embolization of the lumbar artery was performed and patient received 4 units of RBC, hemoglobin increased to 7.6 g/dl. Then her renal function began to improve gradually, it was able to stop dialysis after this day. Six days later after embolization, the hemoglobin level decreased from 7.6 g/dl to 6.9 g/dl and abdominal CT revealed pseudo aneurysm of the lumbar artery, it was performed embolization again. She was discharged on the 41st postoperative day without progression of anemia.

### Discussion

Spontaneous retroperitoneal hematoma mostly results from traumatic vascular injury, iatrogenic complication, aortic aneurysm, retroperitoneal neoplasm, and coagulopathy. Old age, renal dysfunction, hemodialysis, and anticoagulation therapy are regarded as risk factors of spontaneous lumbar artery rupture.<sup>1</sup> In our case, retroperitoneal hematoma occurred during hemodialysis using heparin for delayed graft function. Furthermore, steroid pulses and plasmapheresis performed as a treatment for rejection might affect lumbar artery rupture. Common symptoms and signs are progressive abdominal pain accompanying hypotension and subsequent development of abdominal mass.<sup>2</sup> The

Abbreviations: CT, computed tomography; RBC, red blood cells.

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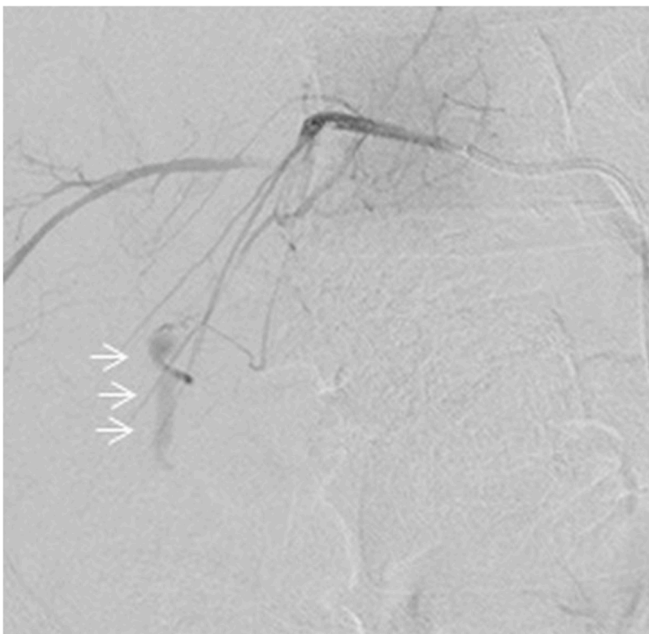
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**Fig. 1.** The abdominal CT image shows retroperitoneal hematoma with contrast leakage (white arrows).



**Fig. 2.** The angiography shows contrast extravasation from the right fourth lumbar arteries (white arrows).

spontaneous lumbar artery rupture is rare, however, it is potentially

lethal complications of anticoagulation therapy or hemodialysis.<sup>1,3</sup> For diagnosis, CT is useful for the initial evaluation of spontaneous lumbar artery rupture. Retroperitoneal masses are homogeneous and images showing relatively high concentrations in contrast CT indicate that blood is contained. Abdominal angiography is also useful for detecting active bleeding of the lumbar artery and further treatment. Treatment of retroperitoneal hemorrhage is usually conservative when abdominal compartment syndrome is not developing. Abdominal angiography and intravascular embolization are well documented and commonly done. The surgical management is difficult for both identification and management of bleeding sites.<sup>3</sup> With a large series of abdominal trauma patients and/or retroperitoneal hemorrhage, the success rate of embolization is 91–97%.<sup>4,5</sup> Early diagnosis and appropriate intervention are necessary to reduce the risk of morbidity and mortality; we should be kept in mind lumbar artery rupture in patients treated for anticoagulation therapy or hemodialysis with progressive abdominal pain accompanying hypotension and rapid onset of anemia.

#### Author contributions

Nobufumi Ueda carried drafted the manuscript. Hirohito Naito participated in the design of the manuscript. Mikio Sugimoto participated in its design and coordination and helped to draft the manuscript. All authors read and approved the final manuscript.

#### Declaration of competing interest

None declared.

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