

## Rupture of Adrenal Artery Pseudoaneurysm with Late Manifestation of Hypovolemic Shock

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### Abstract

Patient transferred to an intensive care unit due to sudden low back pain of strong character associated with transient hemodynamic instability and the necessity of volume expansion and blood transfusion. Image exams showed a large retroperitoneal hematoma on the left abdomen and elongated left adrenal artery with 2.3 cm diameter with the presence of active leakage of the inferior adrenal artery. Interventionist radiology was performed, and two pseudoaneurysms of the joint branch of the left adrenal / lumbar arteries were identified and treated. There are only two reported cases of traumatic adrenal artery pseudoaneurysm in the literature. This is the first report of hemorrhagic shock as a late manifestation of this condition.

**Keywords:** Pseudoaneurysm; Adrenal Artery; Hemorrhagic Shock.

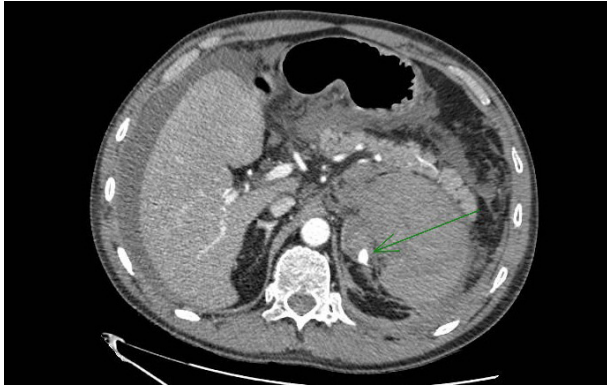
### Introduction

Emergency surgeries for ruptures of intra-abdominal aneurysms are common in medical practice. However, some aneurysms with unusual locations can be identified. In this article we are going to report a case of thoraco-lumbar trauma with late manifestation of retroperitoneal hematoma due to rupture of the left adrenal artery and a minimally invasive approach.

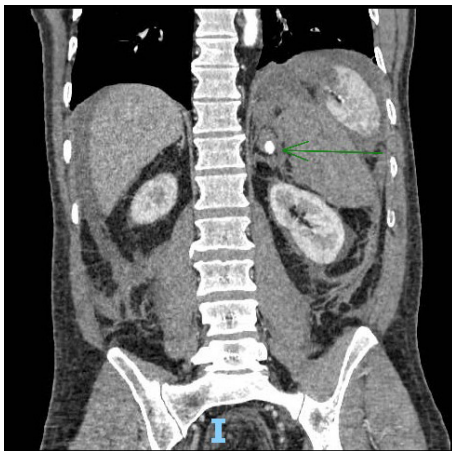
### Case Report

Male patient, 47 years old, transferred from the interior of the state to an intensive care unit in February 20 due to sudden low back pain of strong character associated with transient hemodynamic instability and the necessity of volume expansion and blood transfusion. History of falling from own height, with thoraco-lumbar trauma about 30 days ago. History of asthma and systemic arterial hypertension.

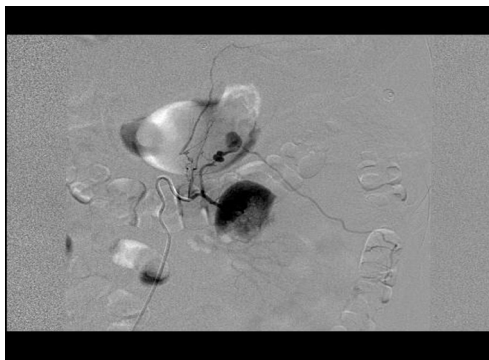
Admitted to the ICU with clinical signs of dehydration, oliguric and with hemodynamic instability. Laboratory overview at the arrival: hemoglobin 7.5g/dL; hematocrit 21.4%; creatinine: 3.25mg/dL; prothrombin time 12.1s; leukocytes 17480/mm<sup>3</sup>. Tomography of the abdomen was performed and revealed a hematoma measuring 12.3 X 6.9 cm posterior to the tail of the pancreas and anterior to the lower lobe of the left kidney with moderate amount of free liquid into the splenorenal and perihepatic space (Figure 1 and 2). Urgent angiotomography of the abdomen was requested, which showed a large retroperitoneal hematoma on the left abdomen, located anteriorly and superiorly to the left kidney, measuring about 21 cm x 10.5 cm x 7.5 cm with an estimated volume of 850 ml; elongated left adrenal artery with 2.3 cm diameter with the presence of active leakage of the inferior adrenal artery (Figure 3).



**Figure 1:** Axial cut of tomography of the abdomen revealing a hematoma measuring 12.3 X 6.9 cm posterior to the tail of the pancreas and cranial to the upper pole of the left kidney with moderate amount of free liquid into the splenorenal and perihepatic space. Left adrenal is not defined, observing a dense elongated image measuring 2,3cm, related to the focus of active leakage of the lower adrenal artery by rupture of left adrenal.

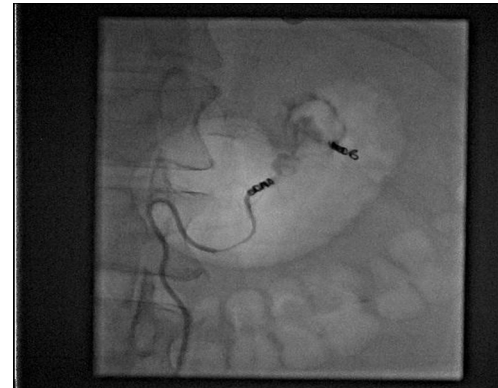


**Figure 2:** Coronal cut of tomography of the abdomen revealing a hematoma measuring 12.3 X 6.9 cm posterior to the tail of the pancreas and cranial to the upper pole of the left kidney with moderate amount of free liquid into the splenorenal and perihepatic space. Left adrenal is not defined, observing a dense elongated image measuring 2,3cm, related to the focus of active leakage of the lower adrenal artery by rupture of left adrenal.

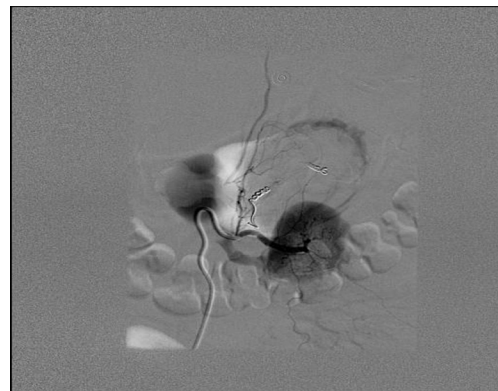


**Figure 3:** Initial angiography with image of pseudoaneurysm in the left adrenal artery.

Conservative management was initially opted, evolving with a drop in hemoglobin and hemodynamic instability, being indicated to interventional therapy 24 hours after hospital admission. Angiography demonstrated two pseudoaneurysms from a common left adrenal/lomber artery. Treatment was done with a superselective catheterization with a microcatheter of the afferent e efferent branches and embolization with microcoils (Figure 4 and 5). Patient evolved well and was discharged on the 5th postoperative day.



**Figure 4:** Image with the embolization microcoils positioned proximal and distal to the vascular lesion.



**Figure 5:** Final angiographic control showing devascularization of the pseudoaneurysm.

### Discussion

Pseudoaneurysms are uncommon and are characterized as fusiform or saccular dilations, probably representing a form of dissection, with rupture of the artery between the middle and adventitial layer of the vascular wall [1]. It has multifactorial causes, which can result from trauma, such as bruises, fractures and iatrogenesis [2].

The incidence of traumatic pseudoaneurysm ranges from 4-13% in arterial injuries [3]. There are only two reported cases of traumatic adrenal artery pseudoaneurysm in the literature [4, 5]. This report presents an atypical case of post-traumatic late bleeding, and it is important to consider two possibilities for the case: a hematoma was contained in the retroperitoneum with gradual progression and abrupt decompensation or an acute spontaneous rupture of a pseudoaneurysm, precipitated by several conditions, including systemic arterial hypertension.

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There is a lack of information about the natural course of post-traumatic pseudoaneurysm. Intervention radiology has been used as the primary approach in these cases with less morbidity and mortality and better results. Therefore, rupture of post-traumatic adrenal artery pseudoaneurysm is an extremely uncommon condition, being this the first report of hemorrhagic shock as a late manifestation of this condition.

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Victor Antônio Brocco wrote the manuscript. Pedro Miguel Goulart Longo and Fábio Herrmann edited the manuscript. Eduardo José Bravo Lopez and Alex Finger Hörbe reviewed the manuscript and provided the images. João Paulo Carlotto Bassotto, Mohamad Hassan Hamaoui and Roberta Dreyer Fernandes edited and approved the final version.

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