Case 7550

Eurorad

Pseudoaneurysm following percutaneous nephrolithotomy: CT demonstration and angiographic treatment

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Section: Cardiovascular
Case Type: Clinical Cases
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Patient: 63 years, male

Clinical History:

CT demonstrated a pseudoaneurysm in a patient with persistent haematuria following percutaneous nephrolithotomy. This was successfully embolised.

Imaging Findings:

CT demonstrated a pseudoaneurysm in a patient with persistent haematuria following percutaneous nephrolithotomy. After undergoing percutaneous nephrolithotomy, the patient had persistent moderately severe haematuria for 2 weeks. He was clinically stable but required bladder irrigation via an indwelling catheter.
CT was carried out to investigate the source of bleeding. Noncontrast and arterial-phase postcontrast images were obtained with a 16-slice multidetector CT. In addition to multiplanar reconstructions, 3D volume rendered (VR) and maximum intensity projection (MIP) images were generated.
A 1 cm hyperattenuating lesion was present in the lower pole of the right kidney in the arterial phase, which was non present in the noncontrast images. Although the feeding artery could not be definitively traced to it, the lesion was considered to be a pseudoaneurysm. CT also showed that there were two renal arteries on the left side, with a smaller accessory artery supplying the lower pole. This was well demonstrated on the 3D volume rendered images.
The patient proceeded to angiography, where the presence of a small pseudoaneurysm in the lower pole of the right kidney was confirmed, and shown to be supplied by the accessory artery. Superselective catheterisation was carried out and the aneurysm was embolised with a coil, following which the bleeding ceased and the patient made a good recovery.

Discussion:

Bleeding is a well recognised complication of percutaneous nephrolithotomy and other urological interventional procedures. Early haemorrhage may be venous or arterial in origin, and occur directly from the injured vessels. Delayed haemorrhage is usually due to post-traumatic pseudoaneurysm or a post-traumatic arteriovenous fistula [1-3].
The most appropriate method of treating iatrogenic renal vascular lesions is by superselective embolisation [3,4].
CT is useful prior to intervention for confirming and localising the source of haemorrhage. In many cases the vessel supplying the haemorrhagic lesion can be demonstrated. We carried out noncontrast and arterial phase imaging only, but other authors recommend additional delayed images [1-3] which may be useful for demonstrating continuing haemorrhage [2] or to evaluate the integrity of the collecting system [1].
In our patient the accessory artery was not well demonstrated in the initial flush arteriogram and could have been

overlooked by a less experienced angiographer, had it not been clearly demonstrated in advance by CT.
Differential Diagnosis List: Iatrogenic renal pseudoaneurysm

Final Diagnosis: Iatrogenic renal pseudoaneurysm

References:

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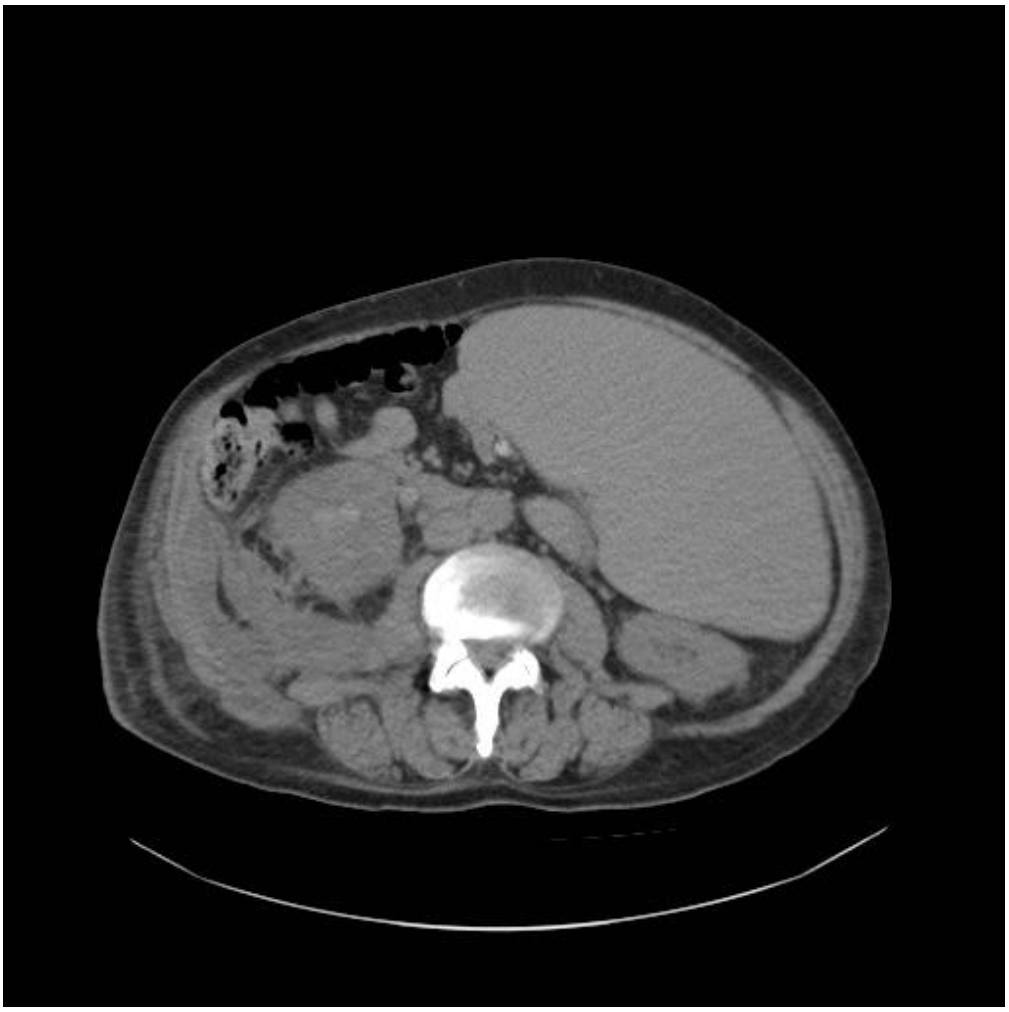
Figure 1

a

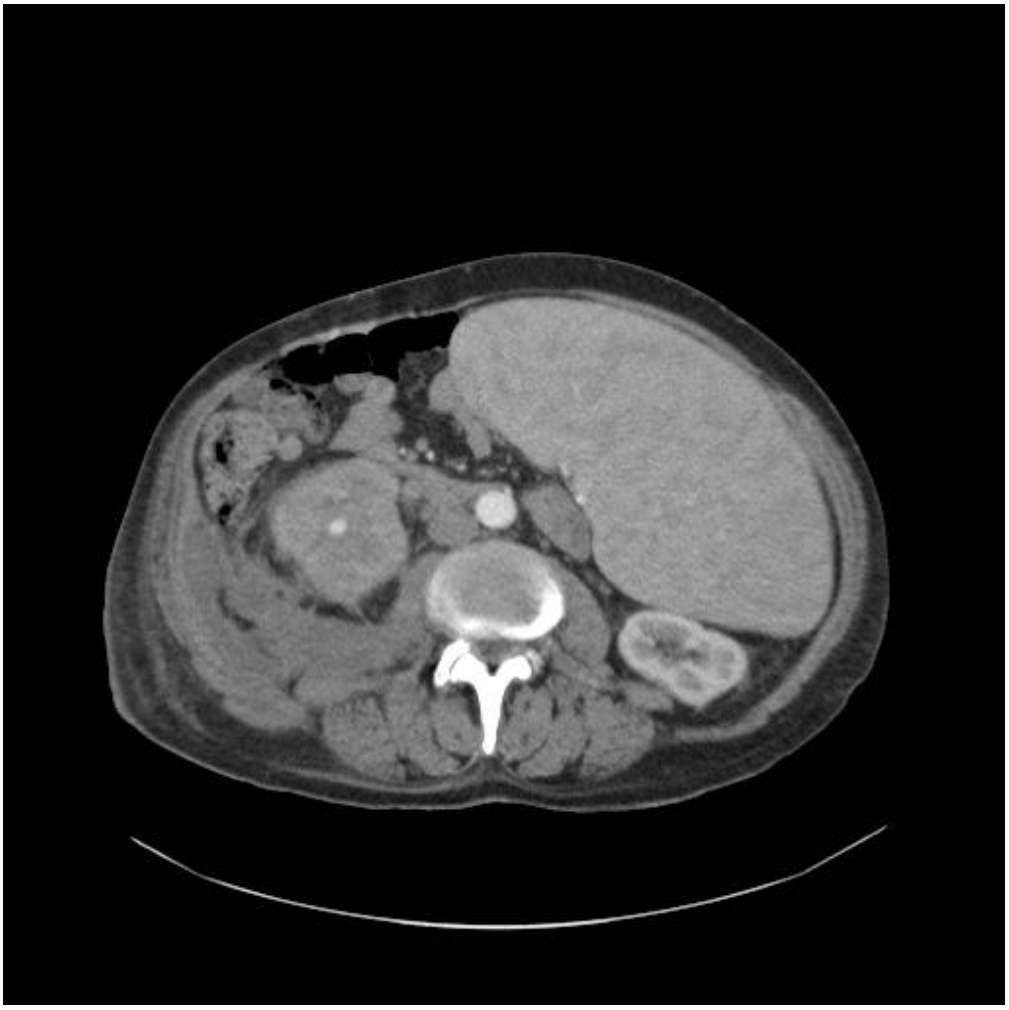


Description: Noncontrast axial image. Note splenomegaly due to haemochrmatosis. **Origin:**

b

Description: Noncontrast coronal image. **Origin:**

c



Description: Postcontrast axial image shows the hyperdense pseudoaneurysm, not visible in the noncontrast image. **Origin:**

d

Description: Postcontrast CT. Pseudoaneurysm shown in the coronal plane. **Origin:**

Figure 2

a

Description: Flush arteriogram. The main (superior) right renal artery is well opacified. The accessory (inferior) right renal artery and pseudoaneurysm in the lower pole are only faintly opacified and could be easily overlooked. **Origin:**

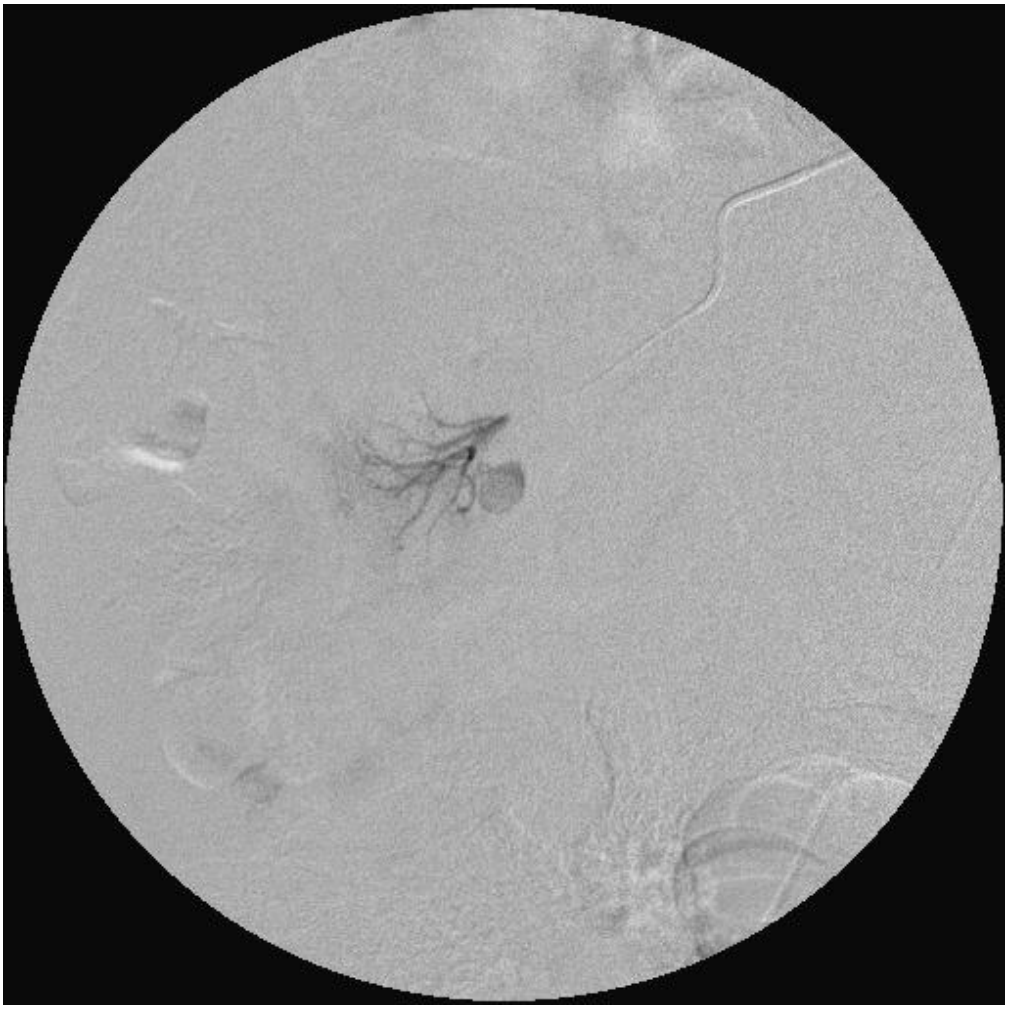
b

Description: Right main renal arteriogram **Origin:**

c

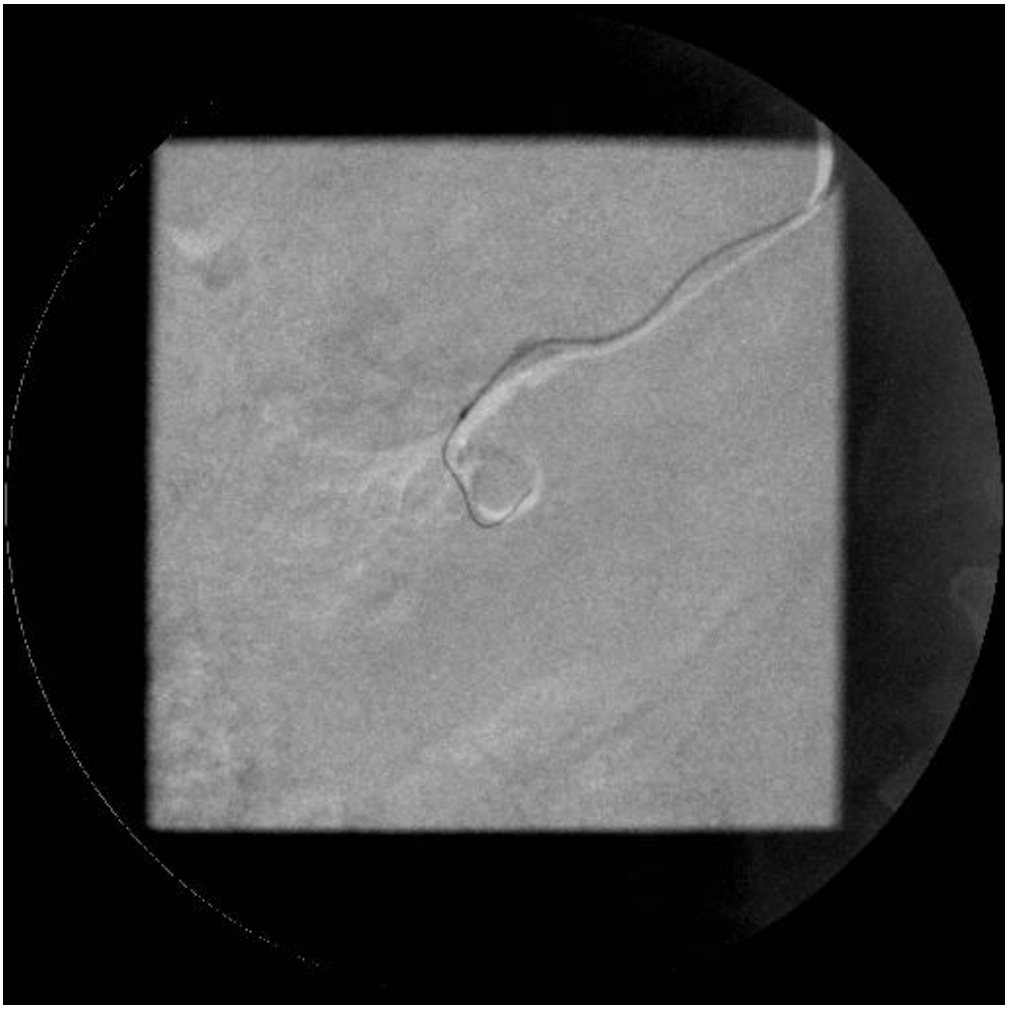
Description: Right accessory renal arteriogram. The pseudoaneurysm is clearly shown. **Origin:**

d



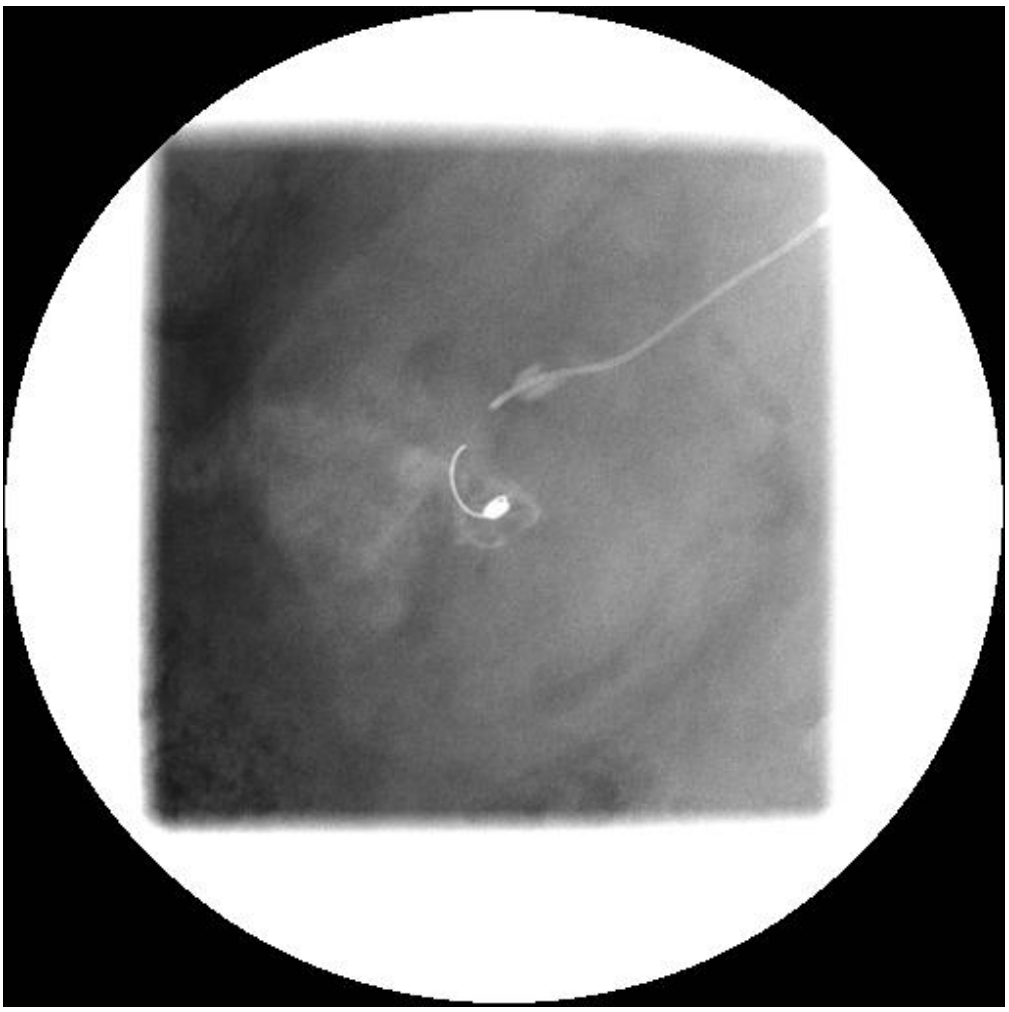
Description: Superselective arteriogram **Origin:**

e



Description: Deployment of coil **Origin:**

f



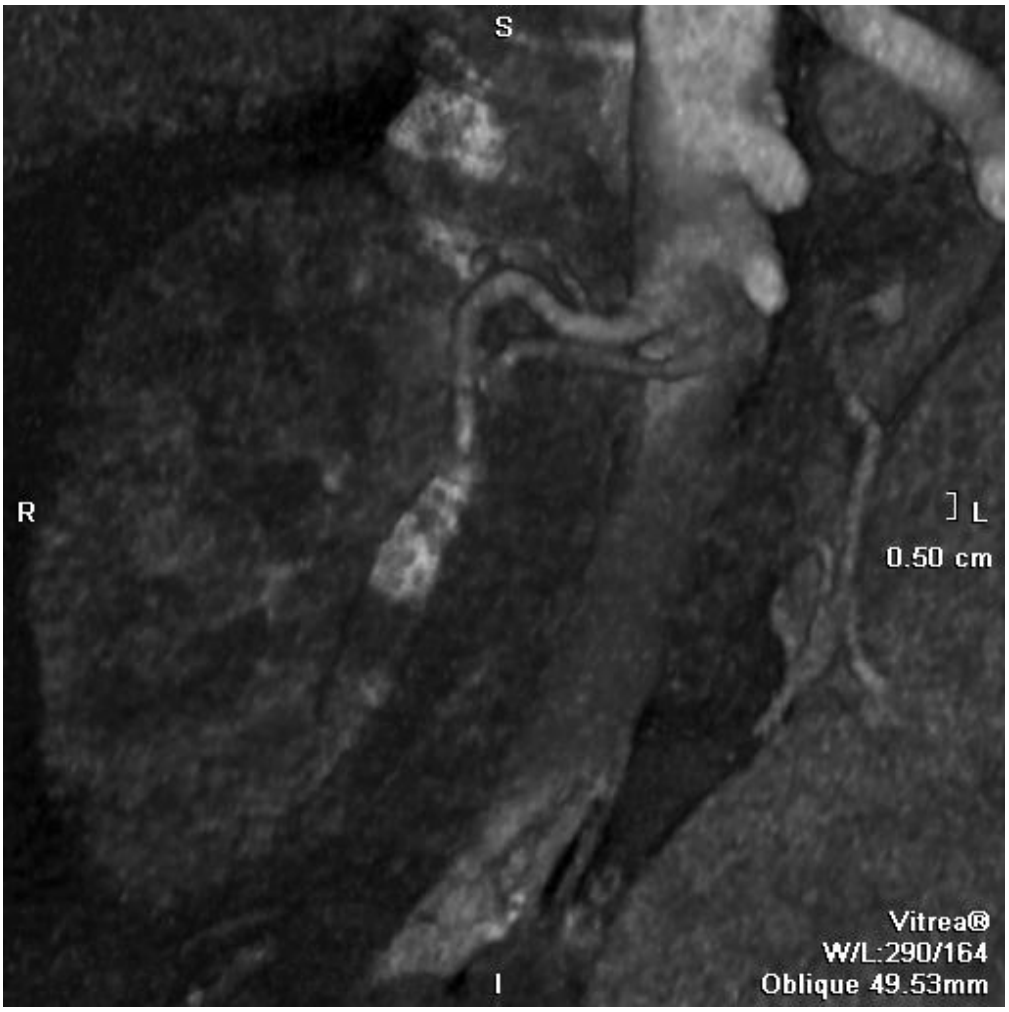
Description: Coil depoyed. **Origin:**

g

Description: Post embolisation superselective arteriogram. No bleeding or opacification of pseudoaneurysm. **Origin:**

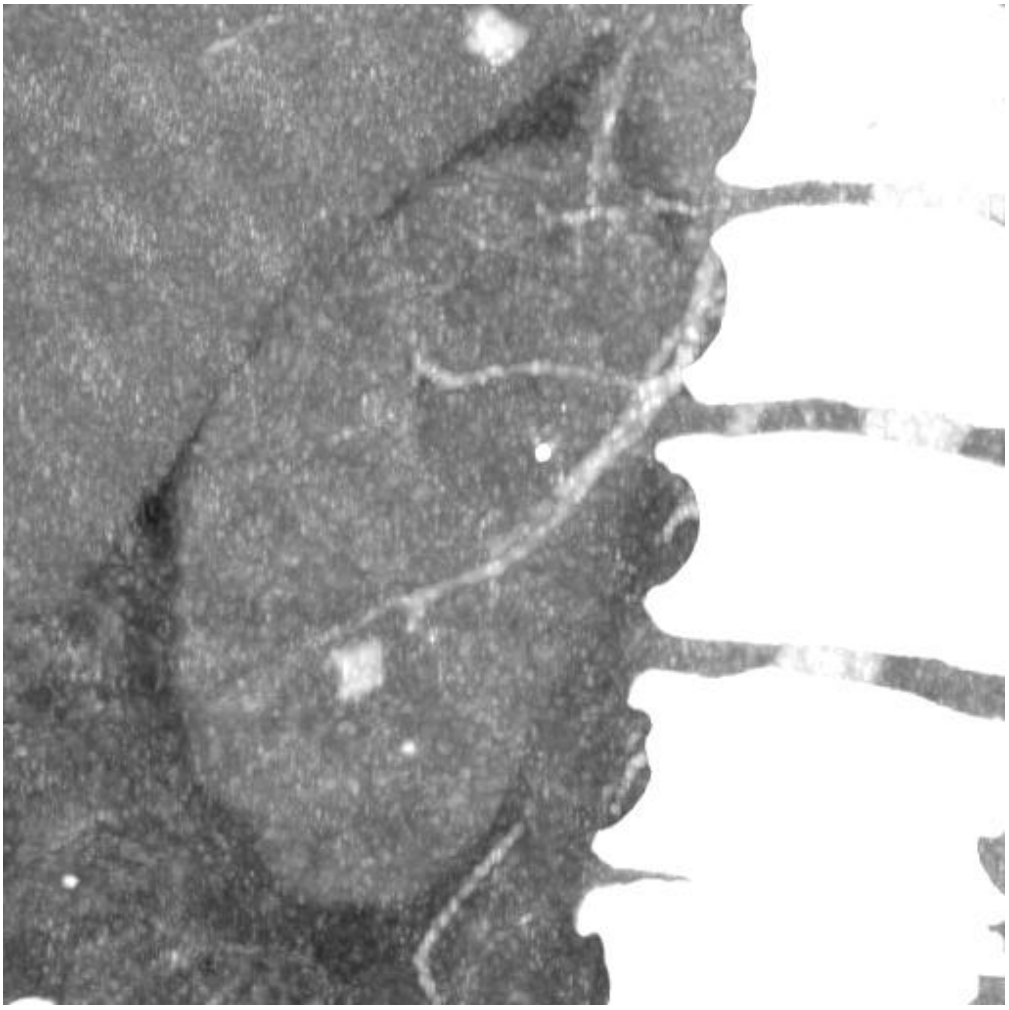
Figure 3

a



Description: Volume rendered 3D image clearly shown two renal arteries on the right side. **Origin:**

b



Description: Maximum intensity projection shows accessory (inferior) right renal artery and pseudoaneurysm **Origin:**