

Renal Pseudoaneurysm

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Patient history

A 78-year-old male patient with history of hypertension and recent partial nephrectomy post renal carcinoma arrived at the emergency ward due to an evident hematuria. An angiotomography was performed in triage which revealed a right renal artery pseudoaneurysm. The patient was admitted, initiating medical therapy by blood transfusion, pain relievers and beta-blockers. After this first approach, he evolved asymptotically without showing hemodynamic alterations.

Initial situation

The laboratory result showed severe anemia of 6.4 gr/dL. A renal arteriography was performed after establishing access through the femoral artery with a 5 Fr. sheath. We then performed a diagnostic angiography which revealed the pseudoaneurysm of an efferent branch of the upper portion of the right renal artery.

Procedural course

We continued with selective catheterization of the right renal artery, placing a Vista Brite tip 8Fr. guide catheter at the renal artery and a microcatheter inside the pseudoaneurysm sac. We first coiled the pseudoaneurysm with 3-4-5 mm endo coils. We then implanted a 3.5 x 24 mm Bentley Be Graft coronary covered stent at 14 atm. Afterwards we advanced a 0.014"ATW guide wire through the stent for distal run off. After this, an angiography was performed to ensure stent patency. We applied knowledge in treating aortic aneurysms to ensure a good proximal and distal neck for apposition to prevent type I endoleaks. We do measurements before each case by studying the CT scan for correct diameter and stent length choice.

Figure 1: A. Angiography with B. Coiling of the aneurismal C. Be Graft coronary stent pseudoaneurysm sac. excluding ruptured vessel. extravasation and the passage of contrast to the renal vein.

Comments and Conclusion

Renal artery pseudoaneurysms arise from blunt or penetrating trauma and occasionally from iatrogenic causes such as renal artery catheterization or after a nephrectomy. It is an indication for emergency surgery. This complication is associated with a mortality rate of 10% in men and non-pregnant women.

These pseudoaneurysms present contained ruptures of the renal artery, with only inflammatory and fibrous tissue encasing the leak. Clinical manifestations of renal artery aneurysms include pain, hematuria, and hypertension or hypotension.

In hemodynamically stable patients, an emergency CT scan may reveal the pathology and allow the surgeon to plan the chosen repair technique. In open surgery the juxtarenal hematoma after the ruptured renal artery may not allow safe exposure of the proximal renal artery or even the aorta above the renal arteries needed for clamping to obtain proximal control. Therefore, due to the increased morbidity of the surgical dissection, in most cases a nephrectomy is required because of the instability of the patient or the kidney's limited warm ischemic time (less than 30-60 minutes in healthy patients).

Endovascular first approach is recommended on stable patients only, however, we recommend an "endovascular first" approach is a better, less invasive, quicker and safer approach for unstable patients as well.