Dissection and ruptured pseudoaneurysm of a renal artery: a non-described complication during transcatheter aortic-valve implantation

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A 72-year-old man with severe symptomatic aortic stenosis and multiple comorbidities (logistic Euroscore: 10.29%) was rejected for conventional valvular surgery because of high surgical risk. After a thorough evaluation, a transcatheter aortic-valve implantation (TAVI) was performed by transfemoral access, and there were no immediate complications.

After 72 h, the patient developed abdominal pain radiating to right lower quadrant, associated with anaemia and hypotension. An emergent CT-scan revealed a dissection and a ruptured pseudoaneurysm of the right renal artery (RRA) (Figure 1A and B, asterisk) with a high-flow active bleeding (Figure 1D, arrow) resulting in a large retroperitoneal hematoma (Figure 1C and E, asterisk). Percutaneous embolization of the RRA was required to control bleeding. Six months later, the patient remains stable with mild renal dysfunction.

In the emergent CT-scan, a calcium spicule on the RRA ostium was observed (Figure 1A and B, arrow). During the procedure, the probable impact of the sheath at that level could have produced the RRA dissection, resulting in a pseudoaneurysm which rupture occurred 72 h later.

Vascular complications of TAVI are common and worsen the prognosis. Most are related to closure devices failure and some predictors are operator experience, femoral calcification, and sheath-to-femoral artery ratio. To prevent them, ultrasound guidance during the intervention and follow-up after TAVI should be considered, in particular, if difficulties occurred during the procedure. To the best of our knowledge, we describe for the first time a dissection and ruptured pseudoaneurysm of the renal artery as a rare but severe complication related to TAVI.