

The journey, not the destination: Renal cholesterol embolization secondary to coiling of a ruptured intracranial aneurysm

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INTRODUCTION: Renal cholesterol embolization, or atheroembolic renal disease, occurs when cholesterol crystals occlude the renal vasculature and cause renal impairment. Well-recognized iatrogenic causes of this are cardiac catheterization, vascular procedures and fibrinolytic therapy. We report the first case to our knowledge where renal cholesterol embolization occurred following an intracranial procedure.

CASE: A 57 year old man presented to hospital with a headache on a background of hypertension, peripheral vascular disease and coronary artery disease. Imaging revealed an anterior communicating artery aneurysm with secondary intracerebral and subarachnoid haemorrhage. He underwent emergency coiling of the aneurysm. Access was obtained via right groin arterial puncture using a 6F sheath. From Day 9 post-procedure his renal function rapidly deteriorated from a normal baseline (Creatinine <80 µmol/L, eGFR>60 mL/min) to a peak Creatinine 316 µmol/L and eGFR 18 mL/min. This was associated with a persistent eosinophilia and raised ESR. His autoimmune, myeloma and virology screen were unremarkable. Renal biopsy showed the presence of cholesterol emboli on a background of chronic hypertensive changes. Subsequent imaging of his aorta showed widespread atherosclerosis with mural thickening of the thoracic and abdominal aorta in addition to a 4cm abdominal aorta aneurysm with common iliac extension bilaterally. Blood pressure control was achieved and he only had minimal improvement in his renal function at time of his discharge.

DISCUSSION: Renal cholesterol embolization occurs in the presence of aortic atherosclerosis and though it can occur spontaneously, it is now more commonly iatrogenic. In a majority of cases it presents in a subacute manner, typically more than a week after the causative event. Though any procedure requiring access via an atherosclerotic aorta could dislodge cholesterol crystals, there have been no reports of renal cholesterol embolization as a result of intracranial coiling. Thus, renal failure following endovascular intracranial procedures via femoral access should raise the suspicion of renal cholesterol embolization, especially in the presence of risk factors, eosinophilia or extra-renal sites of embolization.