Acute Renal Infarction and Cholesterol Crystal Embolism Due to Plaque Rupture in a Renal Artery

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Renal infarction can result in deterioration of renal function, and atherosclerotic plaque rupture leading to in situ thrombosis in the renal arteries has been reported.1 We present a case of cholesterol crystal embolism (CCE) after renal infarction with plaque rupture revealed by intravascular ultrasound (IVUS).

An 80-year-old male patient with hypertension was diagnosed with acute left renal infarction by contrast-enhanced computed tomography and angiography (Figure A,B). IVUS showed plaque rupture and thrombi in the culprit lesion (Figure C). A 6.0/18 mm stent was implanted under distal protection without any predilatation to prevent distal embolization. The final angiogram revealed optimal revascularization without any complications (Figure D). However, 3 weeks later, his renal function worsened and the serum eosinophil count gradually increased. Because CCE in the left kidney was strongly suspected, a percutaneous renal biopsy was performed, which revealed crystals of cholesterol in the small renal arteries (Figure E), confirming the diagnosis.

IVUS of plaque rupture is useful as a reminder of the possibility of CCE. Careful follow-up of renal function is necessary after angioplasty for renal infarction, and renal biopsy should be performed for unexpected worsening of renal function in cases of such a rupture.

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Figure. (A) Contrast-enhanced computed tomography. (B) Initial angiogram. (C) Intravascular ultrasound images showing the plaque rupture (small arrows), and thrombus (large arrows). (D) Final angiogram. (E) Pathological image of the renal cortex showing a cholesterol crystal in a small artery (arrows).