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STUDIUM PRZYPADKU / *CLINICAL VIGNETTE*

Ruptured plaque in the renal artery by optical coherence tomography

Pęknięta blaszka miażdżycowa w tętnicy nerkowej. Optyczna tomografia koherentna

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Coronary plaque rupture (PR) may be the trigger for platelet accumulation, subsequent thrombus formation, and acute coronary syndrome (ACS). Case series have suggested that conservative treatment of no-flow limiting coronary lesions with the feature of PR is relatively safe. Little is known about PR in the renal arteries. We present a case of PR in the renal artery confirmed by optical coherence tomography (OCT). A 67-year-old male patient with chronic kidney disease stage 3, arterial hypertension, and diffuse atherosclerosis was referred for renal arteriography. Having been treated with four antihypertensive drugs, the patient's blood pressure (BP) was suboptimal. The mean BP was 155/77 mm Hg (max. 192 mm Hg) in 24-h ambulatory BP monitoring (ABPM). Baseline glomerular filtration rate (GFR) was 38 mL/min/1.73 m^2. Colour Doppler ultrasound strongly suggested significant stenosis of the left renal artery and borderline stenosis of the right renal artery. Angiography confirmed significant lesion at the ostium and proximal segment of the left renal artery with complex lesion in the mid segment, strongly suggesting PR (Fig. 1A). Pre-interventional OCT was done (Fig. 1B–G) and off-line OCT analysis confirmed the presence of PR (Fig. 1C–E). Minimal lumen area (MLA) was 6.1 mm^2. Two cobalt-chromium bare metal stents were implanted with short overlapping segment, with good angiographic result. Because the first post-interventional OCT run showed malapposed stent struts at the level of PR, postdilatation with non-compliant balloon (Quantum Maverick 5.0 × 20 mm at 12 atm.) was done with a final MLA of 12.1 mm^2. No acute contrast-induced nephropathy was observed, and GFR increased from 38 mL/min/1.73 m^2 to 44 mL/min/1.73 m^2 two days after the procedure. After negative STAR, ASTRAL, and CORAL trials, indications for stenting of renal arteries are very limited and are discussed elsewhere. There are very few studies of PR in peripheral arteries as assessed by intravascular ultrasonography (IVUS), and there are no reports of ruptured plaques in renal arteries by OCT. In the IVUS study by Matsuo et al. [Atherosclerosis, 2012; 223: 365–3671], 6% of plaques in the renal arteries had the feature of rupture in the selected cohort of patients, which was comparable to the frequency of PR in carotids and iliac arteries. Peripheral PRs were characterised by more stable phenotypes compared to coronary PRs. The outcome of no-flow limiting PR in the renal arteries, left untreated, remains unknown. However, taking into account rarely seen *in-situ* acute renal artery occlusion, the benign characteristic of such a finding may be hypothesised. In our case, OCT was instrumental for elucidating the complex angiographic appearance of the renal artery and confirmation of PR presence. OCT was also practically helpful in guiding the procedure, assessing the diameter of the vessel, the length of the degenerative lesions, stent apposition, and presence of residual plaque protrusion.

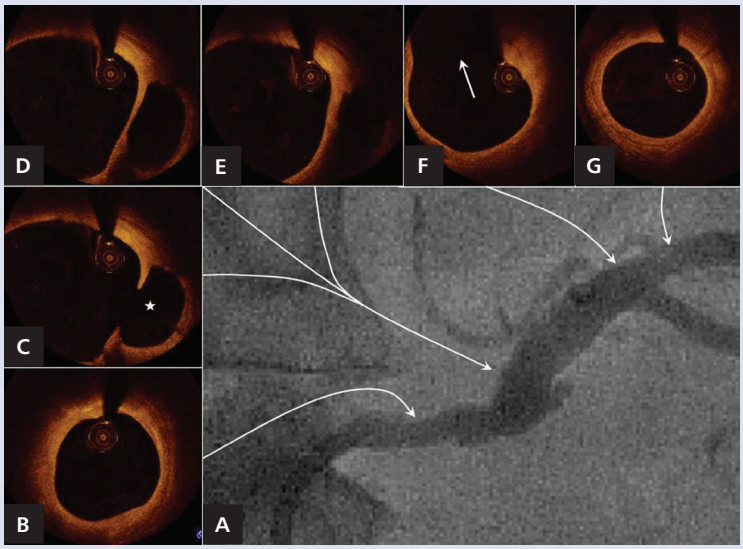

Figure 1. **A**. Angiography — magnification of the left renal artery; **B**–**G**. Optical coherence tomography images: **B**. Concentrically stenosed, proximal segment of the left renal artery; **C**–**E**. Mid segment with the empty cavity of ruptured plaque (asterisk); **F**. Take-off of the side branch; **G**. Distal segment

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