Acute vessel occlusion after coronary stenting: intravascular ultrasound diagnosis of extensive intramural haematoma

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A man of 72 years old was admitted for acute coronary syndrome. In the coronary angiogram, a subocclusive coronary stenosis in the proximal right coronary artery (RCA) was found (Panel A). A bare metal stent was implanted with a good angiographic result (Panel B).

One hour later, he presented an acute inferior myocardial infarction. An emergency angiogram showed occlusion of the middle segment of the RCA (Panel C). A PCI was performed. During PCI, a floppy guidewire did not progress smoothly across the occlusion. So another wire was advanced to cross the occlusion to the distal bed.

In the control angiogram, a filling defect beginning downstream of the stent to the end of the RCA was observed (Panel D). By IVUS imaging, an intimal rupture upstream of the stent was noted with an extended intramural haematoma (Panel F) and an external compression of the lumen distally. The first guidewire was into the false lumen (Panel G). Three bare metal stents were implanted with overlapping: one upstream and two downstream of the first stent with a final TIMI 3 flow (Panel E). Nevertheless, the dissection flap persisted in the distal segment. IVUS imaging ensured that the entry site was sealed, haematoma compressed by the stent. An angiographic control 1 month later found an excellent result with a healed dissection.

In this case, IVUS imaging provided an understanding of the mechanism of this acute vessel occlusion resulting in vessel compression by an extravascular haematoma and helped to guide its management.