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Successful transcatheter stent retrieval after stent dislodgement in the left main coronary artery

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ESC Curriculum 3.1 Coronary artery disease • 3.4 Coronary angiography

Case

A 48-year-old female with history of heart and lung transplant presented with dyspnoea due to severe coronary allograft vasculopathy. She had undergone prior percutaneous interventions to optimize quality of life.

Coronary angiography revealed focal in-stent-restenosis (ISR) of an obtuse marginal branch (*Figure 1A*). After successful lesion preparation

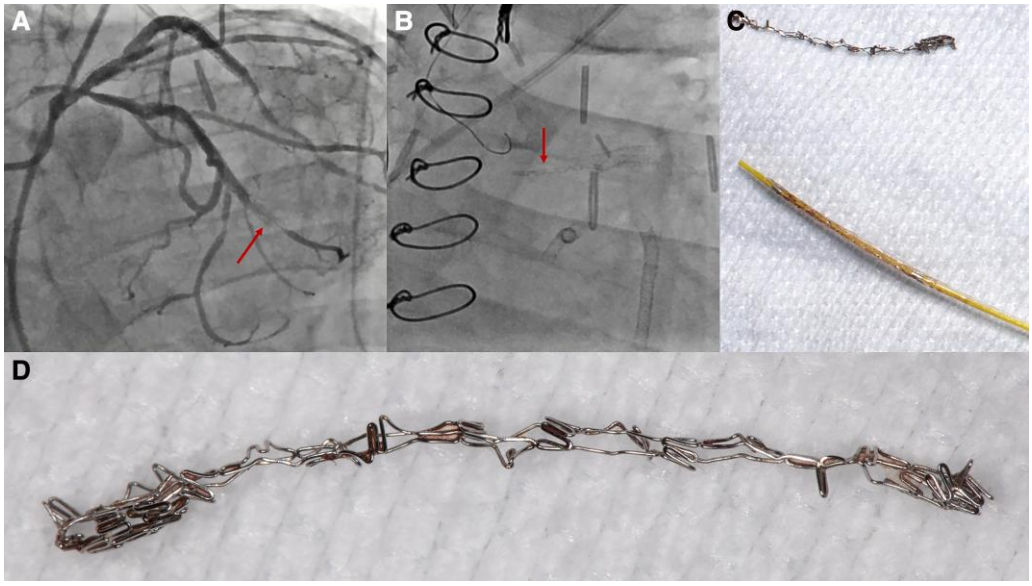

Figure 1 Successful transcatheter stent retrieval after stent dislodgement in the left main coronary artery. (*A*) Angiography showing severe, focal in-stent-restenosis of a previously placed stent (arrow). (*B*) Fully dislodged and avulsed 2.5 × 15 mm Onyx stent in the left main (arrow). (*C*) Photos of the stent delivery system after successful stent retrieval. (*D*) Zoomed in photos of the retrieved stent showing the unravelled stent frame and distorted ends.

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with balloon inflations, we advanced a 2.5 × 15 mm Onyx Frontier™ (Medtronic) stent but met resistance at a prior left anterior descending (LAD) stent covering the circumflex ostium. Withdrawal of the delivery catheter resulted in partial dislodgement of the undeployed stent in left main (LM).

A buddy wire was introduced into the guide catheter, and a 2.25 mm balloon inflated alongside the proximal stent within the guide catheter following which the entire system was carefully retracted. The stent separated from the delivery balloon and remained in the LM. (*Figure 1B*) Snaring with a 6Fr 20 × 120 mm ENSnare® (Merit Medical) was unsuccessful. Upsizing to an 8Fr 30 × 120 mm ENSnare® allowed stent retrieval and removal. (*Figure 1C* and *D*; see Supplementary material online, *Video S1*) No vessel disruption in the LM or circumflex was seen. The target lesion had minimal residual stenosis from the preceding balloon inflations, and no further intervention was performed.

Risk factors for stent dislodgement include coronary tortuosity, angulation, and calcification/prior stents. Unexpected difficulties in advancing stents should prompt gentle retraction and further lesion preparation to avoid stent deformation.[1] The crossing profile and flexibility of stent delivery systems also need to be considered. Intra-coronary imaging to assess the mechanism/severity of ISR and evaluate the proximal disease may have altered the treatment strategy across the ostial circumflex prior to attempting distal obtuse marginal intervention but unfortunately was not used in this case. Despite ensuring intra-luminal wire position without entanglement/interference with other stents and balloon delivery across the stent struts without any difficulty, the distal tip of the stent engaged the LAD stent covering the circumflex ostium preventing further advancement. Bailout strategies for complex ISR intervention include balloon angioplasty alone (as in this case) and a drug eluting balloon, but these are currently unavailable in this country. Frequency of stent dislodgement has decreased, but knowledge of bailout strategies is limited.[1] Operators should be aware of retrieval options and complications. Percutaneous solutions include distal balloon trapping within the guide, snaring, or crushing the dislodged stent against the coronary wall and re-stenting.[1–3] In this case, after unsuccessful balloon trapping, snaring facilitated successful stent retrieval.

Supplementary material

Supplementary material is available at *European Heart Journal – Case Reports* online.

Consent: Consent form was signed and obtained from the patient in accordance with COPE guidelines for the publication of the case report.

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Data availability

The data underlying this article are available in the article and in its online supplementary material.

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