Retrieval of a dislodged coronary stent: The more distal from central arterial tree, the safer

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DOI: 10.33963/v.phj.101935

Received:
July 13, 2024

Accepted:
August 5, 2024

Early publication date:
August 8, 2024

A 77-year-old male presented to the emergency department experiencing palpitations. Medical history included diabetes, dyslipidemia, smoking and treated colon cancer. Echocardiogram indicated inferior hypokinesia. Coronary computed tomography angiography identified a significant lesion in the proximal right coronary artery (RCA).

Coronary angiography through the right radial artery confirmed significant proximal RCA stenosis. We predilated with a 3.5 × 15 mm non-compliant (NC) balloon, and implanted a 4.5 × 31 mm stent. After post-dilatation, haziness was observed at the proximal stent edge, and a 4.5 × 12 mm overlapping stent was implanted. After implantation, the second stent migrated and encircled the tip of the guide catheter, forming a ring (Figure 1A, red circle). To avoid further migration of the stent, we advanced a second coronary wire, shaped into a large hook-like loop, and inflated a 5.0 × 15 mm NC balloon at the tip of the catheter on the main wire (Figure 1B, red circle) while the entire setup was retracted to the subclavian artery (Figure 1C, red circle). We retracted the stent in the forearm, but it was impossible to bring the 4.5 mm stent into the much smaller radial artery. Therefore, we decided to deploy it in the brachial artery with simultaneous inflation of two NC balloons, each 3.5 × 12 mm (Figure 1D). Even though angiography confirmed patency of the brachial artery, due to placement of the stent within a mobile joint the patient was referred for surgical extraction (Figure 1E).

Xenogiannis et al. [1] described the retrieval of a dislodged coronary stent from the RCA back to the ascending aorta and subsequently to the right subclavian artery, where it was finally implanted. In contrast to that case description, we opted to implant the dislodged stent in the forearm over the subclavian artery due to the latter's larger diameter, which could endanger stent migration. The diameter of the brachial, radial and ulnar arteries is smaller than 4.7 mm, and thus can safely accommodate common stent dimensions, minimizing the risk of late migration compared to the much wider subclavian artery [2]. Furthermore, the subclavian artery is the sole arterial supplier to the upper limb; thus, in-stent restenosis in the subclavian artery could lead to ischemia of the upper extremity, whereas the radial artery has less chance of serious forearm ischemia since adequate perfusion is provided by the ulnar and interosseous arteries [3]. Additionally, if surgical extraction of the stent is deemed necessary, surgical access is straightforward in the forearm compared to the subclavian region.

Alternatively, snaring is a standard technique to remove a dislodged stent *via* the femoral approach. In our case, the dislodged stent was already inflated at 4.5 mm. Therefore, a large bore (minimum 14 Fr) femoral sheath would be required to accommodate the expanded stent and increase the chances of successful removal, at the cost of an elevated bleeding risk (patient on full antithrombotics).

In conclusion, successful management of a dislodged stent requires retrieval from the central arterial tree in an appropriate anatomical locum of the peripheral circulation, where it can be safely implanted or removed from the patient's body.

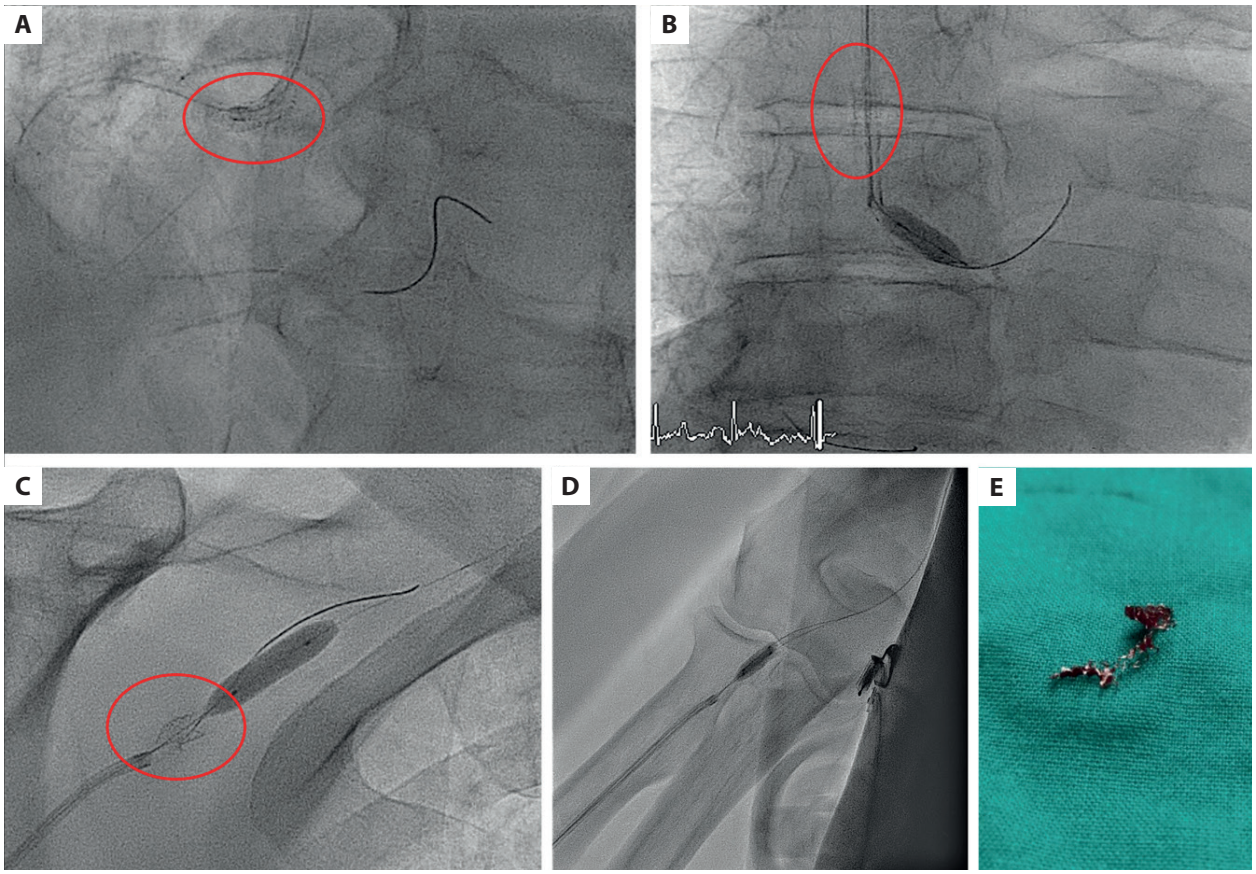

Figure 1. Dislodged stent encircling tip of guide catheter (**A**, red circle). To avoid further migration of stent, a 5.0 × 15 mm non-compliant balloon was inflated at tip of catheter on main wire while a second wire with a large loop was advanced (**B**, red circle). Entire setup was carefully retracted to subclavian artery (**C**, red circle). Stent deployment in right brachial artery with concurrent inflation of two non-compliant balloons, both 3.5 × 12 mm (**D**). Surgical extraction of stent from brachial artery (**E**)

Article information

Conflict of interest: None declared.

Funding: None.

REFERENCES

1. Xenogiannis I, Pavlidis AN, Kaier TE, et al. Late stent dislodgement after aggressive post-dilatations: If you cannot retrieve it, deploy it! Pol Heart J. 2024, doi: 10.33963/v.phj.101284, indexed in Pubmed: 38988240.
2. Pham XBD, Kim JJ, Parrish AB, et al. Racial and gender differences in arterial anatomy of the arm. Am Surg. 2016; 82(10): 973–976, indexed in Pubmed: 27779986.
3. Antoniades K, Kotoulas SC, Iliopoulos D, et al. Coronary angiography through the interosseous artery: expanding the limits of the wrist approach. J Invasive Cardiol. 2024, doi: 10.25270/jic/24.00164, indexed in Pubmed: 38814904.