



## **When an interventional cardiologist needs to be a vascular surgeon: Successful management of coronary stent loss in a nonagenarian**

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## **When an interventional cardiologist needs to be a vascular surgeon: Successful management of coronary stent loss in a nonagenarian**

**Short title:** Stent loss treated surgically by the cardiologist

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Stent loss and embolization, although rare (<1%) since factory crimping was introduced, have not been entirely eradicated. Stent retrieval techniques are often challenging, and evidence for their effectiveness is restricted mainly to case reports and case series [1]. Here, we present a case of a 91-year-old male who was admitted to the cath lab due to chest pain, complete atrioventricular block, and ECG recording revealing ST-segment elevation myocardial infarction of the inferior wall. The patient had a history of permanent atrial fibrillation, dyslipidemia, gout, and two stroke episodes. The immediate coronary angiography showed lesions not exceeding 50% in diameter stenosis in the left coronary artery and 90% stenosis in the proximal segment with complete occlusion in the mid-portion of the right coronary artery (RCA) (**Figure 1A**). Initially, the successful predilatation was performed in proximal and mid RCA segments with a 3.0 × 20 mm balloon catheter. During stent advancement (Alex Plus 4.5 × 22 mm, Balton, Poland) to the mid/distal RCA segment (**Figure 1B**, Supplementary material,

*Video S1*), the stent detached from the balloon catheter and remained in the proximal/mid RCA (**Figure 1C**). The coronary balloon catheter River 1.5 × 15 mm (Balton, Poland) was advanced throughout the stent, then it was inflated at 4 atm, and the whole system was retrieved from the RCA (**Figure 1D**, Supplementary material, *Video S2*). However, we could not introduce this system into the vascular sheath. After some struggling time, we decided to cut the skin around the access site in the left radial artery, and we successfully removed the stent with a clamp pean (**Figure 1E**, Supplementary material, *Video S3*). The incision was closed with two non-absorbable sutures, and the procedure was continued from the right radial artery. Before stent advancement, the lesions were predilated with 3.5 × 20 mm and 4.0 × 20 mm balloon catheters (River). Finally, the 4.0 × 22 mm Alex Plus stent was deployed distally and postdilated with a non-compliant balloon catheter River NC 4.5 × 20 mm at 18 atm (Balton). In the proximal segment, we implanted a 4.5x22 mm Alex Plus stent (18 atm) (**Figure 1F**). We restored the coronary lumen as well as coronary flow completely (TIMI 3), and the patient was discharged after three days without permanent cardiac stimulation on clopidogrel (75 mg) and apixaban (2 × 2.5 mg) as the only antithrombotic therapy.

Stent loss occurs more frequently in calcified lesions and/or significant proximal angulation. And this was also our case. We also used the common technique to remove the stent; however, in the end, it was not ultimately successful. Brilakis et al. [2]described the frequency use of stent retrieval methods: advancing a balloon through the stent, inflating the balloon, and withdrawing the stent (45%); twisting two guidewires around the stent (5%); loop snare (26%); biliary forceps (12%); retriever (10%); or lasso/basket retrieval device (2%).

Interventional cardiologists should be familiarized with a range of stent retrieval techniques. If they fail, interventional cardiologists must think creatively and be prepared to apply all equipment and expertise accessible in the cath lab to optimize the odds for positive outcomes, even sometimes use skills reserved for vascular surgeons [3]. One must also remember that presently, with new generation drug-eluting stents, there is a possibility to take a stent with a smaller nominal diameter (e.g., 3.5 mm) and easily postdilate it to the diameter of 4.5 and even 5.00 mm.

### **Supplementary material**

Supplementary material is available at [https://journals.viamedica.pl/kardiologia\\_polska](https://journals.viamedica.pl/kardiologia_polska)

### **Article information**

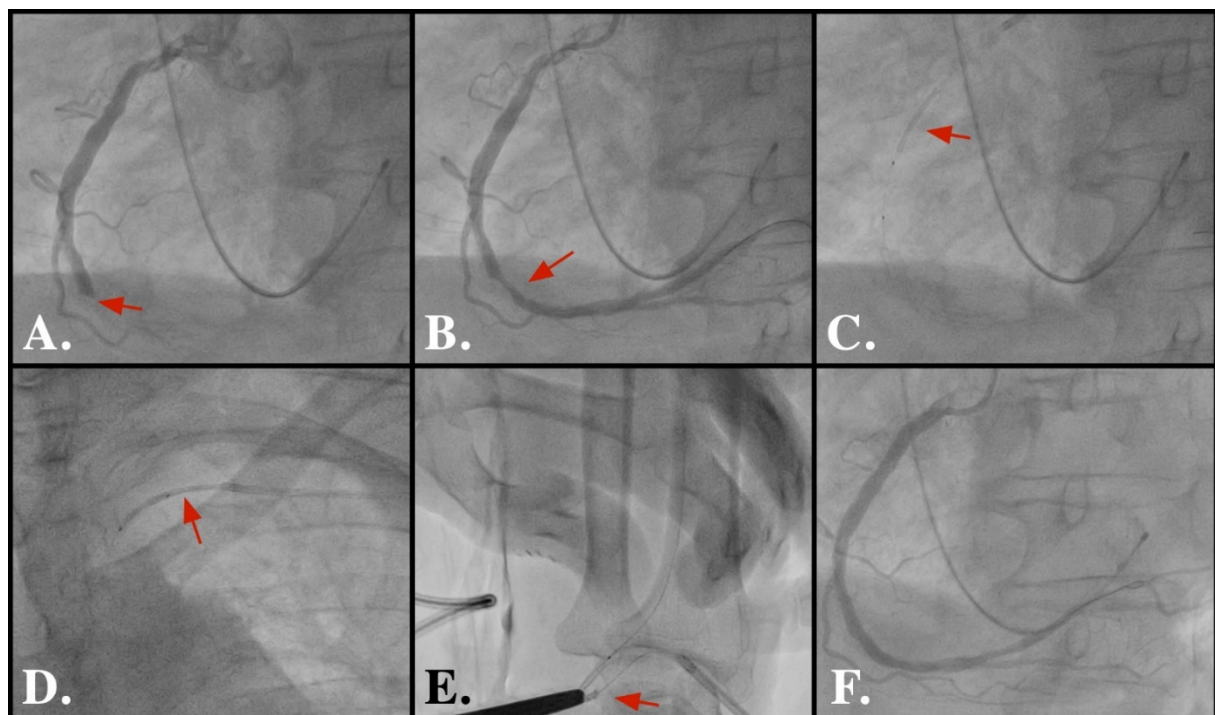
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**Figure 1.** **A.** Baseline view of the right coronary artery (RCA). **B.** The lesion in mid/distal RCA segment remained after predilatation. **C.** Stent lost in the proximal/mid RCA with the balloon catheter in front of it. **D.** Removal of the stent and inflated balloon through left subclavian artery. **E.** Removal of the stent with the vascular pean through the incision in the left radial artery. **F.** The final view of the procedures with two stents deployed in the RCA