



# SUCCESSFUL PERCUTANEOUS CORONARY INTERVENTION OF THE TARGET LESION WITH THE LOST STENT

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**ABSTRACT** – The loss of a stent during percutaneous coronary intervention (PCI) is a rare complication of the procedure. Multiple manoeuvres for the stent extraction exist, using a small balloon being a common one (2). This case report demonstrates the loss of stent in the proximal segment of the RCA whose extraction attempt with a small size SCB failed. The SCB was unable to cross through the stent and kept pushing the stent distally up until the target location where it successfully crossed through the stent. Subsequent dilatation with larger size balloons achieved full stent expansion at the target location.

**Key words:** *PCI (percutaneous coronary intervention), drug eluting stent (DES), right coronary artery (RCA), semi-compliant balloon (SCB), non-compliant balloon (NCB)*

## Introduction

Although rare, the loss of a stent is a possible complication of percutaneous coronary intervention. There are different manoeuvres for the stent extraction: using a small balloon, whirling two wires around the stent, loop snare, forceps, retrieval devices. Further techniques include stent deployment in the proximal vessel where it was lost or even distal propagation of the stent and crush with a side-by-side wire and balloon system. (1). Small-balloon technique seems to be the most common one used (2).

## Case report

An 85-year-old female with cardiovascular risk factors in the form of arterial hypertension and

diabetes was admitted due to a non-ST-elevation myocardial infarction. Electrocardiogram revealed ischemia of the inferior wall of the left ventricle. Coronary angiography verified significant stenoses of the left anterior descending artery, circumflex artery (Figure 5) as well as two critical stenoses of the distal segment of the right coronary artery (Figure 1). A decision to perform PCI of the RCA was made. Following multiple predilatations of the target lesions with SCB, the first DES (2.5x15 mm) was deployed in the distalmost stenosis. Anchoring technique was used with a second wire positioned in the side branch of RCA due to the inadequate support of the guiding catheter (Amplatz left 1). An attempt to deliver the second stent (DES 2.5x20 mm) proximally to the distal one failed. The stent was lost in the proximal segment of the RCA (Figure 2). An extraction of the lost stent was attempted with a small SCB 1.0x08 mm. The balloon was on a negative pressure. The balloon was unable to cross through the stent and kept pushing the stent distally (Figure 3). Having reached the

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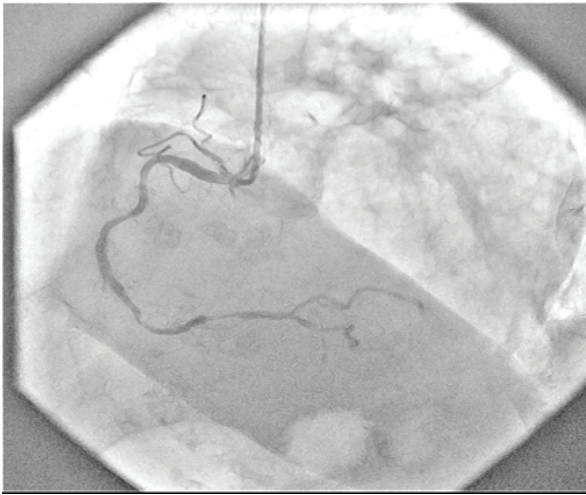


Figure 1. Coronary angiogram of the right coronary artery (LAO 30° projection): two critical stenoses of the distal segment

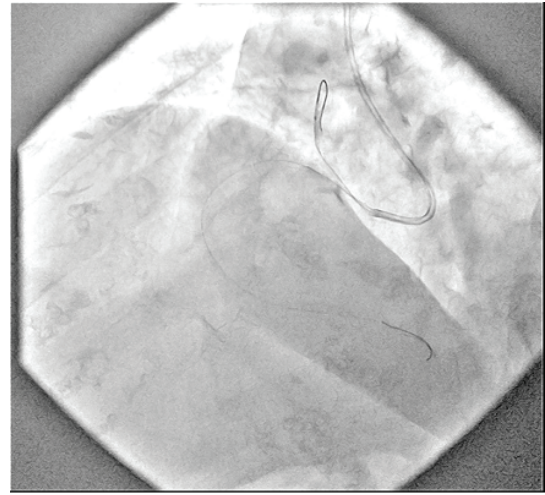


Figure 2. Coronary angiogram of the right coronary artery (LAO 30° projection): the lost stent in the proximal segment

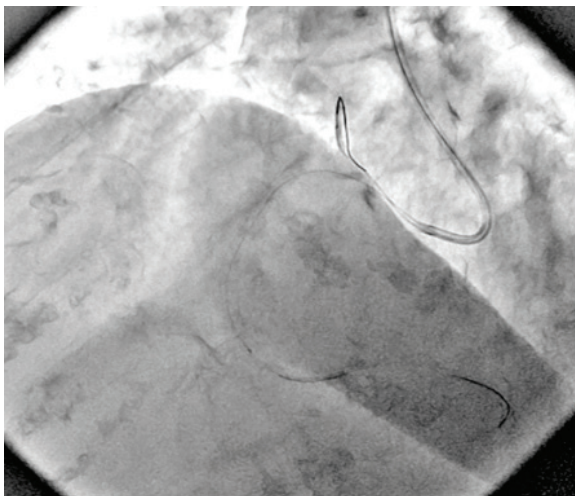


Figure 3. Coronary angiogram of the right coronary artery (LAO 30° projection): SCB 1.0x0.8 pushing the stent distally

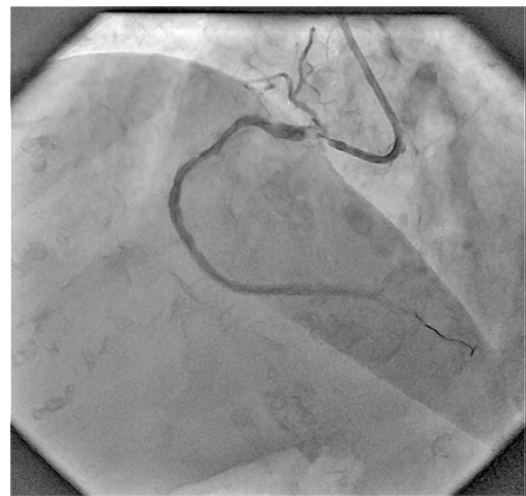


Figure 4. Final coronary angiogram of the right coronary artery (LAO 30° projection): optimal result of the PCI with TIMI 3 flow

previously positioned stent and the target location for deployment of the lost stent, the SCB was able to cross the lost stent. Multiple dilatations of the stent were done with the SCB 1.0x15 mm, followed by dilatations with larger size semi-compliant balloons, 1.5x15mm, and 2.0x20 mm respectively. Deployment of the third DES (2.5x15 mm) with an overlap proximally to the second one was performed effortlessly. Postdilatation of the stented segment was performed using a non-compliant balloon 2.5x13 mm. The final angiogram

showed TIMI 3 flow (Figure 4). The patient underwent full percutaneous revascularisation over the next few weeks.

## Discussion

The loss of a stent during a percutaneous coronary intervention is a rare complication of the procedure, occurring between 0.34 - 1.3 % of the PCIs and decreasing over the years (1,2). The predisposing factors include tortuosity, calcification, and passage through a

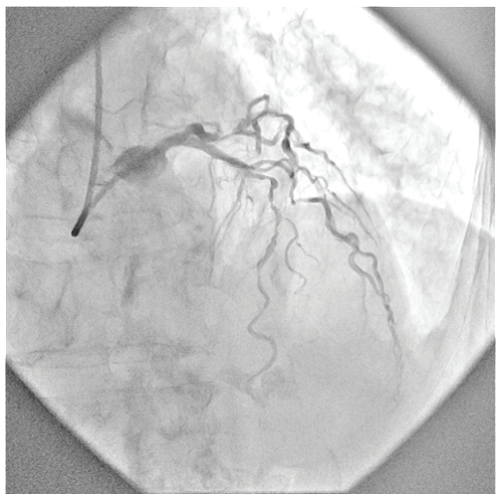


Figure 5. Coronary angiogram of the left coronary artery (LAO 30° projection): significant stenoses of the left anterior descending artery and the circumflex artery

previous stent (1). Multiple manoeuvres for the stent extraction exist, using a small balloon being a common one (2). Although rare, cases have been reported of a lost stent being repositioned and deployed with the small-balloon technique at the desired site (3). This particular case involves multiple stents having been deployed at the distal segment of the RCA, whereby the second DES was unable to cross the same vessel anatomy alone. Unfavourable factors leading to the stent loss in this particular case include inadequate support of the guiding catheter and the usage of an

additional wire for the 'anchoring technique'. The potential mechanism of the stent loss is a stent strip of the delivery system due to the criss-cross with the anchoring wire and the friction against the calcified vessel wall. The decision to perform the small balloon technique was made as the other retrieval devices were not available at the time and it was the technique best known to the operator. The stent reached the desired location with the help of the small SCB, followed by an effortless deployment of the third DES.

## Conclusion

Small-balloon technique is a viable option for an attempt of stent extraction during percutaneous coronary intervention. Albeit rare, in the selected cases it may render adequate repositioning and deployment of the stent at the desired site.

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## Sažetak

### USPJEŠNA PERKUTANA KORONARNA INTERVENCIJA CILJANE LEZIJE IZGUBLJENIM STENTOM

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Gubitak stenta za vrijeme perkutane koronarne intervencije (PCI) je rijetka komplikacija zahvata. Postoje različiti manevri za ekstrakciju stenta, među njima, tehnika s malim balonom spada u češće izbore među operaterima. (2). U ovom prikazu slučaja je prikazan gubitak stenta u proksimalnom segmentu desne koronarne arterije (RCA) čiji je pokušaj ekstrakcije malim balonom (SCB) bio neuspješan. Navedeni balon nije uspio proći kroz stent, već ga je gurao distalnije do ciljnog mjesta i lezije nakon čega je uspio proći kroz stent. Uz postepene dilatacije sve većim semi-compliant balonima, postigla se potpuna ekspanzija stenta na ciljnom mjestu.

Ključne riječi: PCI (*perkutana koronarna intervencija*), drug eluting stent (DES), desna koronarna arterija (RCA), semi-compliant balloon (SCB), non-compliant balloon (NCB)