



STENT DISLODGE­MENT AND SUCCESSFUL CRUSHING OF THE STENT IN LMCA IN A PATIENT WITH ISCHEMIC CARDIOMYOPATHY AND TWO CTOS

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SUMMARY – Stent loss or dislodgement is a rare but potentially serious complication of percutaneous coronary intervention. We present a case of an 80-year-old patient with multiple comorbidities in which stent dislodgement occurred during percutaneous coronary intervention on the left main coronary artery. The complication was successfully resolved without any consequences.

Key words: *Stent loss, stent dislodgement, left main coronary artery*

Introduction

Stent loss or dislodgement is a rare but potentially serious complication of percutaneous coronary intervention¹. It can be caused by coronary tortuosity and calcification, stent advancement through the previously deployed stent, forceful withdrawal of the stent inside the guide catheter, or using small diameter catheters (5 Fr). If the stent is lost or dislodged in the coronary artery, it can be either retrieved or crushed and, and if everything fails and there are hemodynamic consequences, urgent cardiac surgery is required. Methods for stent retrieval are the small balloon technique, snaring, and wire twirling. If none of that is possible, stent crushing should be done by wire passing around the stent, crushing the dislodged stent by balloon, and deploying another stent to exclude the dislodged stent from circulation²⁻³.

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Case report

An 80-year-old patient presented in our hospital with NSTEMI. Comorbidities included chronic kidney failure, peripheral arterial disease, coronary artery disease with prior PCI of ostial RCA and proximal RIM, and type II diabetes mellitus. Echocardiography showed a severely reduced ejection fraction of the left ventricle (25%) and moderate aortic stenosis. Coronary angiography, performed through the left femoral artery (the patient had an absent radial pulse on both wrists and had right femoropopliteal bypass), demonstrated severely stenosed ostium of the left main coronary artery (LMCA), significant stenosis of the proximal left anterior descending artery (LAD), chronic total occlusion of ostial circumflex artery (LCx), mild “in-stent” restenosis in a previously deployed stent in ramus intermedius (RIM) (Figure 1.) and chronic total occlusion of the ostial right coronary artery (RCA) (Figure 2.).

After careful consideration of the patient’s age and comorbidities, we decided to perform a percutaneous intervention on LMCA and LAD after five days. The



Figure 1.

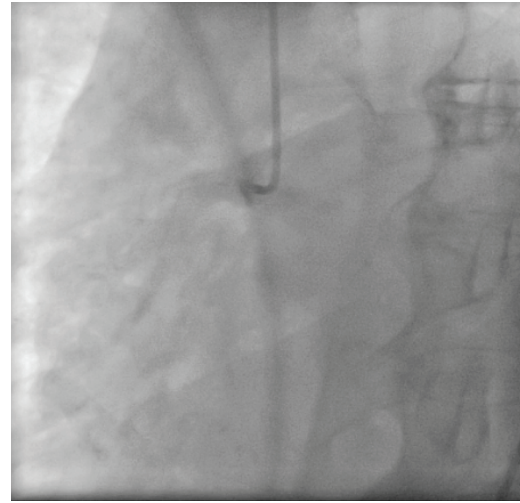


Figure 2.

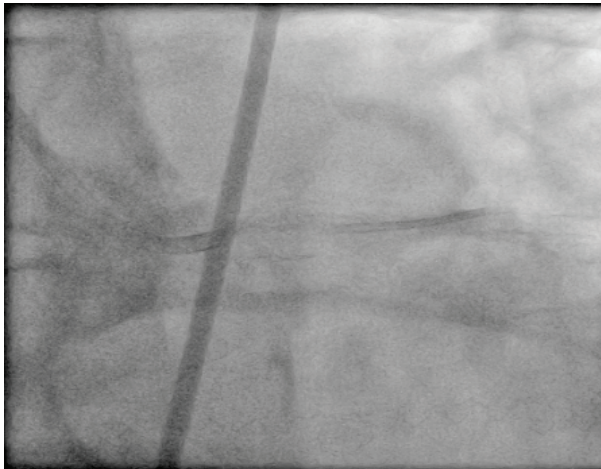


Figure 3.

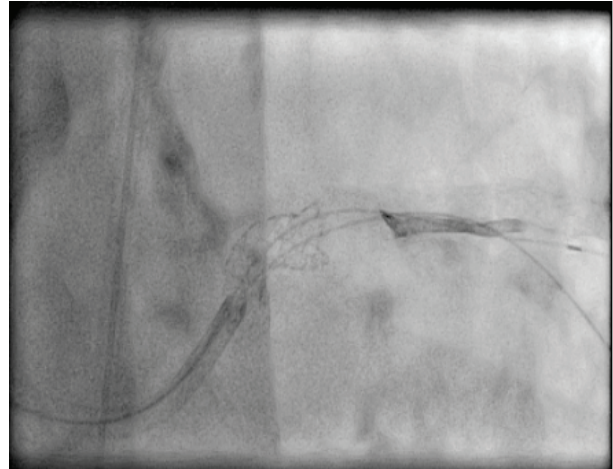


Figure 4.

procedure was once again performed through the left femoral artery. 7 French sheath was placed in the left femoral artery and LMCA was engaged with 6 French Judkins left 4.5 guiding catheter. After passing of the coronary guidewire BMW II (Abbott) drug-eluting stent (DES) Resolute Onyx (Medtronic) 4.5x12 mm was placed in ostial LMCA and “flaring” with a stent balloon was performed. Next, balloon angioplasty of LAD stenosis was performed with a non-compliant (NC) balloon 2.5x15 mm (TREK NC, Abbott). We then tried to advance another DES 2.75x18 mm (Resolute Onyx, Medtronic), but we could not cross the lesion. During withdrawal, the stent dislodged from the balloon in LMCA followed by wire loss

(Figure 3.). We tried to once again pass with the wire through the stent. In that case, we could advance a small diameter balloon distal to the stent, inflate it and retrieve the dislodged stent. However, our attempts to pass the wire through the stent were unsuccessful. Because of the previously deployed stent in LMCA, we decided not to try to retrieve dislodged stent with “wire twirling” and instead, after passing the wire besides dislodged stent, we crushed the stent with the following NC balloons: 2.5x15 mm and 3.0x15 mm (NC TREK, Abbott) and 4.0x15 mm (ACCUFORCE, Terumo) (Figure 4.).

After that, two additional DES 2.75x15 mm (Xience pro, Abbot) and 3.5x15 mm (Xience pro, Ab-

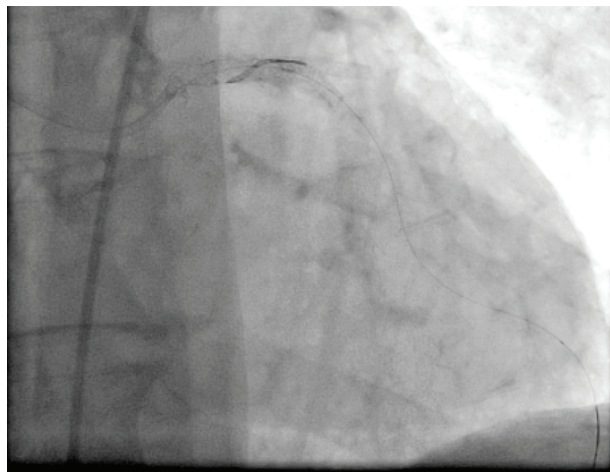


Figure 5.

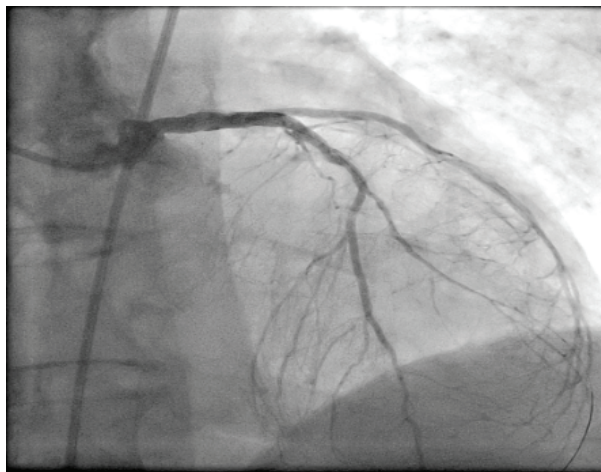


Figure 6.

bott) successfully crushed the dislodged stent against the vessel wall (Figure 5.). Finally, optimization with NC balloons 3.5x8 mm and 4.0x15 mm (ACCUFORCE, Terumo) and 5.0x15 mm (NC TREK, Abbott) was performed. We made multiple different angiographic projections to verify adequate crushing of the dislodged stent and also expansion of stents that were used to crush the dislodged stent and TIMI 3 flow through LMCA, LAD, and RIM (Figure 6.).

The rest of the hospital stay was uneventful and the patient was discharged home three days after the procedure.

Conclusion

At the end of the procedure, which included stent dislodgement, multiple projections should be obtained to confirm adequate stent crushing and TIMI 3 flow. Stent dislodgement is always an unwanted and unpleasant complication, especially in the left main coronary artery, but in most cases, it can be successfully managed with either stent retrieval or crushing without the need for cardiac surgery.

References

References

1. Iturbe JM, Abdel-Karim AR, Papayannis A, Mahmood A, Rangan BV, Banerjee S, Brilakis ES. Frequency, treatment, and consequences of device loss and entrapment in contemporary percutaneous coronary interventions. *J Invasive Cardiol.* 2012 May;24(5):215-21. PMID: 22562915.
2. Brilakis ES, Best PJ, Elesber AA, Barsness GW, Lennon RJ, Holmes DR Jr, Rihal CS, Garratt KN. Incidence, retrieval methods, and outcomes of stent loss during percutaneous coronary intervention: a large single-center experience. *Catheter Cardiovasc Interv.* 2005 Nov; 66(3):333-40. doi: 10.1002/ccd.20449. PMID: 16142808.
3. Eggebrecht H, Haude M, von Birgelen C, Oldenburg O, Baumgart D, Herrmann J, Welge D, Bartel T, Dages N, Erbel R. Nonsurgical retrieval of embolized coronary stents. *Catheter Cardiovasc Interv.* 2000 Dec;51(4):432-40. doi: 02/1522-726x(200012)51:4<432::aid-ccd12>3.0.co;2-1. PMID: 11108675.

Sažetak

DISLOKACIJA STENTA I USPJEŠAN „CRUSH“ STENTA U DEBLU LIJEVE KORONARNE ARTERIJE KOD BOLESNIKA S ISHEMIJSKOM KARDIOMIOPATIJOM I DVIJE KRONIČNE TOTALNE OKLUZIJE

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Gubitak stenta ili njegova dislokacija je rijetka, ali potencijalno ozbiljna komplikacija perkutane koronarne intervencije. Prikazat ćemo slučaj osamdesetgodišnjeg bolesnika s brojnim komorbiditetima kod kojeg je dislokacija stenta nastala tijekom perkutane koronarne intervencije u deblu lijeve koronarne arterije. Komplikacija je uspješno riješena i bez ikakvih posljedica po bolesnika.

Ključne riječi: *gubitak stenta, pomaknuti stent, glavno deblo lijeve koronarne arterije*