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Stripping of a Newly Deployed Coronary Stent during Manual Thrombectomy: A Cautionary Case

Sana Gupta, Akshaya Sri Kalavakunta, Nadia Sayyed, Mustafeez Ur Rahman*, Nikky Bardia, Veera Pavan Kotaru

Department of Cardiology, Beacon Kalamzoo Heart Institute, Kalamazoo, Michigan, USA
Email: *mustafeez_14@yahoo.com

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Abstract

A 54-year-old male with hypertension and hyperlipidemia presented with an anterior ST-elevation myocardial infarction (STEMI) due to a mid-left anterior descending (LAD) artery occlusion. Following the deployment of a drug-eluting stent (DES), persistent distal thrombus prompted manual aspiration thrombectomy. During withdrawal of the Pronto® V4 catheter, the device entangled and stripped the newly deployed stent, pulling it into the guide catheter. The complication was managed by retrieving the deformed stent and successfully placing two rescue stents. This case underscores the risks of aspiration thrombectomy through fresh stents which carries a significant risk of mechanical stripping. Extreme caution during advancement and withdrawal of these catheters can mitigate the risk.

Keywords

Percutaneous Coronary Intervention, Aspiration Thrombectomy, Stent Stripping

1. Introduction

Primary percutaneous coronary intervention (PCI) is the gold standard for treating ST-elevation myocardial infarction (STEMI). While the routine use of manual aspiration thrombectomy (MAT) has declined following large-scale trials like TOTAL, it remains a selective tool for managing lesions with high thrombus burden to prevent distal embolization and the "no-reflow" phenomenon [1] [2]. However, the mechanical interaction between intracoronary devices and freshly implanted stents can potentially lead to catastrophic complications. Stent deformation or stent stripping

can occur when bulky or rigid hardware, such as aspiration catheters, entangle with un-endothelialized stent struts. This report describes a case of inadvertent stent extraction during MAT and discusses strategies to mitigate such procedural risks.

2. Case Presentation

A 54-year-old Caucasian man with a known history of coronary artery disease (CAD), *hypertension, and hyperlipidemia*, presented with sudden-onset chest pain radiating to his left arm. The pain began two hours prior to arrival and was accompanied by diaphoresis and dyspnea.

Upon arrival, apart from chest discomfort, the patient was diaphoretic, slightly hypertensive, and mildly tachycardic. Cardiac and pulmonary examinations were unremarkable. The initial electrocardiogram (ECG) showed ST-segment elevations in leads V2 - V5, consistent with an anterior ST-elevation myocardial infarction (STEMI) (Figure 1). At this juncture the cath lab team was activated. While waiting, a point-of-care echocardiography demonstrated moderate left ventricular systolic dysfunction with anterior wall hypokinesis and an ejection fraction (EF) of 40%. Initial laboratory tests revealed a troponin I level of 3.5 ng/mL (rising to 18.2 ng/mL).

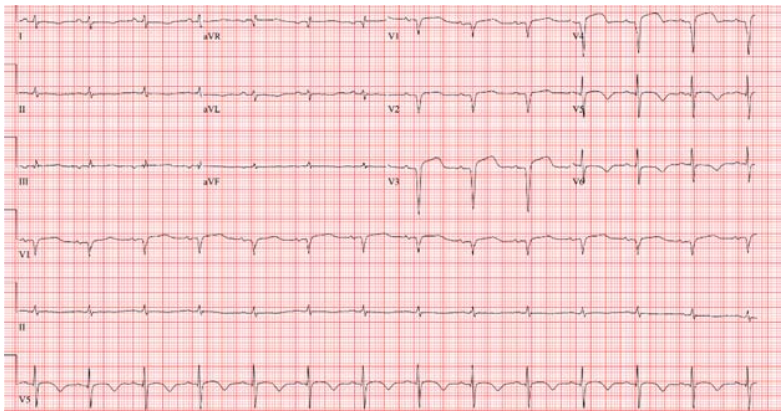

Figure 1. Electrocardiogram (ECG) showing ST-segment elevations in leads V2 - consistent with an anterior ST-elevation myocardial infarction (STEMI).

The patient received emergency loading doses of aspirin & Ticagrelor and was promptly taken to the catheterization laboratory.

3. Investigations and Procedure

Coronary angiography revealed right coronary and circumflex arteries have no significant disease and a thrombotic total occlusion of the mid-left anterior descending (LAD) artery with no distal flow (Figure 2(A)-(B)). A 6-French XB 3.5 guiding catheter was used to engage the left main coronary artery. After successfully wiring the LAD with a standard guidewire, the lesion was pre-dilated using a 2.5 mm compliant balloon, which partially restored blood flow. A 3.0 × 23 mm Xience Skypoint drug-eluting stent was deployed across the lesion. However, de-

spite the deployment, angiography revealed a significant persistent thrombus burden distal to the stent that limited optimal distal flow (Figure 2(C)). Given the risk of no-reflow, the decision was made to perform selective aspiration thrombectomy. A Pronto® V4 extraction catheter (Teleflex) was advanced toward the distal LAD. As the catheter traversed the newly deployed stent, notable resistance was encountered. During catheter withdrawal after initial aspiration, a sudden recoil sensation was felt. While pulling back, the aspiration catheter entangled the stent and pulled it into the guide catheter. It was then retrieved from the guide catheter out of the body (Figure 3). A repeat angiogram revealed significant disease in the previously stented segment with mechanical disruption and possible thrombus (Figure 2(D)). Utilizing a guide extension catheter we were able to do more balloon dilations and deploy two 3.0 × 22 mm Orsiro drug-eluting stents covering the proximal to mid LAD segments (Figure 2(E)-(F)).

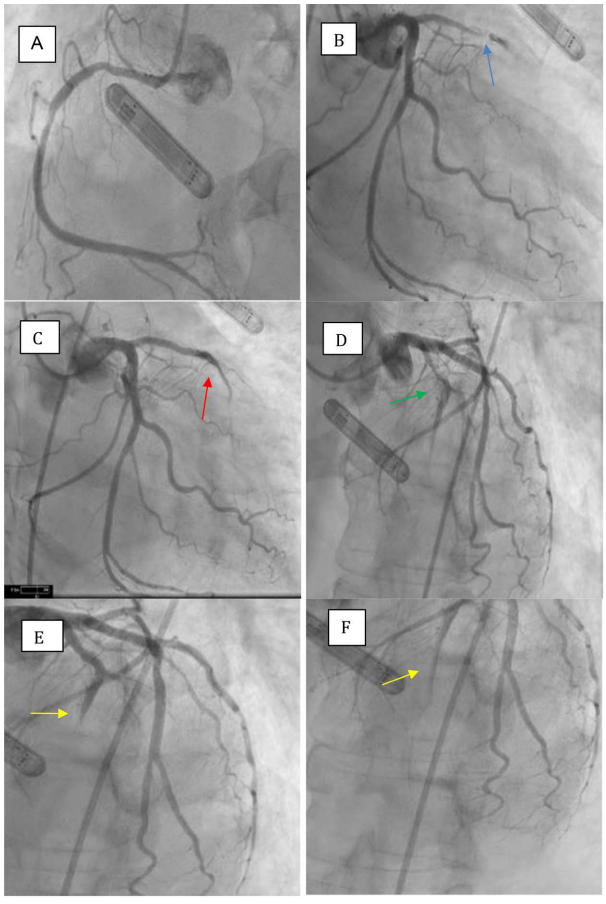

Figure 2. (A) Coronary angiogram with LAO view showing Right coronary angiogram (RCA) showing no significant coronary artery disease. (B) Coronary angiogram RAO view showing left coronary angiogram showing no significant coronary artery disease in left circumflex artery and 100% occluded left anterior descending artery (blue arrow). (C) Stent deployment with low distal flow (red arrow). (D) Angiogram after the inadvertent stent stripping with significant disease in the proximal to mid LAD and no stent in the vessel (green arrow) (E)-(F) Stent deployment with good apposition of the stent in the proximal to mid portion of the LAD and low distal flow (yellow arrow).

Figure 3. Stripped stent.

4. Management

The patient remained hemodynamically stable throughout the procedure and was transferred to the coronary care unit for monitoring. Dual antiplatelet therapy with aspirin and ticagrelor was continued. An echocardiogram performed on day two confirmed anterior and apical wall motion abnormalities with an EF of 45%. No pericardial effusion or mechanical complications were noted. The patient was discharged on hospital day four with plans for cardiac rehabilitation and aggressive secondary prevention strategies.

5. Discussion

This case highlights a critical mechanical complication during aspiration thrombectomy in the setting of a recently deployed coronary stent. The Pronto® V4 catheter, a manual aspiration device, is commonly used during PCI to remove thrombus. However, advancing or withdrawing such a device through a newly implanted stent can exert mechanical forces on stent struts that are not yet endothelialized, especially in long or incompletely expanded stents.

Although rare, stent stripping is a recognized complication with various intracoronary devices such as cutting balloons as well as Pronto® aspiration catheters [3]-[5]. In this case, while not definitively documented by intravascular imaging prior to the event, it is plausible that inadequate stent embedding or incomplete expansion contributed to the catheter snagging a strut. Thin-strut drug-eluting stents (DES) improve deliverability but may be more susceptible to deformation, particularly in tortuous anatomy or following device interaction. Bench testing has shown that dislodgement forces vary among DES platforms, with thinner-strut designs exhibiting lower thresholds—suggesting increased vulnerability to deformation or stripping during catheter manipulation [6] [7]. All aspiration

catheters carry a potential risk of interacting adversely with stent struts—varying based on their flexibility, trackability, and tip design.

The practice of aspiration thrombectomy in primary PCI has declined following the TOTAL trial [8], which demonstrated no mortality benefit and an increased risk of stroke. Nevertheless, in selected cases with substantial thrombus burden, aspiration may still be appropriate. Operators must carefully consider catheter selection, technique, and timing to ensure optimal results. Most importantly, they should be aware of potential mechanical complications, particularly when using manual aspiration catheters in newly stented segments.

To minimize the risk of mechanical stent disruption, the following procedural precautions are recommended:

1) Avoid crossing a freshly deployed stent with aspiration hardware unless absolutely necessary; if thrombus is distal, consider using a finer microcatheter or distal protection device if the anatomy allows.

2) Exercise extreme caution in "high-risk" environments for stripping: this includes segments with significant vessel tortuosity, heavy calcification, or when using smaller-diameter stents that may have lower radial strength or less wall apposition.

3) Immediate Cessation: If any tactile resistance is encountered while advancing or withdrawing a device through a stented segment, operators should stop immediately and use fluoroscopic guidance or intravascular imaging (IVUS/OCT) to assess the hardware-strut interface before proceeding.

Follow-Up

Intra-procedural angiography following the rescue stenting confirmed successful restoration of flow and stent integrity. At the one-month and 6-month clinical follow-up, the patient remained asymptomatic and compliant with medical therapy.

Patient Permission

Informed consent was not obtained as no patient identifier was disclosed in any part of the case report.

Conflicts of Interest

The authors confirm that there are no known conflicts of interest associated with this publication and that there has been no significant financial support for this work that could have influenced its outcome.

References

[1] Williams, P.D., Mamas, M.A., Morgan, K.P., El-Omar, M., Clarke, B., Bainbridge, A., *et al.* (2012) Longitudinal Stent Deformation: A Retrospective Analysis of Frequency and Mechanisms. *EuroIntervention*, **8**, 267-274. https://doi.org/10.4244/eijv8i2a41

[2] Sławek-Szmyt, S., Araszkiewicz, A., Grygier, M. and Lesiak, M. (2025) Continuous

Mechanical Aspiration Thrombectomy for STEMI with High Thrombus Burden. *Cardiology Journal*, **32**, 407-410. https://doi.org/10.5603/cj.102528

[3] Vemula, P., Kalavakunta, J.K., Abela, G.S. and Karve, M. (2014) A Rare and Serious Unforeseen Complication of Cutting Balloon Angioplasty. *Case Reports in Cardiology*, **2014**, Article ID: 246784. https://doi.org/10.1155/2014/246784

[4] Baz, J.A., Jiménez, V.A., Sepúlveda, J., Chantada, D., Díaz, C.M., Juan-Salvadores, P., *et al.* (2015) Unintentional Extraction of an Endothelized Coronary Stent with an Aspiration Catheter during Primary Percutaneous Coronary Intervention. *Circulation: Cardiovascular Interventions*, **8**, e002114. https://doi.org/10.1161/circinterventions.114.002114

[5] Yilmaztepe, M., Gurlertop, H.Y., Kacmaz, Y. and Aksoy, Y. (2016) Inadvertent Extraction of a Previously Deployed Stent. *Journal of Cardiology Cases*, **14**, 38-39. https://doi.org/10.1016/j.jccase.2016.03.016

[6] Seo, K., Yang, H., Lim, H. and Yoon, M. (2022) Stent Dislodgement Force of Drug-Eluting Coronary Stents: A Bench Test. *Cardiovascular Diagnosis and Therapy*, **12**, 370-377. https://doi.org/10.21037/cdt-22-49

[7] Chichareon, P., Katagiri, Y., Asano, T., Takahashi, K., Kogame, N., Modolo, R., *et al.* (2019) Mechanical Properties and Performances of Contemporary Drug-Eluting Stent: Focus on the Metallic Backbone. *Expert Review of Medical Devices*, **16**, 211-228. https://doi.org/10.1080/17434440.2019.1573142

[8] Jolly, S.S., Cairns, J.A., Yusuf, S., Meeks, B., Pogue, J., Rokoss, M.J., *et al.* (2015) Randomized Trial of Primary PCI with or without Routine Manual Thrombectomy. *New England Journal of Medicine*, **372**, 1389-1398. https://doi.org/10.1056/nejmoa1415098