



CASE REPORT

Reconstruction of an accidentally crushed stent guided by intravascular ultrasound during a left main percutaneous coronary intervention



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KEYWORDS

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Abstract We present a case of an accidentally crushed stent due to an unnoticed passage of a guidewire through a lateral stent strut with subsequent stent compression after balloon dilatation, during a planned percutaneous coronary intervention on the left main. The crushed stent segment was reconstructed with step-by-step balloon dilation, guided by intravascular ultrasound.

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PALAVRAS-CHAVE

Tronco comum;
Intervenção coronária
percutânea;
Stent danificado

Reconstrução de um esmagamento inadvertido de stent por ecografia intravascular (IVUS) durante angioplastia do tronco comum

Resumo Apresenta-se um caso em que durante uma angioplastia eletiva do tronco comum, devido à passagem inadvertida do fio-guia através da malha do stent, ocorreu um esmagamento do stent após a dilatação com balão. O segmento de stent danificado foi reparado através de sucessivas dilatações com balão, tendo o procedimento sido guiado por ecografia intravascular (IVUS).

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Introduction

Percutaneous coronary intervention (PCI) of the left main (LM) is considered a valid alternative to surgical coronary artery bypass grafting (CABG), with no significant difference in overall rates of major adverse cardiac and cerebrovascular events (death, myocardial infarction, stroke and repeat revascularization) in patients with lower (0-22) and intermediate (23-32) SYNTAX scores.¹ Intravascular ultrasound (IVUS) is an invasive adjunctive diagnostic tool which provides accurate measurement of plaque burden and lesion severity. Additionally, IVUS helps to optimize PCI results, as target vessel revascularization is reduced in patients with IVUS-guided stenting compared to those with angiographically guided stenting.²

IVUS is strongly recommended for precise vessel measurement and correct stent apposition and expansion during LM-PCI, especially in the drug-eluting stent (DES) era.³

The case we present here is an accidentally crushed stent in the proximal LM, which would have gone unnoticed without IVUS examination. The use of IVUS enabled the identification of the crushed stent segment and the introduction of a new guidewire in this segment in order to repair the stent deformation by balloon dilatation.

Case report

A 60-year-old-man with hypertension and type 2 diabetes as coronary risk factors was admitted to our hospital due to unstable angina. He had suffered a non-Q-wave myocardial infarction in 2006, when percutaneous coronary intervention (PCI) was successfully performed on the mid segment of the left anterior descending (LAD) and second obtuse marginal arteries. A coronary angiogram after the recent event showed a significant calcified lesion in the LM and ostial LAD without evidence of restenosis in the previous stents (Figures 1 and 2). The patient had severe left ventricular dysfunction, with 30% of ejection fraction. We planned

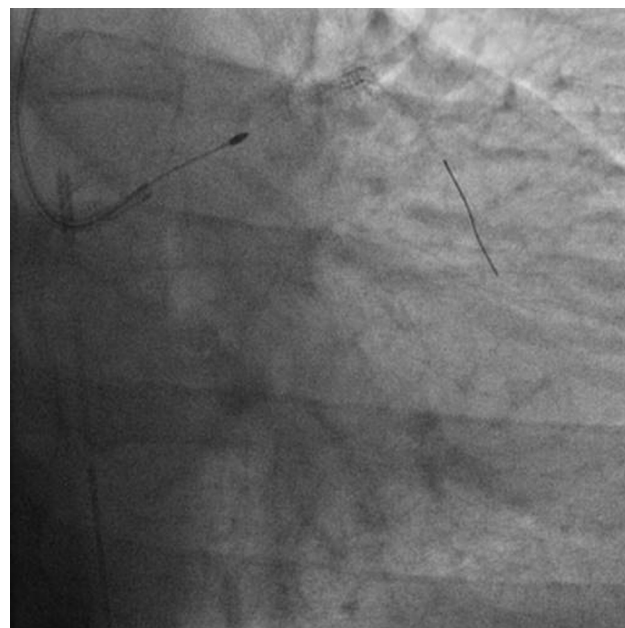
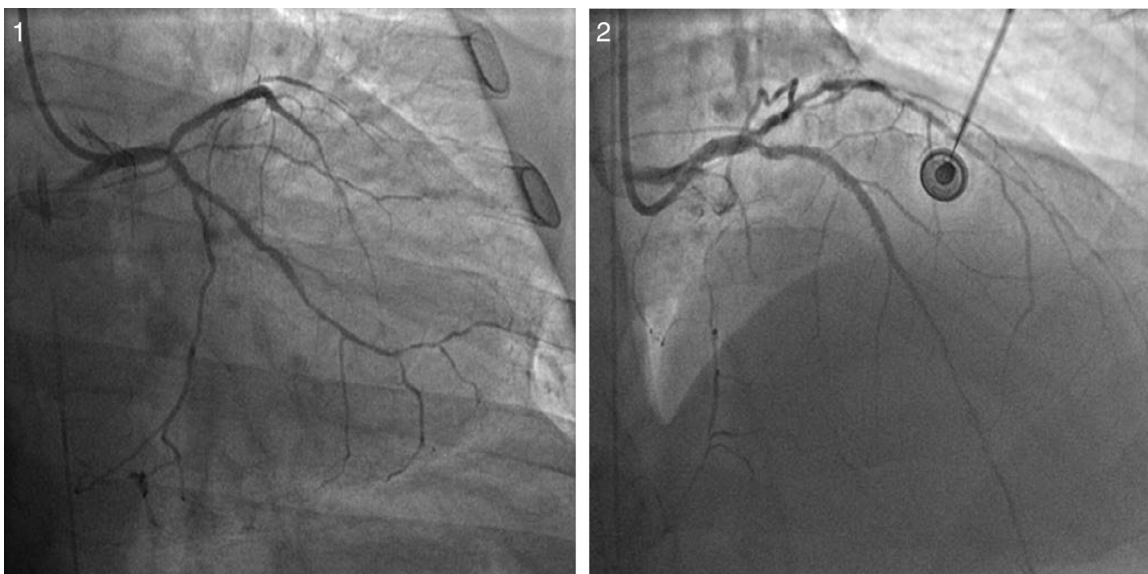


Figure 3 Plaque preparation with rotational atherectomy with a 1.5 mm burr.

PCI on the LM and LAD with intra-aortic balloon pump support.

The procedure was performed by radial approach using a 7F guiding catheter. Plaque preparation was performed with rotational atherectomy using a 1.5 mm burr (Figure 3) and further predilation with a cutting balloon (3-3.5 mm). After balloon dilatation, rupture of severely calcified plaque was detected by IVUS (Eagle Eye; Volcano Corporation, Rancho Cordova, CA, USA), so we proceeded to implant a 3.5 mm×20 mm CRE 8 DES in the LM and LAD (Figures 4 and 5). At this point the wire was accidentally pulled back and was reintroduced into the LM and LAD. Post-dilatation was performed with a 4 mm non-compliant



Figures 1 and 2 Significant calcified lesion in the distal left main and proximal left anterior descending artery.

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