



Bailout from Guideplus entrapment by coronary stent

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Received: 16 October 2018 / Accepted: 27 November 2018 / Published online: 30 November 2018
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Guide extension catheters are frequently used in percutaneous coronary intervention (PCI) for the purpose of deep-coronary engagement and/or device delivery [1]. We experienced an unreported complication of Guideplus (Nipro, Osaka, Japan).

A 52-year-old male with chronic kidney disease on hemodialysis was admitted due to unstable angina. Coronary angiography depicted the calcified stenosis of right coronary artery (Fig. 1a). We engaged a 7-French Judkins right catheter to the coronary ostium, and debulked the lesion with a rotational atherectomy. After the expansion of a cutting balloon, we deployed a 3.5 × 28 mm SYNERGY stent (Boston Scientific, Marlborough, MA, USA) to the mid-right coronary artery using the Guideplus, and attempted to deploy another 3.5 × 24 mm SYNERGY stent overlapping the primary stent (Fig. 1b). During the positioning of the second stent, the forward force of the contrast injection translocated the Guideplus within the guiding catheter to the proximal portion of the second stent (Supplementary Movie 1). On view of the inflated stent balloon, we found

the entrapment of the Guideplus (Fig. 1c, Supplementary movie 2). Despite pulling the Guideplus, it remained firmly attached to the stent. After retrieving the delivery balloon, the entrapped Guideplus was simultaneously detached from the stent (Fig. 1d). Because the second stent was extremely underexpanded, and elongated to the ostium, we dilated it using a non-compliant balloon (Fig. 1e, f). We simulated the procedure using a silicone-tube model, and obtained the same result (Fig. 1g–i).

Although it is infrequent, some complications of guide extension catheters have been reported including stent deformation, coronary dissection, and coronary malperfusion [1, 2]. Although Guideplus has excellent performance in vessel tracking owing to its soft tip and hydrophilic coating [2], the tip is less visible, and may unintentionally migrate upon contrast injection. Retrieving the delivery balloon might be effective in Guideplus entrapment, because it reduces outward force toward Guideplus, and directly pulls it. The location of the guide extension catheter should be checked prior to stent deployment.

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s12928-018-0560-7>) contains supplementary material, which is available to authorized users.

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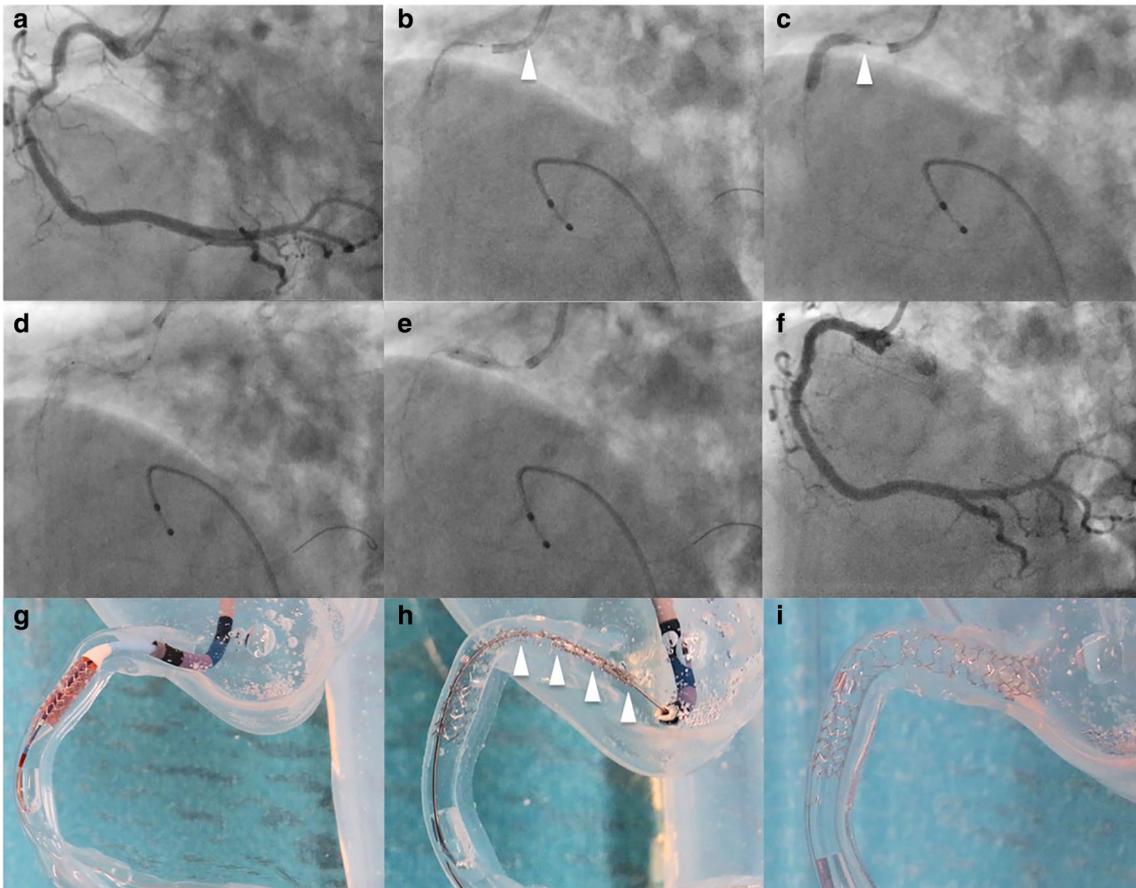


Fig. 1 Entrapped Guideplus and bailout. **a** Severe stenosis of right coronary artery. **b** Positioning of the second stent (arrow head: Guideplus within the guiding catheter). **c** Entrapment of the Guideplus by stent (arrow head). **d** Retrieving the delivery balloon. **e** Post-

dilatation of the stent using a non-compliant balloon. **f** Optimally expanded stent. **g–i** The simulation using a silicone-tube model (**g** entrapment of Guideplus by stent; **h** deformed stent; **i** optimally expanded stent)

Compliance with ethical standards

Conflict of interest The authors have no potential conflicts of interest relevant to this article.

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