
A simple yet novel solution to prevent stent stripping in Guidezilla use

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Introduction

Guide extension catheters are particularly useful when performing percutaneous coronary intervention (PCI) in coronary arteries with difficult anatomy, for example, coronary ostial occlusions that cannot be easily accessed or cannulated with routinely used guide catheters, highly calcified and tortuous coronary arteries, and chronic total occlusions (1-5).

Guide extension catheters facilitate complex procedures by enabling deep coronary artery cannulation, thereby increasing back-up support and allowing coaxial alignment (2, 5).

The risk of stent stripping while advancing the stent into support guide extension catheter is particularly associated with the

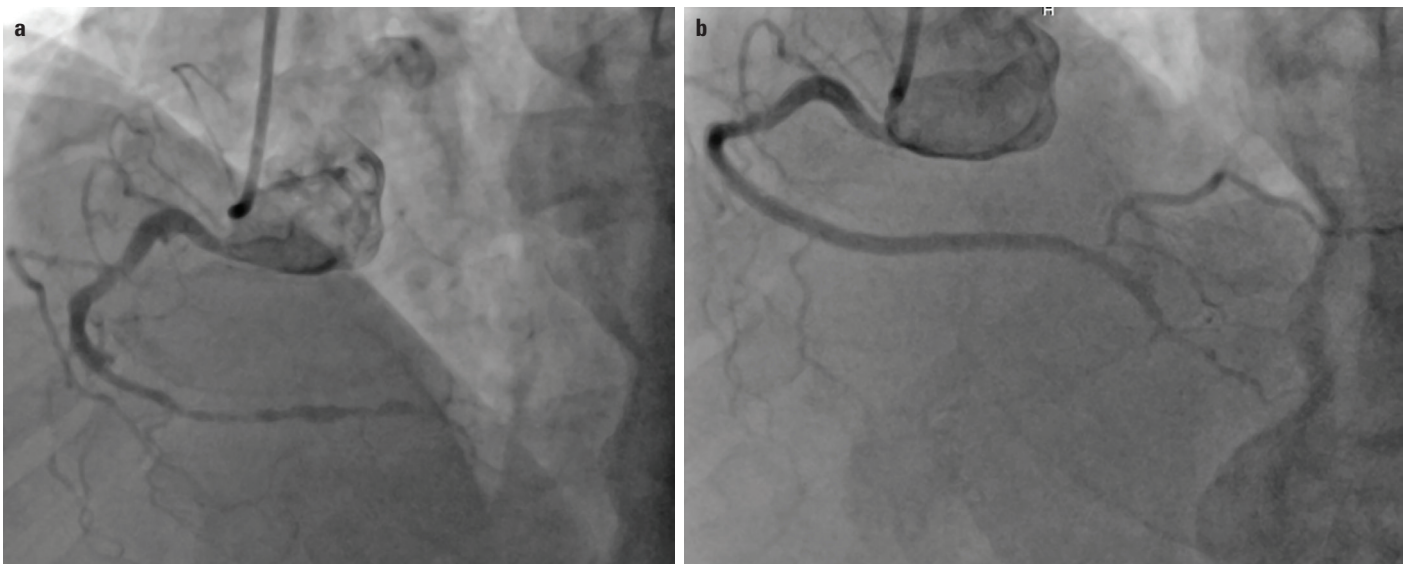


Figure 1. (a) Pre-revascularization right coronary artery. (b) Right coronary artery post revascularization

Guidezilla guide extension catheter system (Boston Scientific) (6). We present this case as an example of a simple but novel solution for preventing this complication.

Case Report

A 62-year-old male patient was admitted to the coronary intensive care unit with a diagnosis of unstable angina pectoris. His medical history did not include any known heart disease.

We performed transradial coronary angiography and identified severe occlusion in the proximal left anterior descending (LAD). Right coronary angiography revealed diffuse 70% occlusion after branching of acute marginal artery followed by 90% and 99% occlusion in the distal right coronary artery (RCA). The ostium of the posterior lateral artery (PLA) was totally occluded (Fig. 1a). We performed revascularization of the LAD first.

The ostium of RCA had an atypical take-off, and good cannulation was achieved via a 6F hockey stick guiding catheter. However, adequate back-up support could not be achieved to deliver PCI equipment to the distal vessel. We could not advance the floppy guidewire through the occlusions; therefore, a microcatheter assist device was used for wiring the distal RCA. We could not advance the percutaneous transluminal coronary angioplasty (PTCA) balloon through the most critical part of the occlusion. Therefore, we decided to use a guide extension catheter (Guidezilla 6F Boston Scientific) for effective cannulation and adequate back-up support. We advanced the PTCA balloons with the help of Guidezilla and predilated the lesions. After predilation, we could not advance the 2.0*28 mm DES; therefore, we retracted the stent and dilated the lesions with a 2.5 mm noncompliant balloon. When we tried to advance the 2.0*28 mm stent again, we could not advance it through the proximal junction of Guidezilla. We overcame this obstacle by dilating the proximal junction of the

Guidezilla extension catheter with a 2.5*15 mm PTCA balloon with 14 atmospheric pressure (Fig. 2). After dilation, we advanced the stent with ease and deployed it in the distal RCA.

Following deployment of the first stent, we deployed a 2.25*26 mm DES in 90% occlusion just before the crux and a 2.5*30 mm DES in the most proximal occlusion. After stent deployment, we post-dilated stents with noncompliant balloons (Fig. 1b).

The patient was discharged two days later with marked improvement in his symptoms and no complications.

Discussion

In our case, the Guidezilla support extension catheter system helped us to cannulate the vessel better and allowed us to

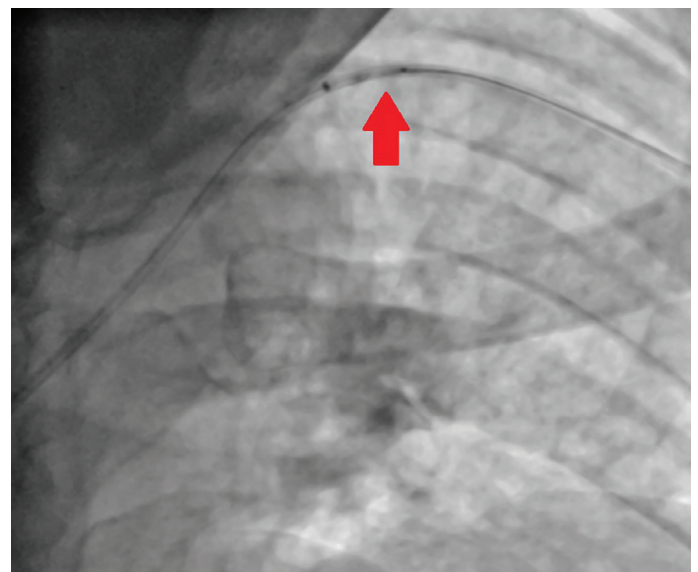


Figure 2. Dilation of the proximal junction of Guidezilla

perform the operation successfully; however, we encountered a previously documented complication of Guidezilla - stent stripping due to difficulty in advancing the stent through the proximal junction of Guidezilla (6) - and developed a novel technique to prevent the occurrence of this adverse event.

Stent stripping seems to be primarily associated with the Guidezilla support extension catheter system when compared with other guide extension catheters (such as the GuideLiner) due to the less elastic nature of the stainless steel collar of Guidezilla. The risk is particularly high with less flexible long stents (6). We have encountered this problem on numerous occasions and found that it is particularly difficult to advance a retracted stent into the proximal junction; similar to the occurrence in this particular case. While we know that manipulating the stent (such as rotating the stent or mild retraction of the guide extension catheter) (2) may help advance the stent, these maneuvers also increase the risk of stent stripping (5, 6).

We believe that this problem arises from an interaction between the less flexible metal collar of Guidezilla and the metal composition of the stent. Alterations and deformations that arise while pushing the stent into the proximal junction of Guidezilla may be the plausible culprit as this complication is rare with balloons and more likely when a stent that was retracted earlier is implanted.

The dilation of the proximal junction of Guidezilla does not increase the diameter of the junction significantly. Therefore, we do not think our maneuver functions by such a mechanism. We do think, however, that dilation of the junction causes structural alterations that allow a different alignment for the previously deformed stent. PTCA balloons of a diameter larger than the jammed stent could be easily advanced, supporting our belief that structural deformities caused by Guidezilla's metal collar are the primary mechanism of this particular problem, rather than the insufficient diameter of the proximal junction.

Another possible explanation could be the narrowing of the lumen due to a kinked guidewire. Depending on the structure of Guidezilla, a kinked wire might lead to an obstruction of the proximal junction in return. Balloon dilation of the proximal junction might have allowed stent advancement by flattening the guidewire, thus, relieving the obstruction.

The risk of stent stripping is a rather common and distinct complication of Guidezilla among guide extension support catheters (6, 7) and our novel solution may provide a simple but efficient method to prevent this.

Conclusion

In conclusion, while advancing a stent into the Guidezilla guide extension catheter, our solution of dilating the proximal junction of Guidezilla might be a reasonable alternative to rotating the stent when resistance is encountered.

Informed consent: An informed consent was obtained from the patient.

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