Guidewire fracture in the Micro-catheter

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<th><strong>CASE</strong></th>
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<td><strong>Age, Sex</strong></td>
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<td><strong>Chief complaint</strong></td>
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<td><strong>Coronary risk factors</strong></td>
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<td><strong>Past medical history</strong></td>
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Echocardiogram

posterior mild hypokinesis
a severe stenosis and calcification in the right coronary artery
Left coronary angiography
RAO-CAU

RCA filled from LCA (Rentrop grade 2).
Right coronary angiography

LAO

RAO-CAU

A sub-total occlusion in the proximal RCA.
PCI to the RCA

GC: Heartrail II JL3.5 (Terumo)
GW: Rinato (Asahi Intec)
IVUS: ViewIT (Terumo)

An IVUS catheter could not pass the lesion.
PCI to the RCA

The guidewire fracture happened!

MC 1: Finecross (Terumo)
MC 2: Corsair (Asahi Intec)

A micro-catheter: Corsair (Asahi Intec) was pushed with clockwise rotation, but unsuccessful.
PCI to the RCA

Retrieval of the broken guidewire with negative pressure was unsuccessful.
PCI to the RCA

The lesion was occluded after the guidewire was broken.
The guiding catheter was exchanged to a 7-French. Another guidewire (Fielder-XT, Asahi Intec) was crossed the lesion.
PCI to the RCA

Balloon C: LIFESPEAR (Japan Lifeline )
GC: Heartrail II 5 Fr (Terumo)

A semi-compliant balloon was successfully crossed the lesion with a deeply engaged 5-French in the 7-French catheter system.
PCI to the RCA

The lesion was dilated with a semi-compliant balloon.
PCI to the RCA

IVUS after the pre-dilatation.
A stent was deployed at the distal lesion where the broken wire was left, and 2 stents were deployed at the middle and proximal lesion.
PCI to the RCA

IVUS examination after the stenting.
PCI to the RCA
The final right angiogram

Good results.
7 month-follow up angiography

No restenosis or other abnormal findings.
Summary
The lesion was tortuous consisted of two consecutive tight curves.
1. Sub-total lesion trapped a distal part of the guide wire.
2. The excessive tortuous lesion made a friction between the micro-catheter and the guide wire at the kinking site and the proximal part of the guide wire was trapped.
3. The micro catheter pushed with clockwise rotation, it might lead to the guide wire twist and fracture.
Take home message

① In case that retrieval of lost coronary guide wires is impossible, to plaster the guide wire to the coronary vessel by deploying stents is effective.

② Pushing with clockwise rotation helps the Corsair micro catheter cross through severely stenosed, calcified and tortuous lesions. However, we should be aware that over rotation may lead to a guide wire fracture.