A new challenging buddy wire technique

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Background

When strong backup support is needed for stent delivery in complex coronary artery lesions such as tortuous, angulated, and severe calcified lesions, new technique and devices such as the child in mother technique using support catheter system, buddy wire method, anchor balloon technique are employed.
Introduction

We experienced this case in which new challenge of buddy wire technique using 0.018 inch wire was enable to deliver stents easily and smoothly. Therefore, we reported the results with some discussion.
Case. 67 y.o. male

Chief Complaint: chest oppression on effort

Present Illness:

A 67-year-old male patient was admitted to our hospital with worsening chest oppression on effort. He had suffered from the former symptom for several years. He underwent MDCTA (multi-detector-row computed tomography coronary angiogram) in other hospital, which revealed triple vessel disease. Coronary angiography (CAG) showed severe stenosis of mid RCA, proximal LAD and tandem stenosis of large High-Lateral (HL) artery. Ad-hoc PCI was performed to mid RCA which was implanted 3.5mm / 24mm Zotarolimus Eluting Stent (ZES). Therefore, he was re-admitted for taking staged PCI to LCA.

Coronary Risk Factors:

Hypertension (medical therapy)
Hypercholesterolemia (no treatment)
target lesion: proximal LAD, HL

diagnosis: Effort Angina

past history: none

prior intervention: ’09.12.17 #2 endeavor 3.5/24mm

final CAG findings:

#6 75% stenosis + ulceration formation
#HL just proximal 90% & distal 90% stenosis
LCA had tandem stenosis @ the high lateral branch.
LMT-LAD bifurcation had sharp angulation and moderate stenosis. Proximal LAD had significant stenosis with ulceration.
Endeavor 3.0/8mm to #HL distal
Xience V 3.0/8mm to #HL jp

PCI to HL system
transradial Approach 6Fr
Guide Catheter : FL3.5 Axess 6Fr
Guide wires : Neo’s Fielder to LAD SUOH to HL

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PCI to LAD just after revascularization for High Lateral branch

Guide wires was crossed LAD vessel easily. However, the devices (IVUS; View It, Terumo) was failed to deliver target vessel in spite of trying standard 0.014 inch’s buddy wire method using (Whisper moderate support & Ironman) and using KIWAMI (ST 01) as the child in mother technique because of sharp angulation of LMT-LAD bifurcation.

⇒ Exchange to transfemoral approach
PCI to LAD (Exchange to transfemoral approach)

System

transfemoral Approach 7Fr
guide catheter : SPB 3.5 SH(+) Axess 7Fr
guide wires : Whisper moderate support
Ironman

IVUS catheter (View It™; Terumo) was enable to cross the target lesion of LAD with single support wire alone (Whisper moderate support).
LAD just proximal and bifurcative LMT was moderate stenosis with eccentricity and moderate superficial calcification.
With standard 0.014 inch’s buddy wire technique using (Whisper moderate support & Ironman), direct stenting with Zotalorimus Eluting Stent (Endeavor 3.5/12mm) was attempted. However delivered stent could not cross the angulated LMT-LAD bifurcation.
The New buddy wire technique using 0.018 inch wire

※Wire exchange was performed by insertion of microcatheter (Transit catheter).

The new technique of buddy wire using 0.018 inch wire (Neo’s Treasure ; SJM : for endovascular therapy as usual) was challenged. Surprisingly, Endeavor stent was smoothly delivered without any resistance!
### Cummulative cases with 0.018 inch buddy wire technique

<table>
<thead>
<tr>
<th>vessel</th>
<th>target lesion</th>
<th>obstructing material</th>
<th>kind of wires</th>
<th>solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>① LAD #6</td>
<td>#6</td>
<td>angulation &amp; calcification</td>
<td>Neo’s treasure</td>
<td>success</td>
</tr>
<tr>
<td>② RCA #2</td>
<td>#2</td>
<td>calcification</td>
<td>Neo’s treasure</td>
<td>success</td>
</tr>
<tr>
<td>③ RCA #1-#2CTO</td>
<td>#1-#2CTO</td>
<td>calcification</td>
<td>Neo’s treasure</td>
<td>success</td>
</tr>
<tr>
<td>④ LAD #6</td>
<td>#6</td>
<td>calcification</td>
<td>Neo’s treasure</td>
<td>success</td>
</tr>
<tr>
<td>⑤ LAD #7</td>
<td>#7</td>
<td>stent(Cypher)</td>
<td>Neo’s treasure floppy</td>
<td>unsuccessful</td>
</tr>
<tr>
<td>⑥ LAD #7-CTO</td>
<td>#7-CTO</td>
<td>calcification</td>
<td>Neo’s treasure floppy</td>
<td>success</td>
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</tbody>
</table>
Conclusion

In this case, the wire bias of 0.018 inch’s buddy wire technique may give greater support force and modify the vessel angulation and lead to the successful stent deployment.

Moreover, this new challenging buddy wire technique is expected to enhance coaxiality of guiding catheter.
Discussion

This new challenging buddy wire technique can be one solution of easier stent deliverability in severe complex lesions.

In particular the case of restrictive use of child in mother technique for the various reason, that is, angiography shows moderate stenosis or angulation at the proximal site of target lesion and coronary dissection or worsening ischemia may bring trouble on by deep insertion of it.