Successful Management of Chronic Total Occlusion of Left Anterior Descending Artery and Diagonal Bifurcation Using Intravascular Ultrasound and Parallel wire technique

Presenter: Ji Young Park
Operator: Jae Woong Choi, Sung Kee Ryu
Institution: Eulji General Hospital, Seoul, Korea
65-year-old male with effort chest pain for 12 months.
Risk factor: ex-smoker, 15 pack year smoking history
ECG: T wave inversion in V1,2,3,4
Echo: EF 65%, no RWMA
A long calcified severe stenotic lesion in the proximal LAD (Type C), TIMI 1 flow
Severe stenotic lesion of 1st diagonal branch (Type B2 lesion). Medina classification (1,1,1)
The well developed collateral branches were shown from distal RCA to distal LAD (grade 2). Therefore, we assumed that proximal LAD lesion seems to be progressing chronic total occlusion due to well developed collateral branches.
PCI at Bifurcation p-LAD & 1\textsuperscript{st} Dx

6Fr. JL4 Guiding catheter was engaged through Rt. femoral approach. Prox. LAD with Fielder XT, 1\textsuperscript{st} diagonal branch with BMW.
• However, wiring of LAD was failed due to
  1) Insufficient wiring control space
  2) Very severe acute angle

• Side branch dilatation
• Widening space of wiring

Very acute angle
Insufficient space

IVUS guided wiring
Wire was changed to Fielder FC, and sequential predilatation was done in ostium of LAD using voyger 1.5x15mm and 2.0x15mm.
PCI at proximal LAD with Conquest.

After wiring, patient complained
1) severe chest pain
2) SBP < 80mmHg
3) HR>100 / minute

Intraarterial balloon pump (IABP)
Strategy of Escape from ‘False lumen’

• Parallel or seesaw wire technique

• IVUS-guided wiring
Parallel wire technique was performed using Conquest and Miracle wires in LAD.
IVUS

Ist Dx

Tip of Wire in LAD
IVUS: True lumen

Tip of Wire in LAD

proximal
distal

1st Dx
LAD PCI

Voyger 2x15 mm,
Two Xience 2.75 x18 mm
at proximal and mid LAD
Final angiography showed successfully revascularization of LAD with TIMI 3 grade flow. The patients did not complained of chest pain, and systolic blood pressure was increased 120mmHg.
Final angiography
Conclusion

We learned through this case

• In bifurcation lesion with main branch CTO, predilatation at side branch can make the wiring space widening.

• However, in this process, unexpected compromising LAD made hemodynamic status unstable and leaded to chest pain.
Conclusion

• Incomplete CTO seems to be far more dangerous lesion than we guess and very careful managements are needed.

• IVUS guided wiring technique is helpful technique to advance in a true lumen during CTO intervention.