

Hybrid approach left main bifurcation

Patrick Lim Zhan Yun
Khoo Teck Puat Hospital, Singapore

Disclosure

- Nil of note

Historically

Hybrid approach

LIMA to LAD

PCI LM into Cx

Now?

PCI LM/LAD and DCB to Cx

- Why?
- Which lesions will do well with a hybrid approach
i.e. which lesions will do well with balloon
angioplasty.
- How?

What is the "standard of care" in left main bifurcation PCI?

	DK CRUSH V	EBC Main
Outcome	Cardiac death, TVMI, TLR	All cause death, MI or TLR
	12 months: 10.7% vs 5% (p = 0.02)	12 months: 14.7% vs 17.7%
	3 years: 16.9% vs 8.3% (p = 0.005)	

Therefore any strategy should aim for equivalent/superior outcomes

Have we been doing balloon angioplasty for left main bifurcations?

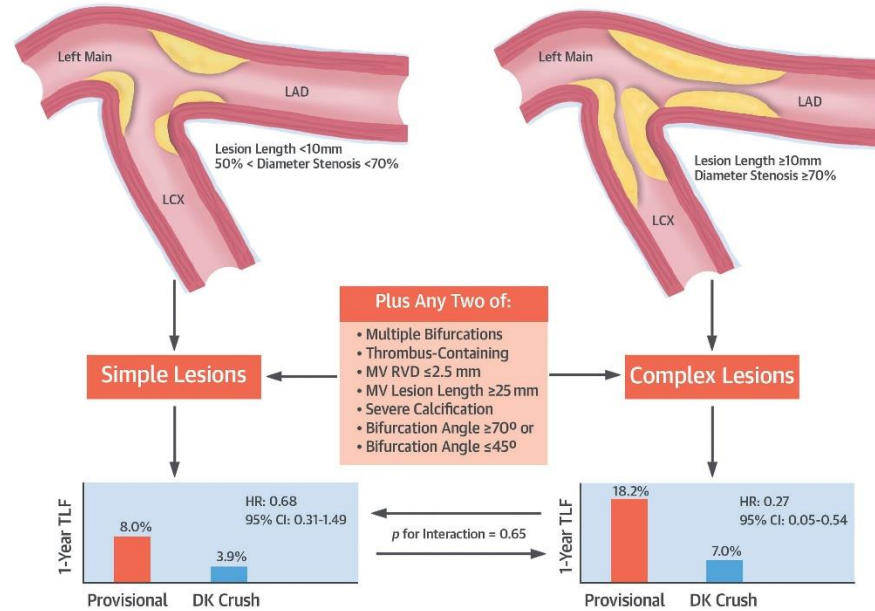
DK- Crush V

	Provisional	2 stent
Final kissing inflation		
Performed	191 (78.9)	239 (99.6)

EBC Main

Kissing balloons after first stent		
Yes	202 (89%)	15 (6%)
No	25 (11%)	—
Missing	3 (1%)	—

CENTRAL ILLUSTRATION: Stenting for LM Bifurcations



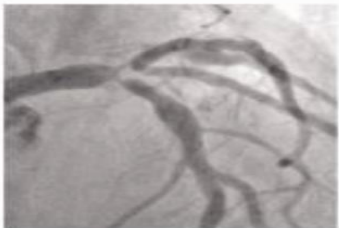
Chen, S.-L. et al. J Am Coll Cardiol. 2017;70(21):2605-17.

Applying a provisional approach in complex bifurcation does not work well
Perhaps, a POBA/ DCB side branch approach would work best in a non complex bifurcation left main lesion.

DEFINITION

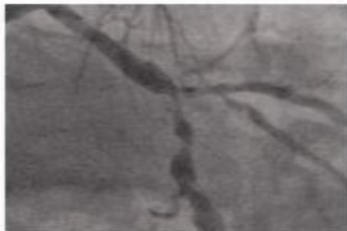
DEFINITION study: Complex bifurcation lesions

LMS lesion with SB $\geq 70\%$
and $\geq 10\text{mm}$



or

Non - LMS lesion with
SB $\geq 90\%$ and $\geq 10\text{mm}$



Any two of:

- ☐ Moderate to severe calcification
- ☐ Multiple lesions
- ☐ Active thrombus
- ☐ Bifurcation angle $< 45^\circ$
- ☐ MB reference diameter $< 2.5\text{mm}$
- ☐ MB lesion $> 25\text{mm}$ length

Advantages of DCB vs POBA

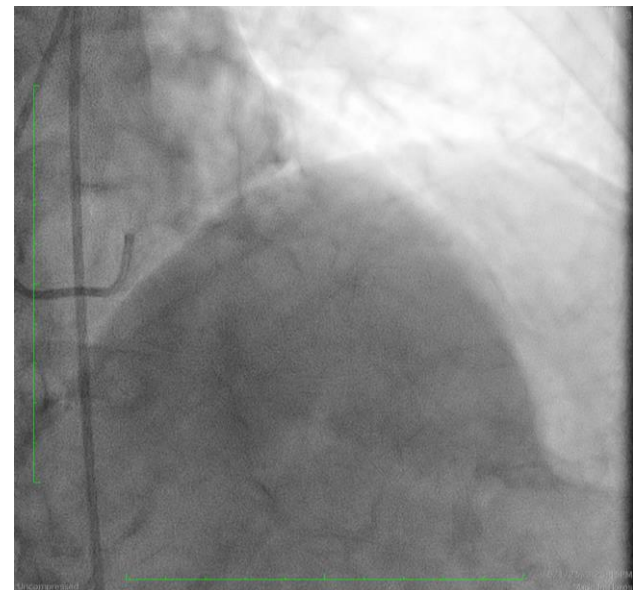
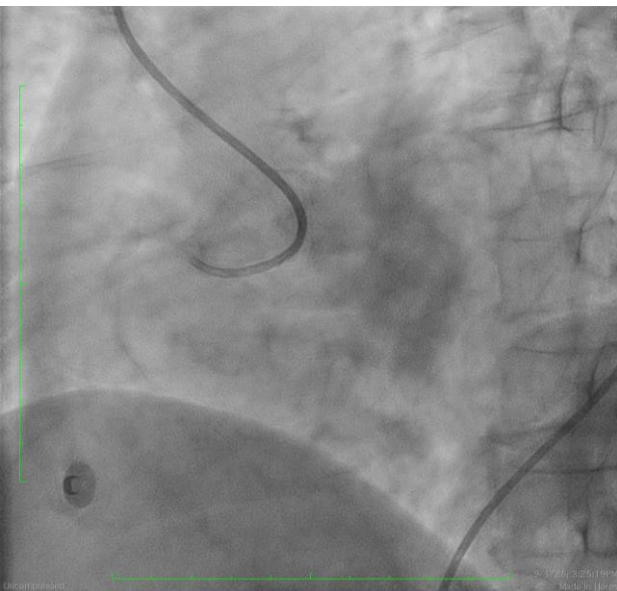
DCB- BIF

- Non- LM
- Non complex bifurcation
- Provisional
- POT-> NC-> DCB-> KBT-> POT
- Cardiac death/ TVMI/ TLR at 12 months: 7.2% vs 12.5%
(p= 0.013)

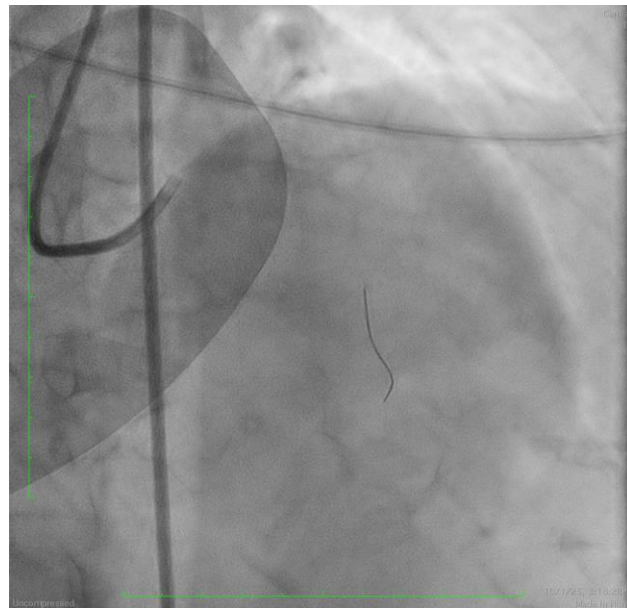
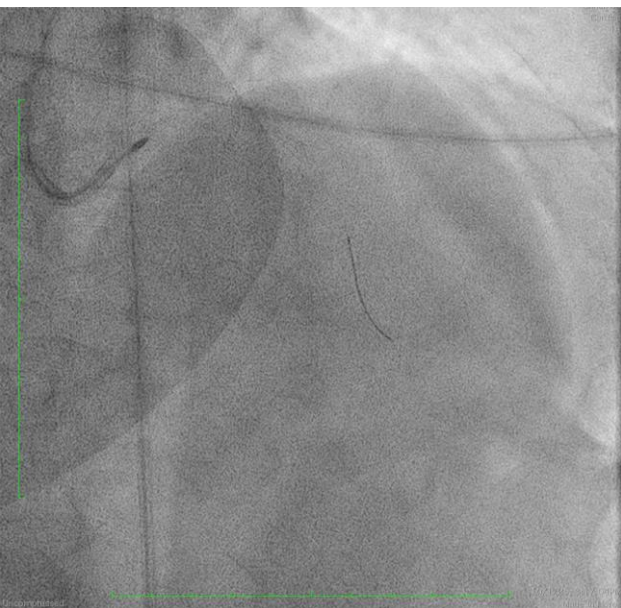
Case 1

- 80 Female
- NSTEMI
- LVEF 35%

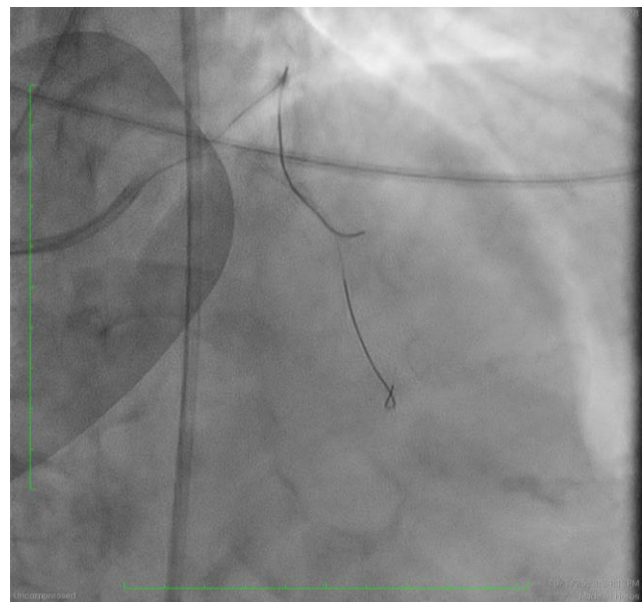
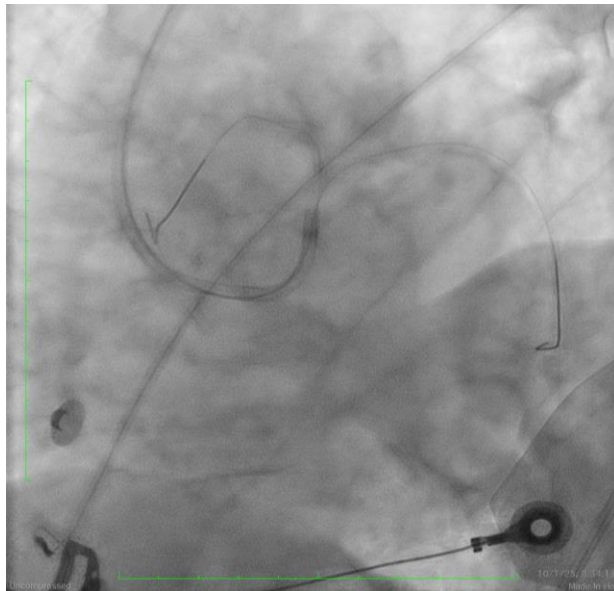
Diagnostic images



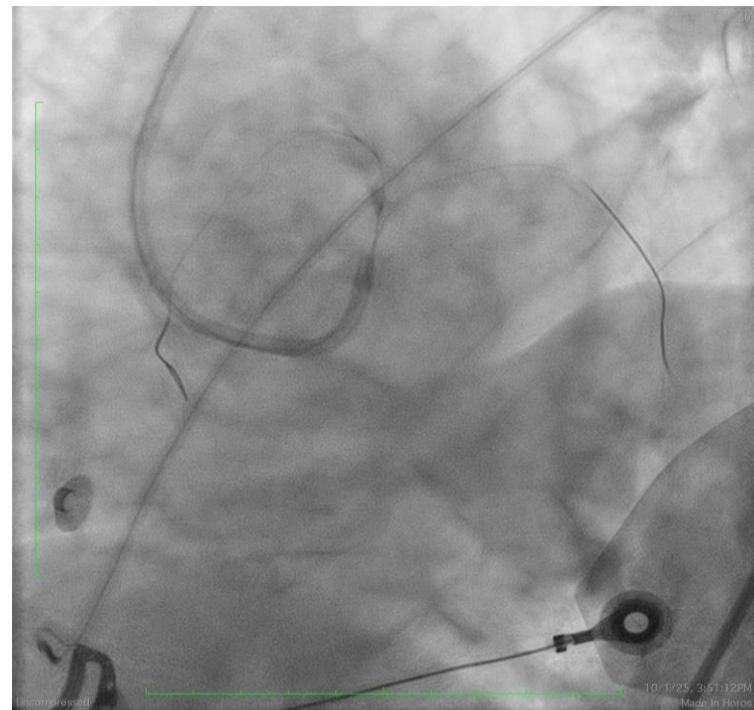
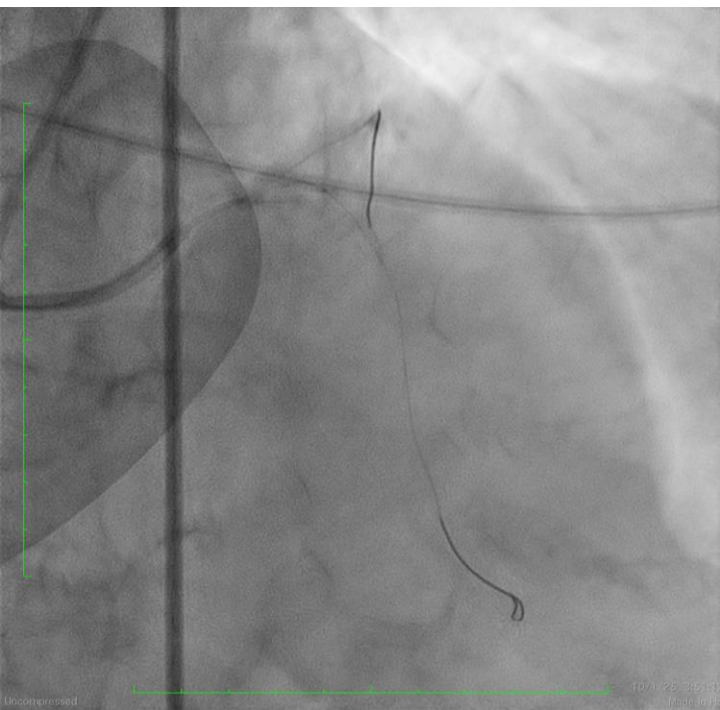
Target lesion- LM bifurcation



Post atherectomy



Eccentric expansion



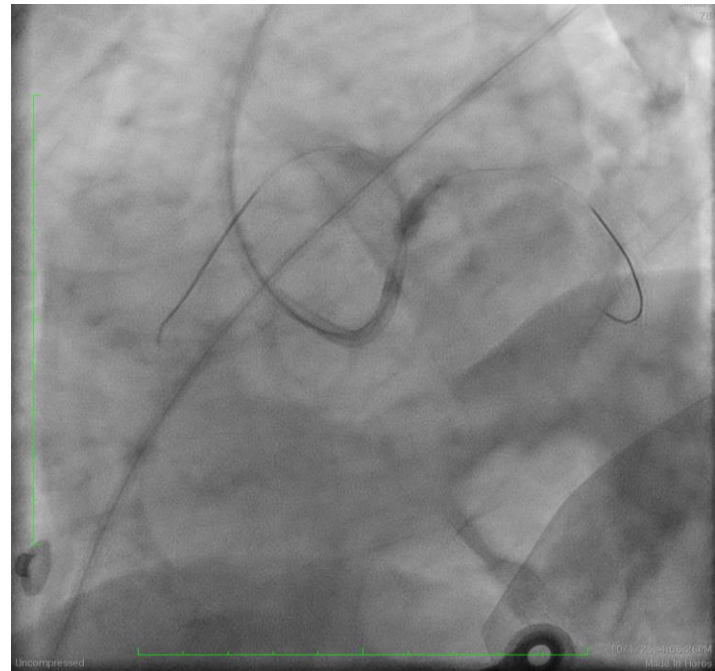
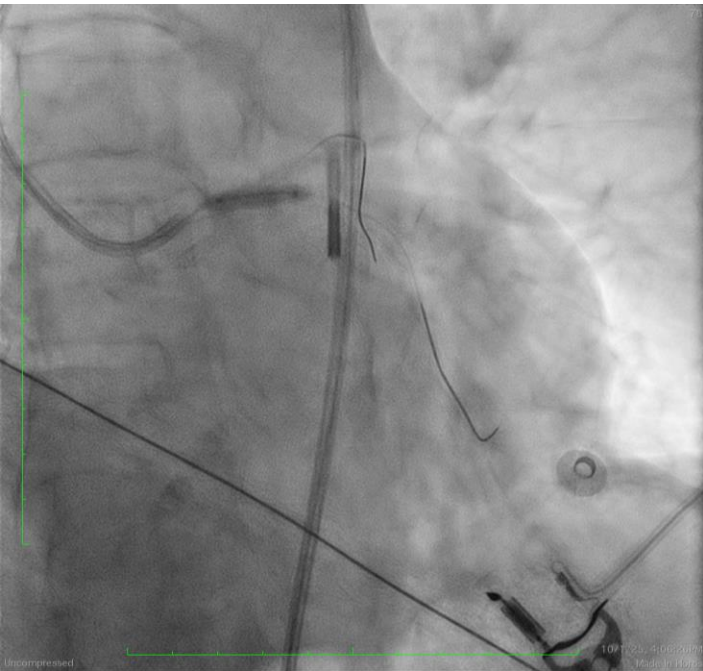
Lithotripsy LAD



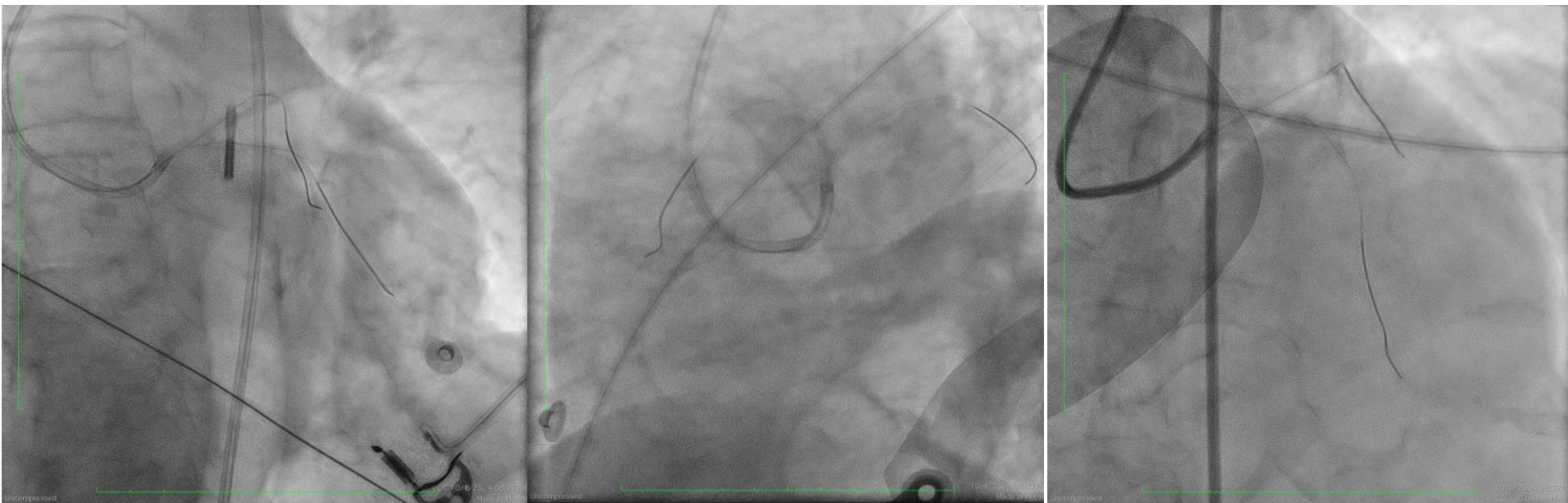
Lithotripsy LAD



Lithotripsy Cx



Post lesion prep



Post PCI



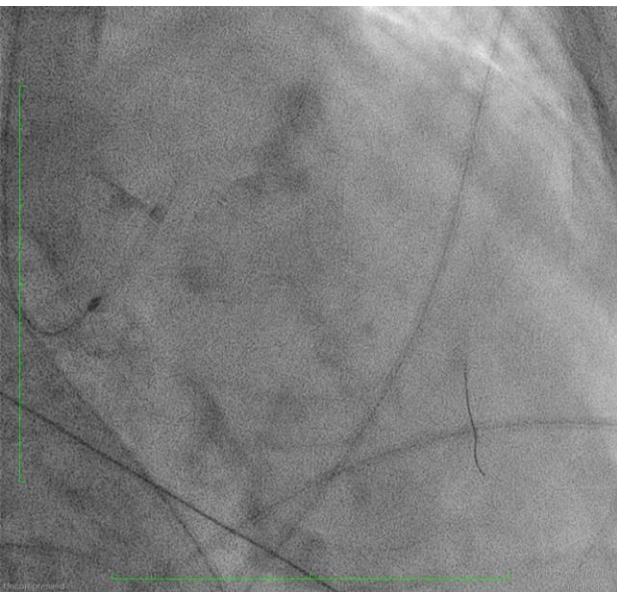
Case 2

- 90 Female
- NSTEMI
- Failed trial of medical therapy with CCS III symptoms

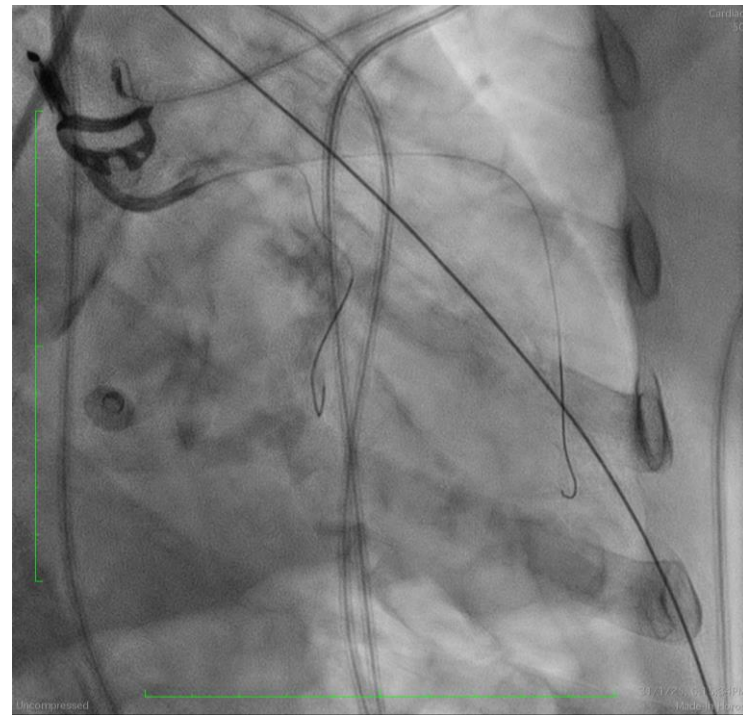
Diagnostic images



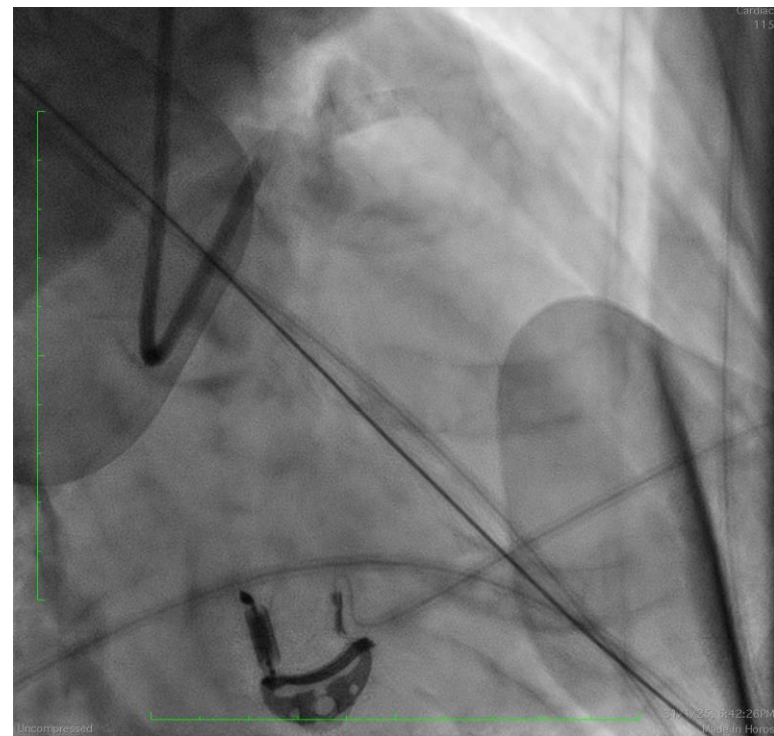
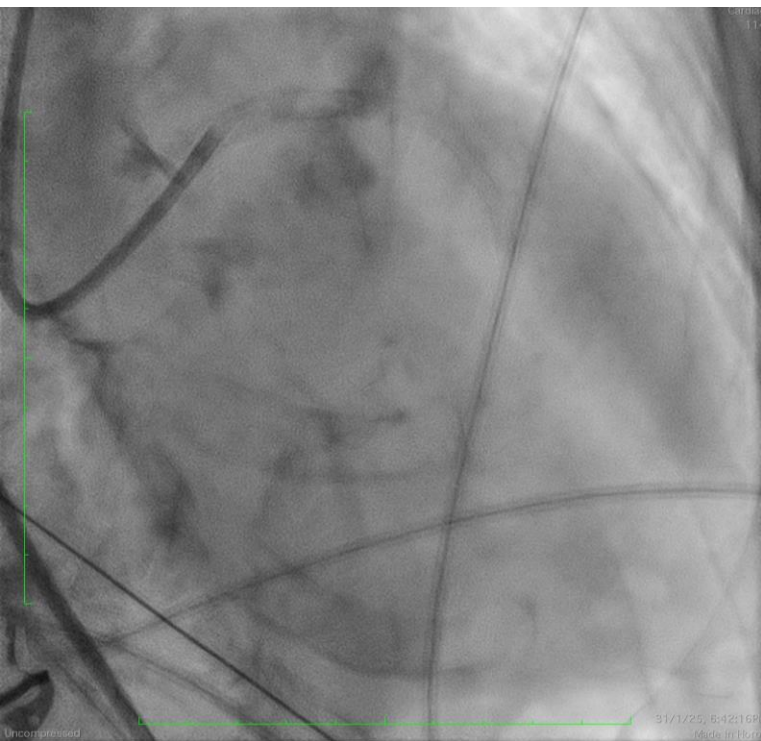
Atherectomy



Post lesion prep



Post PCI



Conclusion

- DES/ DCB combination could be helpful in non complex left main bifurcation PCI
- Good lesion preparation will allow options for final treatment strategy.
- However, operators must be competent in both DES/ DCB and 2 stent strategies
- Imaging is very helpful