

Starting with the new format
Angioplasty Summit-TCT Asia Pacific

Management of Non-protected Left-Main Bifurcation without Drug Eluting Stent

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Our Mission

- Our mission is to clarify *the effectiveness of elective PCI for the de-novo non-protected LMT, regardless of its lesion location* (including distal bifurcation).

*Don't Send our Patients to Surgery,
Only for "Epicardial Coronary Artery Stenosis"!*

**First of all, I would like to show our results
in the era of the bare metal stents.**

Patients

- Between April 2001 and April 2004 (in the era of the bare metal stent), 31 patients *excluding AMI (STEMI & NSTEMI)* were identified to have *de-novo* non-protected LMT stenosis in our hospital.
- Among the 31 patients, 9 were sent to surgery.
 - 7: diffuse 3-VD with severe calcification
 - 1: concomitant valve disease
 - 1: super-dominant LCx

Patients

- *Twenty-two* patients (17 males, 64 ± 8 years) with *de-novo non-protected LMT stenosis* who were treated by *elective* PCI were enrolled into the study.

Patient Characteristics

22 patients

Age	64±8 (49-82)	Diagnosis	
Male / Female	17 / 5	AP	13
Family History	8	u-AP	3
Hypertension	13	RMI	6
Hypercholesterolemia	11		
Diabetes	5	Involvement of other vessels	
Smoking	14	none	12
Obesity	13	LAD	2
		LCx	3
LVEF(%)	66±6 (56-77)	RCA	3
		LCx+RCA	2

Lesion Characteristics

22 LMT lesions

Location of the lesion

orifice	3
body	2
<i>bifurcation</i>	<i>17 (77%)</i>

Calcification on the angiogram

present	5
absent	17

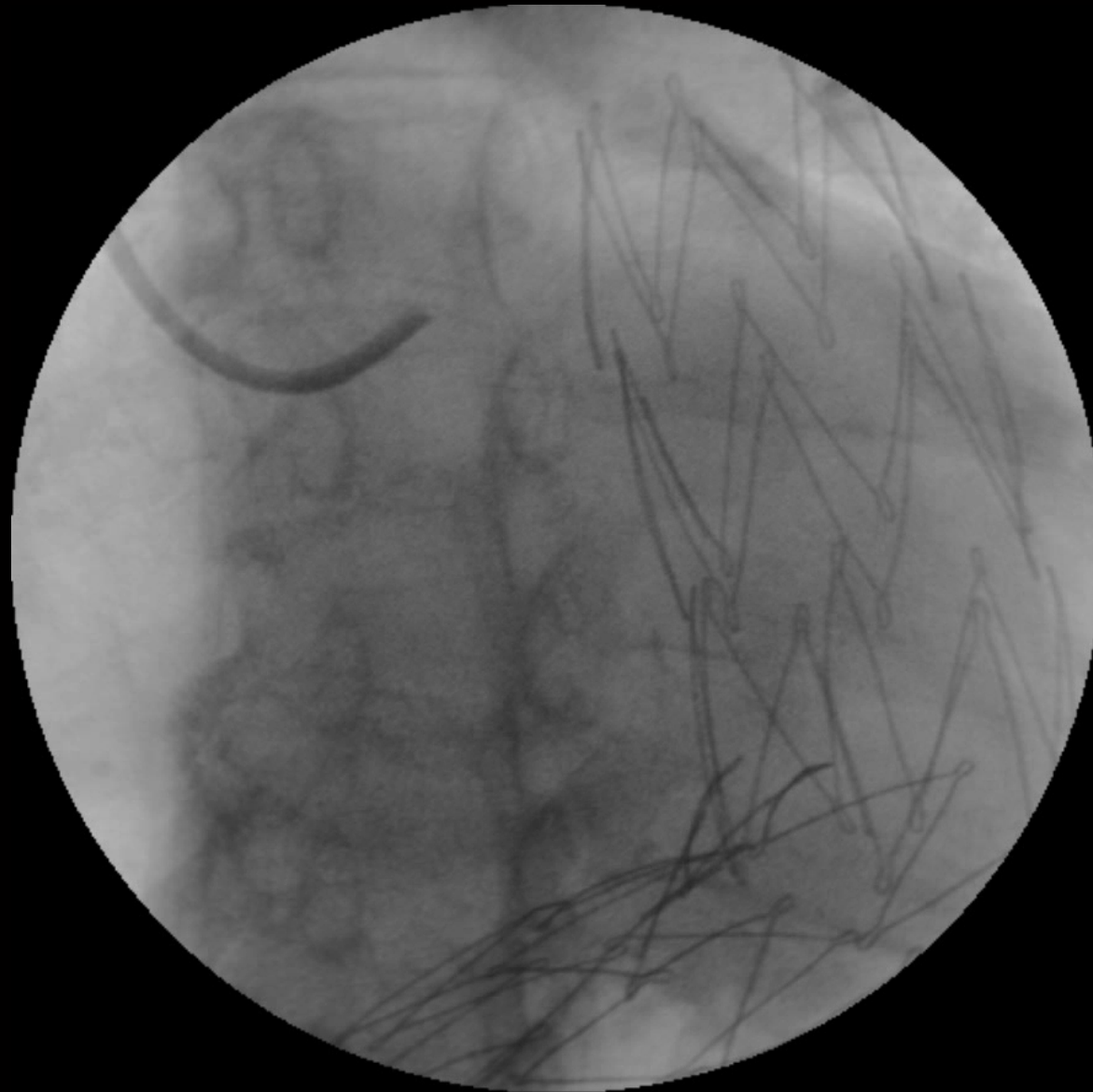
Methods

- *Elective PCI* was performed by the **single** experienced operator.
- The strategy of PCI was determined in each patient according to the operator preference. **Debulking was recommended** to *achieve as much acute gain as possible* and to *prevent plaque shift* to the side branch.
- Patients were encouraged to receive follow-up CAG 3 as well as 6 months after the procedure.

DCA + Stenting Cross-over + KBT

Effort AP, 55years, male; Trans-radial DCA

8Fr Joguide
JLC 4.0

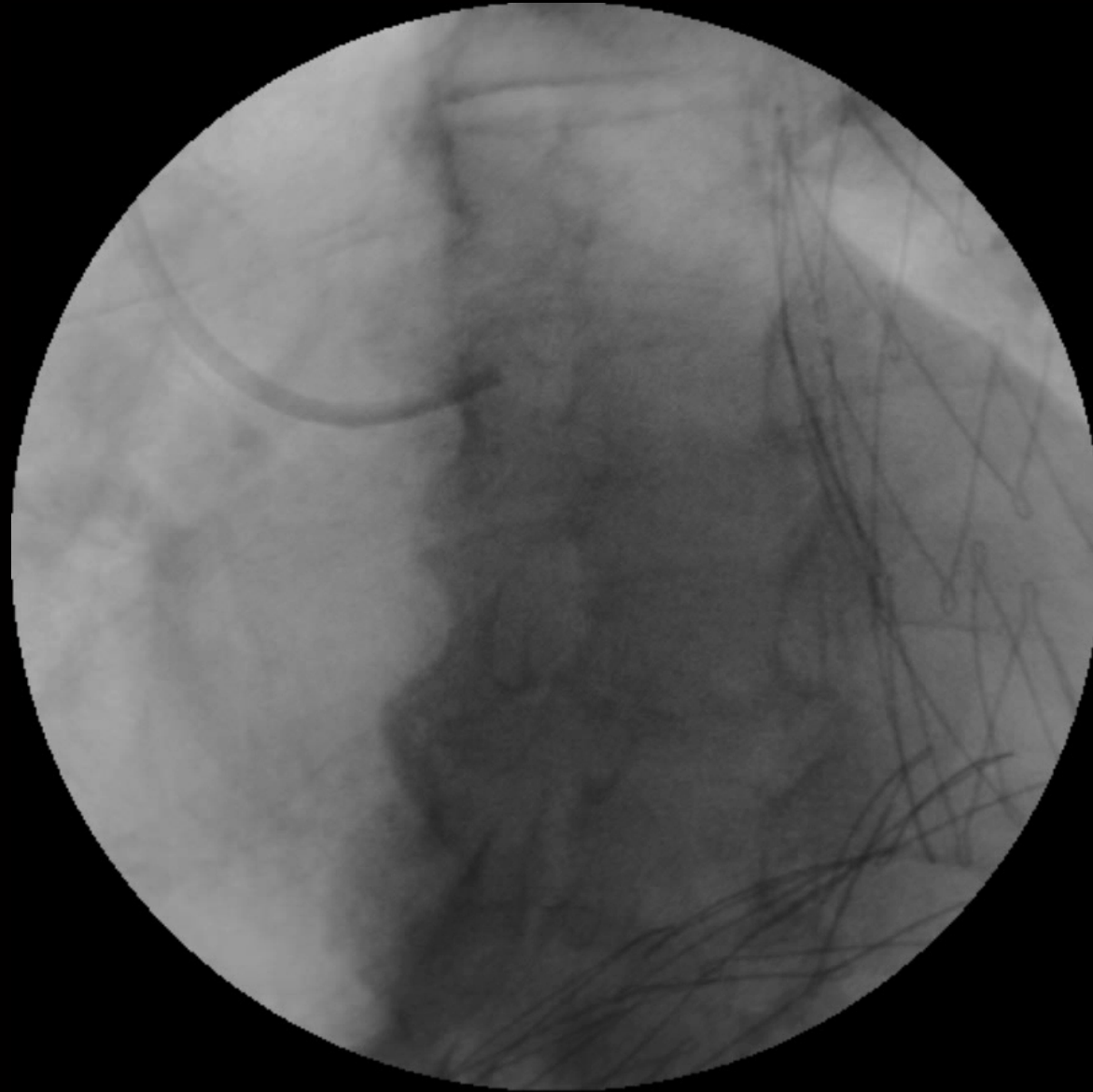


Trans-radial DCA for Non-protected LMT with Flexicut-L at 200psi



Final Results

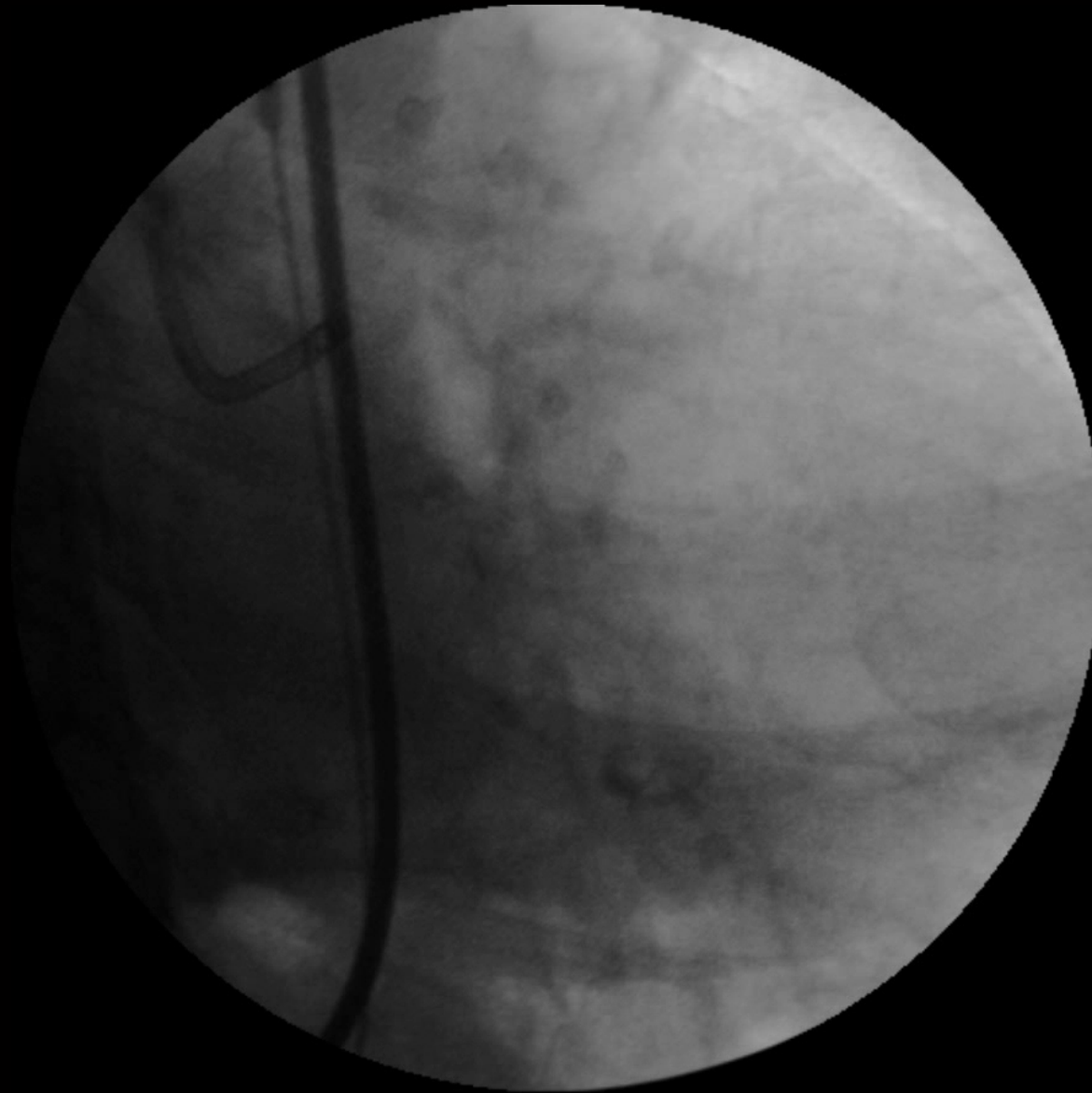
BX 5.0-18mm
with KBT



Rotablator + Stenting Cross-over + KBT

AP, 70 years, female: LMT Bifurcation (“Benz” Sign)

**Rt TFI
8Fr EBU4.0-SH**



Polishing Run of a 2.15mm Burr at 200,000 rpm



Final Results

S670 4.0-18mm
with KBT



DCA + Y - Stenting

u-AP, 66 years, male: LMT Bifurcation (“Benz” Sign)

**Rt TFI
8Fr JCL4.0**



First Cut towards the Orifice of LCx

Flexi-cut L
30psi



Final Results



Procedural Outcomes

Arterial access site

radial / femoral : 6 (27%) / 16 (73%)

Size of the guiding catheters

6Fr / 7Fr / 8Fr : 4 (18%) / 2 (9%) / 16 (73%)

IABP support : 9 (41%)

IVUS guidance: 20 (91%)

Procedural Outcomes

	Stent	DCA alone	DCA + stent	Rota + stent
Orifice (n=3)	2	1		
Body (n=2)	1		1	
Bifurcation (n=17)	5	2	5	5

Procedural Outcomes

Successful procedures

22 procedures (100%)

Complications

Death, Q-wave MI or emergent CABG : none

1 case of coronary perforation

AP, 65 years, male: LMT Bifurcation with Calcification

Lt TFI
8Fr JLC4.0



AP, 65 years, male: LMT Bifurcation with Calcification

Lt TFI
8Fr JLC4.0



Polishing Run of 1.5mm Burr with 227,000rpm



After Implantation of BX 3.5-23mm / 4.5-13mm



**Kissing Inflation
with 4.5mm and 3.5mm Balloons at 16atm**



Coronary Perforation at the Non-protected LMT



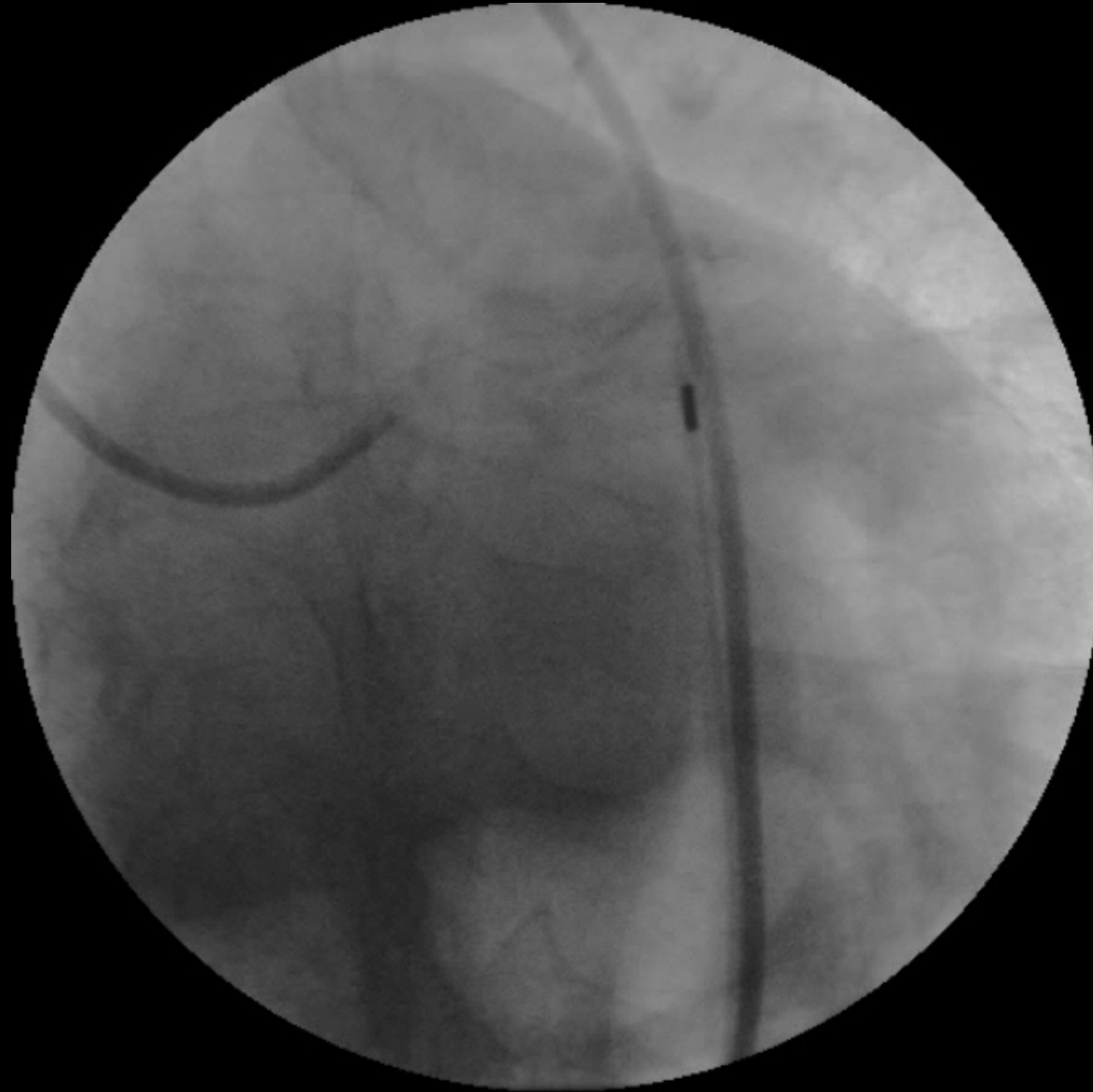
Long Inflation with a Perfusion Balloon



Final Results



Final Results



Follow-up Results

Clinical follow-up : 22 patients (100%)

Angiographic follow-up : 21 patients (95%)

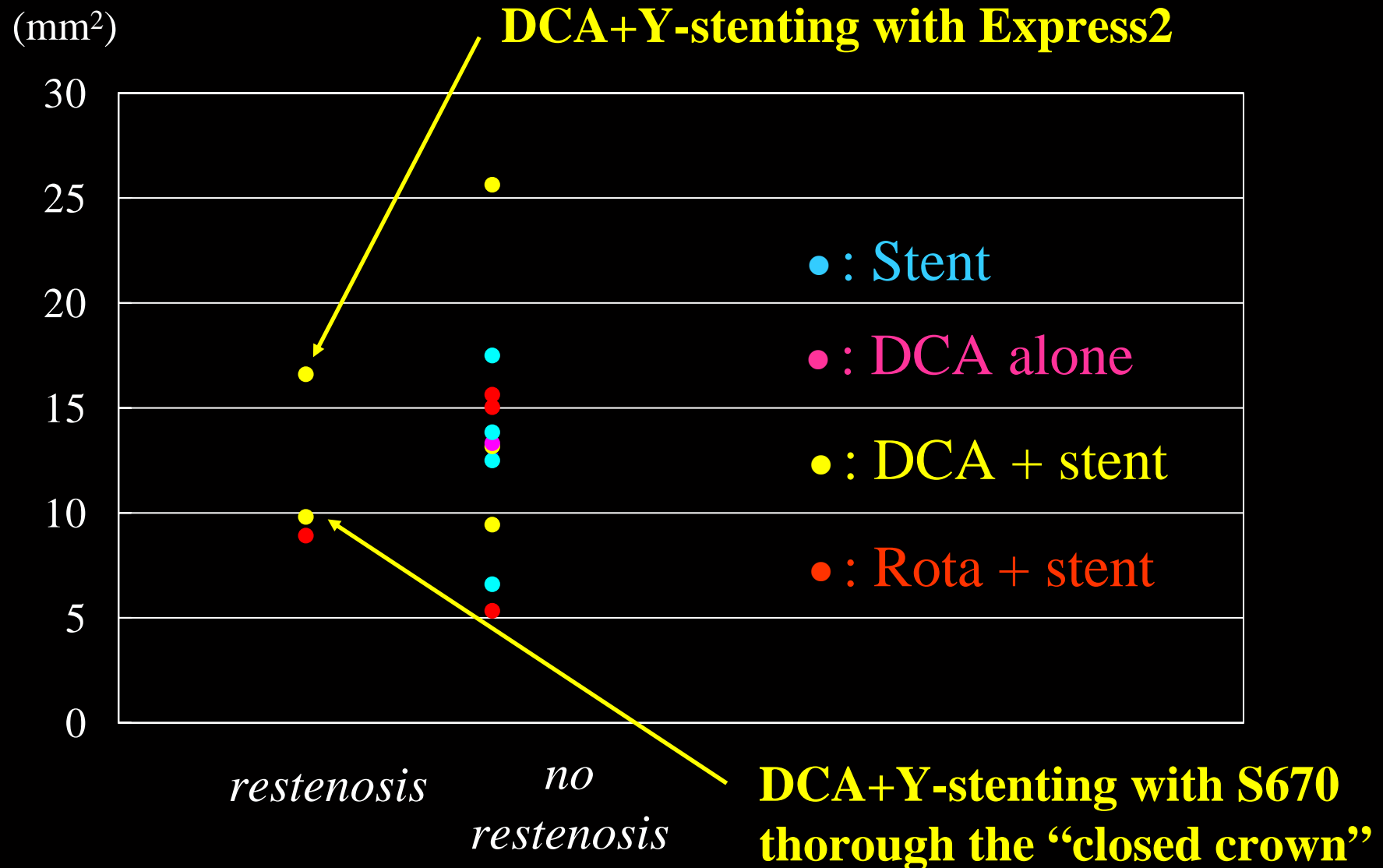
No death or acute MI

Restenosis at LMT: 3 patients (14%)

TLR : 3 patients (re-PCI: 1 patient, CABG: 2 patient)

TVR : 4 patients (re-PCI: 1 patient, CABG: 3 patients)

Relationship between Final CSA and Restenosis



Lessons We Learned from the Bare Metal Stents

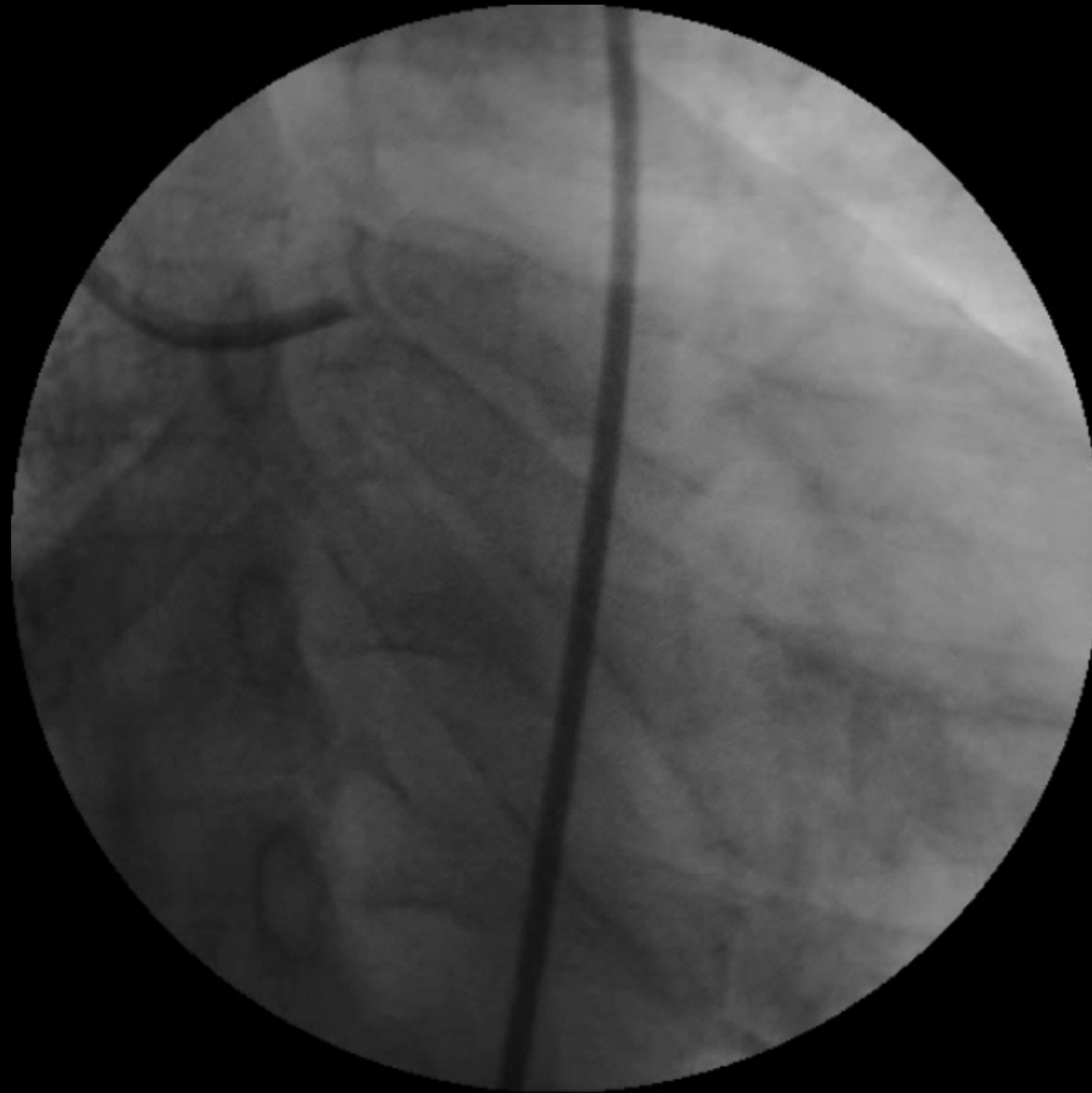
- *Elective PCI* for the non-protected LMT even *with distal bifurcation* could be accomplished with good initial and long-term results.
- In order to avoid restenosis
 - 1) **Lesion CSA after PCI** $> 10\text{mm}^2$
 - 2) **Y stenting** (especially thorough a narrow space towards LCx) should not be performed

Impact of DES

- Polymer with anti-proliferative agents were coated.
 - **Minimum CSA** which can prevent restenosis should be **smaller** than the era of BMS.
 - We can **simplify the procedure!** Less IABP?
 - Less debulking, more stent cross-over with KBT?

**AP, 48 years, male: LMT Bifurcation with Calcification
+ Diffuse Disease at RCA / LAD / LCx**

Lt TFI
8Fr FCL4.0



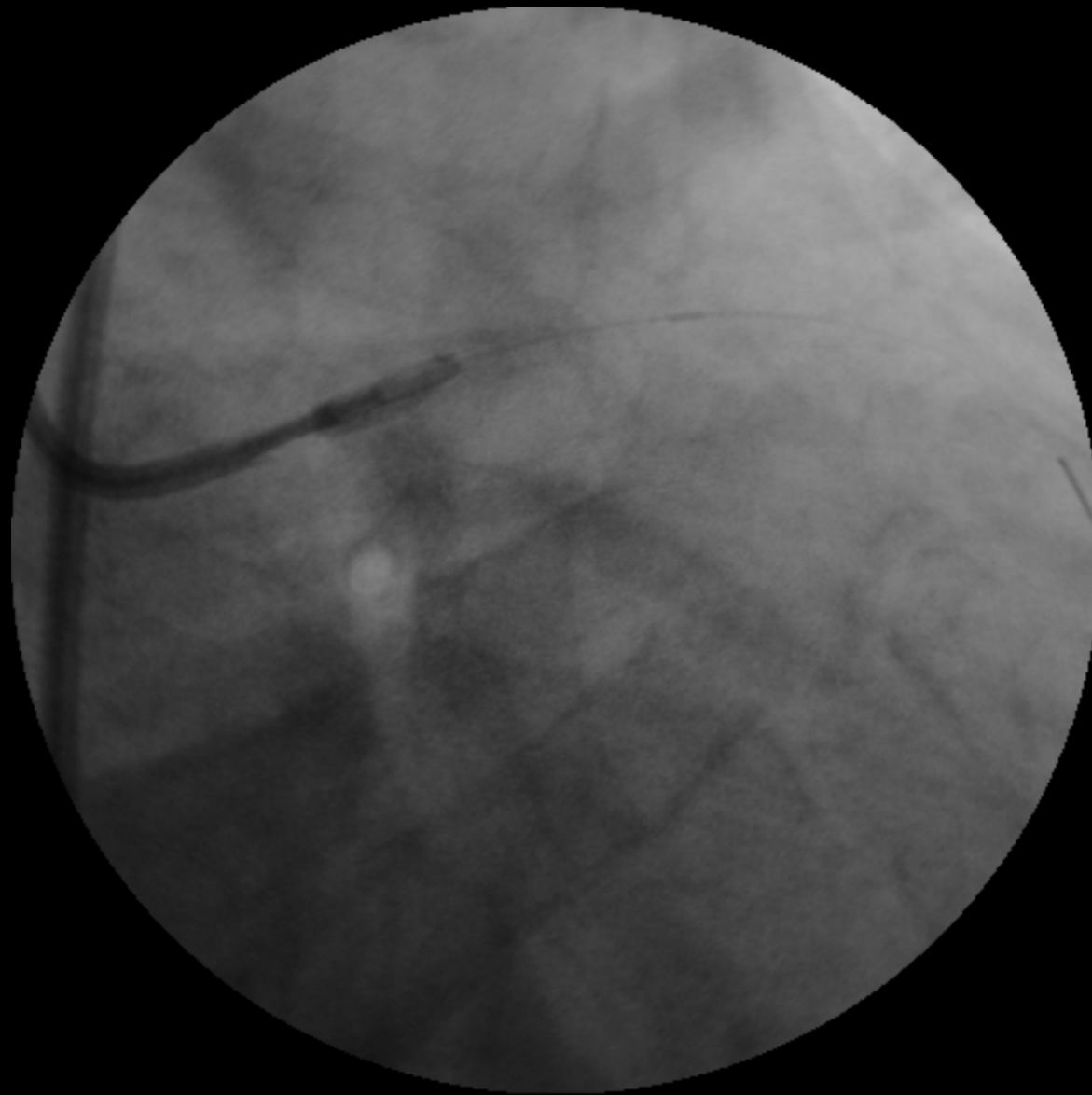
After Cypher Stents Implantation to LCx



Rotational Atherectomy with 2.0mm Burr at 220,000rpm



Directional Atherectomy with Flexi-cut L



**Kissing Inflation
with 4.0mm and 3.0mm Balloons at 14atm**



Final Results



Final Results



Procedural Outcomes with Elective DES Implantation to LMT between August 2004 and March 2005

	Stent	DCA alone	DCA + stent	Rota + stent
Orifice (n=0)				
Body (n=1)	1			
Bifurcation (n=7)	4		2	1

*We still Require Some Debulking Procedures.
No Mace, No Restenosis!*

Conclusions

- PCI with DES will be a standard therapy for non-protected LMT in the near future.
- *Debulking are still required to simplify the stenting procedures* (to achieve optimal DES expansion in a calcified lesion and to prevent plaque shift to the side branch).