EMO GVM CENTRO CUORE COLUMBUS s.r.l.

ANGIOPLASY SUMMIT 2013
TCT ASIA PACIFIC
Seoul, Korea: 23-26 April 2013

Breakfast meeting: Bifurcation Coronary Intervention

"Master Style- Bucking the Trends"

Speaker – 12'

Antonio Colombo

Centro Cuore Columbus and
S. Raffaele Scientific Institute, Milan, Italy

buck the trend

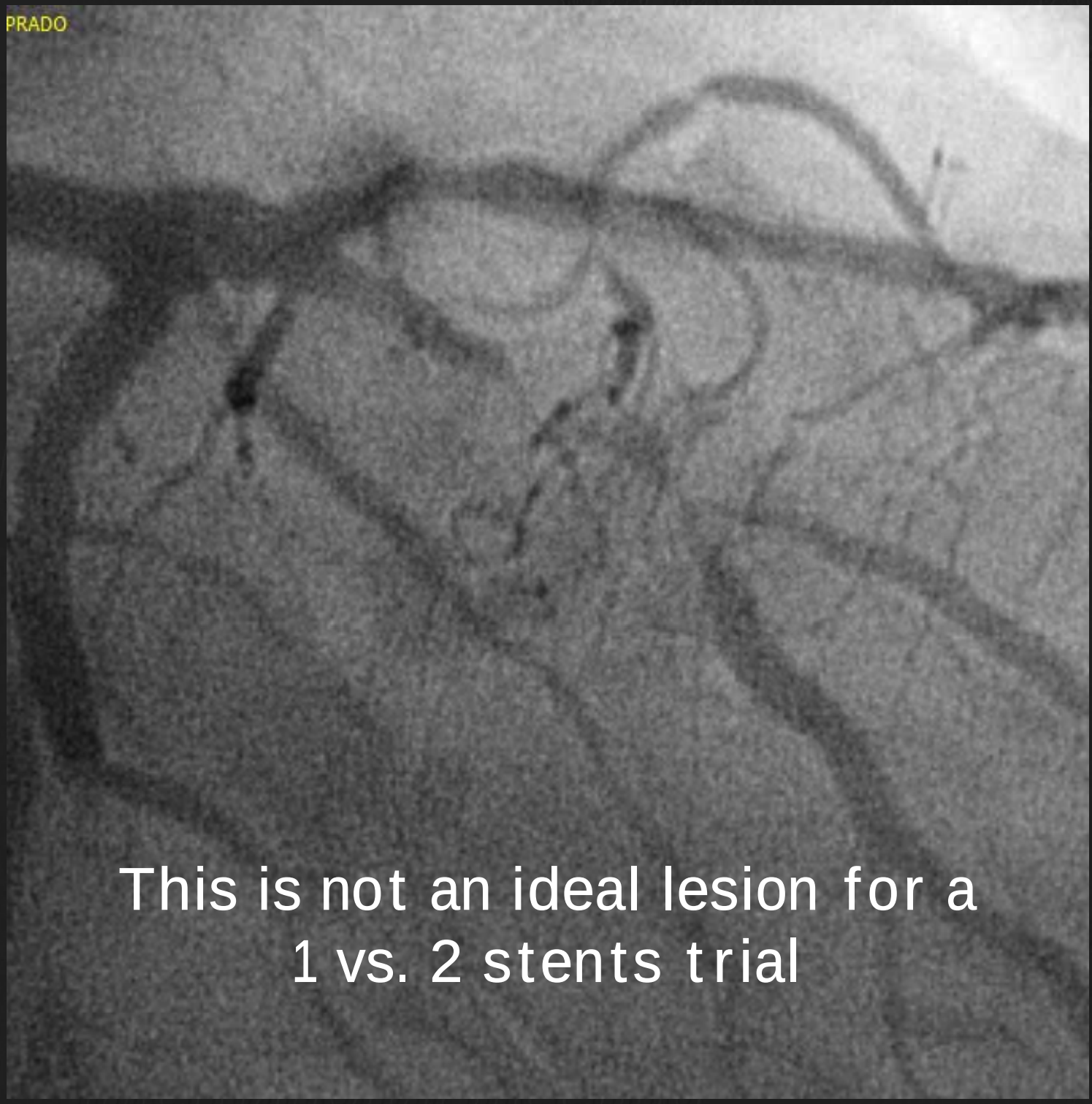
to be noticeably different from the way that a situation is developing generally,

Spending is down this season, but the tourist industry is managing to buck the trend, with thousands more holidays sold.

Preamble

The main limitation of all randomized studies comparing provisional versus routine double stenting is that bifurcation lesions which are randomized are most of the times suitable for provisional. Bifurcation lesions which need to be treated with two stents are usually not randomized.

For bifurcation lesions, **which are suitable for 1 stent or 2 stents,** routine implantation of 2 stents does not give any advantage compared to routine implantation of 1 stent and cross-over to 2 stents when needed



This is not an ideal lesion for a
1 vs. 2 stents trial

Prof. Andrejs Erglis
Latvian Centre of Cardiology
Pauls Stradins Clinical University Hospital
Riga, LATVIA

Conclusions:
Keep It Simple!

- **The technique of stenting of MV and optional stenting of SB can be recommended as the routine bifurcation stenting technique**
- **A strategy of routine kissing balloon dilatation of SB through the MV stent does not improve the 6-month clinical outcome, although FKBD may reduce angiographic SB (re)stenosis, especially in patients with true bifurcation lesions**
- **A complex approach does not appear beneficial in more anatomically complicated lesions.**

My view

If you decide to implant two stents you take more responsibilities : an optimal result will give you a low MACE rate, even if you perform angio f-u, a suboptimal result may increase the risk of thrombosis of the side branch and sometimes of the main branch.

If you decide to implant one stent you are mainly responsible about the side branch: an incorrect decision may lead to side branch closure

The final decision is a balance between the clinical relevance of the side branch (risk of occlusion) and how confident is the operator to obtain an optimal result

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Problems with bifurcation lesions

- ✓ Should I wire the side branch? YES, very little to lose (except for a guide wire) to take this decision
- ✓ Should I implant 1 or 2 stents? Complex question: we have partially answered
- ✓ Should I perform kissing inflation? In general only if you have implanted 2 stents. In other circumstances if the side branch is relevant and shows an unsatisfactory result: KISSING IS NOT VERY IMPORTANT IN **ALL** PROVISIONAL
- ✓ What is " Keep It Open"? : When you are only concerned about side branch occlusion regardless of residual stenosis

KIO: Keep it Open

- This strategy means to place a guide wire in the side branch with the goal to finish the procedure with flow (TIMI 1,2,or3) in the side branch without any concern for residual stenosis
- When should I plan for KIO? For any side branch which is large enough to be worried about closure and without much concern about residual stenosis and extent of ischemia

1 or 2 stents as intention to treat

Why not implanting 1 stent all the times, you can always implant a second one?

- The procedure to implant a second stent may not be so easy when performed in case of need compared to its elective performance
- The selection of the best technique to adopt, when using 2 stents, is best if the decision is made at the beginning rather than as a "bailout".

1 or 2 stents as intention to treat

Why not implant 2 stents all the time?

- Implanting 2 stents as intention to treat is more complex
- Implanting 2 stents is more expensive
- There is no demonstration that implanting 2 stents all the time is superior to a provisional strategy
- There is the perception than implanting 2 stents may be associated with a high risk of stent thrombosis: we will discuss that this fear is unreal and not supported by data.

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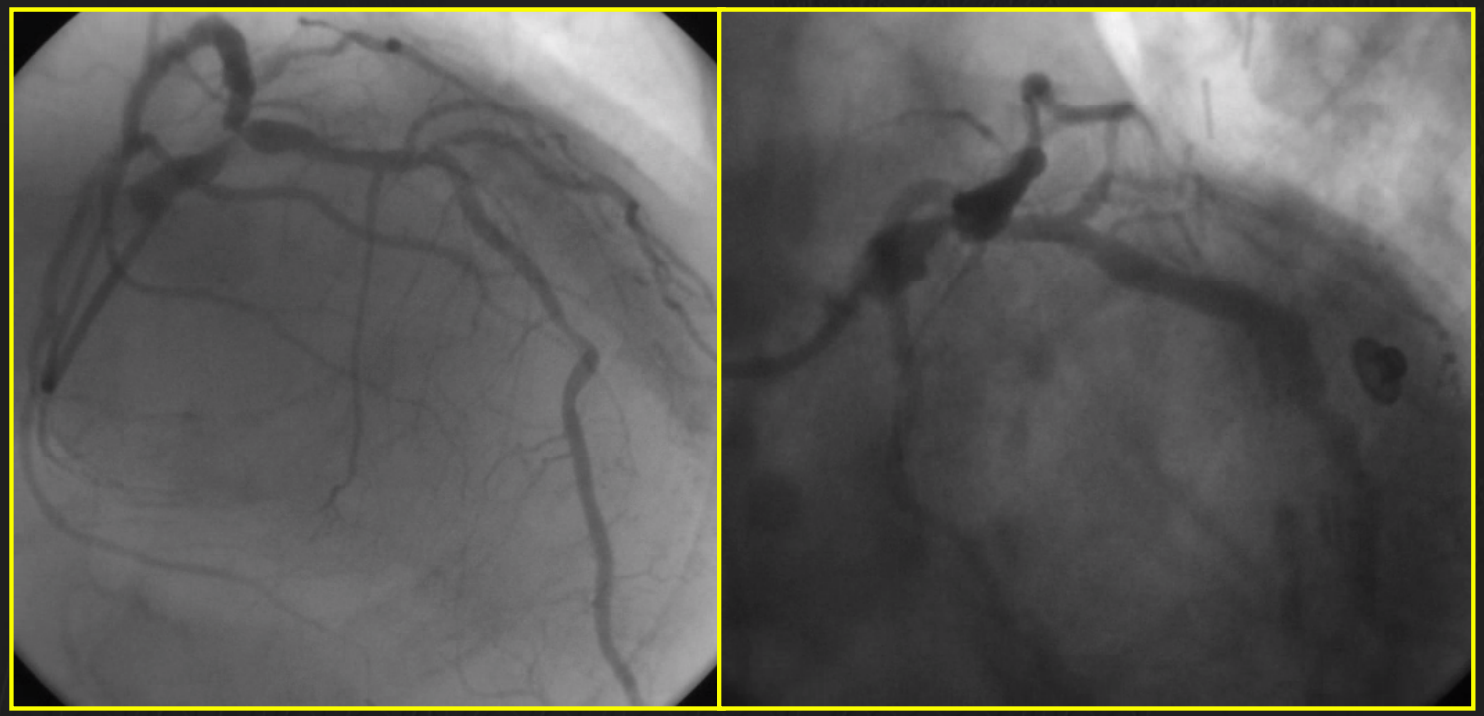
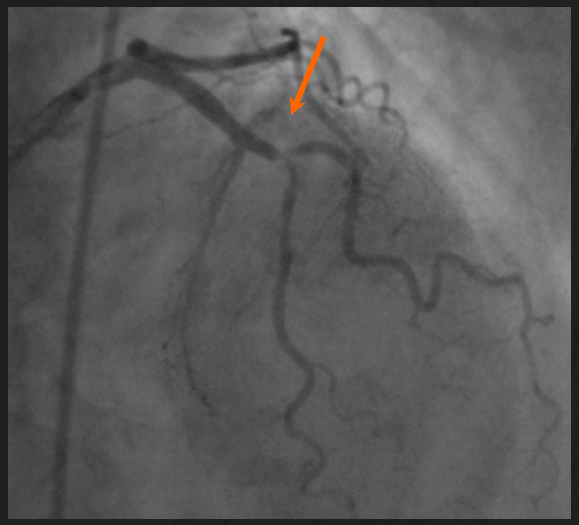
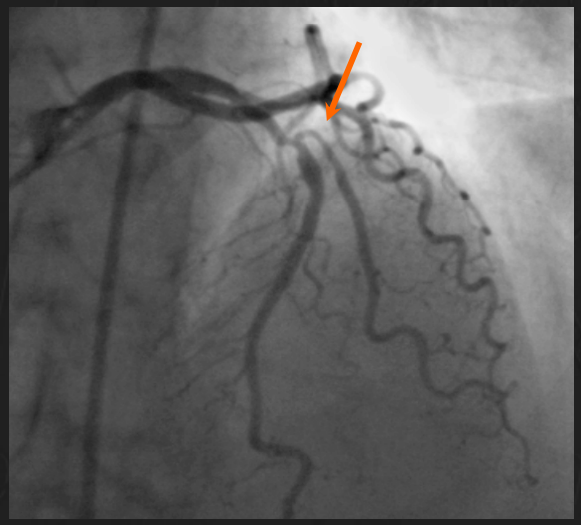
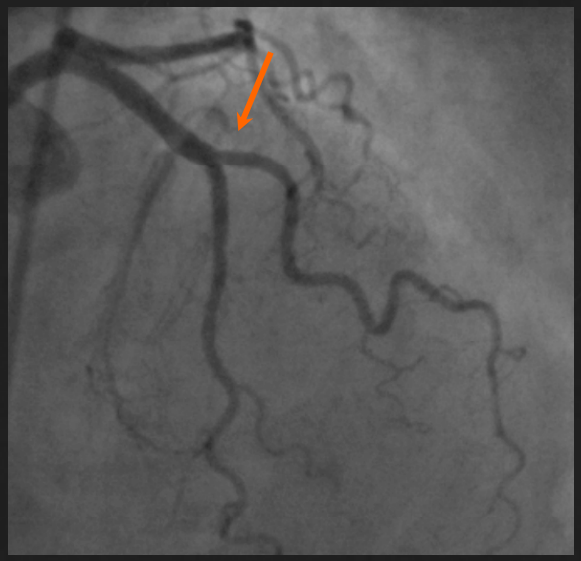
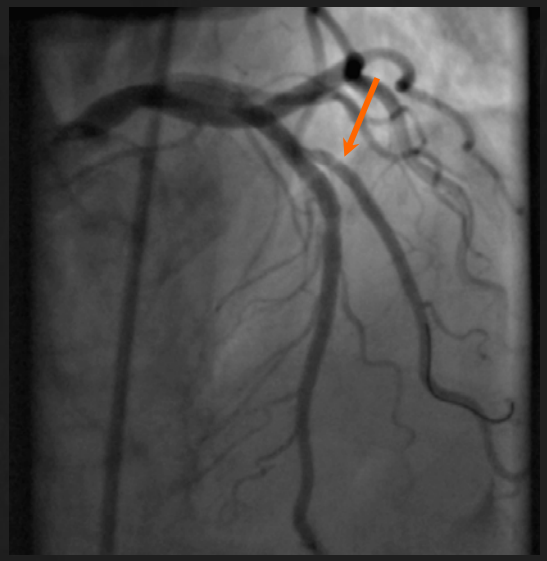
1 stent



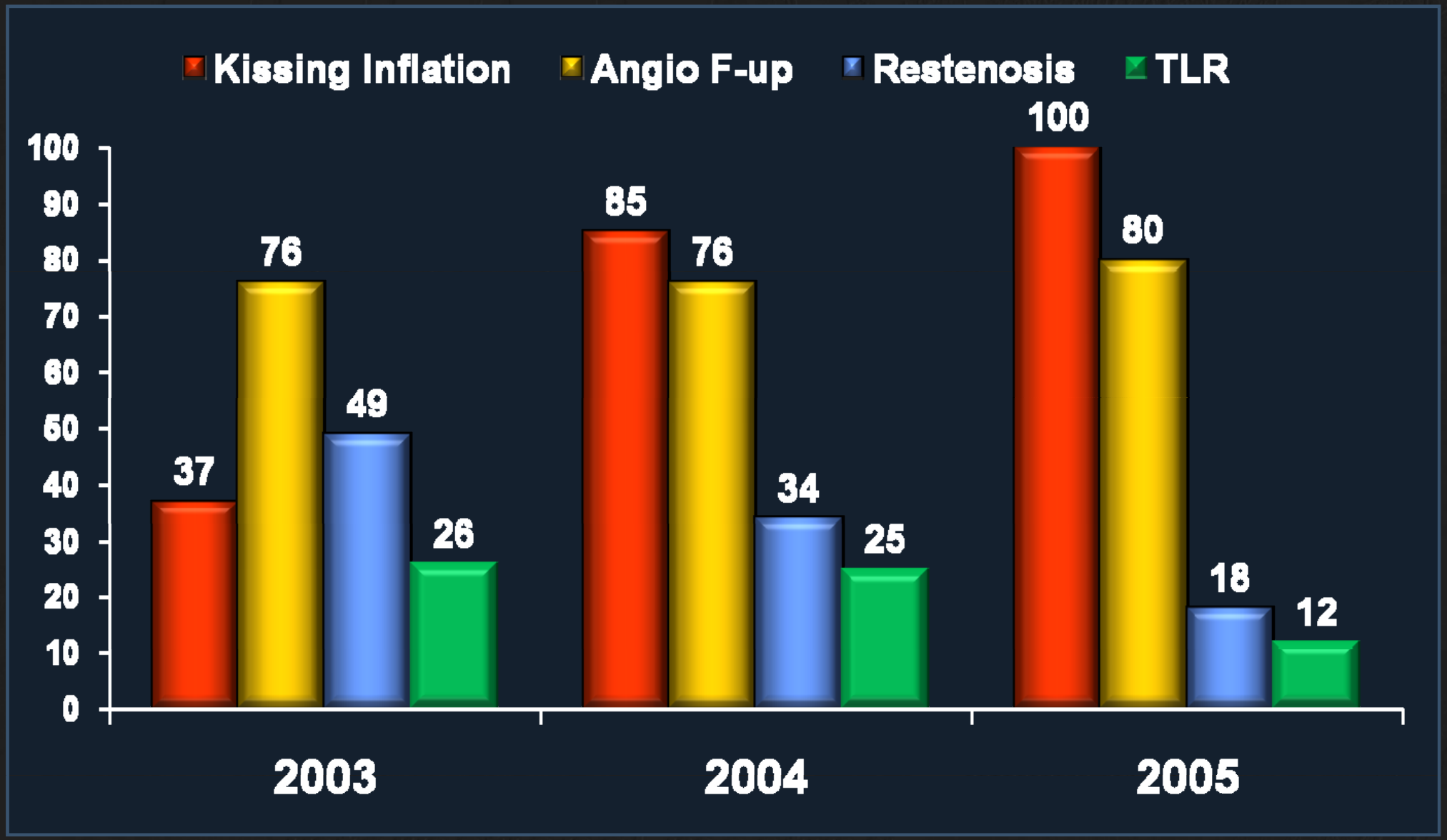
2 stents

Tryton Side Branch Stent:

Complex Bifurcation Lesions

	Wide Angle	Narrow Angle	Prox LAD
Baseline			
Final			

Optimal performance of 2 stent techniques important in reducing event rates

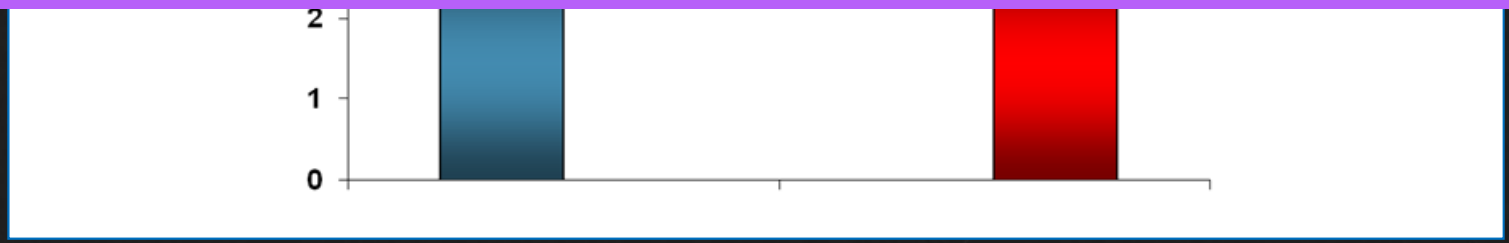


European Bifurcation Club Consensus

- *Complex technique: Kissing balloon inflation for carina reconstruction is mandatory in two stent techniques;*
- *Simple technique: Kissing balloon inflations, or pressure wire interrogation, should be used in provisional stenting when an angiographically significant (>75%) side branch lesion remains after main branch stenting;*

NORD-BIF III "Nordic kiss"

FKB inflation reduced restenosis in the SB: overall from 15% to 8% and in true bifurcations from 20% to 7%

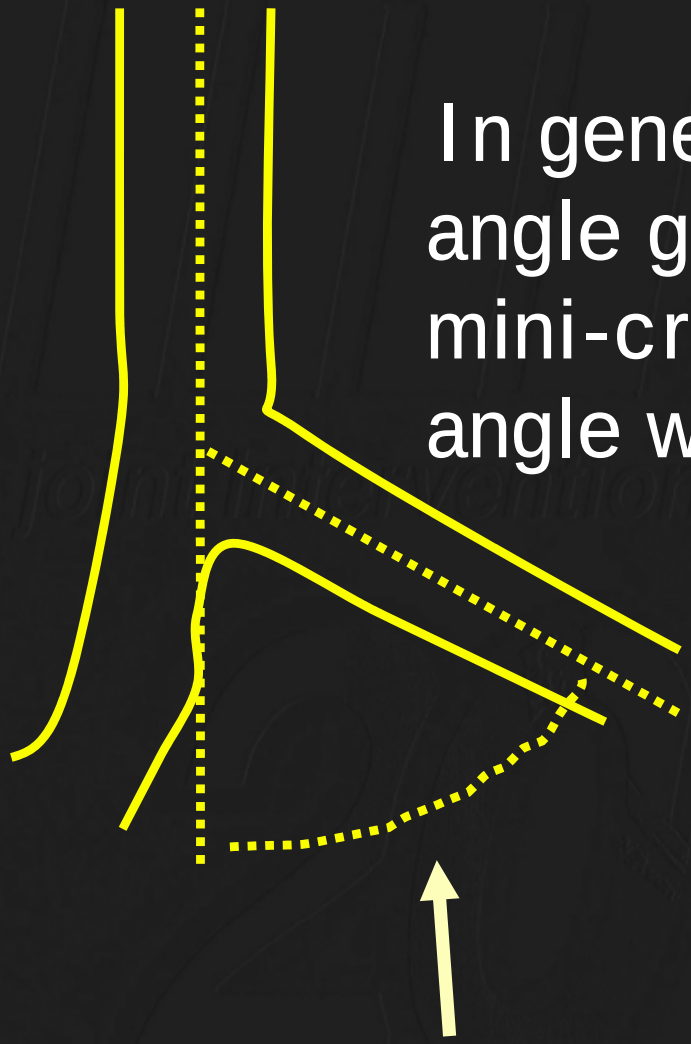


Final Kissing Balloon Inflation

In real life Final Kissing Balloon inflation is performed 30%-50% of the times with provisional stenting and we do not know what would have happened if the operators did not performed Final Kissing Balloon at all. When MiniCrush always perform 2 steps kissing inflation.

The bottom line could be that Final Kissing Balloon inflation is not mandatory, but there are situations where it is important.

BIFURCATION ANGLE MEASUREMENT



Bifurcation angle

In general a small bifurcation angle gives a better result with mini-crush or culotte a large angle with T or T and protrusion

With 2 stents an appropriately performed final kiss minimizes the effect of the bifurcation angle

Dzavik et al Am Heart J 2006;152:762-769

I N S I D E II T r i a l

Ricardo Costa

Presence of true bifurcation lesion and ***the side branch is diseased and needs to be treated***

SB predilatation

Successful (<50% DS, TIMI 3 flow, no dissection)

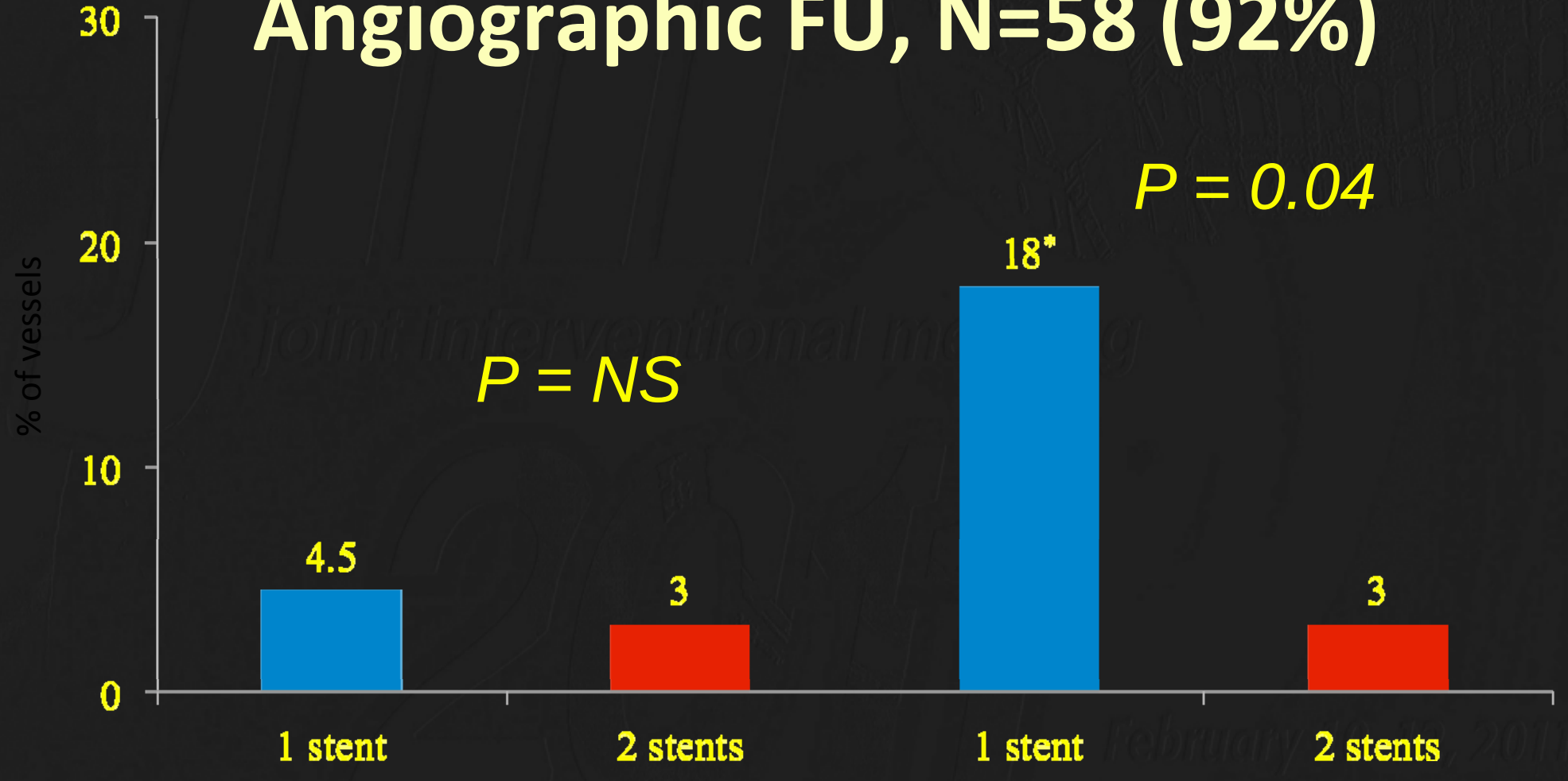
Unsuccessful → **2 stents**

Single stenting
(Provisional SB stenting)

Cross over if unsatisfactory

Double stenting

SB Restenosis at 9-Month Angiographic FU, N=58 (92%)



*All restenosis at ostium location

Clinical Outcomes (Site Reported)

Event	In-Hospital	30 Days	12 Months
N	64	64	64
Cardiac death	0	1	0
MI	6	0	0
Q wave	1	0	0
Non-Q wave	5	0	0
TLR	0	0	2
TVR	0	0	4
Stent thrombosis	0	1	0

An approach for complex bifurcations:

- A strategy of SB predilatation first, and than decision to implant 2 stents or a provisional approach seems to lead to select the best strategy
- Lesion length and stenosis severity on the SB seems to be the major factors leading to implantation of 2 stents
- Preliminary results of this trial do not show any disadvantage when 2 stents are utilized in a liberal fashion when needed
- The angiographic restenosis more frequently detected following provisional stenting may require a functional evaluation to call it clinically relevant
- When available, baseline IVUS evaluation gives important information about which strategy will be ultimately implemented

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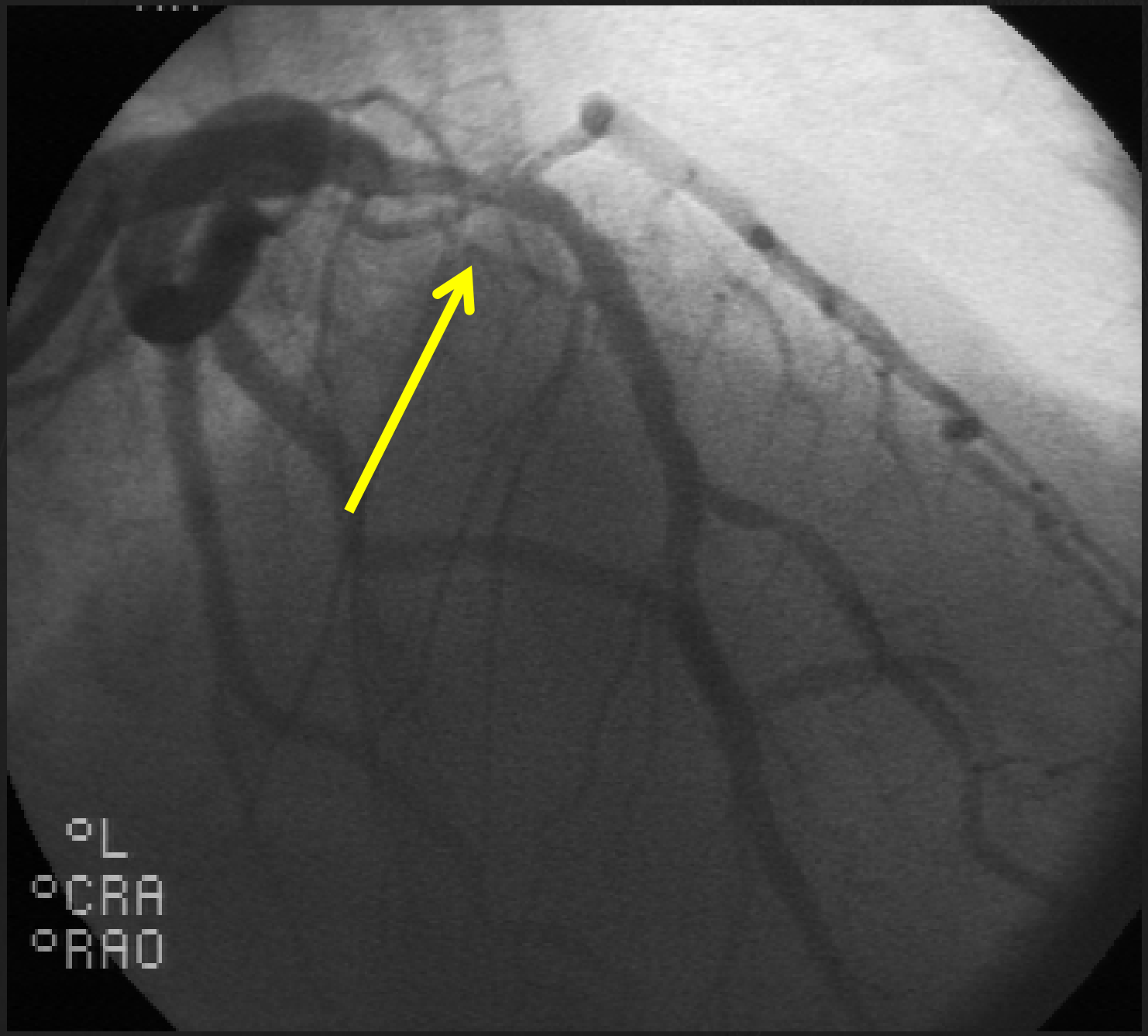
LAD - Cranial View



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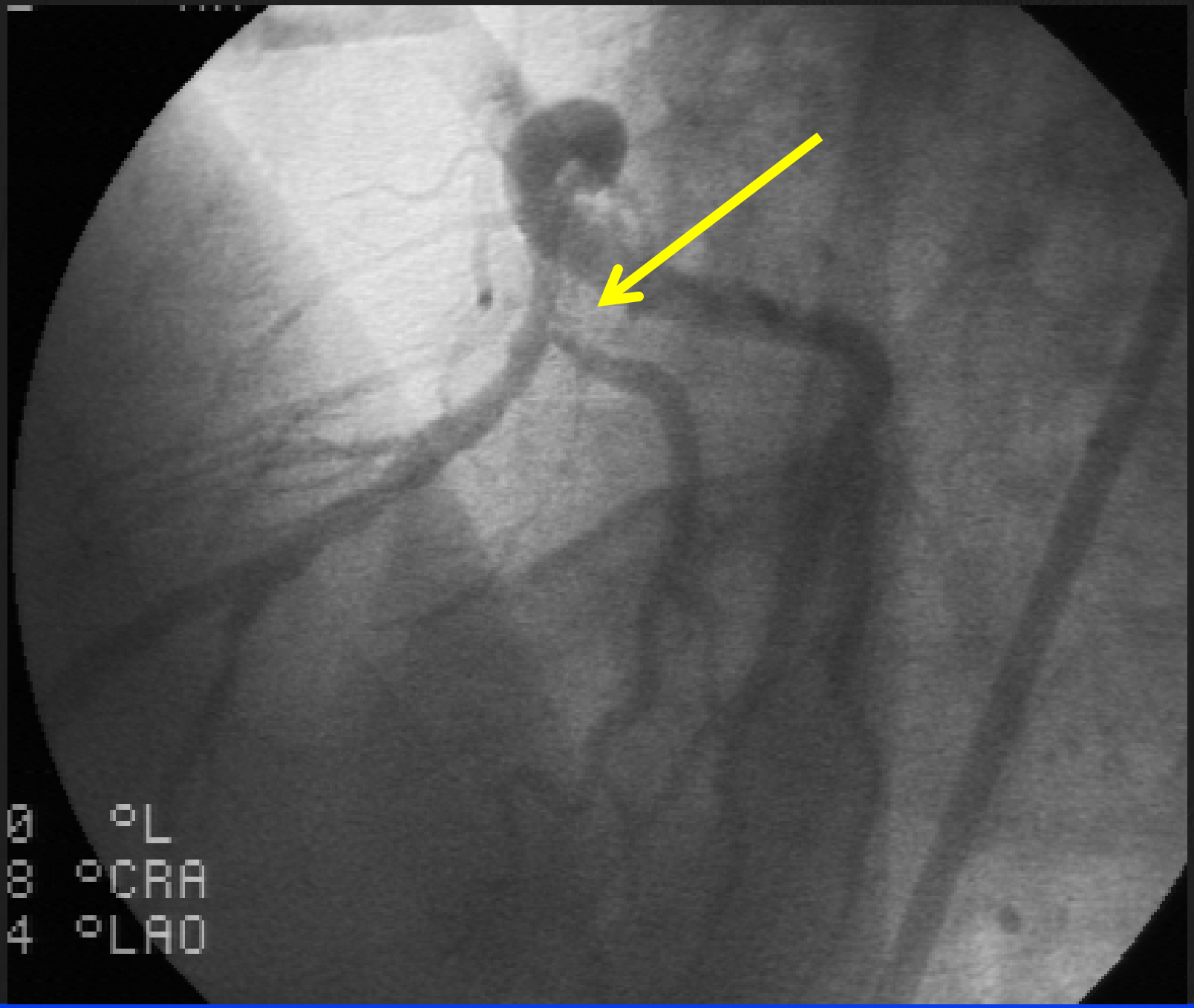
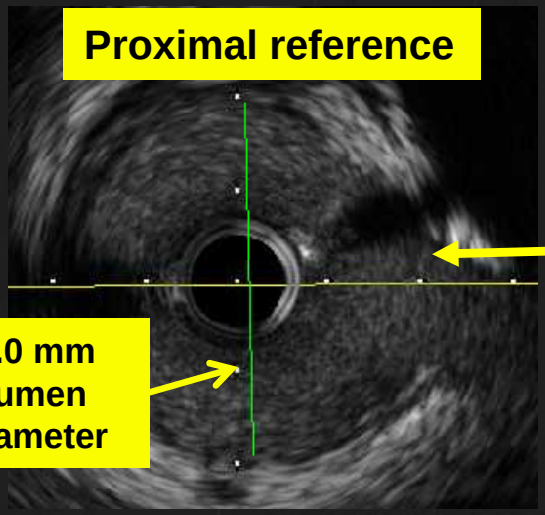
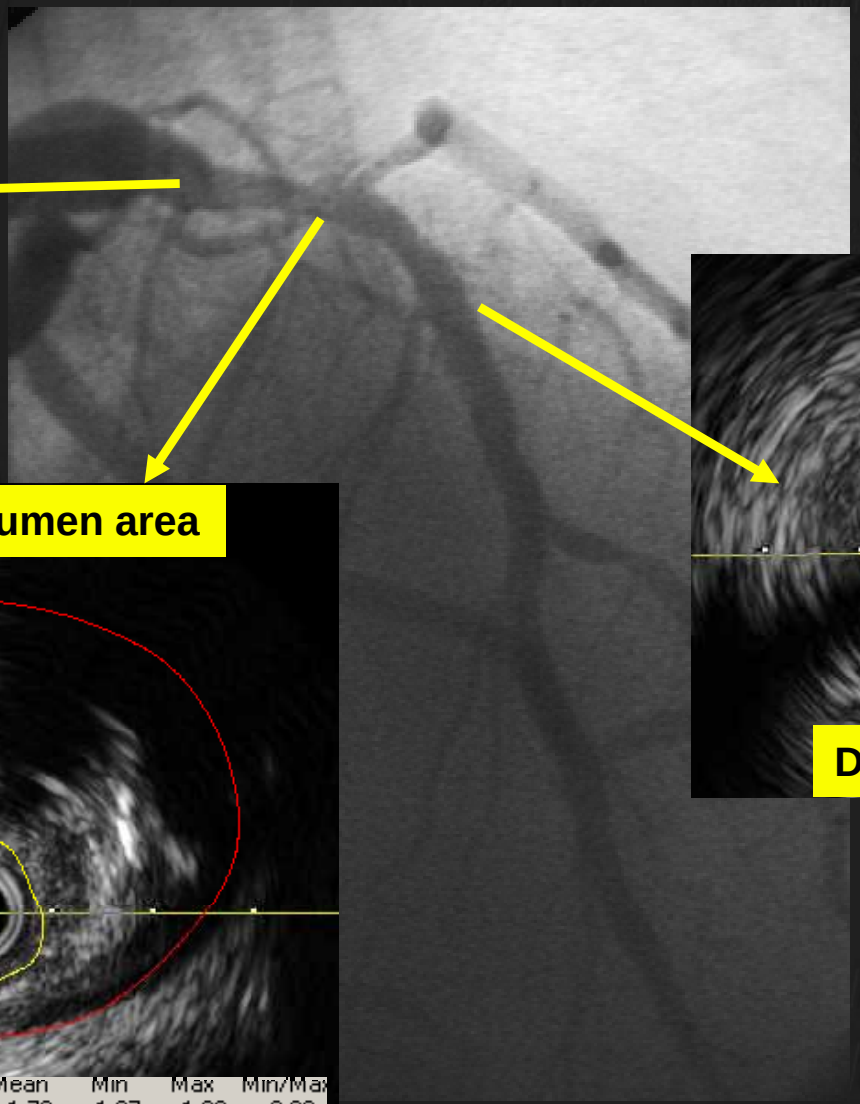
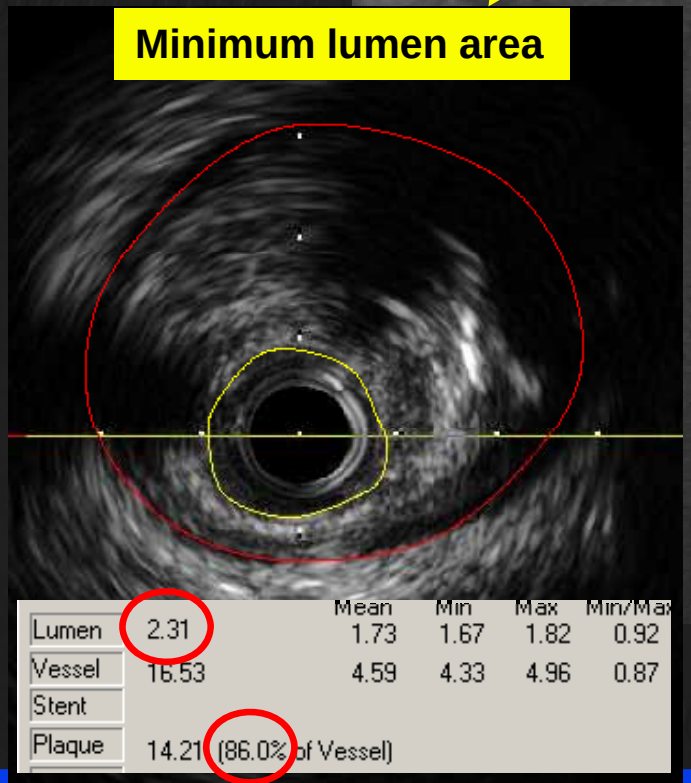
LAD - LAO Cranial View

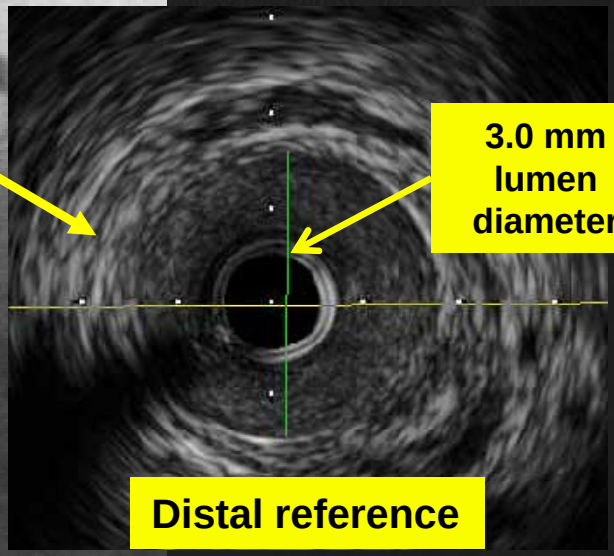


LAD IVUS

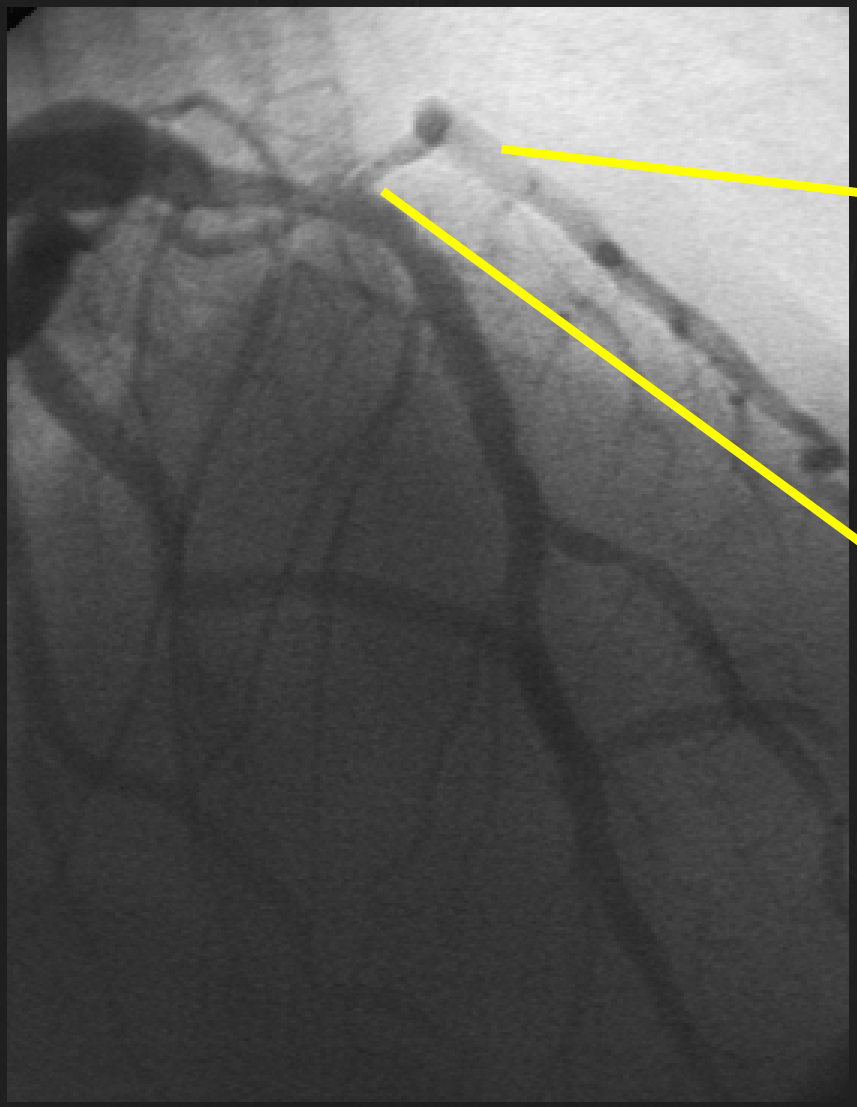

Proximal reference
4.0 mm lumen diameter

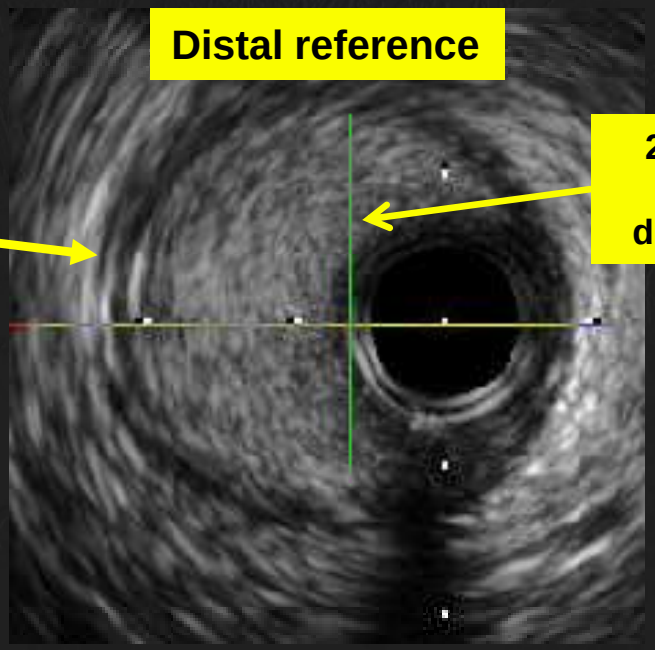


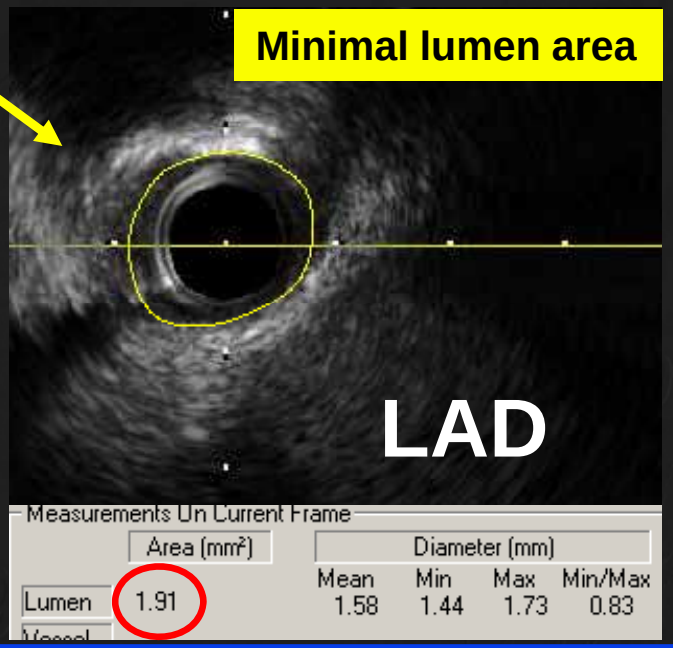

Minimum lumen area
Mean Min Max Min/Max
Lumen 2.31 1.73 1.67 1.82 0.92
Vessel 16.53 4.59 4.33 4.96 0.87
Stent
Plaque 14.21 (86.0% of Vessel)


3.0 mm lumen diameter
Distal reference

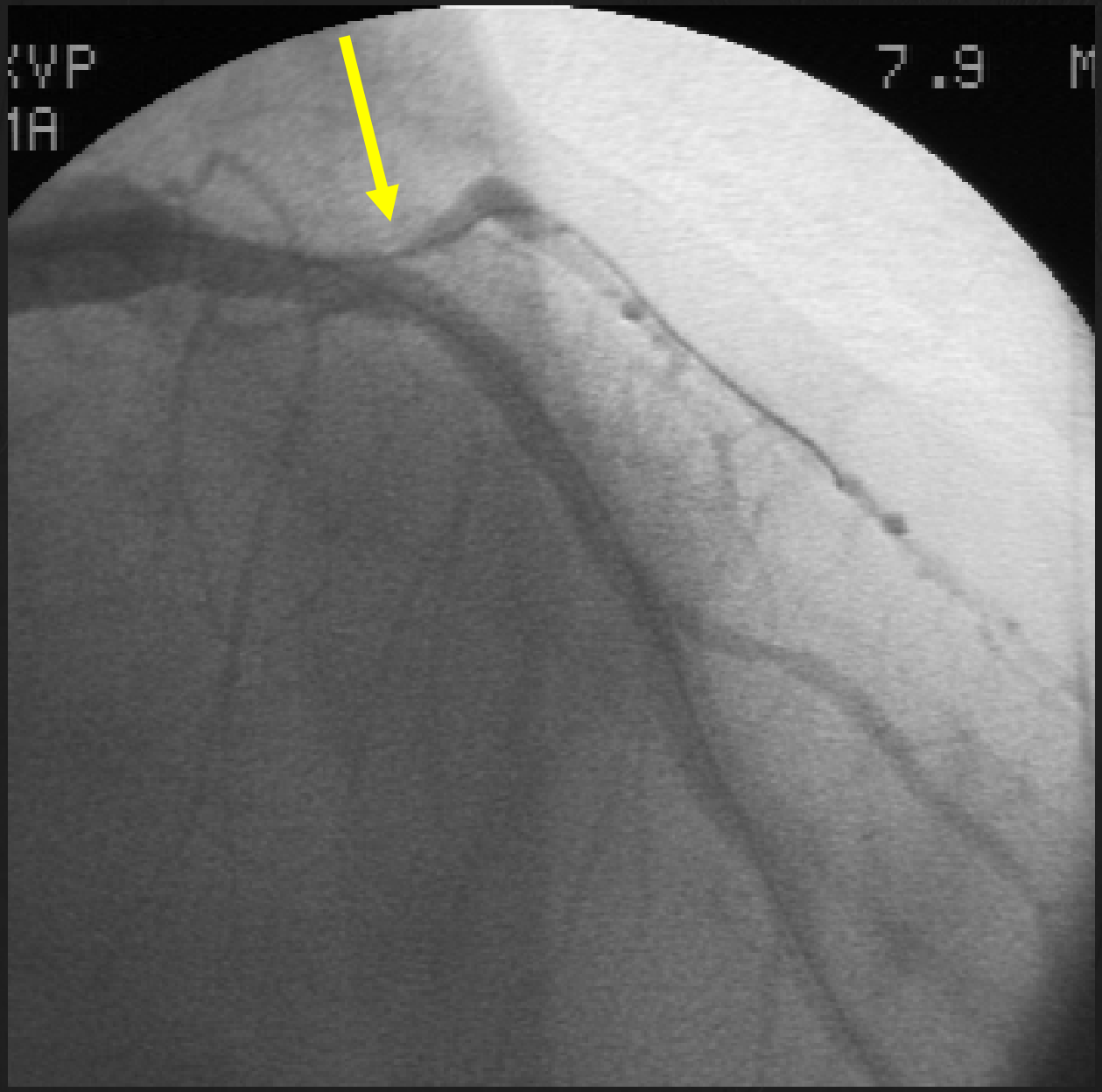
Diagonal IVUS



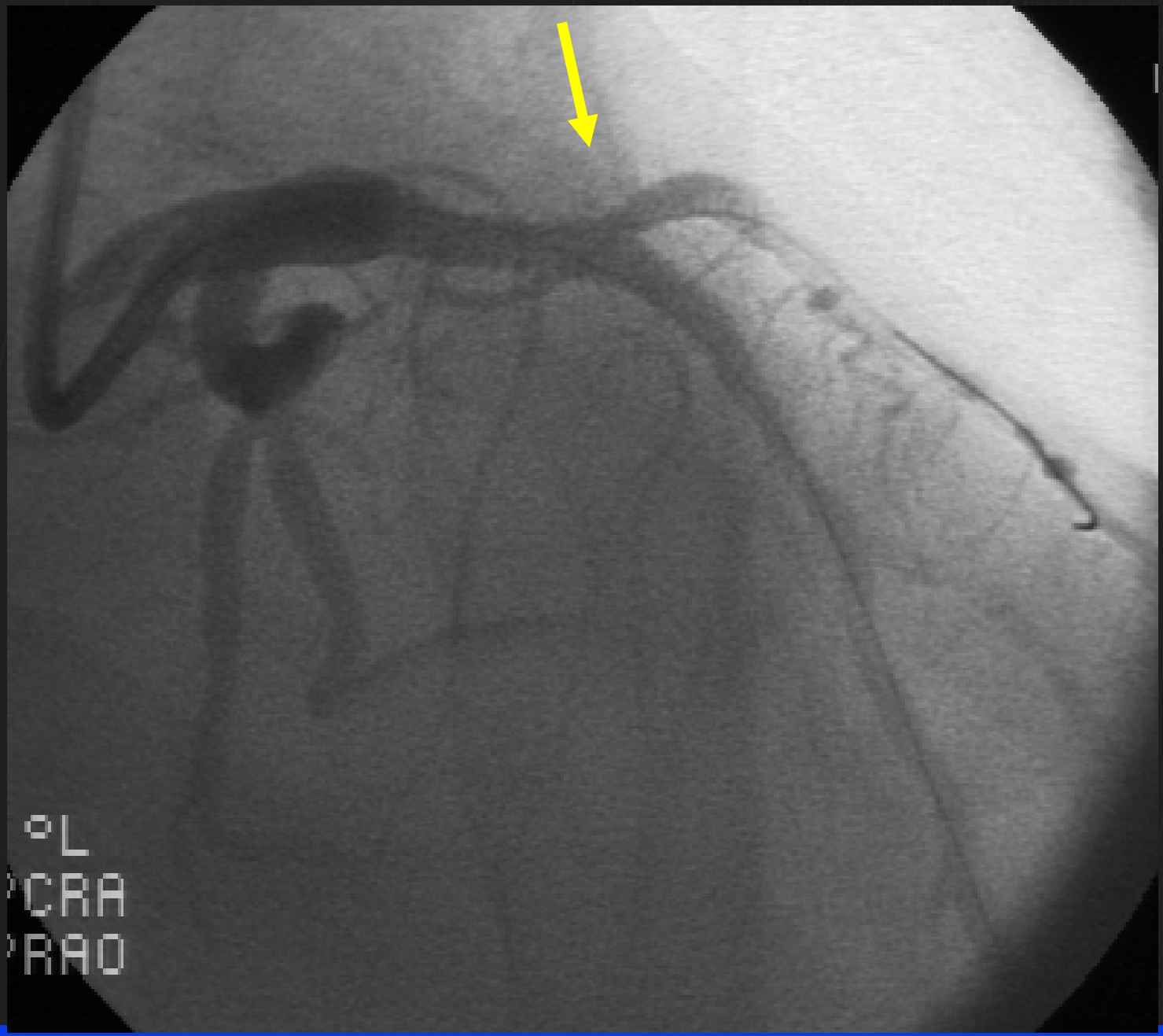




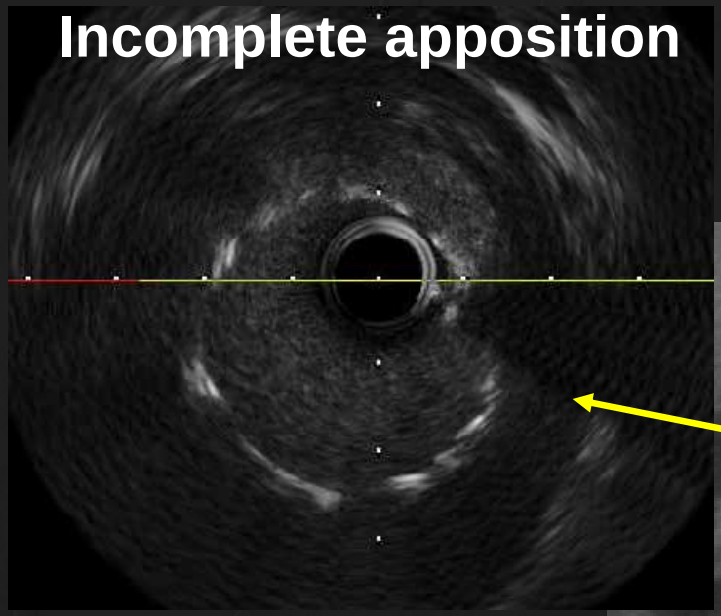
SB with 90% Residual Stenosis at Ostium

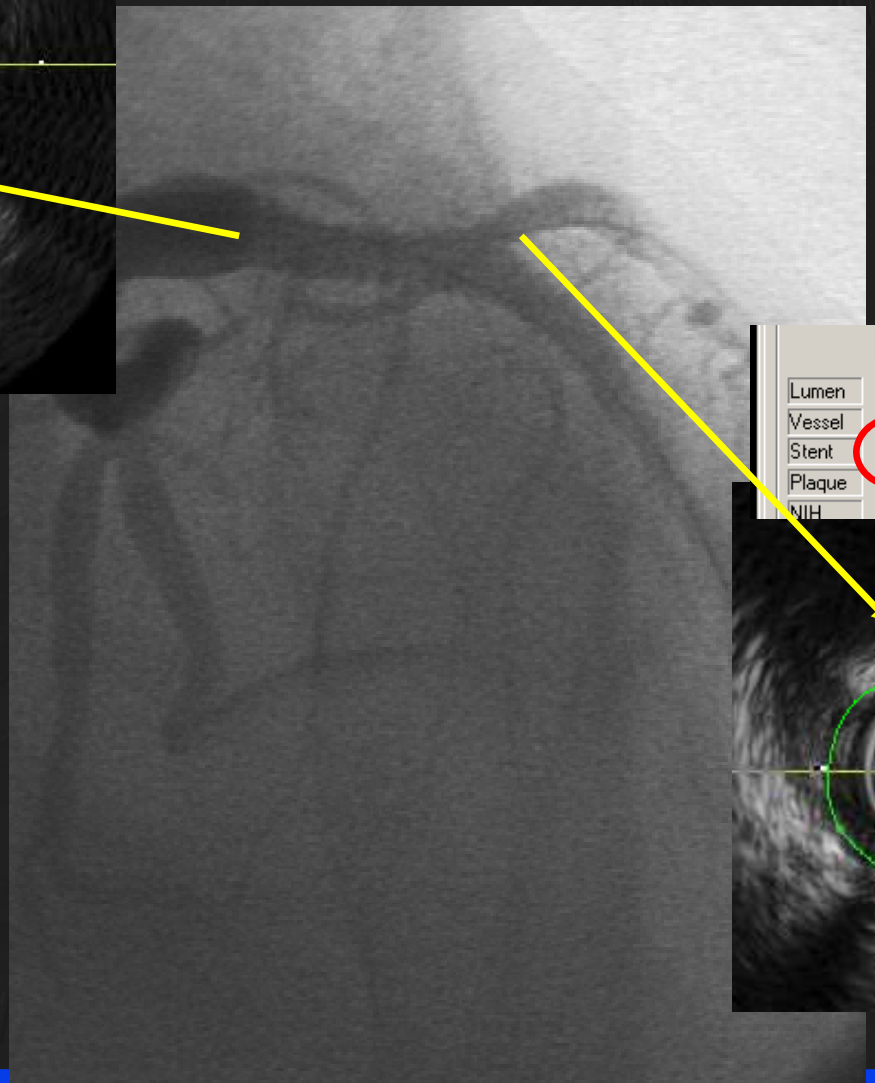


Cross-Over to 2 Stents (TAP): Result post-KB

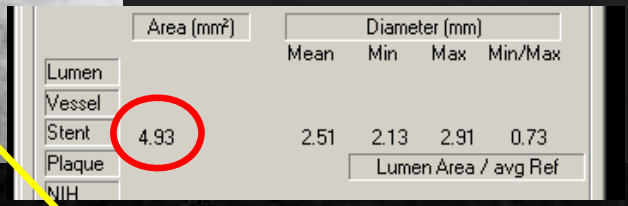


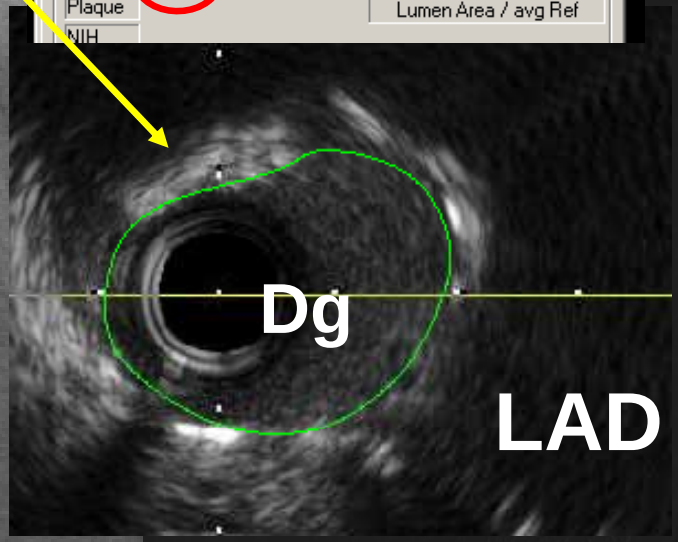
Post-Stenting IVUS



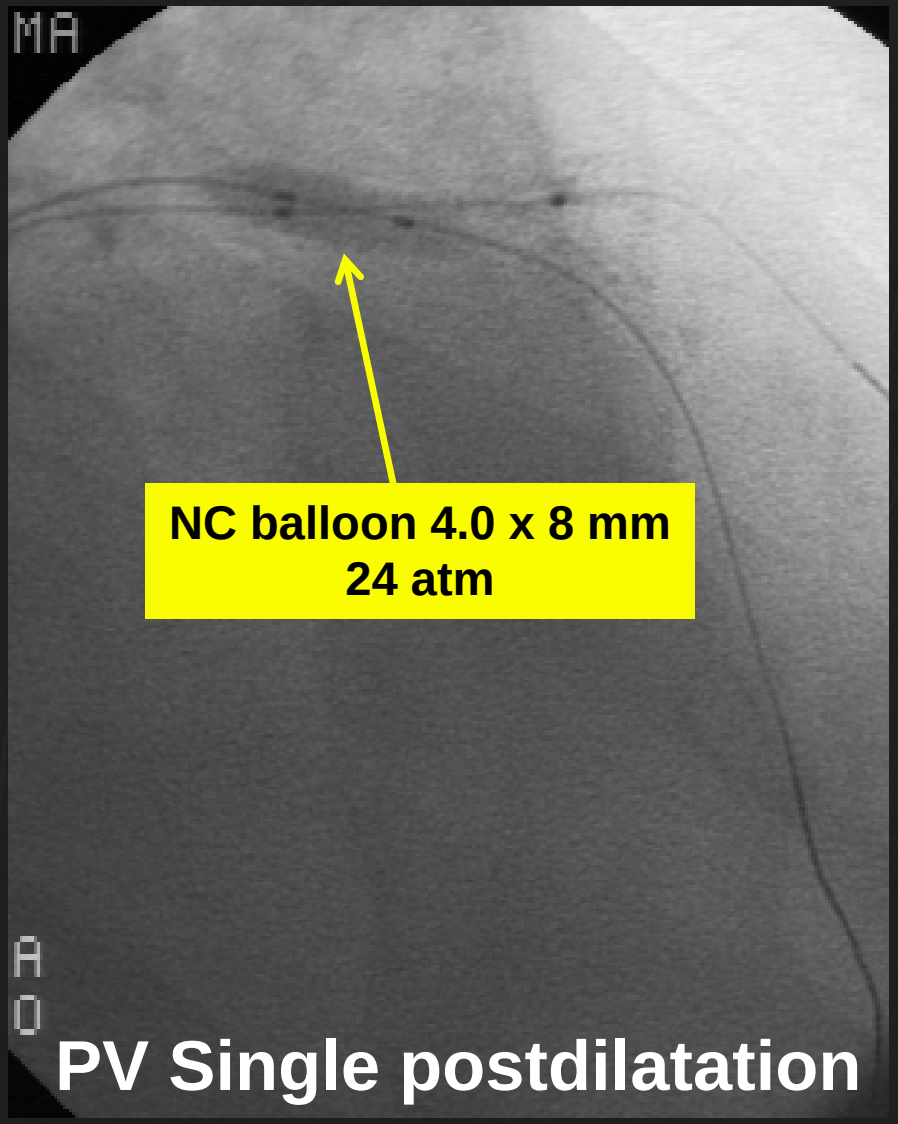


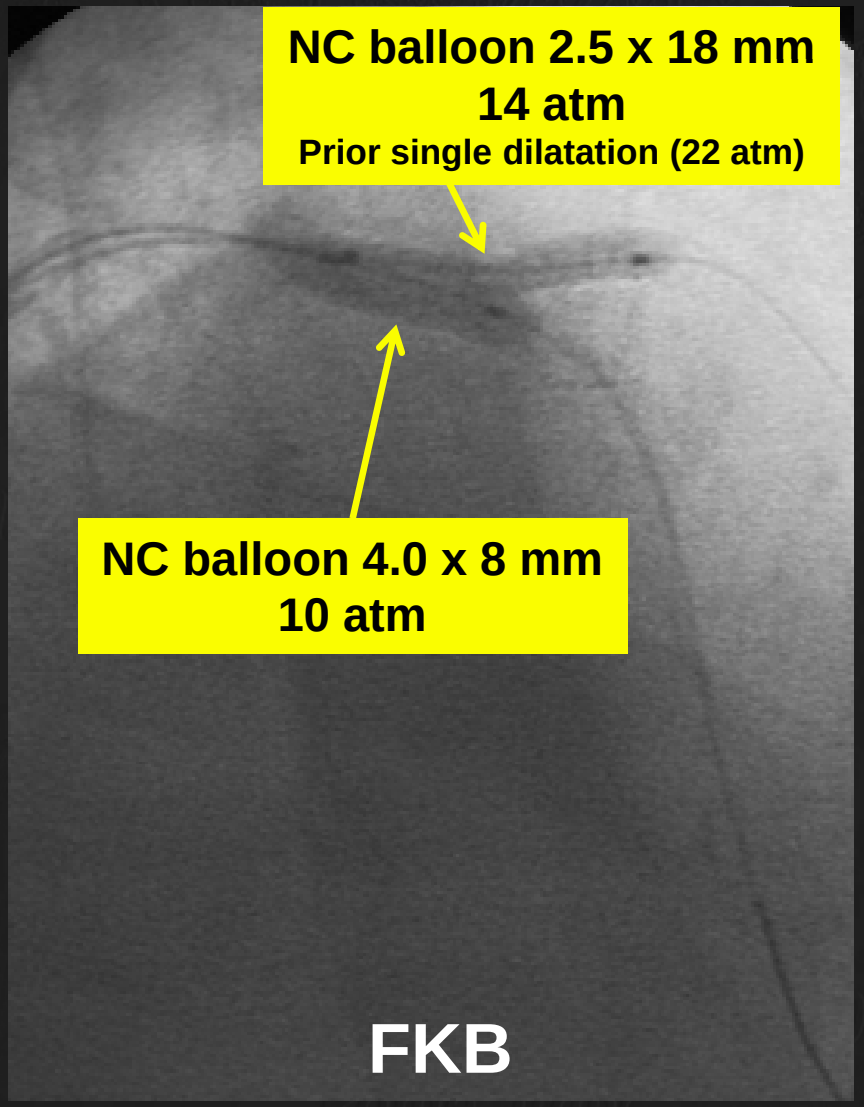
Stent expansion = 76%





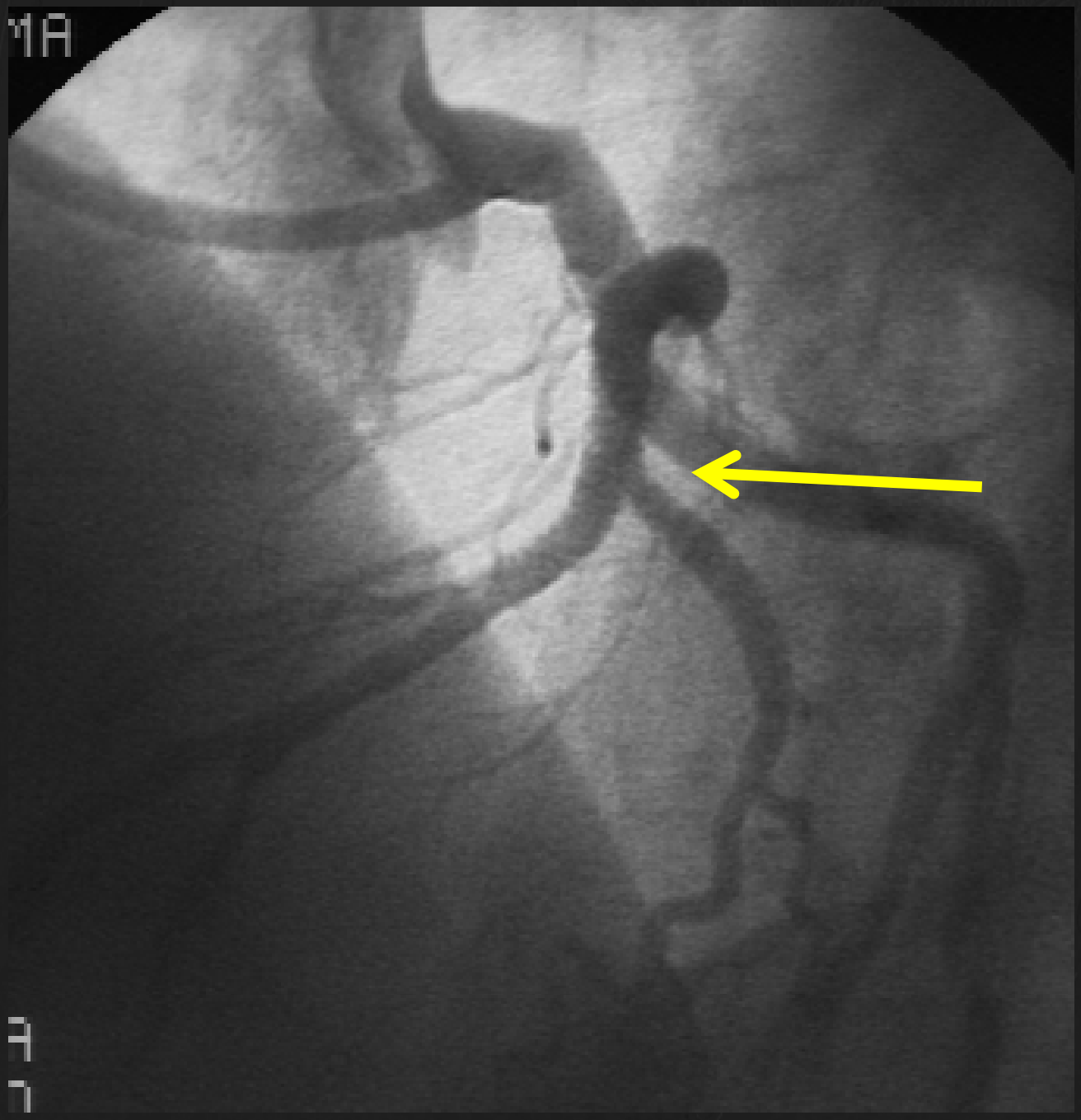
New Postdilatation



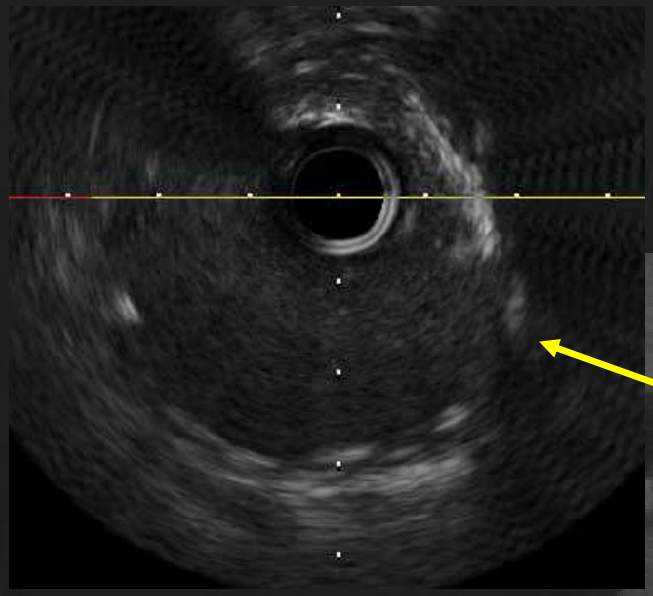


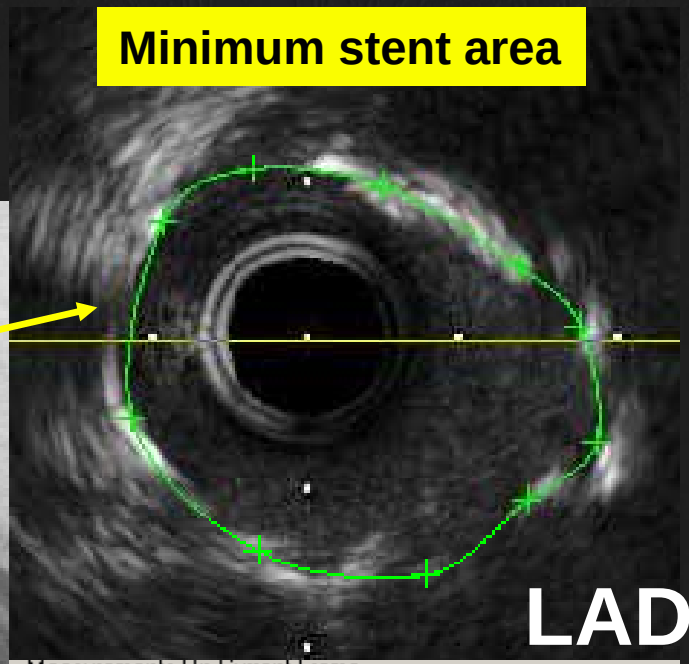
Final Cranial View

Final LAO Cranial View



Final IVUS Imaging





LAD

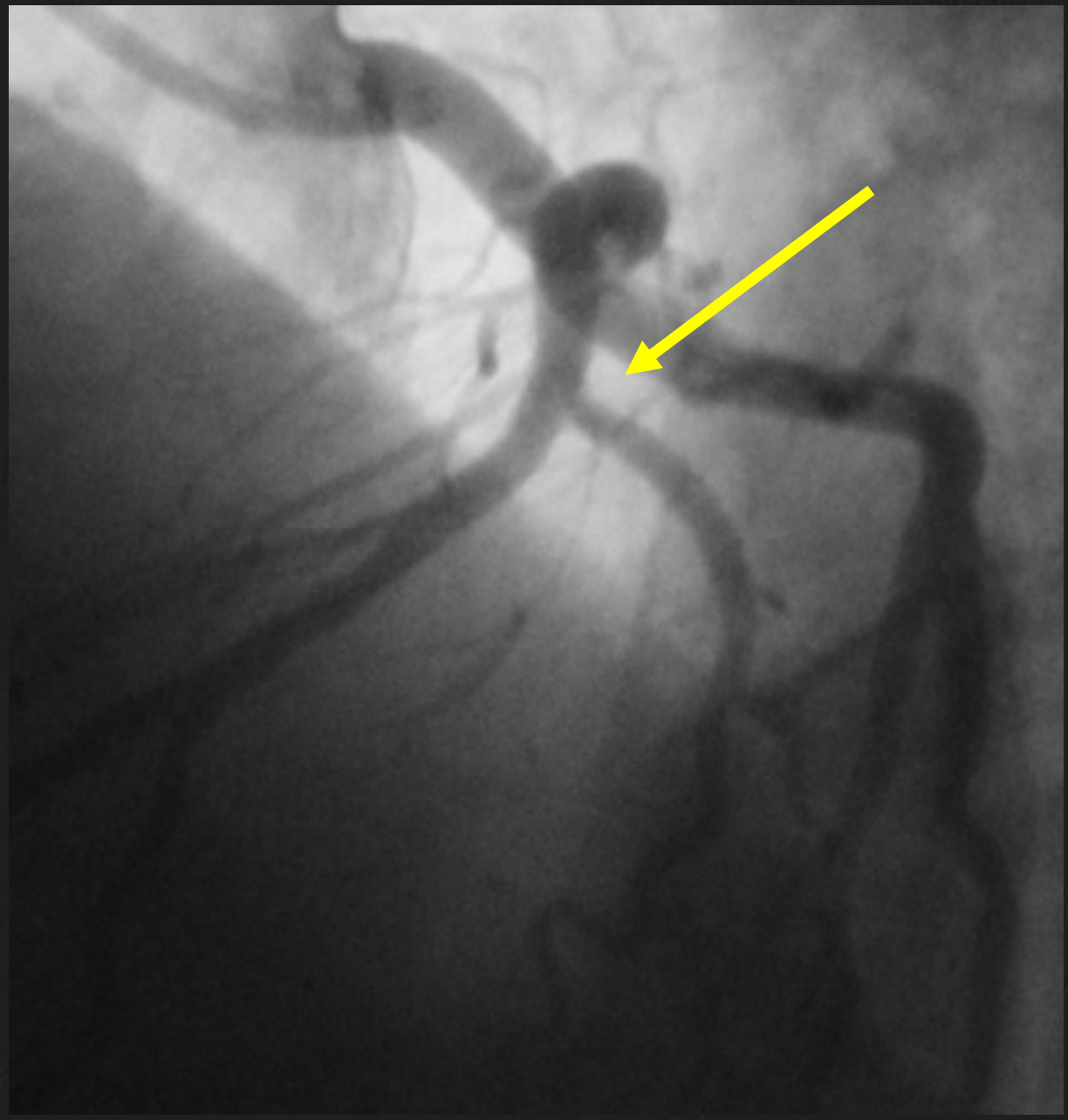
Measurements On Current Frame

	Area (mm²)	Diameter (mm)			
		Mean	Min	Max	Min/Max
Lumen					
Vessel					
Stent	5.75	2.71	2.40	3.03	0.79

Stent expansion = 88%

Angiographic FU – LAD
Cranial View

Angiographic FU – LAD Cranial



Conclusions

You should take the responsibility for a poor result!

With 2 stents a poor result may affect the main branch and the side branch with 1 stent it may affect only the side branch