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President EAPCI

Should we modify the Medina classification ?

European Bifurcation Club

EBC

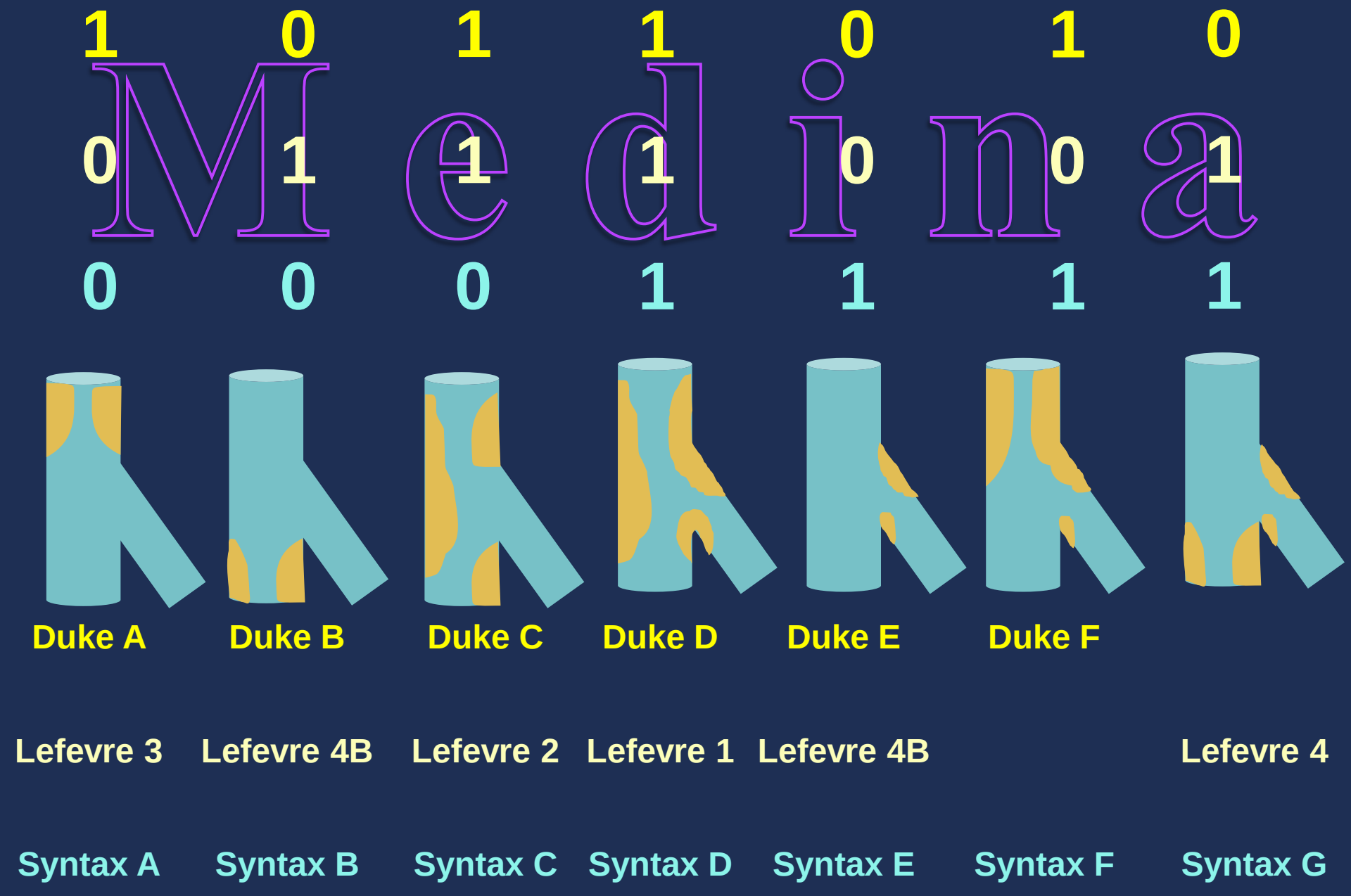
Medina 1,1,1

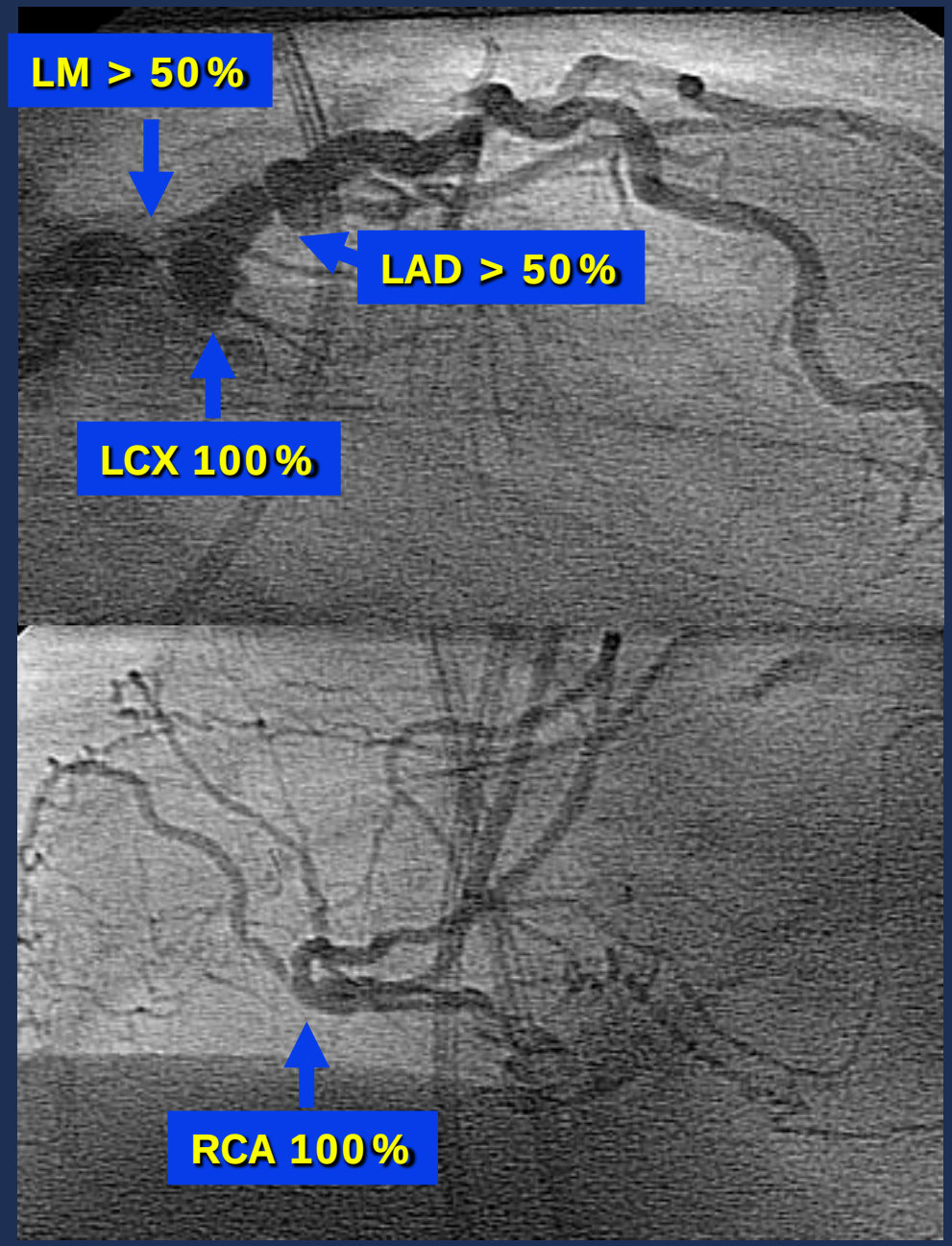
Berlin 2009

Should we modify the Medina classification ?

- NO NEIN
- Because it is the first time people use a classification for bifurcations
- Because it is easy to remember
- Because it offers the same lesion characterisation of previous more complex classification

Classification of Bifurcations





SYNTAX SCORE 54.5

3-VD

- Right Dominance
- 4 lesions

- Lesion 1 involves segment number: 1 (total occlusion)

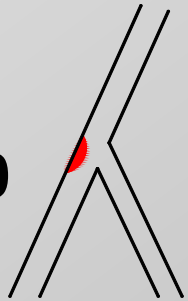
- Lesion 2 involves segment number: 5

- Lesion 3 involves segment number: 11 (total occlusion)

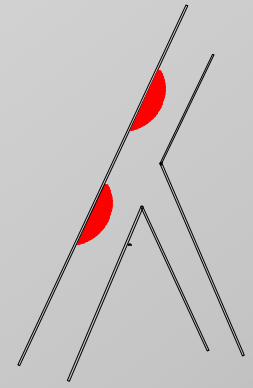
- Lesion 4 involves segment number: 6 (bifurcation)

Medina & Syntax Score of Bifurcations

1-0-0

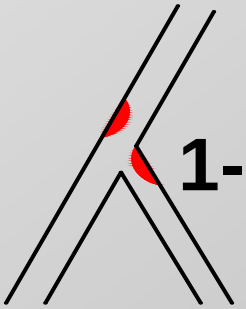


0,1,0

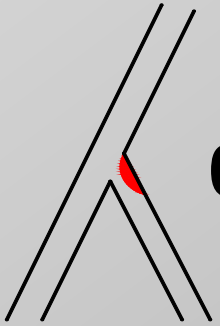


1,1,0

+1



1-0-1



0-0-1

0,1,1

1,0,1

+2

+1

JACC

Accuracy of individual and panel visual interpretations of coronary arteriograms: implications for clinical decisions

GJ Beauman and RA Vogel, Baltimore, ML, USA 1991

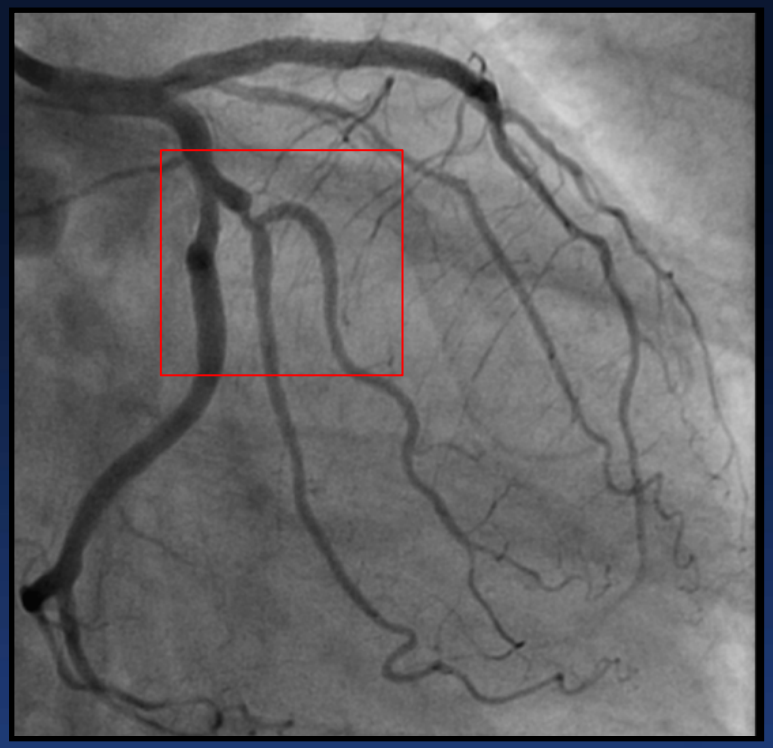
The visual interpretation of coronary arteriograms by individuals has been shown to be variable and inaccurate. To determine whether observer accuracy improves with experience or with use of the mean values obtained from a panel of observers, the visual readings of percent diameter stenosis and "normal" reference segment diameter were compared with the quantitative analyses of 13 randomly chosen coronary stenoses. Visual interpretation was also performed on cineangiograms of seven phantom stenoses ranging in severity from 17% to 83%. Repeated quantitative arteriography demonstrated good intraobserver variability for minimal stenosis diameter (r = 0.91, SD = 0.23 mm) and percent diameter stenosis (r = 0.93, SD = 6.4%). When the mean of the repeated quantitative analyses was used as the standard, **visual interpretations of percent diameter stenosis were found to have considerable inaccuracy (r = 0.78, SD = 14.5%).** Phantom percent diameter stenosis data were better correlated (r = 0.85), but accuracy remained poor (SD = 17.8%). Fifty percent narrowings were read over a range from 30% to 95%. Substantial inaccuracies were also found for observer assessment of normal reference segment diameter (r = 0.75, SD = 0.75 mm). Observer accuracy of percent stenosis did not correlate with prior angiographic experience but was progressively improved by taking the mean value of the interpretations of three and five experienced angiographers (r = 0.88, 0.89; SD = 11.3%, 8.3%, respectively). These findings suggest that arteriographic interpretations accurate enough for interventional decisions can only be obtained using quantitative arteriography or the mean value of data from a large panel of angiographers.

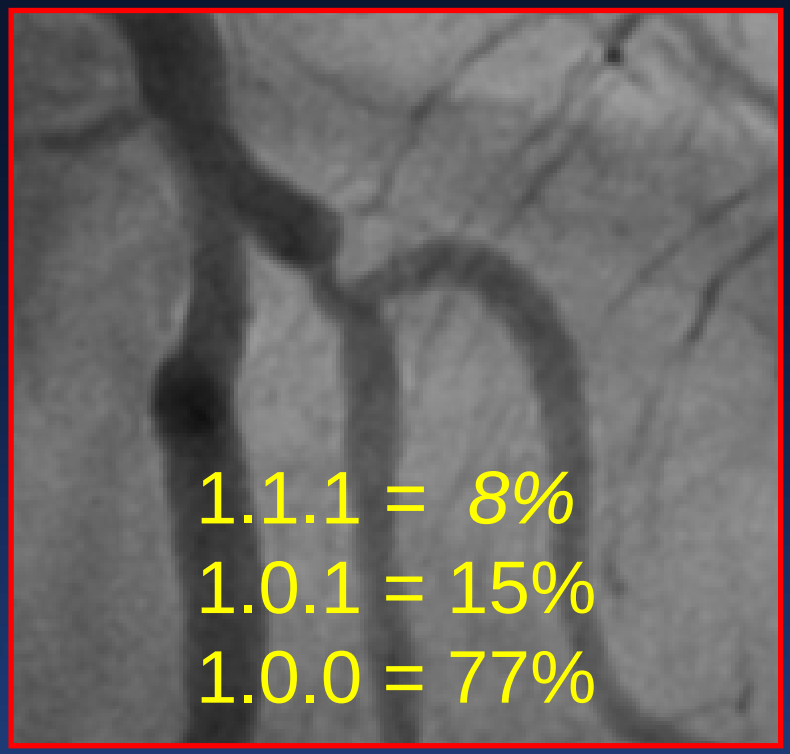
Directed Interviews (n = 13)

- Directed interviews by Aaron V Kaplan
- 12 Lesions

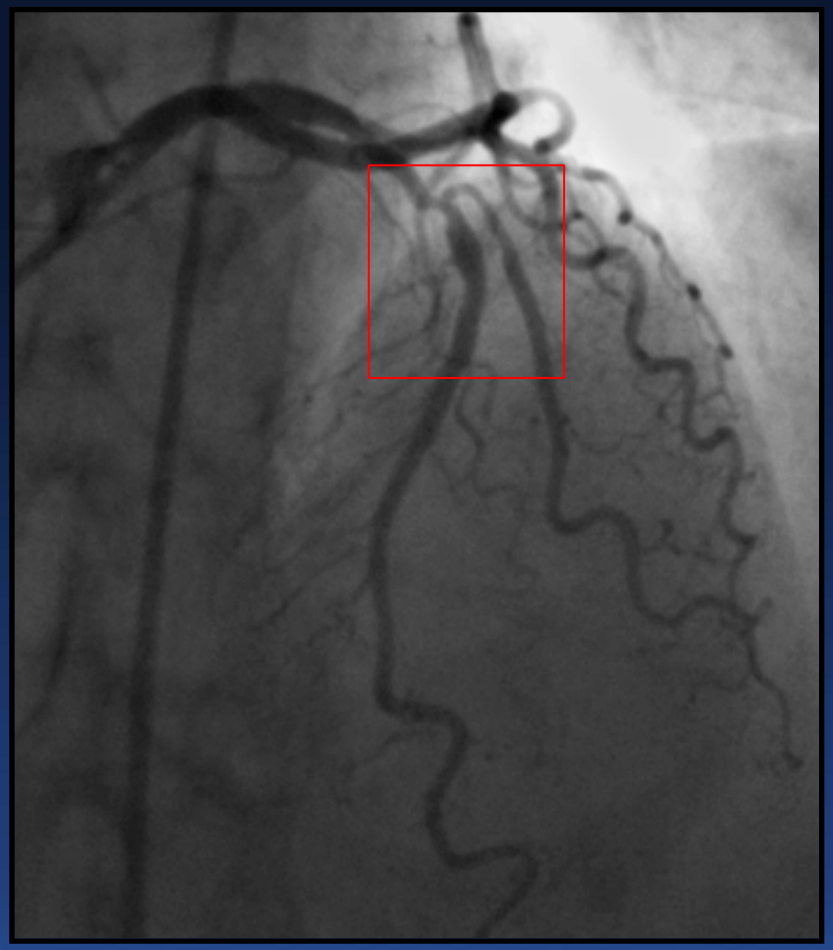
  Single frame ‘best view” angiogram (lesion looks worse, no overlapping)
- Attending Physician Academic Institutions
- P.I. or Co-P.I. in major trials evaluating DES
- Years out of training 4 - 20+ years

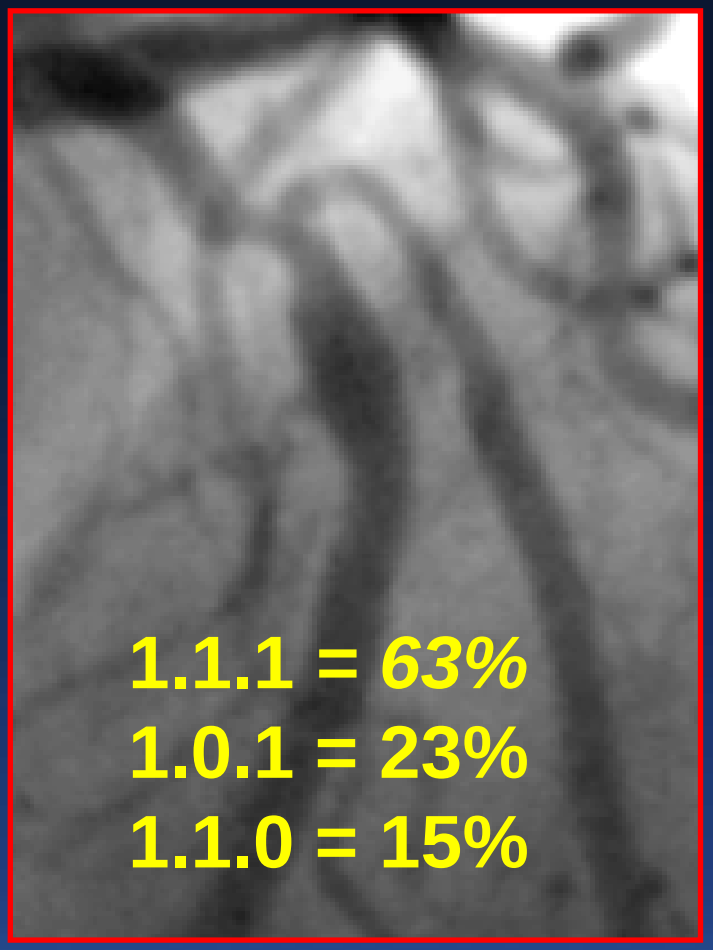
Test Case # 2





Test Case # 4





InterObserver Variability

13 Senior Interventionist reviewing 12 Films

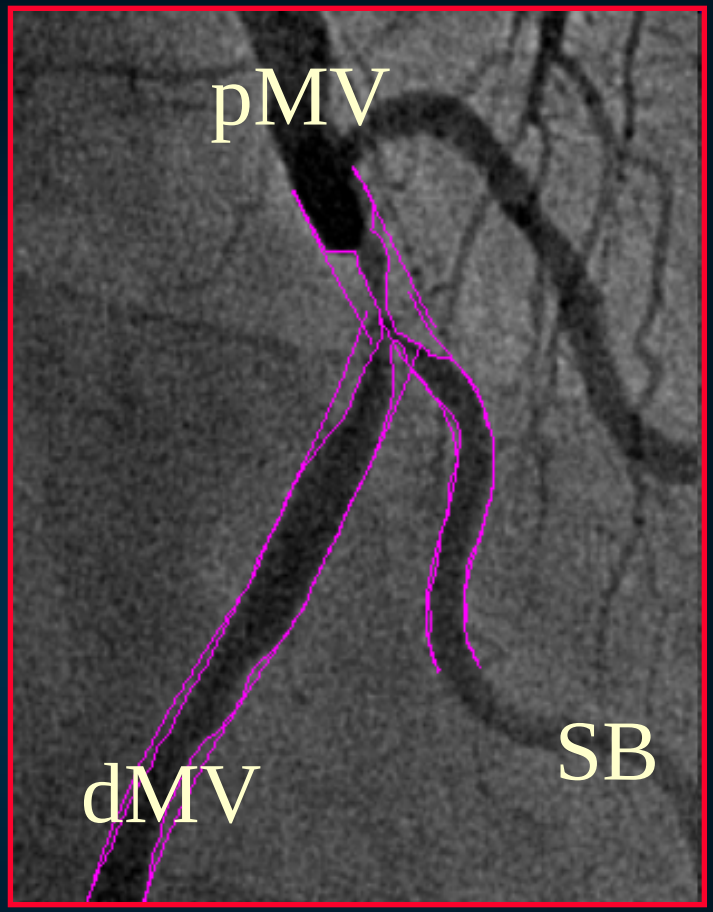
Medina	%	N
Agreement	79.5	124
Non-Agreement	21.5	32

Bifurcation involving SB (True)		
Agreement	91.0	142
Non-Agreement	9.0	14

Classification of Bifurcations

Segmentation into 3 ROI

- Vessel Size (Diameter)
- Lesion Severity (% DS)
- Lesion Length (mm)
- Angles (dMV-SB; pMV-SB; pMV-dMV)



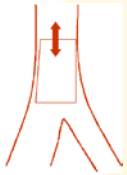
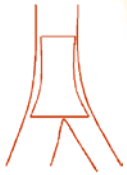
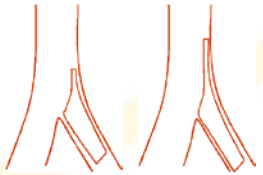
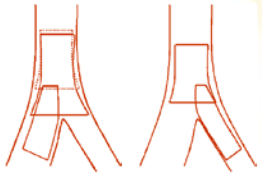
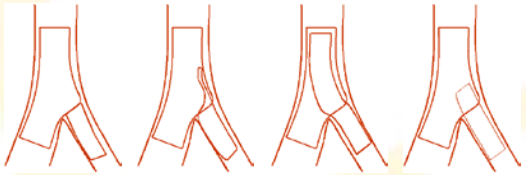
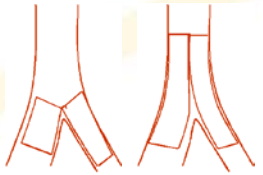
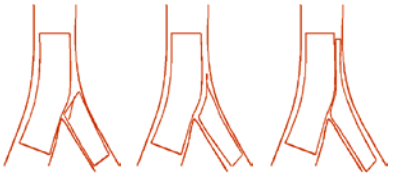
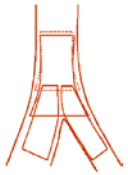
Medina

1,0,0 (?)

1,0,0 – 1,1,0 – 1,1,1
1,0,1 – 0,1,1 - 0,1,0
0,0,1

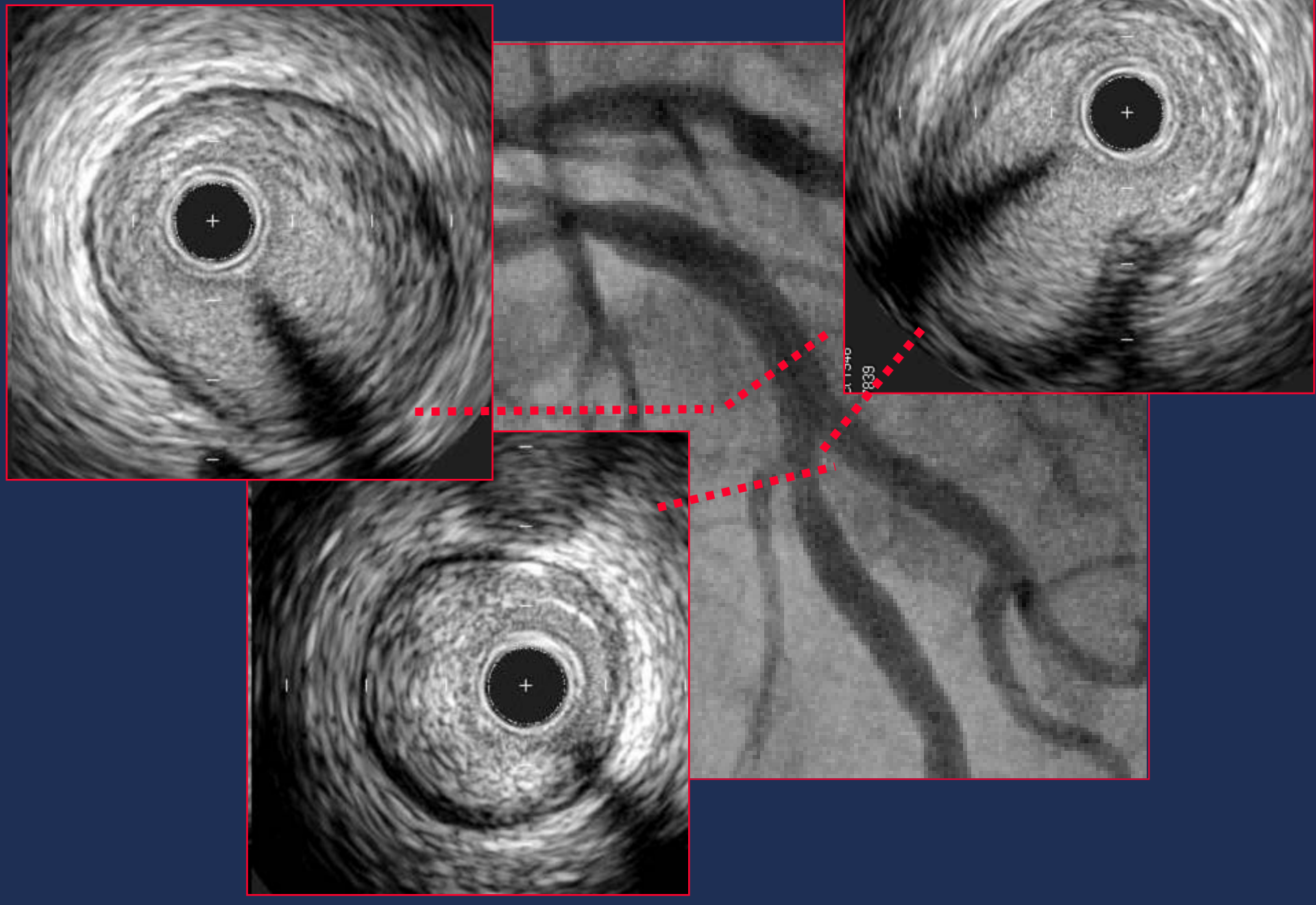
0,1,1 (?)
0,1,0 (?)

1,1,1 (?)
0,1,1 (?)
1,0,1 (?)
0,0,1 (?)

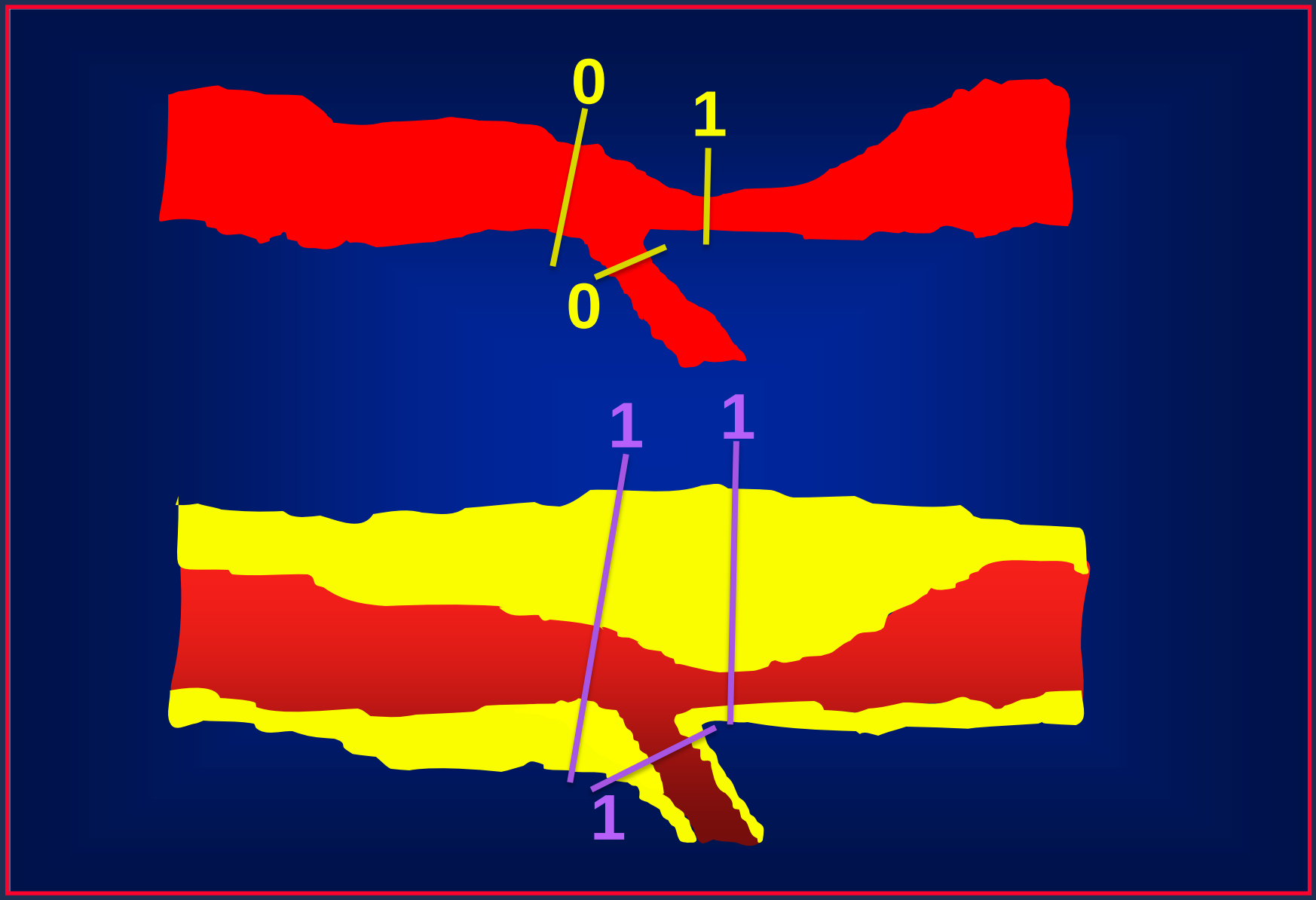
Intention / Final	M Main prox. first	A Main Accross side first	D Distal first	S Side branch first
1st stent	 PM stenting	 MB stenting accross SB	 DM stenting Provisional SKS	 SB ostial stenting
After balloon	 Skirt	 MB stenting + SB balloon MB stenting + kissing		 SB minicrush SB crush
2 stents	 Skirt + DM Skirt + SB	 Elective T stenting Internal crush Culotte TAP	 V stenting SKS	 Syst. T Stenting Minicrush Crush
3 stents	 Extended V		 Trouser legs and seat	

Y. Louvard, CCI 2008 Feb 1;71(2):175-83

Two Vessel IVUS



Lumenogram v Tomographic Reconstruction



Medina Classification: Conclusions

- Description of bifurcational lesion characteristics
  - Still the best qualitative classification
  - Subject to moderate interobserver variability

Yes!

- Definition of strategy and prediction of acute and late results
  - SB size and lesion length and severity determinesstrategy
  - No prognostic validation

No!