

Left main bifurcation lesion: one stent or two stents?

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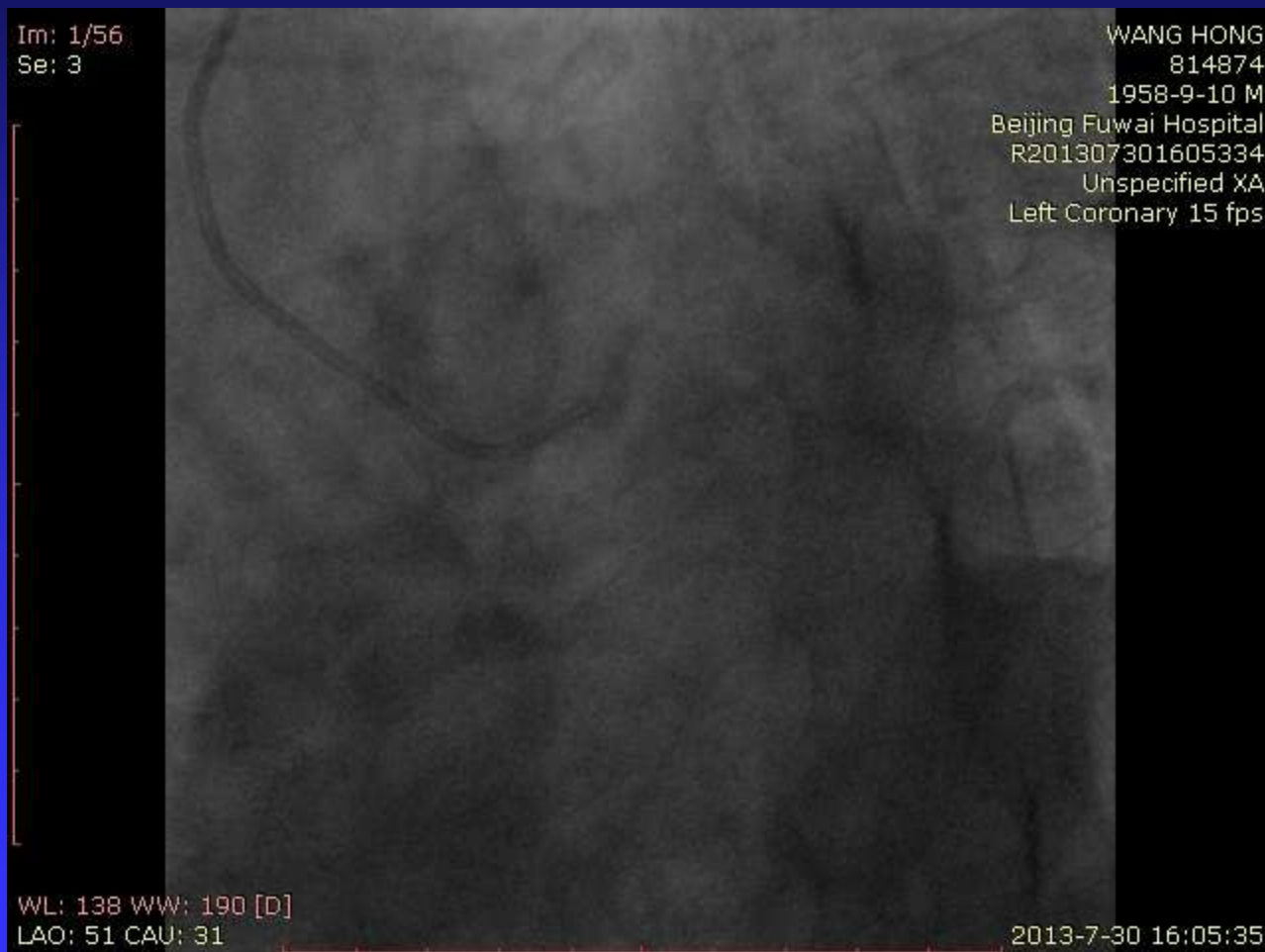
Disclosure

- I have nothing to disclose

Baseline characteristics

- Male, 54 yrs
- Stable angina for 4 years, aggravated for 1 month
- Hypertension
- Hyperlipidemia
- Ultrasound: LVEF: 60%
- Myocardial enzyme: “-”
- Syntax score: 15
- Euroscore: 2

Angiogram



Im: 1/75
Se: 2

WANG HONG
814874
1958-9-10 M
Beijing Fuwai Hospital
R201307301605334
Unspecified XA
Left Coronary 15 fps

WL: 138 WW: 190 [D]
LAO: 13 CRA: 36

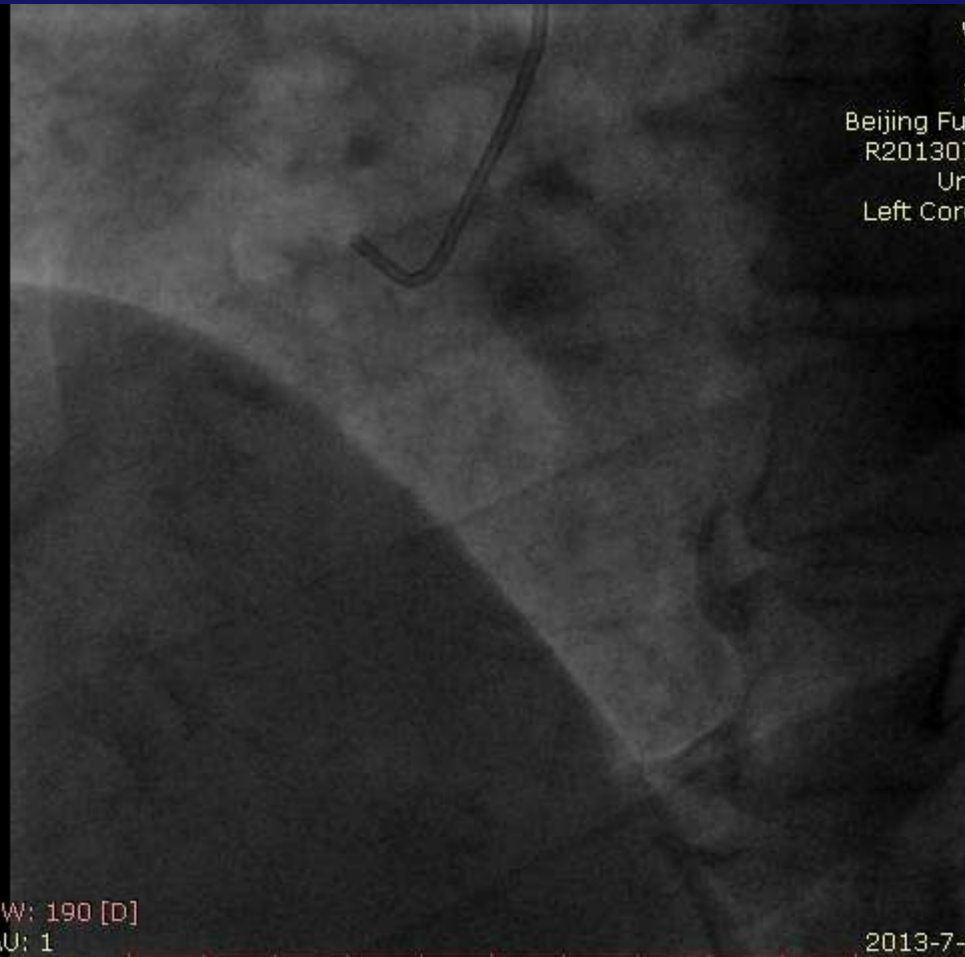
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Im: 1/53
Se: 4

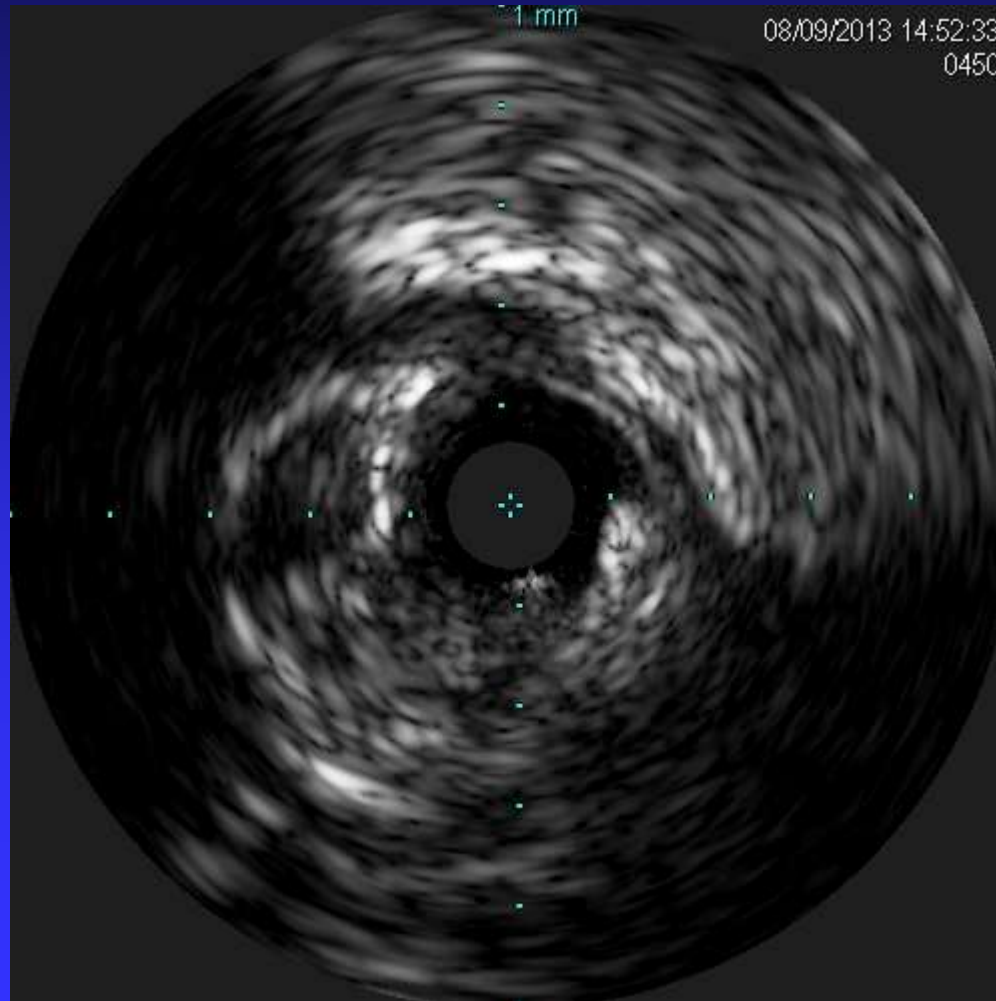
WANG HONG
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Beijing Fuwai Hospital
R201307301605334
Unspecified XA
Left Coronary 15 fps

WL: 138 WW: 190 [D]
LAO: 40 CAU: 1

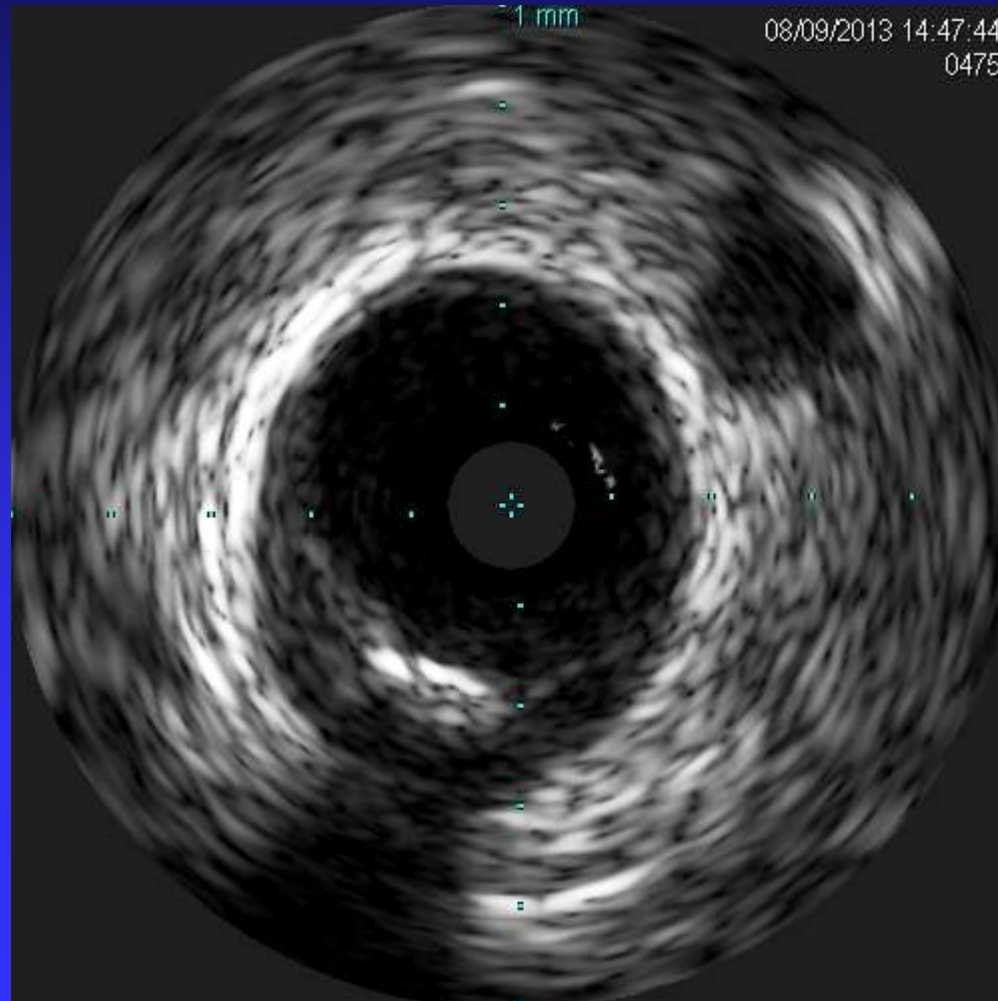
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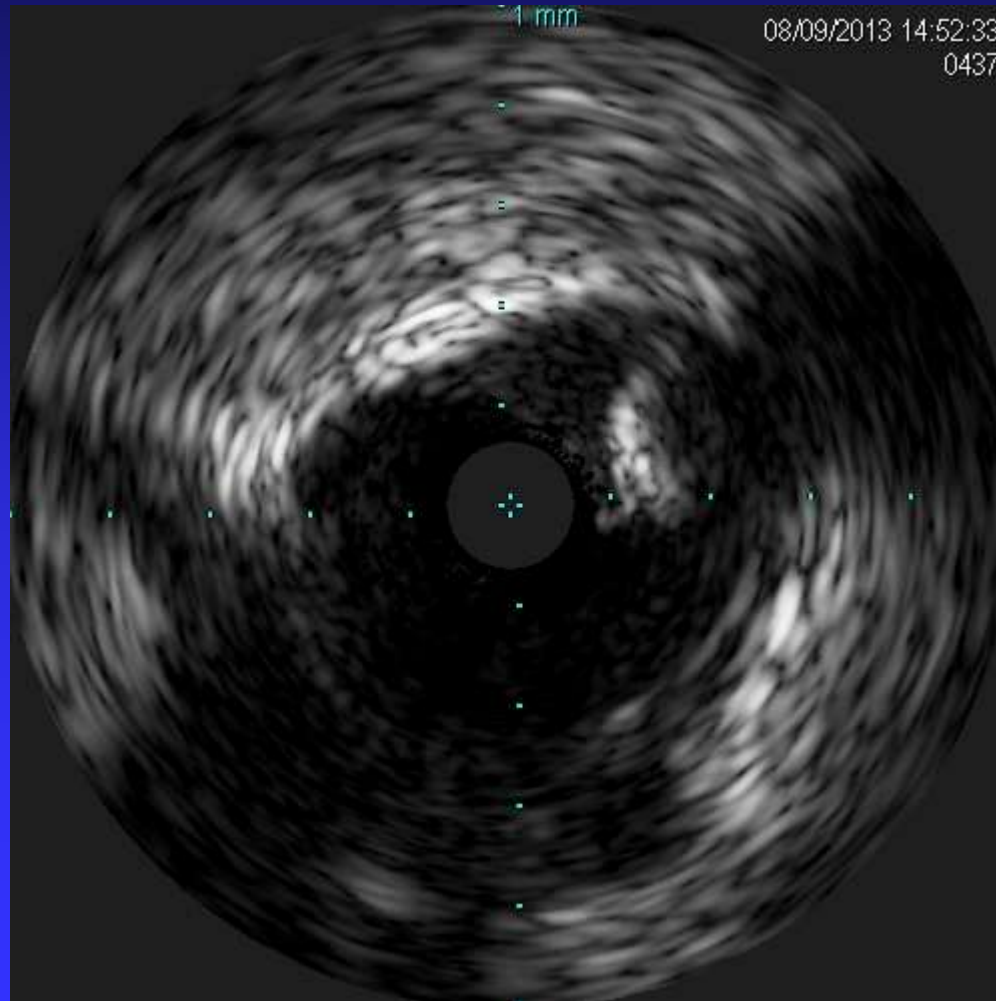
IVUS: left main



IVUS: ostium of LAD



IVUS: ostium of LCX



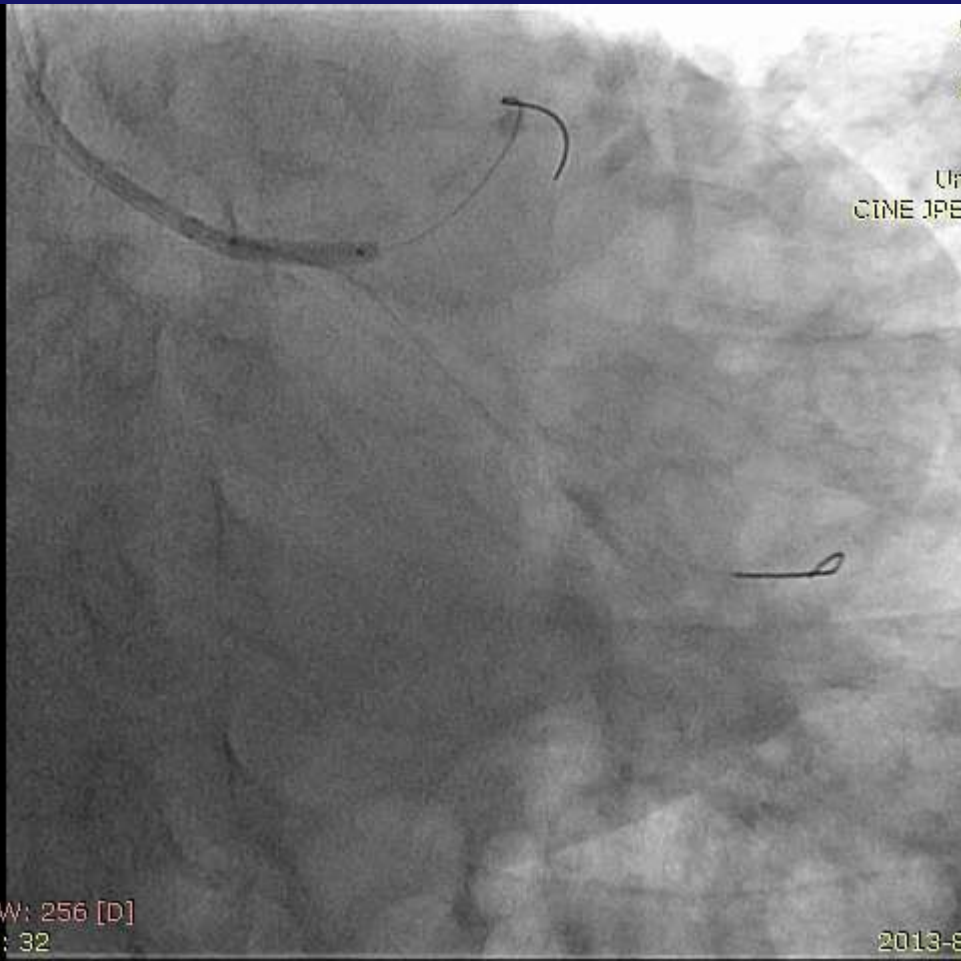
Sprinter 2.5*15mm

Im: 1/14
Se: 1

WANG HONG
814874
1958-9-10 M
Shimadzu
Unspecified XA
CTNE JPEG LOSSLESS

WL: 128 WW: 256 [D]
LAO: 1 CAU: 32

2013-8-9 14:56:12

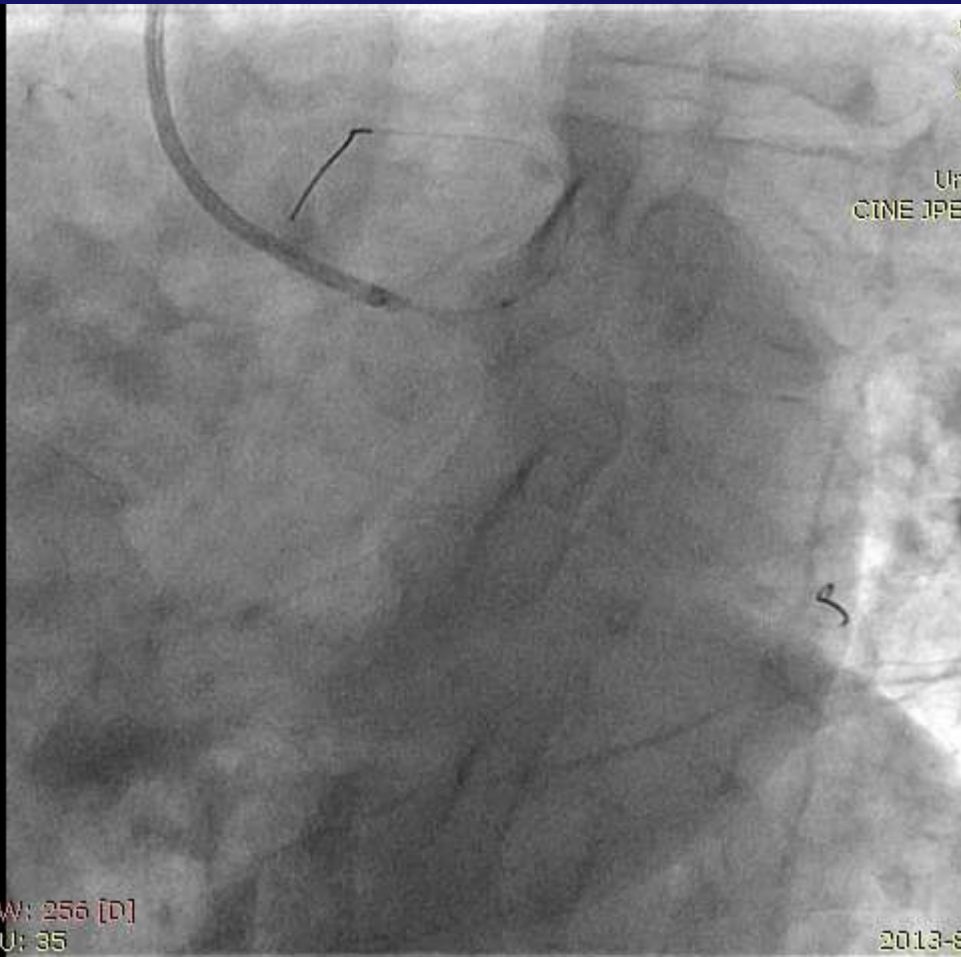


Im: 1/39
Se: 1

WANG HONG
814874
1958-9-10 M
Shimadzu
Unspecified XA
CTNE JPEG LOSSLESS

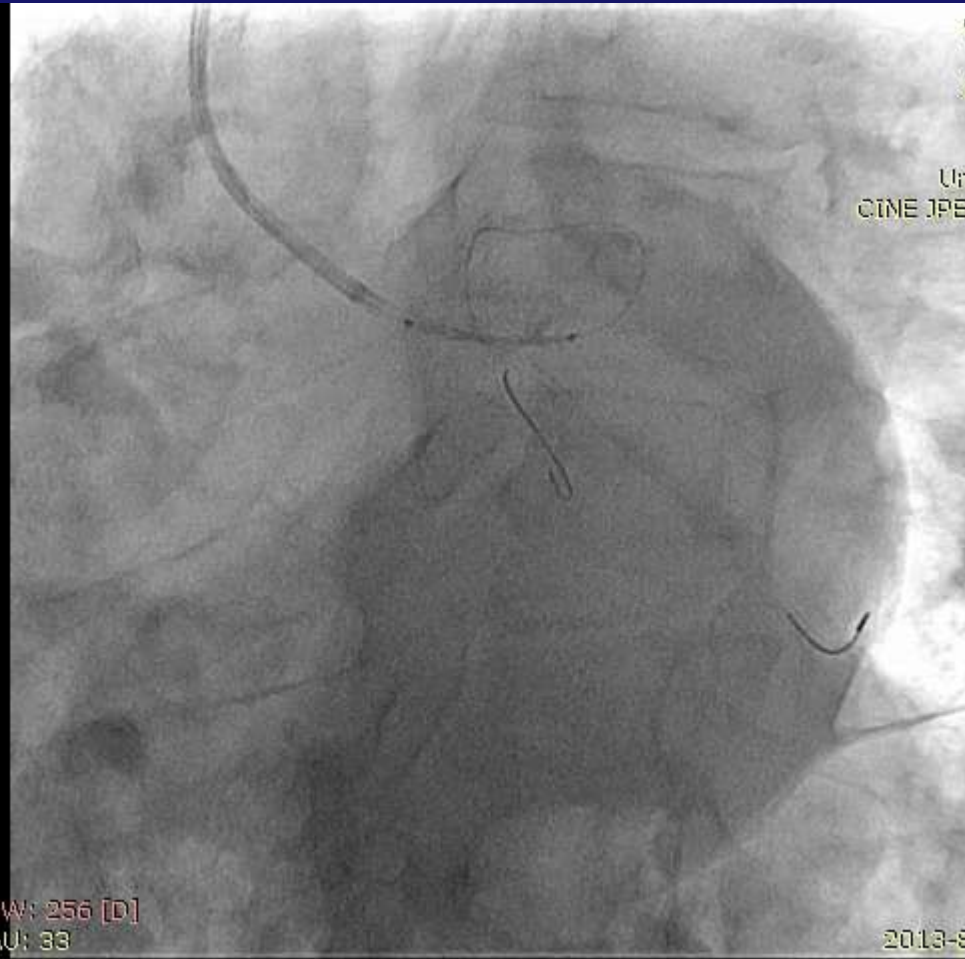
WL: 128 WW: 256 [D]
LAO: 36 CAU: 35

2013-8-9 14:57:10



Endeavor Resolute: 4.0*18mm

Im: 1/46
Se: 1



WANG HONG
814874
1958-9-10 M
Shimadzu

Unspecified XA
CTINE JPEG LOSSLESS

WL: 128 WW: 256 [D]
LAO: 28 CAU: 33

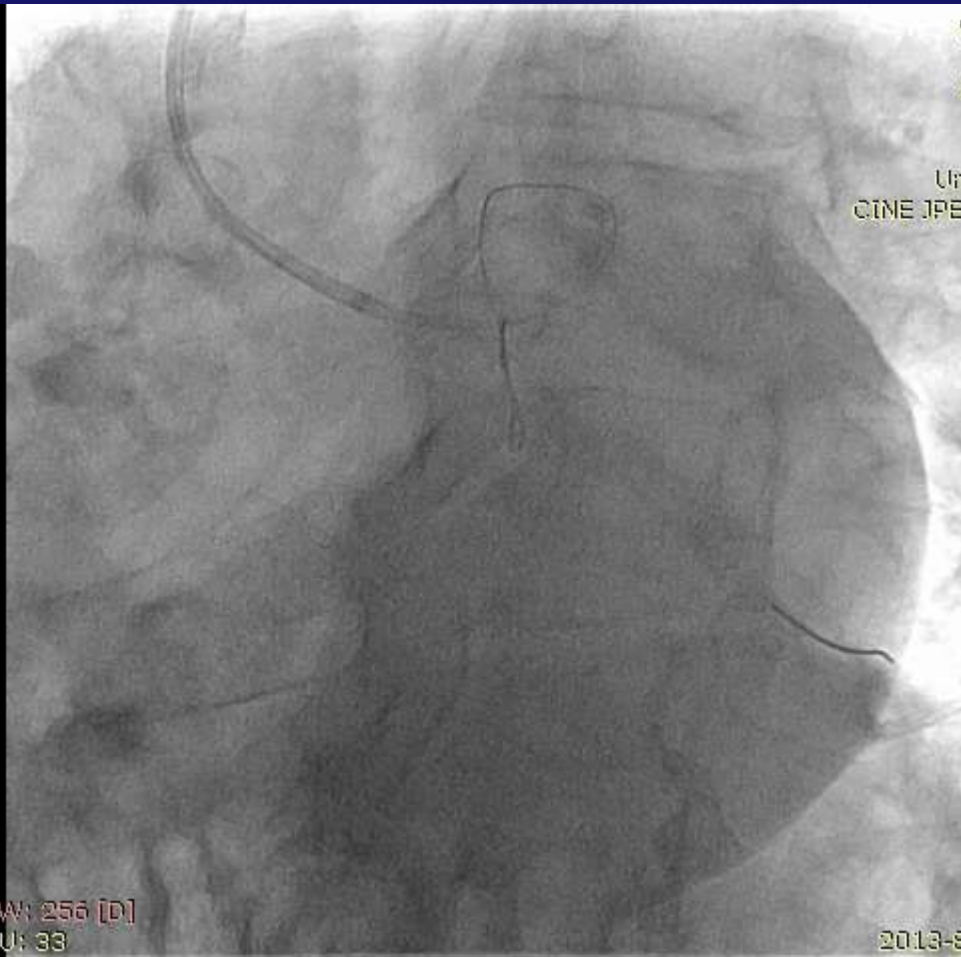
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Im: 1/43
Se: 1

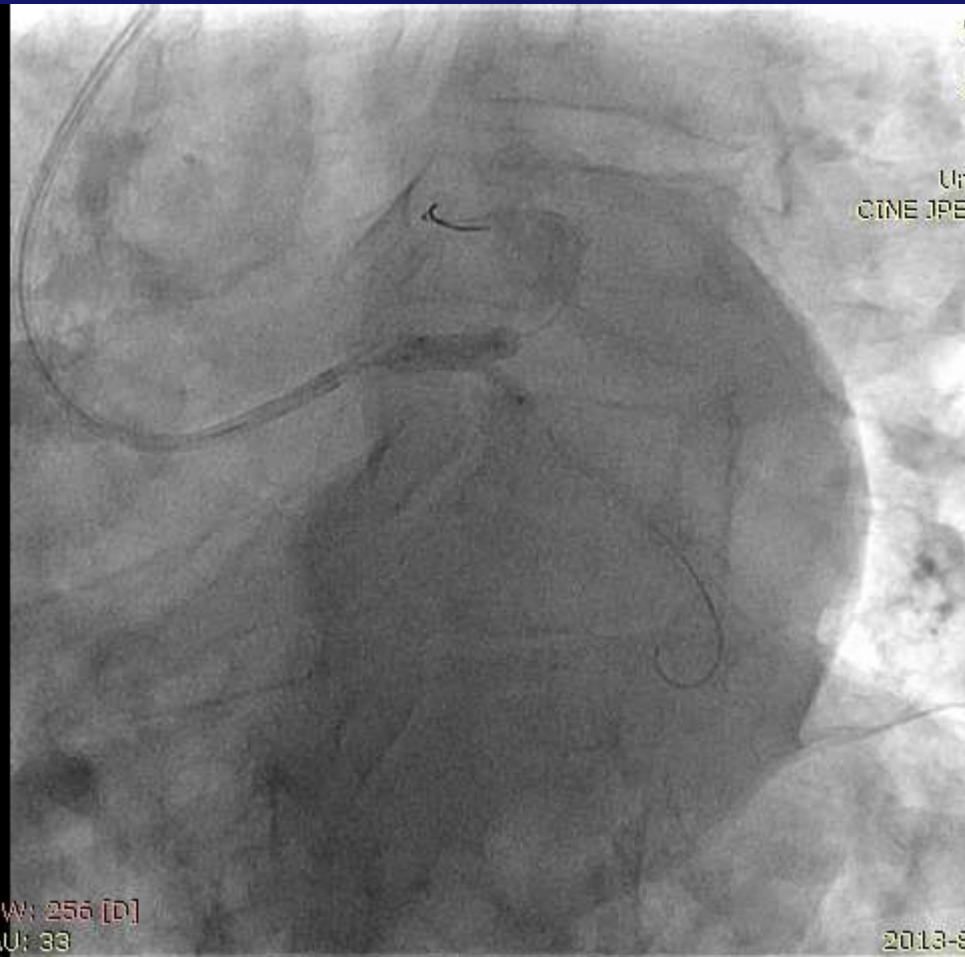
WANG HONG
814874
1958-9-10 M
Shimadzu
Unspecified XA
CTNE JPEG LOSSLESS

WL: 128 WW: 256 [D]
LAO: 28 CAU: 33

2013-8-9 15:18:58



Im: 1/19
Se: 1



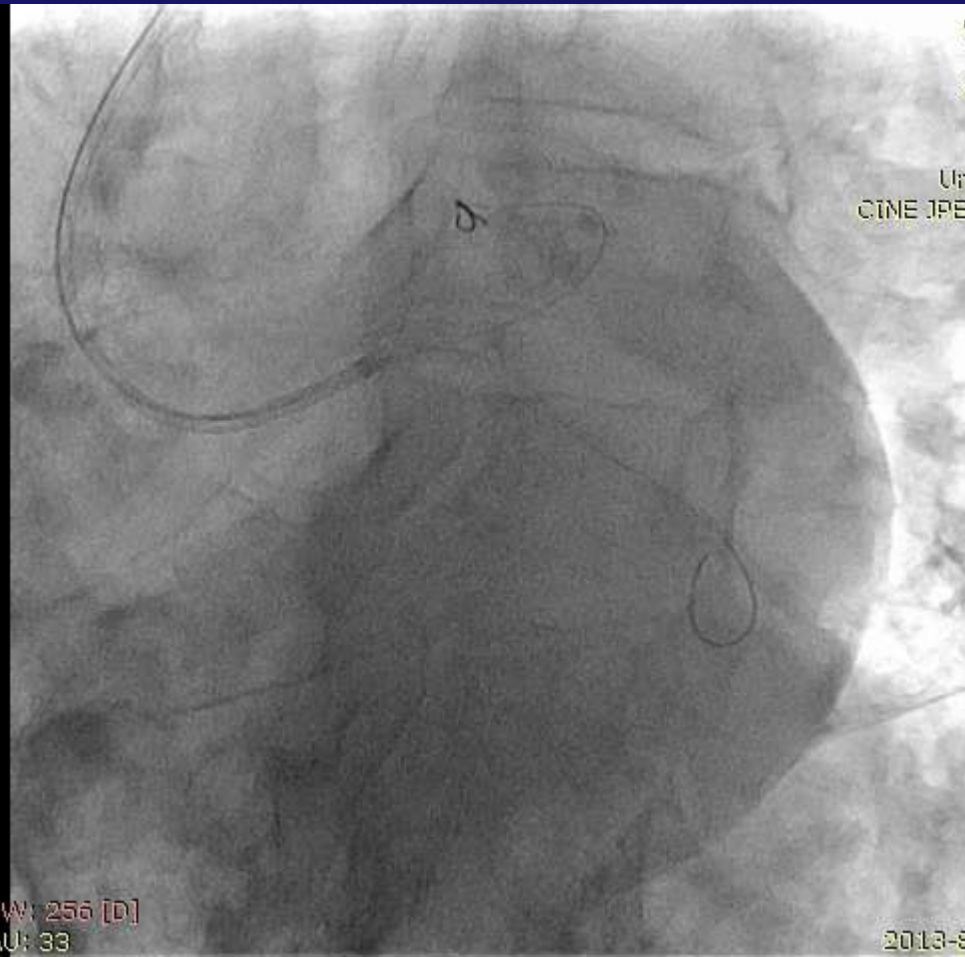
WANG HONG
814874
1958-9-10 M
Shimadzu

Unspecified XA
CTNE JPEG LOSSLESS

WL: 128 WW: 256 [D]
LAO: 28 CAU: 33

2013-8-9 15:32:58

Im: 1/47
Se: 1



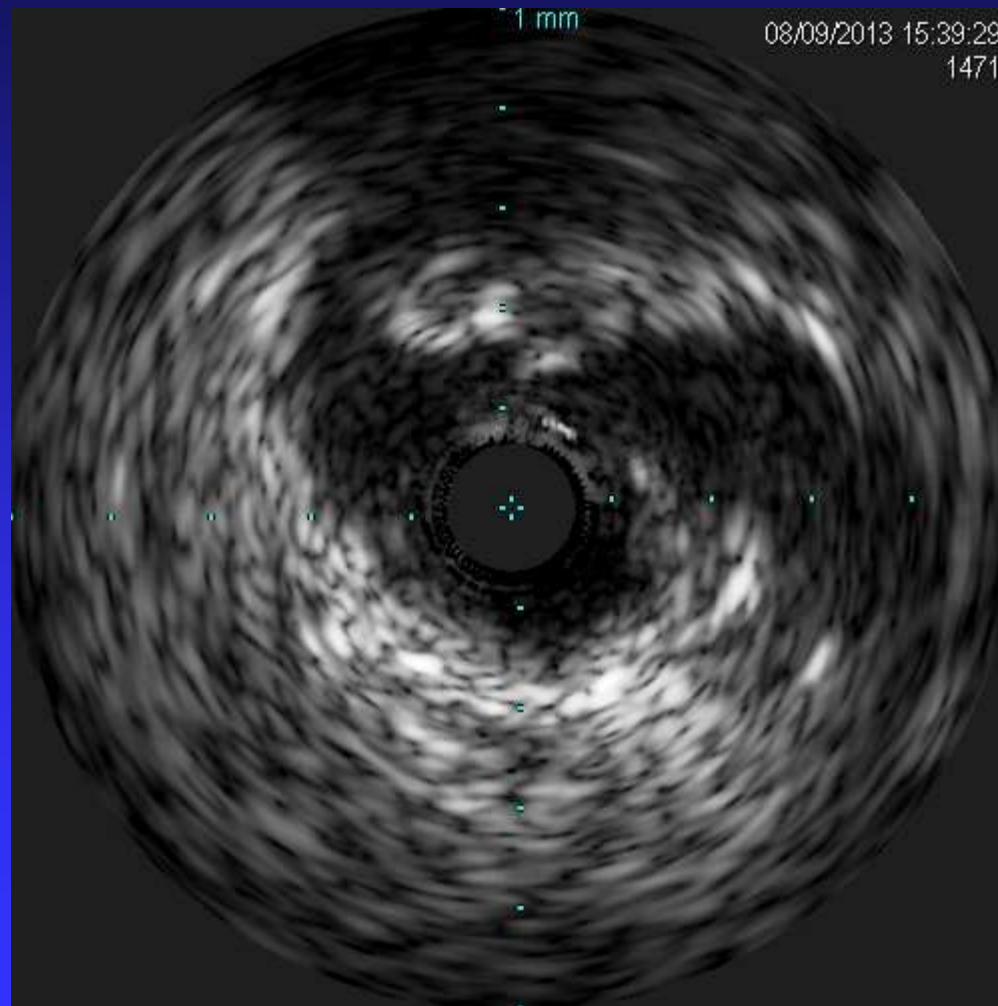
WANG HONG
814874
1958-9-10 M
Shimadzu

Unspecified XA
CTNE JPEG LOSSLESS

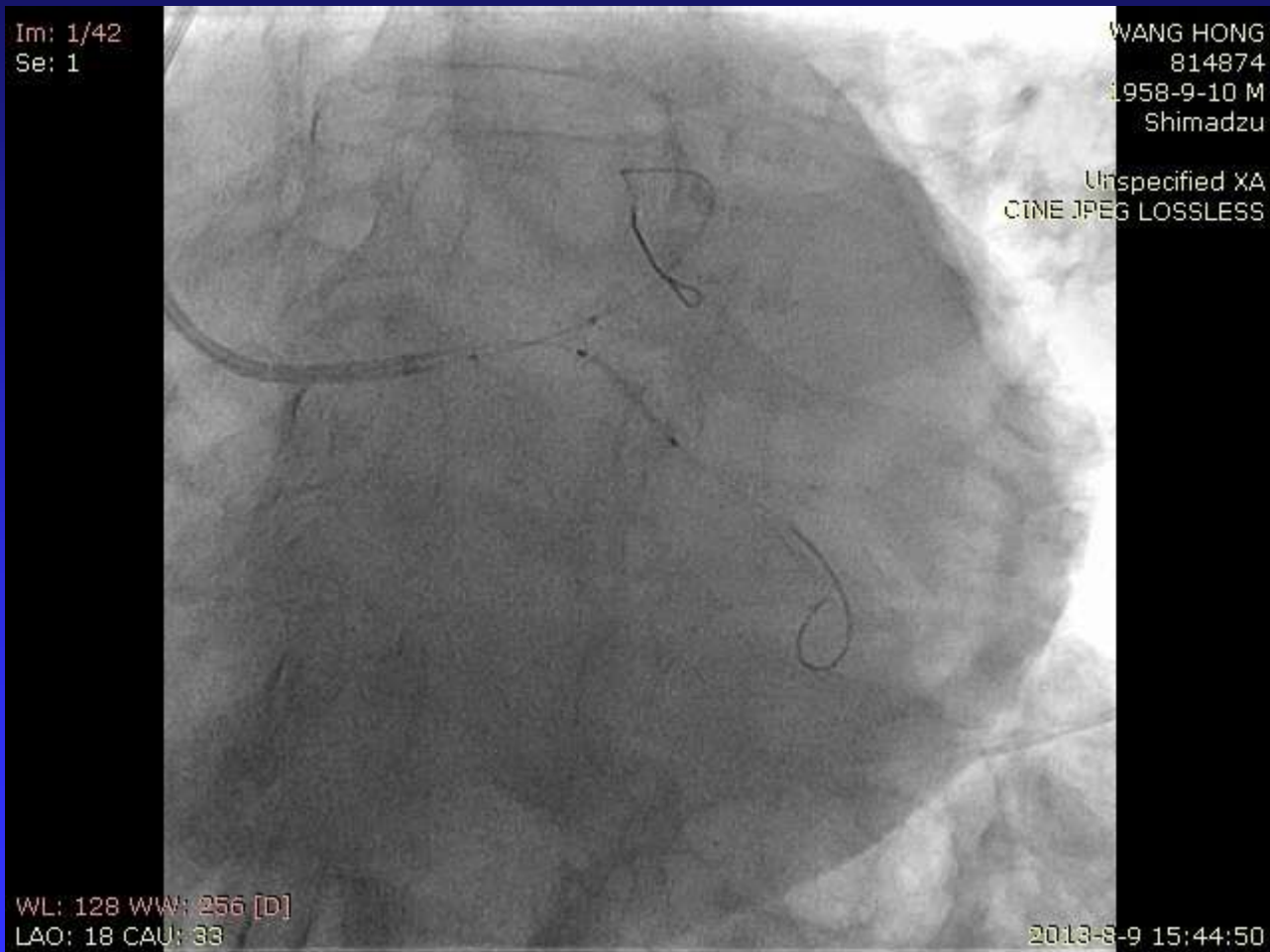
WL: 128 WW: 256 [D]
LAO: 28 CAU: 33

2013-8-9 15:33:20

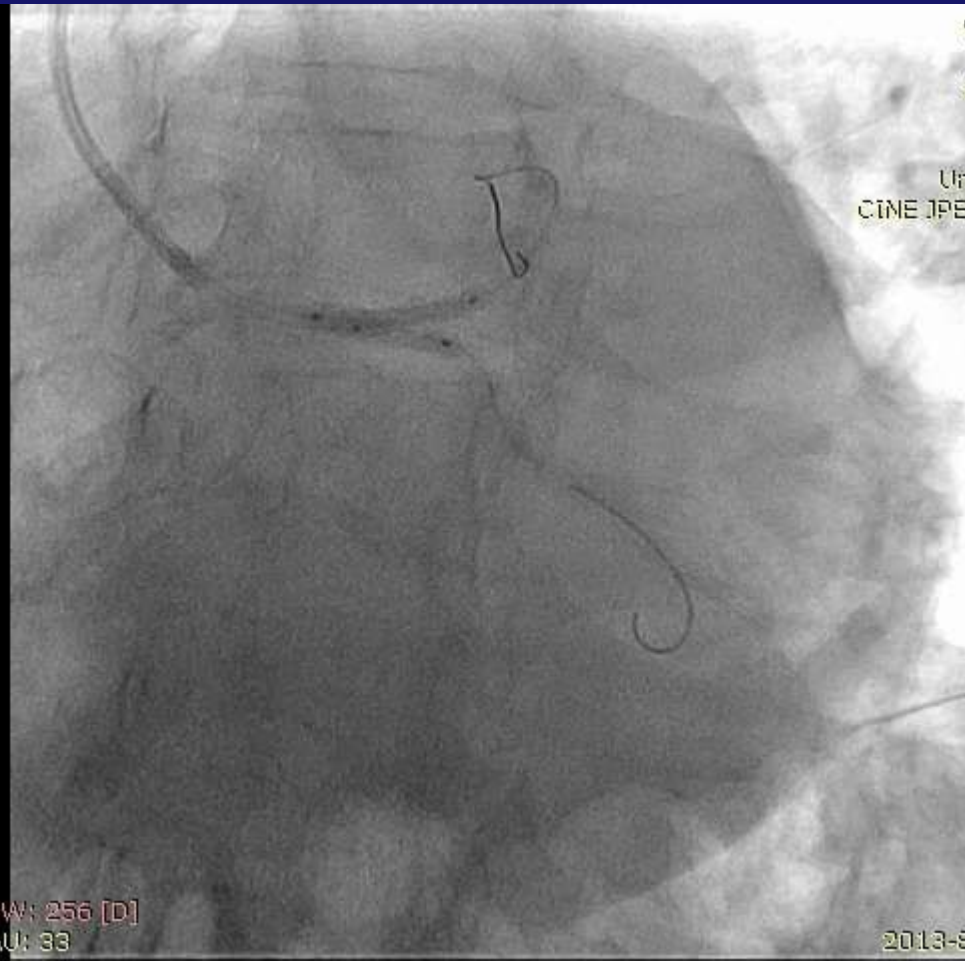
IVUS: ostium of LCX



Endeavor Resolute: 2.75*12mm



Im: 1/16
Se: 1



WANG HONG
814874
1958-9-10 M
Shimadzu

Unspecified XA
CTNE JPEG LOSSLESS

WL: 128 WW: 256 [D]
LAO: 18 CAU: 33

2013-8-9 15:46:09

Im: 1/15
Se: 1



WANG HONG
814874
1958-9-10 M
Shimadzu

Unspecified XA
CTNE JPEG LOSSLESS

WL: 128 WW: 256 [D]
LAO: 18 CAU: 33

2013-8-9 15:50:15

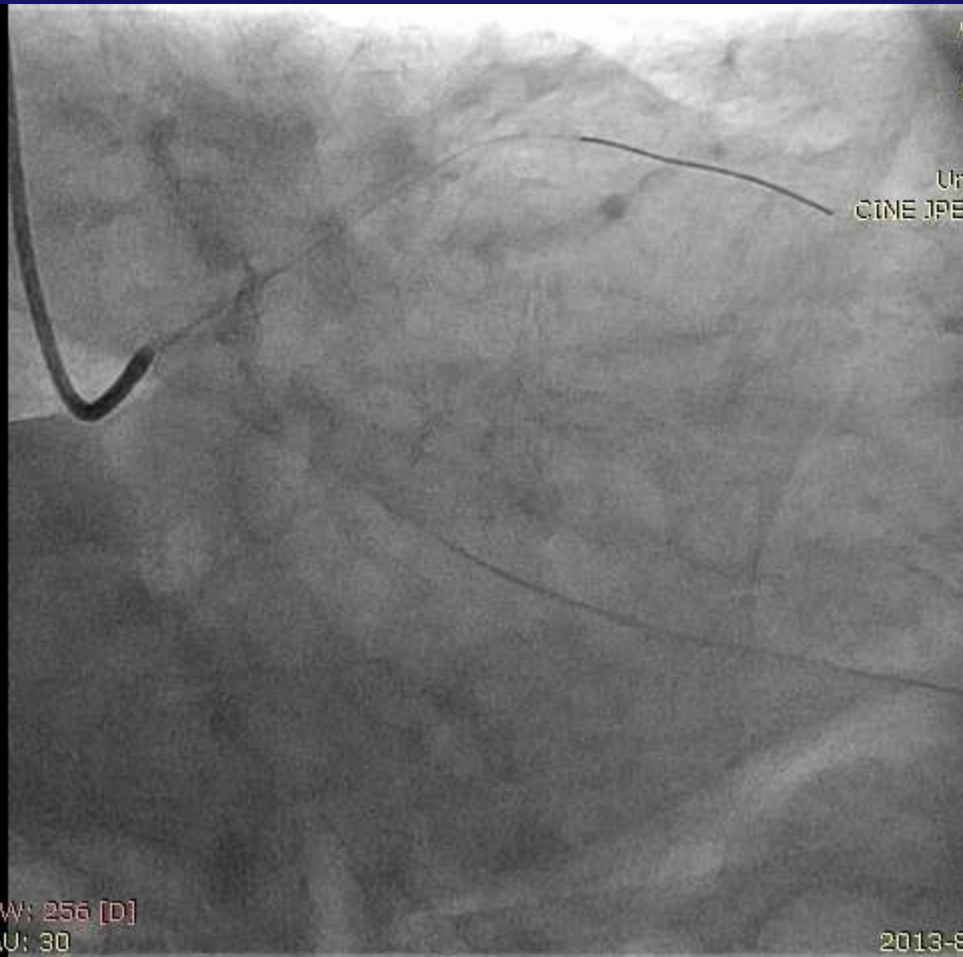
Im: 1/49
Se: 1

WANG HONG
814874
1958-9-10 M
Shimadzu

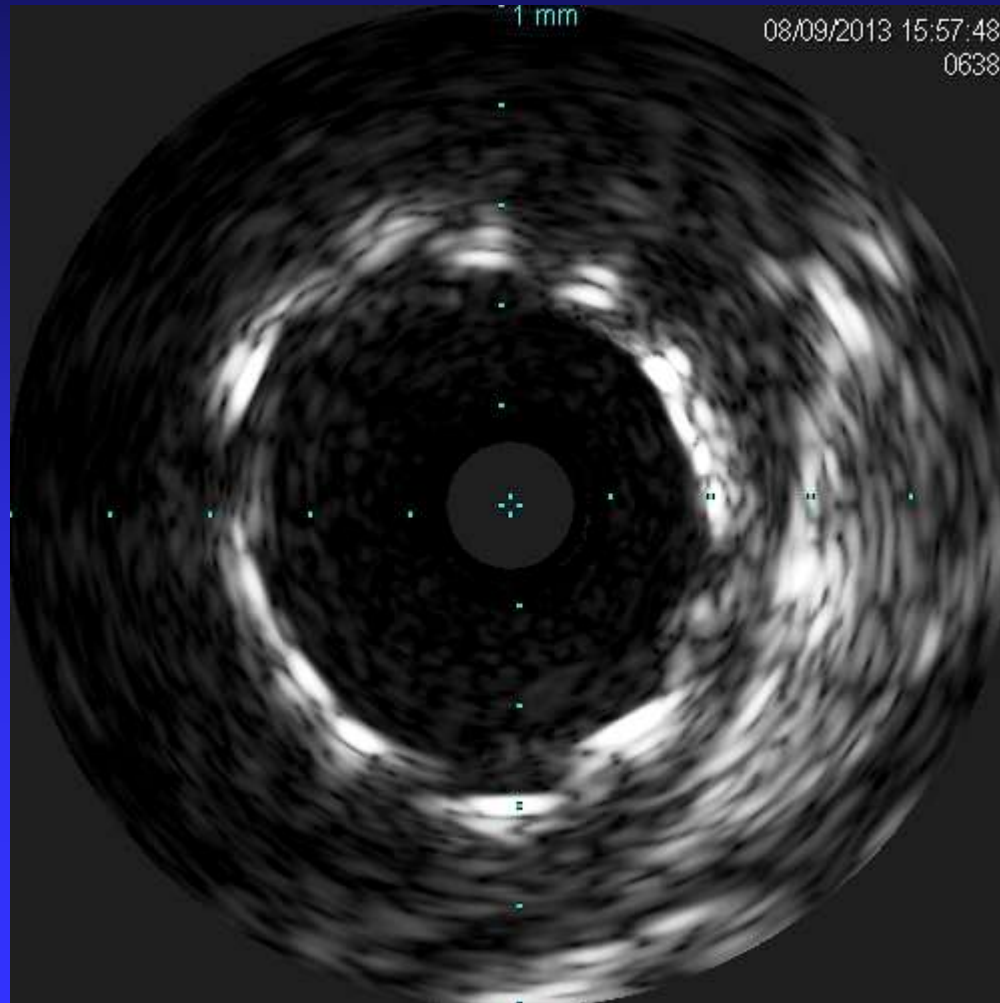
Unspecified XA
CINE JPEG LOSSLESS

WL: 128 WW: 256 [D]
RAO: 25 CAU: 30

2013-8-9 15:58:22



IVUS: final result of left main



Left main bifurcation: one stent or two stent?

- Anatomy at left main bifurcation site.
- Plaque distribution.
- IVUS finding.
- Risk of lose of side branch.

Study population

- 1033 consecutive patients with distal UPLM lesions treated with DES by one-stent (n=661) or two-stent (n=372) technique from January 2004 to December 2010 at Fu Wai hospital were analyzed.
- Patients with distal UPLM lesions of Medina classifications of 0 1 1, 1 0 1, 1 1 0 and 1 1 1 were enrolled, and those with contraindication for antiplatelet therapy, acute myocardial infarction within 24 hours and cardiac shock were excluded.
- Clinical follow-up was complete for all patients over an average of 4 years.

Baseline Clinical Characteristics

	One-stent n=661	Two-stent n=372	P Value
Age, yrs	59.71 ± 10.70	59.55 ± 10.91	0.70
Male	536 (81.1)	304 (81.7)	0.80
BMI, kg/m ²	25.88 ± 3.10	25.57 ± 3.19	0.13
Diabetes mellitus	150 (22.7)	98 (26.3)	0.19
Hypertension	366 (55.4)	211 (56.7)	0.67
Hyperlipidemia	327 (49.5)	184 (49.5)	1.00
Prior MI	160 (24.2)	96 (25.8)	0.57
Prior PCI	138 (20.9)	105 (28.2)	<0.01
Prior CABG	16 (2.4)	6 (1.6)	0.38
Current smoker	185 (28.0)	103 (27.7)	0.92
Family history of CAD	83 (12.6)	39 (10.5)	0.32
Prior stroke	43 (6.5)	24 (6.5)	0.97
Peripheral vascular disease	32 (4.8)	23 (6.2)	0.36
Chronic lung disease	7 (1.1)	2 (0.5)	0.50
Unstable angina	412 (62.9)	267 (71.8)	<0.01
LVEF, %	62.85 ± 7.36	62.89 ± 7.03	0.94
Creatinine clearance, ml/min	81.27 ± 18.71	82.34 ± 17.18	0.36

Lesion and procedural Characteristics

	One-stent n=661	Two-stent n=372	P Value
Baseline SYNTAX score	25 ± 6	26 ± 5	0.02
Clinical SYNTAX score	30 ± 22	31 ± 22	0.47
Residual SYNTAX score	4 (0-7)	2 (0-5)	<0.01
Medina classification			<0.01
0,1,1 (%)	10 (1.5)	6 (1.6)	
1,0,1 (%)	50 (7.6)	34 (9.1)	
1,1,0 (%)	425 (64.3)	99 (26.6)	
1,1,1 (%)	176 (26.6)	232 (62.6)	
Restenotic lesion (%)	19 (2.9)	16 (4.3)	0.22
Transradial approach (%)	392 (59.3)	181 (48.7)	<0.01
LM diameter stenosis, %	82 ± 16	83 ± 13	0.15
Proximal LAD diameter stenosis, %	78 ± 27	78 ± 26	0.20
Proximal LCX diameter stenosis, %	52 ± 37	72 ± 24	<0.01
Main vessel stent diameter, mm	3.53 ± 0.39	3.54 ± 0.34	0.89
Side branch stent diameter, mm	-	3.21 ± 0.31	
Main vessel stent length, mm	27 ± 17	28 ± 16	0.77
Side branch stent length, mm	-	24 ± 12	

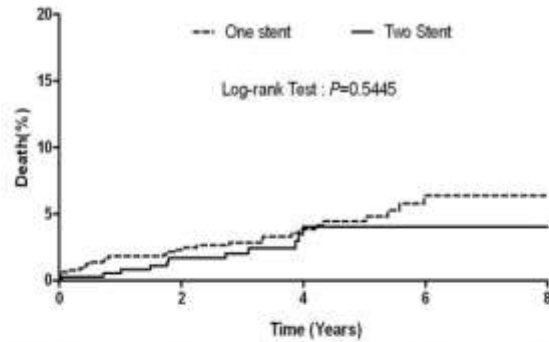
Lesion and procedural Characteristics

	One-stent n=661	Two-stent n=372	P Value
Two-stent technique			
Crush (%)	-	257 (69.1)	
T (%)	-	52 (14.0)	
V or SKS (%)	-	45 (12.1)	
Cullote (%)	-	18 (4.8)	
DES type			
Sirolimus-eluting (%)	426 (65.0)	240 (64.9)	<0.01
Paclitaxel-eluting (%)	91 (13.9)	88 (23.8)	
Second-generation DES* (%)	138 (21.1)	42 (11.4)	
Final kissing balloon (%)	204 (30.9)	357 (96.0)	<0.01
IVUS (%)	213 (32.2)	200 (53.8)	<0.01
Hemodynamic support with IABP (%)	32 (4.9)	39 (10.4)	<0.01
Procedure time, min	50 ± 33	70 ± 35	<0.01
Contrast volume, ml	259 ± 100	273 ± 92	0.05
LM bifurcation angiographic success (%)	475 (71.9)	364 (97.9)	<0.01

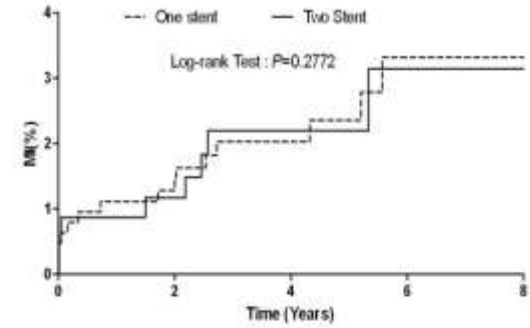
In-hospital and Late Clinical Outcomes

	One-stent n=661	Two-stent n=372	P Value
In-hospital outcomes			
MACE	15 (2.3)	8 (2.2)	0.89
Death	3 (0.5)	2 (0.5)	1.00
MI	13 (2.0)	6 (1.6)	0.68
TVR	0 (0.0)	2 (0.5)	0.13
Late clinical outcomes			
Follow-up duration, years	4.3 ± 1.9	4.3 ± 1.9	0.50
MACE	61 (9.2)	43 (11.6)	0.23
Death	29 (4.4)	13 (3.5)	0.49
MI	45 (6.8)	32 (8.6)	0.29
TVR	44 (6.7)	32 (8.6)	0.25
Revascularization	86 (13.0)	48 (12.9)	0.96
PCI	80 (12.1)	42 (11.3)	0.70
CABG	7 (1.1)	7 (1.9)	0.27
Stent thrombosis*	16 (2.4)	6 (1.6)	0.39
Early	4 (0.6)	3 (0.8)	0.71
Late	4 (0.6)	0 (0.0)	0.30
Very late	8 (1.2)	3 (0.8)	0.75

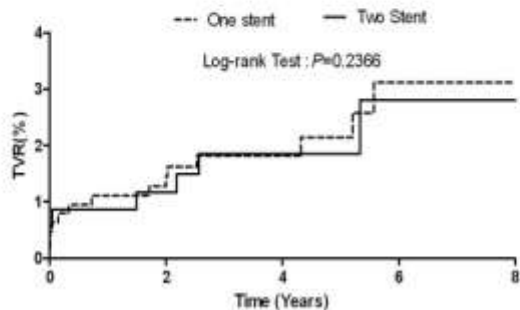
Long-term follow-up



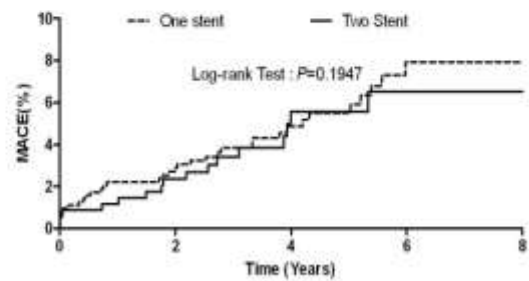
One stent	661	604	338	158	13
Two stent	372	342	177	75	11



One stent	661	579	325	154	12
Two stent	372	321	168	72	9

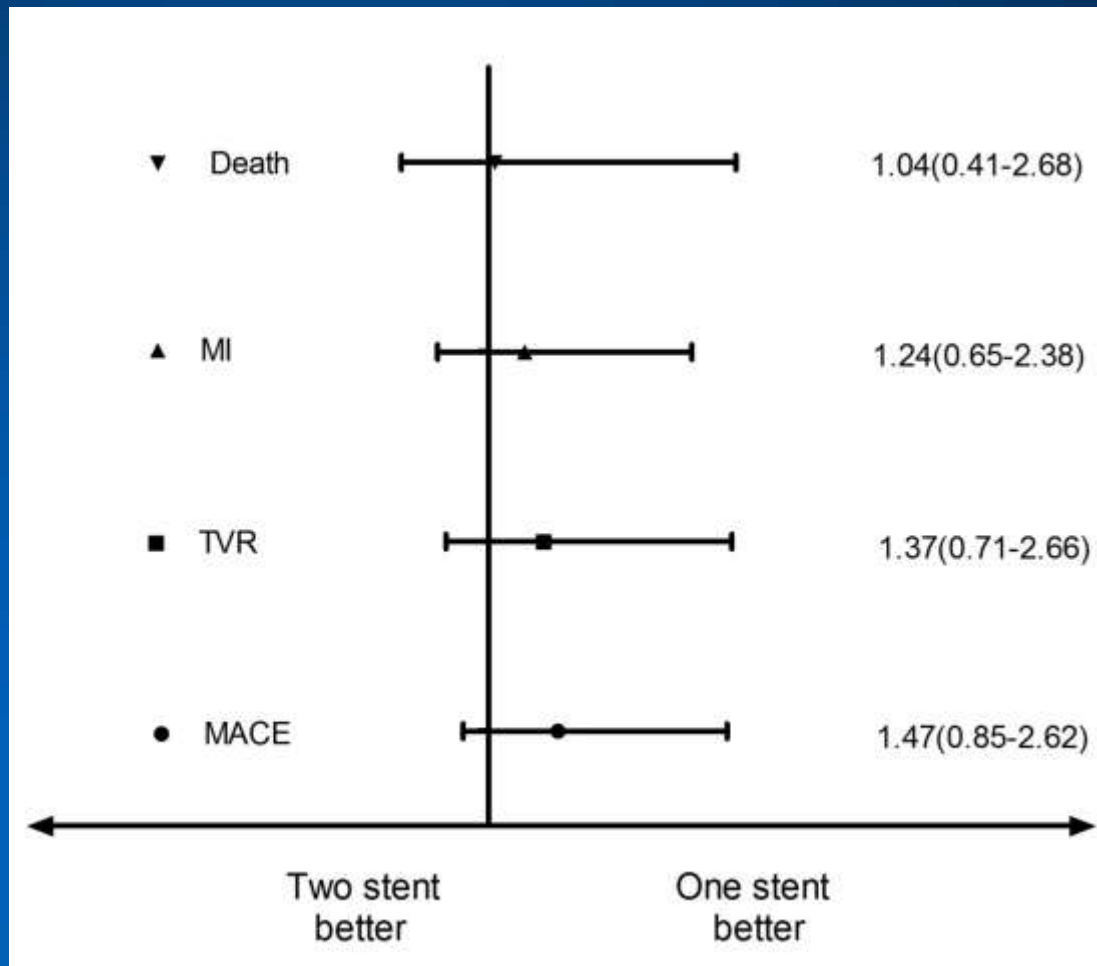


One stent	661	579	326	154	12
Two stent	372	320	168	72	9



One stent	661	578	320	150	12
Two stent	372	318	163	68	9

Multivariable Analysis of Major Adverse Events



Conclusions

For those low-intermediate SYNTAX score distal UPLM patients who received DES treatment, optimal two-stent implantation was not inferior to one-stent strategy.

A tall, modern white hospital building with a fountain in the foreground and trees framing the scene. The building has many windows and a sign on top. The fountain has several jets of water. The trees are green and leafy.

阜外心血管病医院

Thanks for your attention!

Building insights, break boundaries