Bioresorbable Vascular Scaffolds for the Treatment of Chronic Total Occlusions; An International Multicenter Registry

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Consultant: National Cardiovascular Center ; Osaka

FACC, FAHA, FESC, FSCAI

Why BVS ???

About BVS

Long procedure time,

Expensive,

Need IVUS or OCT always...,

A lot of requirement

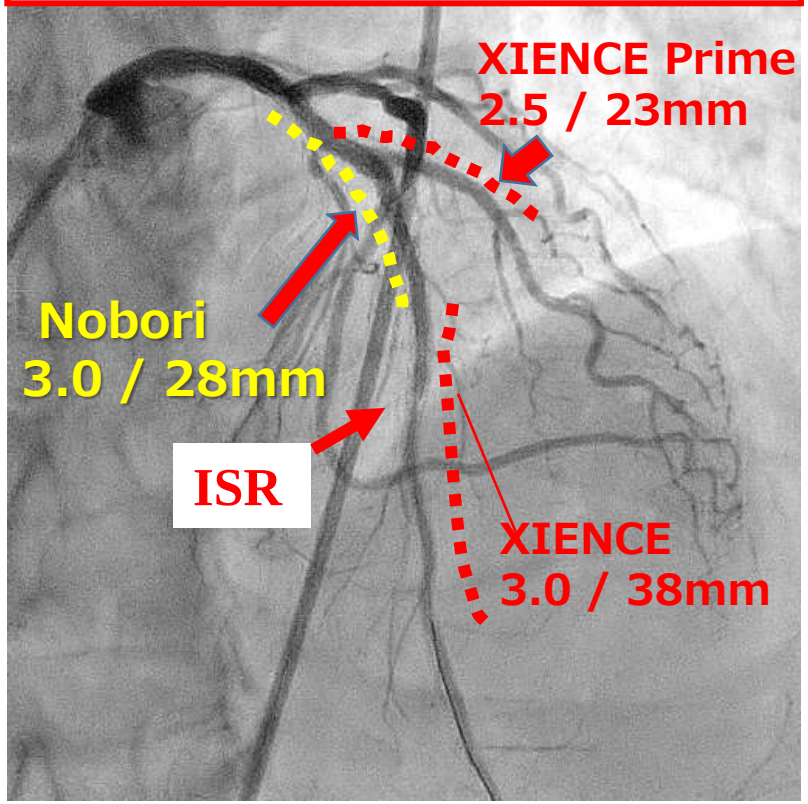
And higher incidence of thrombotic event

And all advantages is future advantage...

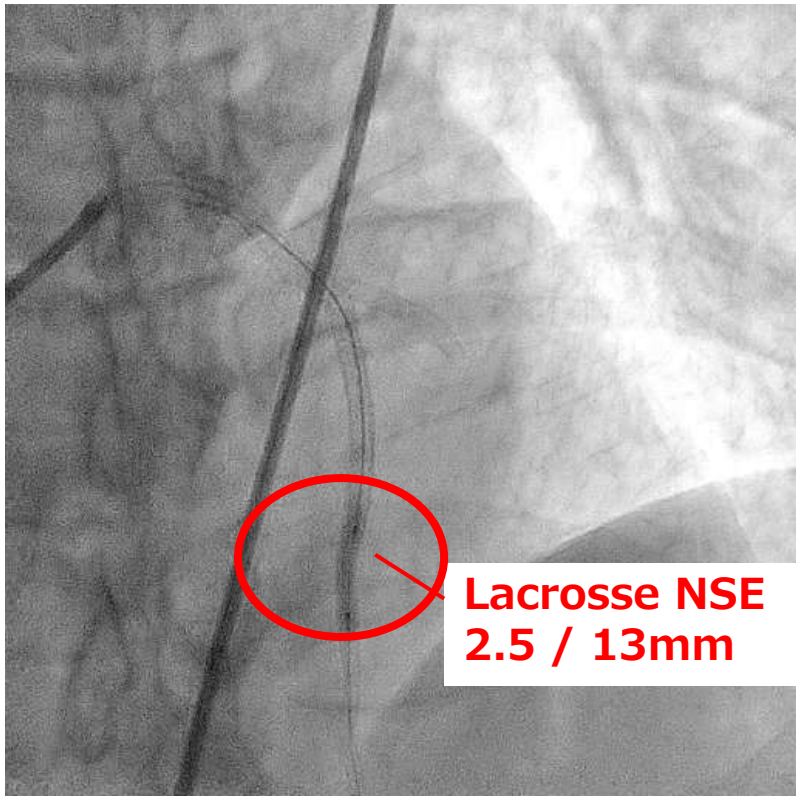
Case: Angina: 2Year after DES implantation

Patient had a late In-Stent restenosis in distal LAD

Pre(2Y after Stent)



Ballooning in distal LAD



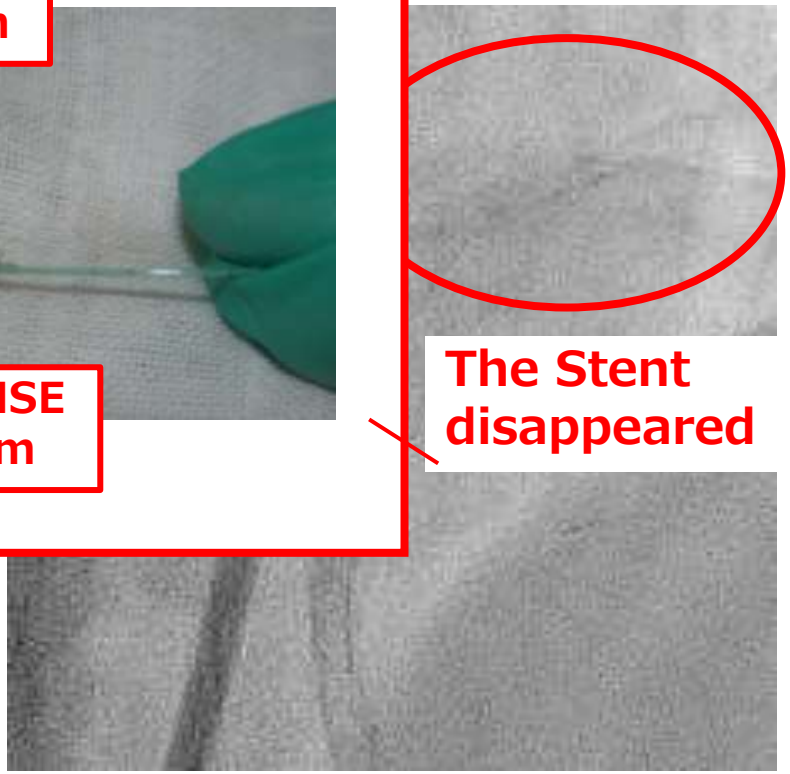
Stent Fell Off

Stent was Fell off by the deflated balloon

looning

The extracted stent:
XIENCE 2.5/23mm

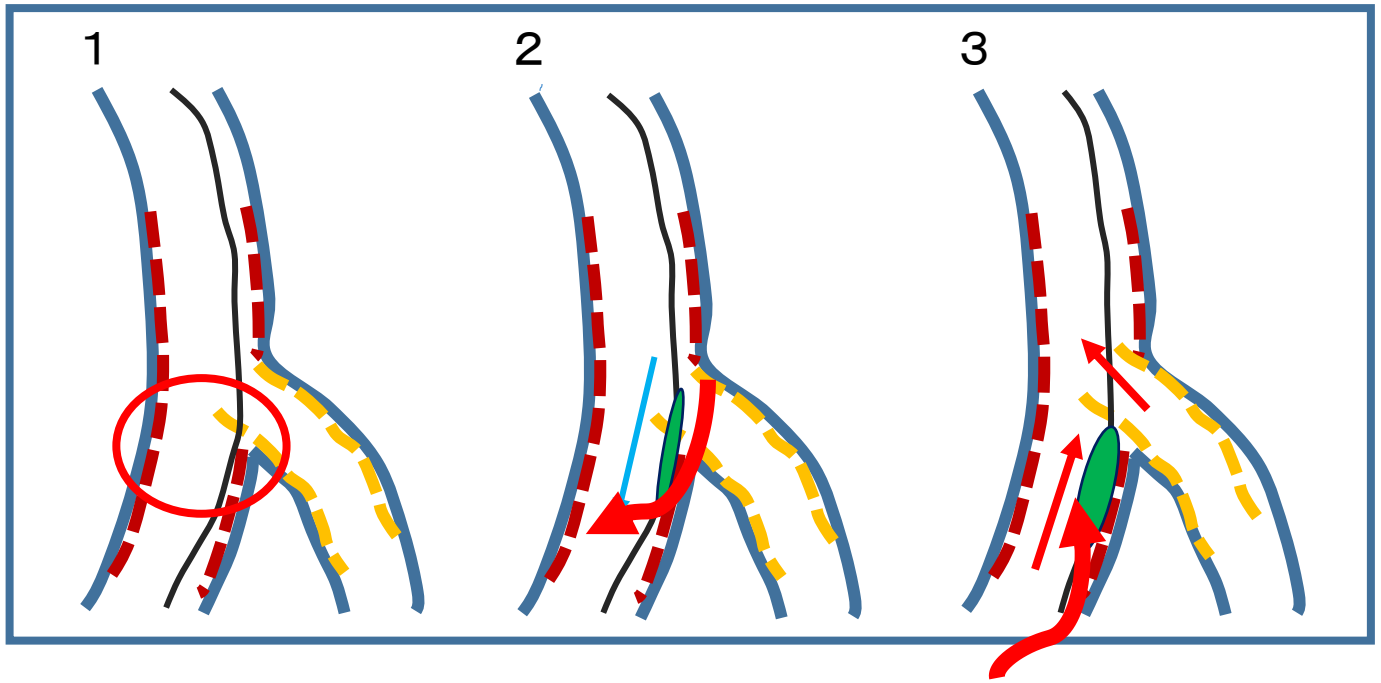
Lacrosse NSE
2.5/13mm



The Stent disappeared

Mechanism of Falling Off

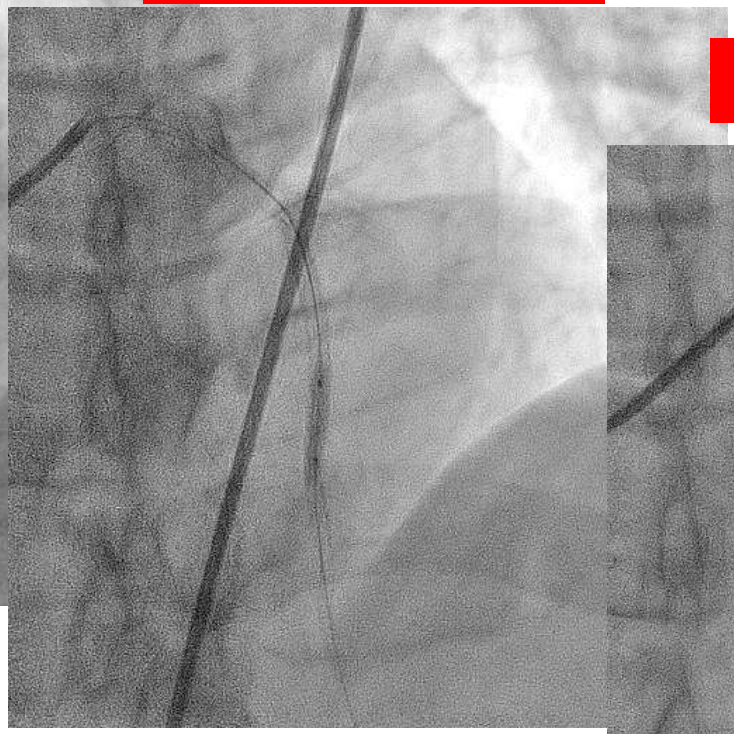
This rare complication was due to the entrapment of the deflated balloon in the protruded struts of the side branch stent to the main branch (neocarina). likely secondary to crossing the guidewire in the middle of these struts.



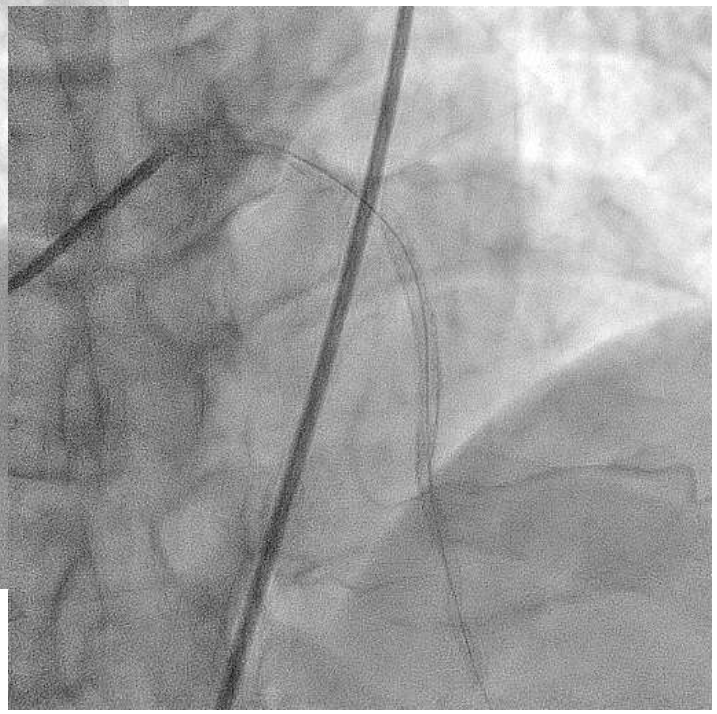
Stent Fell Off

Pre

NSE balloon



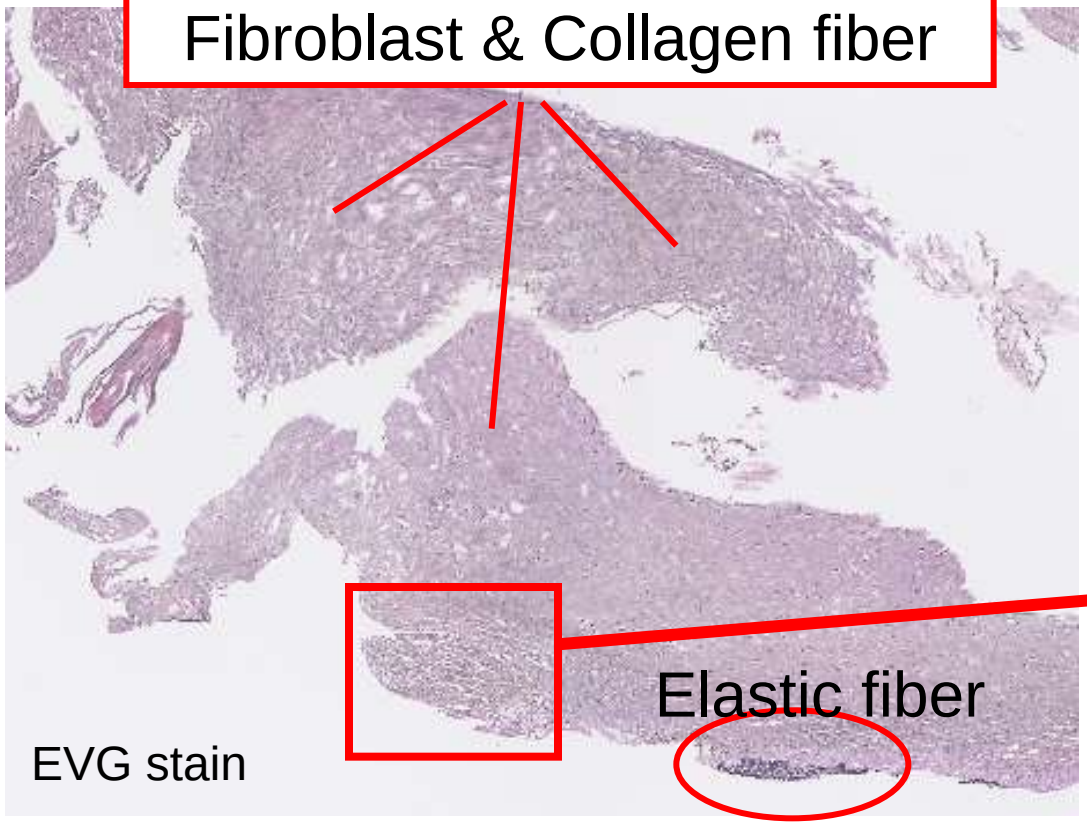
Stent Fell Off



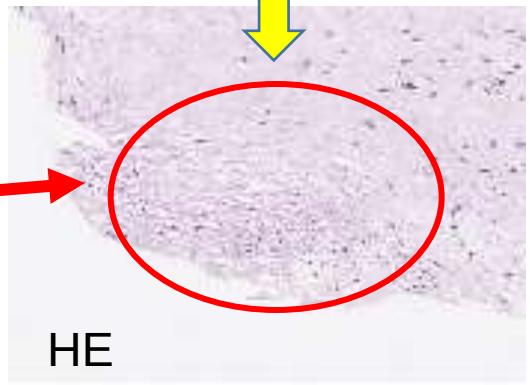
Watch !! Diagonal

Microscopic Findings

Coronary artery specimen adhering to stent



Focal lymphocyte infiltration



The specimen consists mainly of fibrous thickening intima with a little part of media, and focal chronic inflammatory infiltration .

A potential procedural complication 2 years after percutaneous coronary intervention to treat left anterior descending artery lesions with the T-stenting and the small protrusion technique

Karube K, Naganuma T, Nakamura S et al JACC Cardiovasc Interv. 2015 March

Histological assessment of the tissue adhered to the extracted stent demonstrated fibrous thickening intima with a part of media and focal inflammation.

While difficult to prove, the connection of the vessel wall and stent could eventually be loose probably due to suppression of neo-intiaml proliferation by everolimus and/or chronic inflammation.

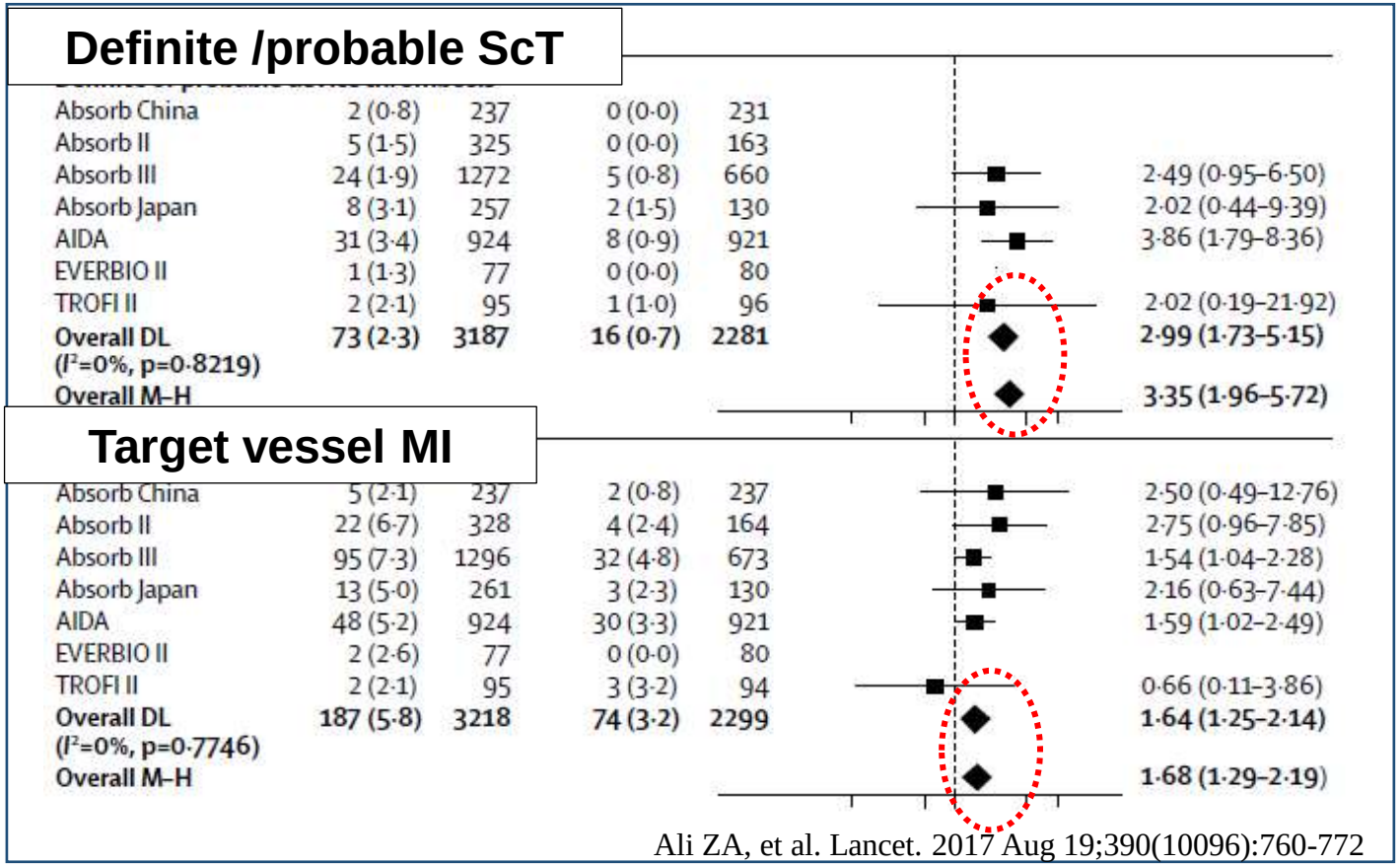
After DES implant...(even 2nd gen. Stent)
We still have “Delayed Healing”...

DES is not PERFECT !!

But newly emerged BVS
also has many challenges

Overcoming the limitations of metallic stents

The 2Y after BVS implant. from meta-analysis including 7 RCT



Ali ZA, et al. Lancet. 2017 Aug 19;390(10096):760-772

BVS was associated with increased rates of target vessel MI and definite/probable ScT at 2 years.

Absorb Japan Trial -2year result-

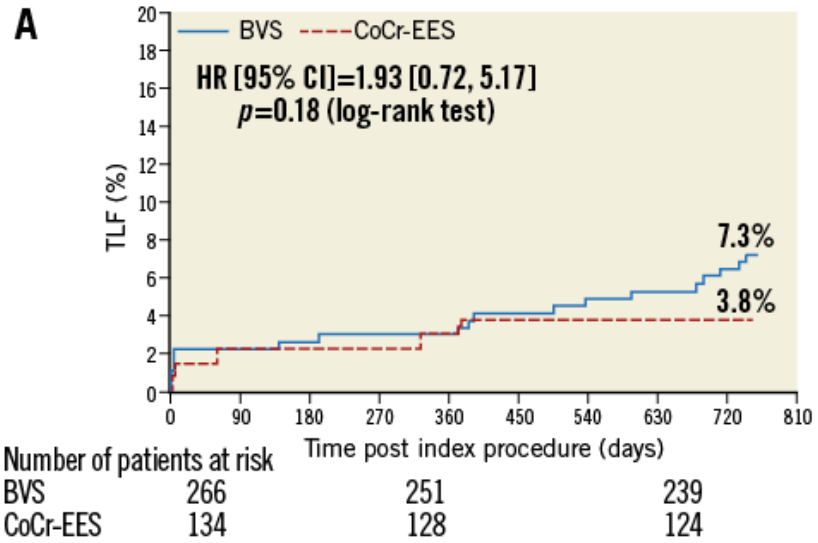
Two-year clinical, angiographic, and serial optical coherence tomographic follow-up after implantation of an everolimus-eluting bioresorbable scaffold and an everolimus-eluting metallic stent: insights from the randomised ABSORB Japan trial

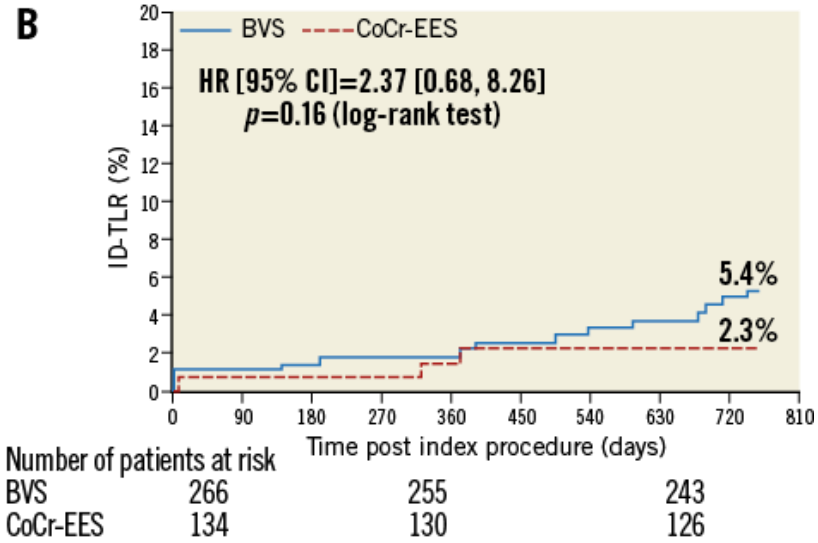
Yoshinobu Onuma[1], MD; Yohei Sotomi[2], MD; Hiroki Shiomi[3], MD; Yukio Ozaki[4], MD; Atsuro Namiki[5], MD; Satoshi Yasuda[6], MD; Takafumi Ueno[7], MD; Kenji Ando[8], MD; Jungo Furuya[9], MD; Keiichi Igarashi[9], MD; Ken Kozuma[10], MD; Kengo Tanabe[11], MD;

The rate of TLF was numerically higher in the BVS arm than in the CoCr-EES arm, although this difference was not statistically significant.

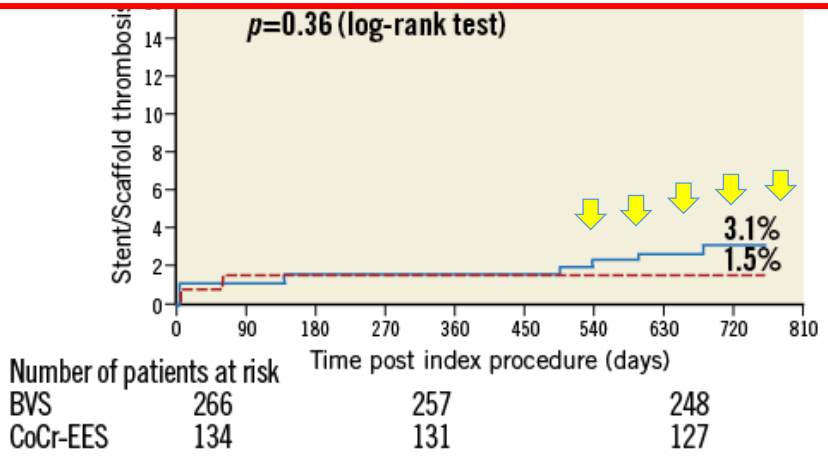
VLST was observed only in the BVS arm at a rate of 1.6% between one and two years. Further studies are mandatory to investigate the risk of BVS relative to metallic stents for VLST, and the underlying mechanisms of BVS VLST.

Absorb Japan Trial -2year result-





High Rate of Scaffold thrombosis



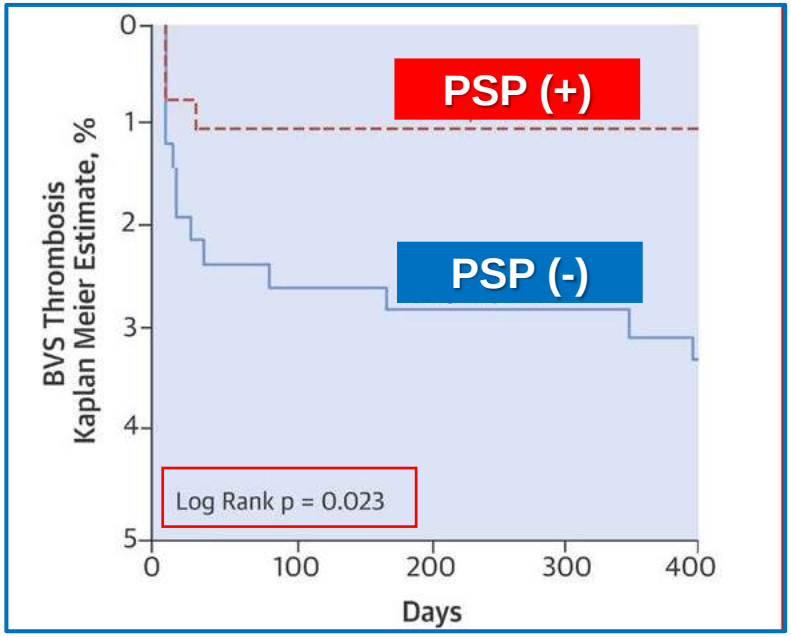
What should be concerned?

① The specific implantation technique is required

P PREPARE THE LESION
Prepare lesion to receive scaffold
Facilitate delivery
Enable full expansion of pre-dilatation balloon to facilitate full scaffold expansion

S SIZE APPROPRIATELY
Accurately size the vessel
Select appropriate scaffold for "best fit"

P POST-DILATE
Achieve **<10% final residual stenosis**
Ensure full strut apposition



Pooled analysis of all patients with 2-year follow-up enrolled ABSORB trials
(ABSORB II, III, Japan, and China)

Scaffold thrombosis

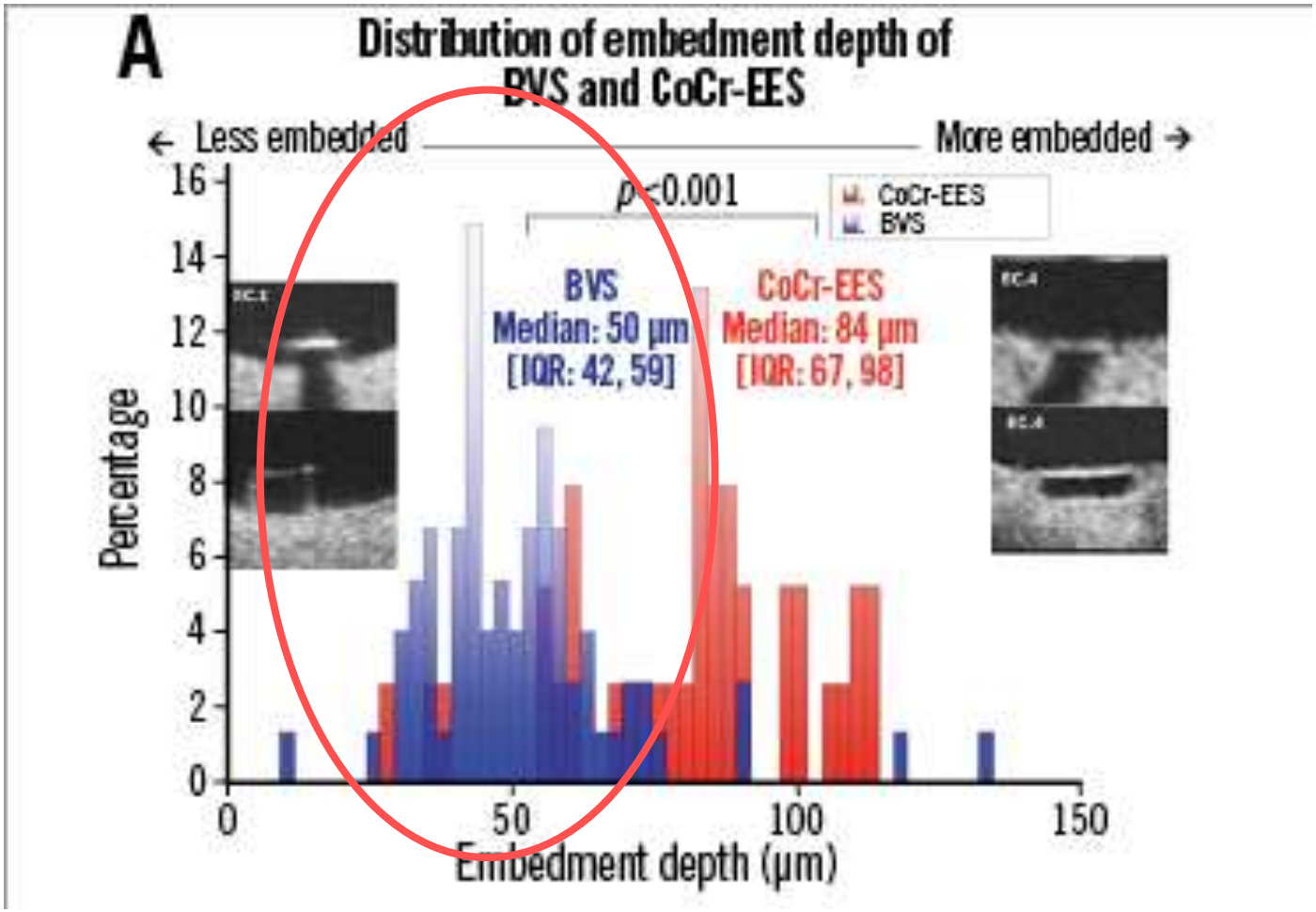
226 patients with high-pressure post-dilatation (≥18atm): **0 case**

1773 patients without high-pressure post-dilatation (<18atm): **11 cases** (0.6%)

*Balloon size was larger than the nominal BVS diameter

Ali ZA, et al. Lancet. 2017 Aug 19;390(10096):760-772

Absorb Japan Trial -2year result-



Absorb Japan Trial -2year result-

Online Table 3. Quantitative coronary angiographic results of OCT-1 subgroup (full analysis set).

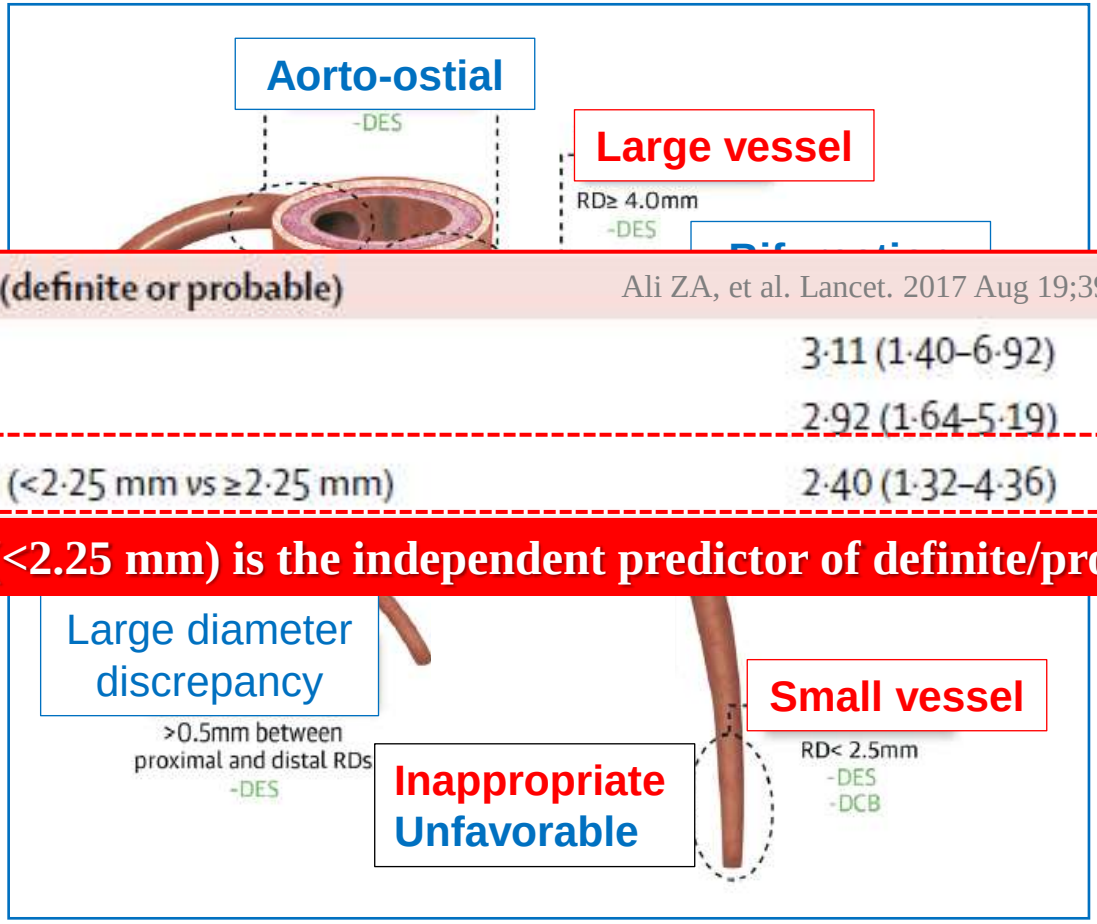
	BVS	CoCr-EES	*p*-value
Follow-up at 13 months			
Number of lesions	83	41	
Reference vessel diameter (mm)	2.68±0.41	2.70±0.50	0.31
In-segment MLD (mm)	2.04±0.4		
In-device MLD (mm)	2.20±0.4		
In-segment DS (%)	23.8±10.2	23.3±13.6	0.84
In-device DS (%)	17.8±9.9		
In-segment binary restenosis	1 (1.2%)		
In-device binary restenosis	1 (1.2%)		
In-segment late lumen loss (mm)	0.17±0.29	0.06±0.33	0.072
In-device late lumen loss (mm)	0.22±0.26	0.12±0.35	0.09
Follow-up at 24 months			
Number of lesions	77	40	
Reference vessel diameter (mm)	2.68±0.43	2.77±0.50	0.35
In-segment MLD (mm)	1.95±0.49	2.10±0.51	0.14
In-device MLD (mm)	2.08±0.56	2.37±0.58	0.01
In-segment DS (%)	27.7±12.2	24.7±10.2	0.16
In-device DS (%)	23.3±13.0	14.8±11.9	0.0006
In-segment binary restenosis	6 (7.8%)	1 (2.5%)	0.42
In-device binary restenosis	4 (5.2%)	1 (2.5%)	0.66
In-segment late lumen loss (mm)	0.27±0.38	0.12±0.32	0.029
In-device late lumen loss (mm)	0.36±0.38	0.21±0.38	0.04

recoil

Late lumen loss

What should be concerned?

② Strict lesion selection is required.



Device thrombosis (definite or probable)		
BVS (*vs* CoCr-EES)	3·11 (1·40–6·92)	0·0051
Diabetes present	2·92 (1·64–5·19)	0·0003
Pre-procedure RVD* (<2·25 mm *vs* ≥2·25 mm)	2·40 (1·32–4·36)	0·0045

Ali ZA, et al. Lancet. 2017 Aug 19;390(10096):760-772

Small vessel (<2.25 mm) is the independent predictor of definite/probable ScT.

Tanaka A, Colombo A, et al. JACC Cardiovasc Interv. 2017 Mar 27;10(6):539-547.

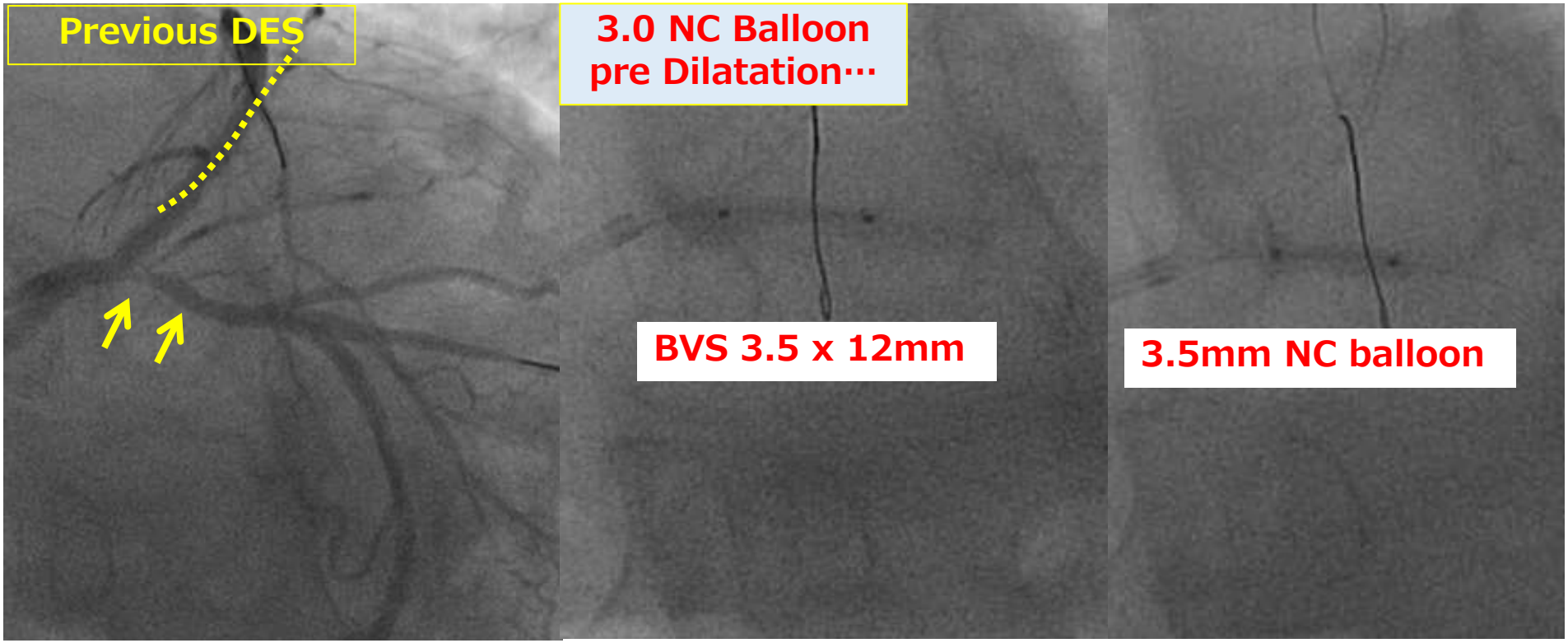
BVS is **not suitable for all types of lesions.** It should be particularly avoided to implant BVS for **small vessels (< 2.25mm).**

Delayed Disruption of a Bioresorbable Vascular Scaffold

JACC: CARDIOVASCULAR IMAGING, VOL. 7, NO. 8, 2014

AUGUST 2014:843–50

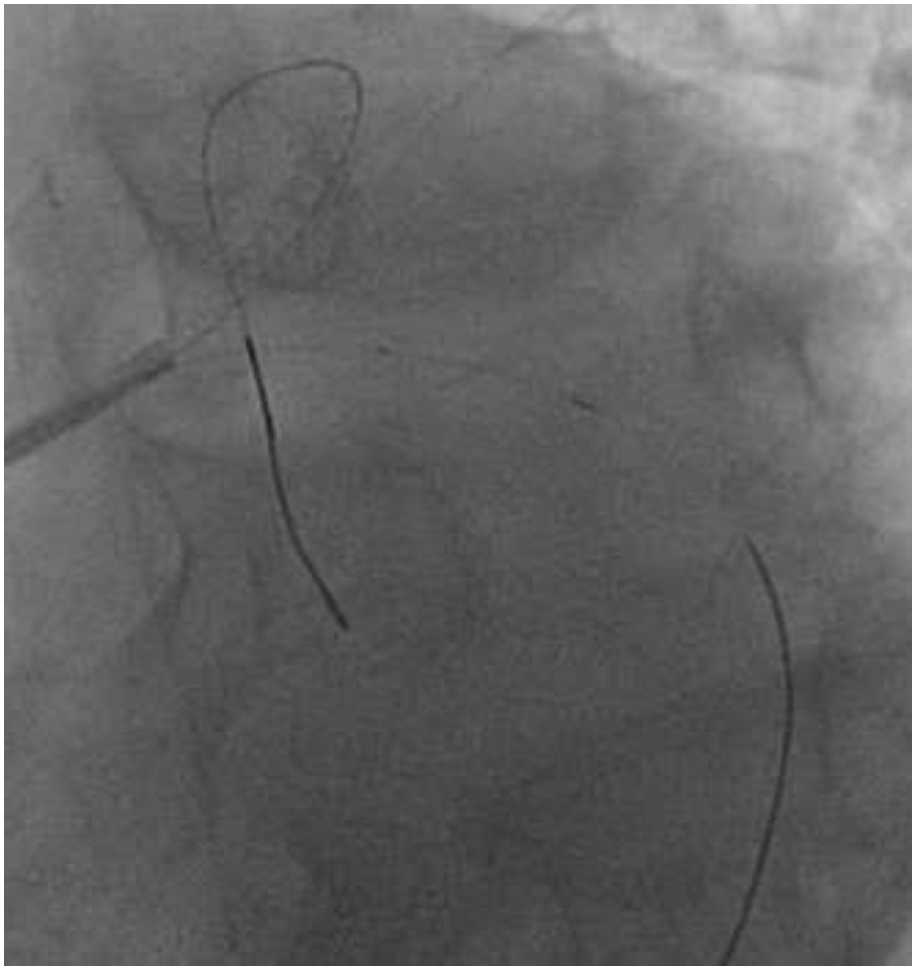
Toru Naganuma, MD Antonio Colombo, MD* *EMO-GVM Centro Cuore Columbus



Toru Naganuma , Antonio Colombo at al JACC Int. 2015

Delayed Disruption of a Bioresorbable Vascular Scaffold

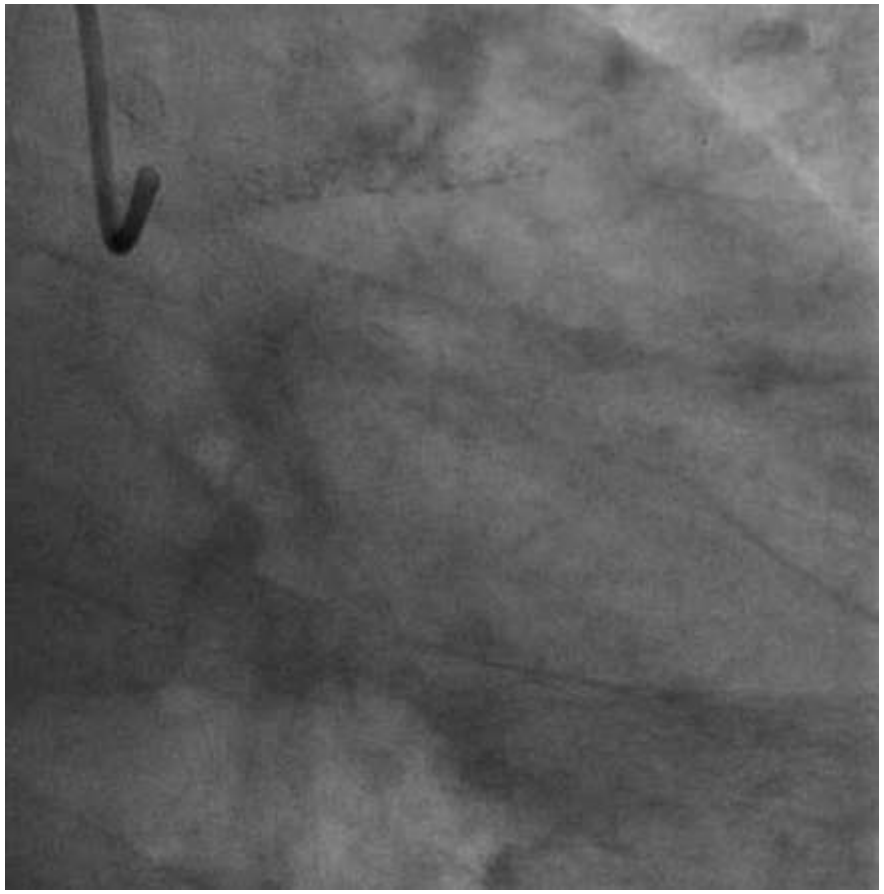
Final Angiogram

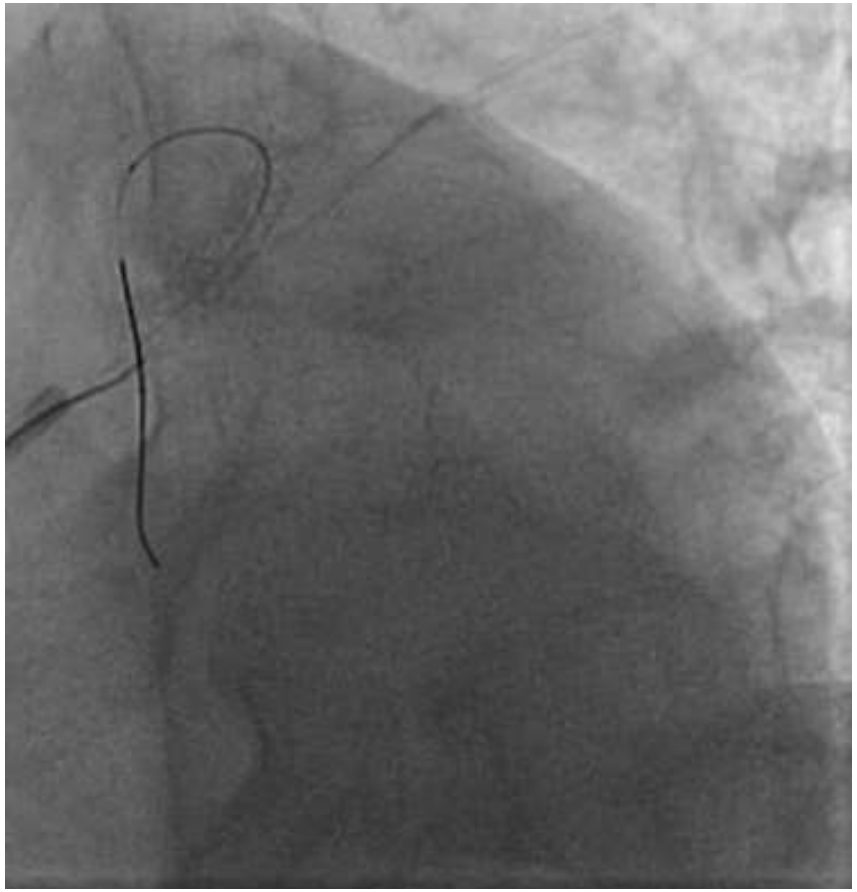


Toru Naganuma , Antonio Colombo at al JACC Int. 2015

Delayed Disruption of a Bioresorbable Vascular Scaffold

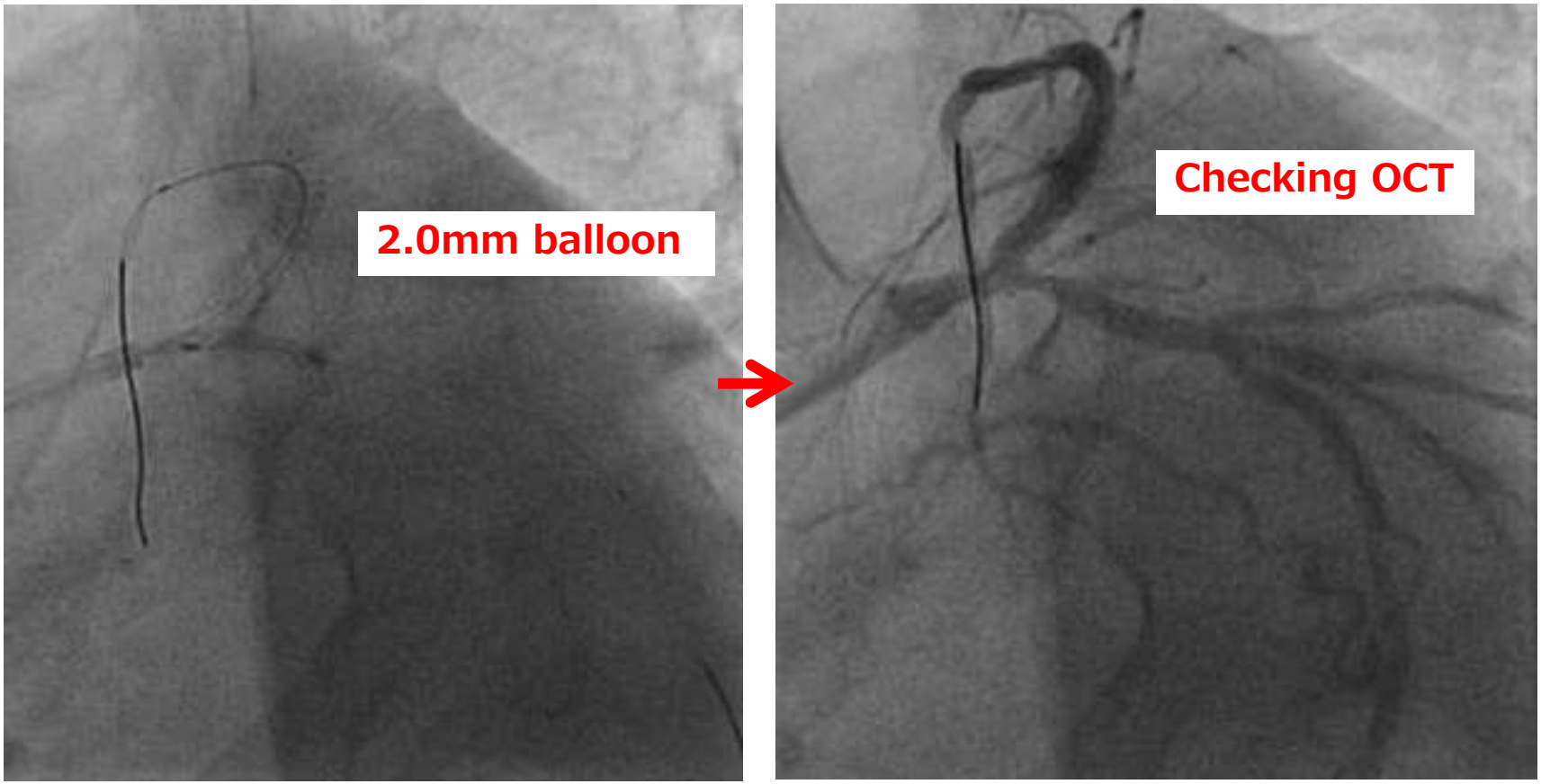
Only 6month later…Severe Restenosis in LCX ost.



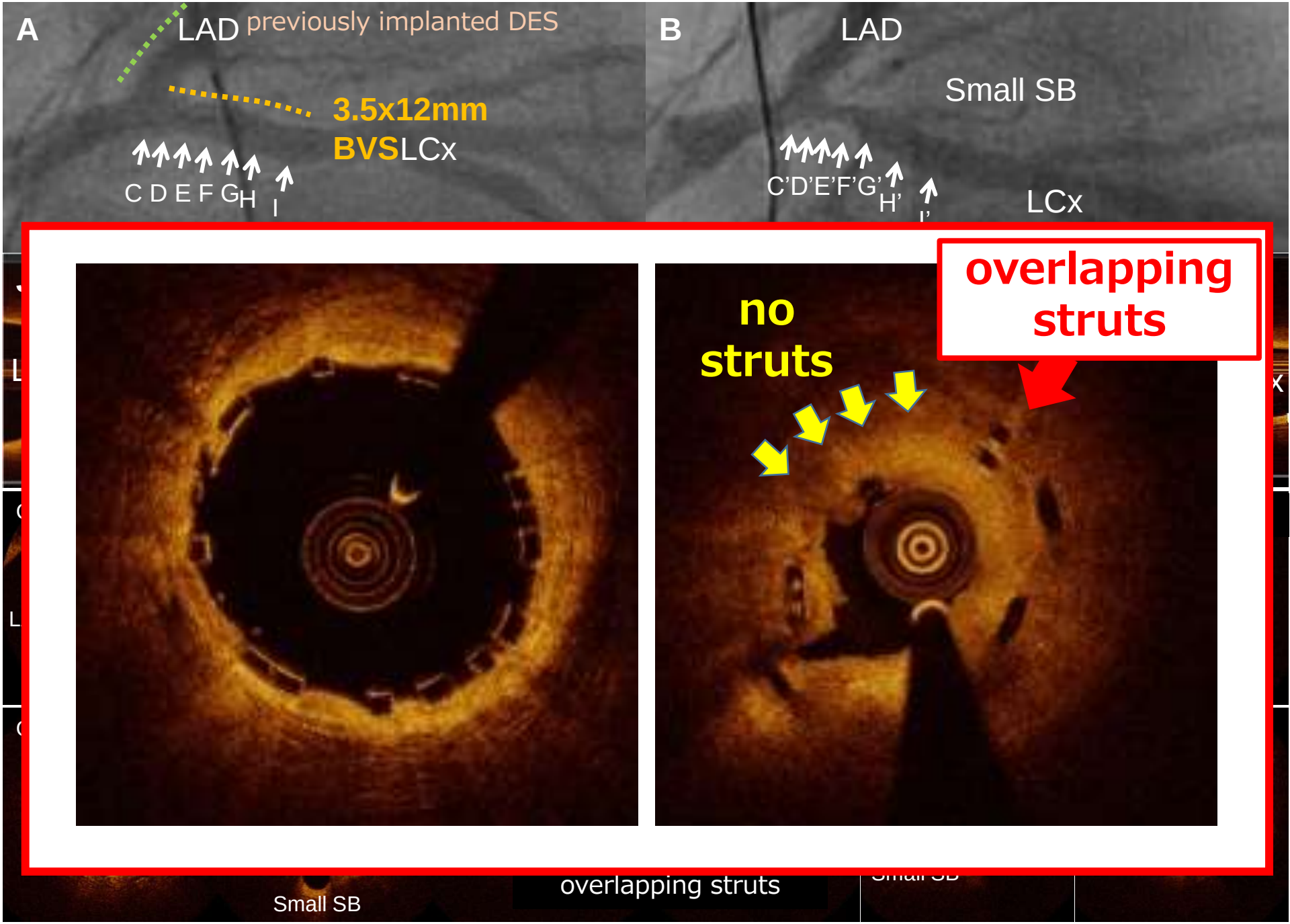


Delayed Disruption of a Bioresorbable Vascular Scaffold

Checking OCT at LCX ost …..



Toru Naganuma , Antonio Colombo at al JACC Int. 2015


A
LAD previously implanted DES
3.5x12mm
BVSLCx
C D E F G H I
B
LAD
Small SB
C'D'E'F'G' H' I'
LCx
no
struts
overlapping
struts
Small SB
overlapping struts

Guide Post of BVS

- Important Reminder -

Implantation of BVS at ostium of LCX
may be problematic.

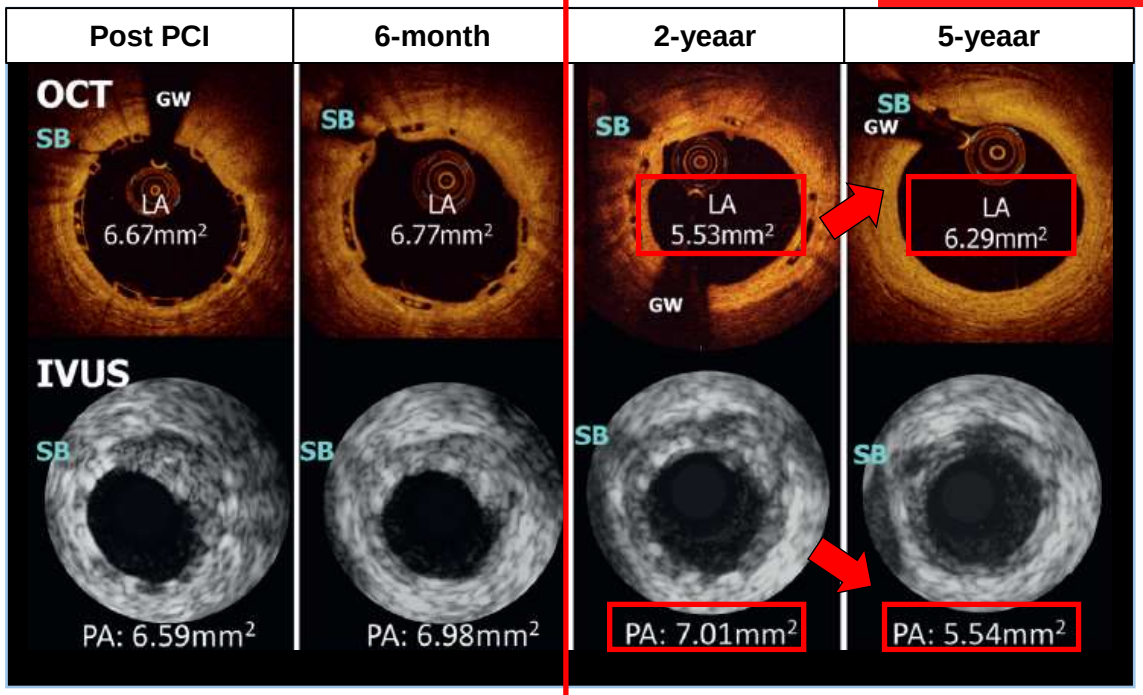
Toru Naganuma M.D. FACC FESC

Catheter Cardiovasc Interv. 2013
JACC Imaging Vol 7 No.8 2014

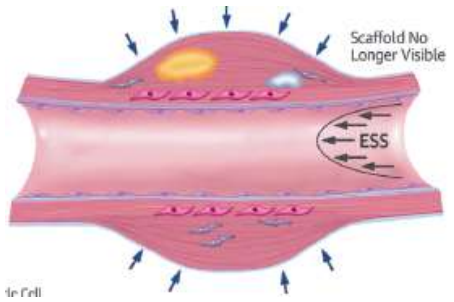
What is expected for BVS in CTO PCI ??

① BVS would contribute to positive vessel remodeling after complete bioresorption.

5y F/U from ABSORB B cohort



Long-term follow-up



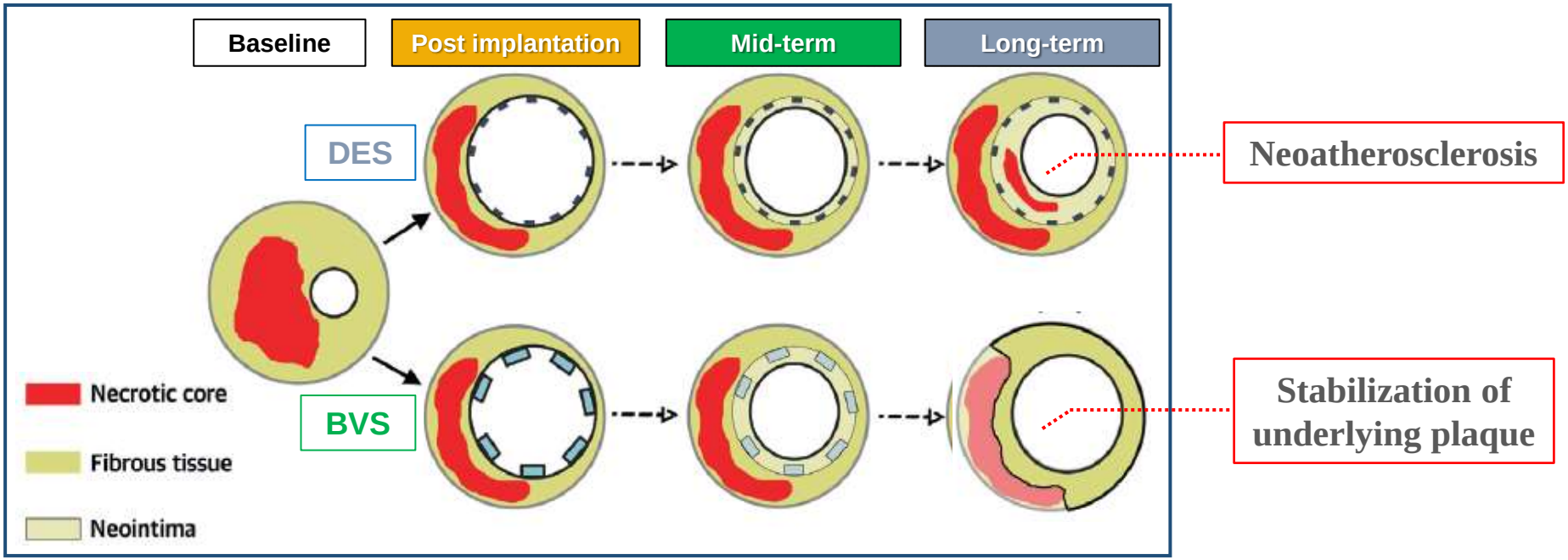
- ✓ Lumen enlargement
- ✓ Plaque reduction

At long-term follow-up after BVS implant., **positive vessel remodeling with plaque reduction** has been reported, which could be favorable after CTO recanalization.

What is expected for BVS in CTO PCI ??

②. BVS would contribute to less chronic inflammatory reaction after complete bioresorption.

5 Y OCT assessment from ABSORB A cohort



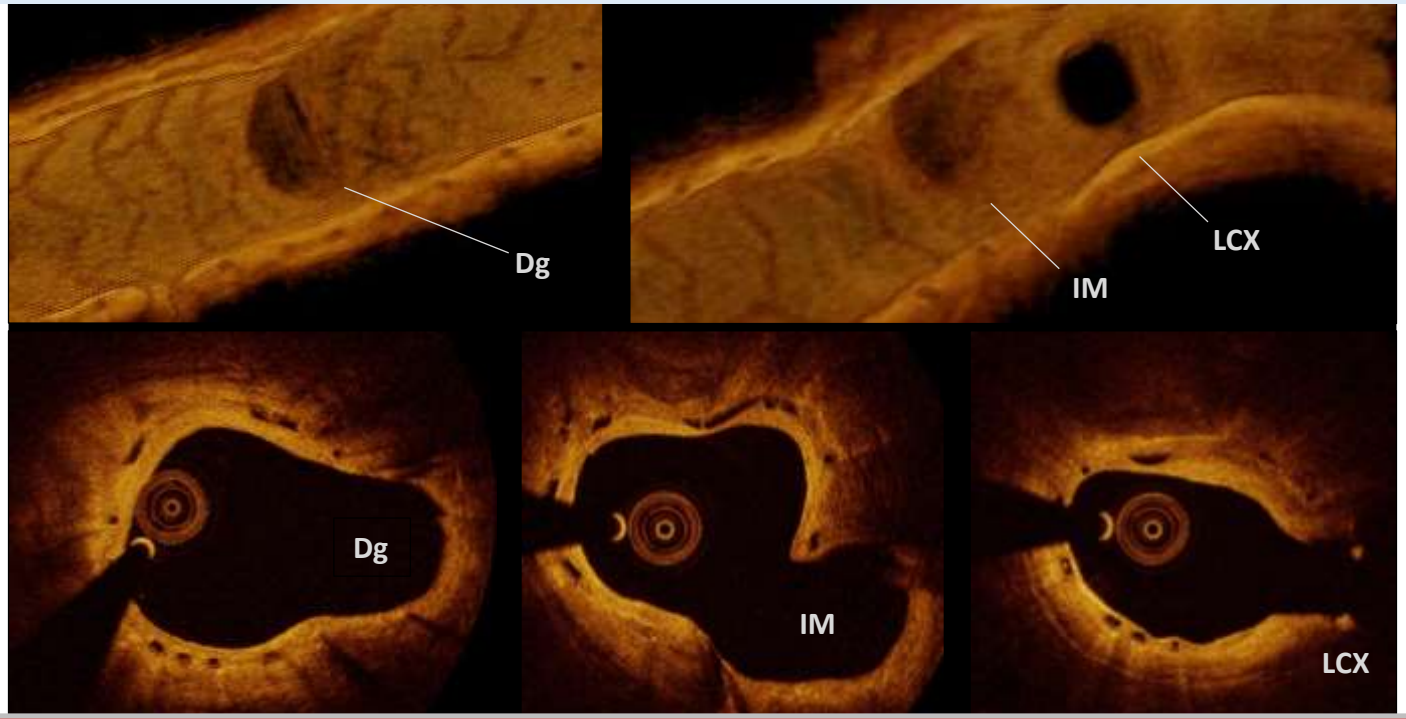
Karanasos A et al. J Am Coll Cardiol. 2014 Dec 9;64(22):2343-56

Homogeneous neointima after BVS implantation has been reported to **contribute to seal underling high-risk plaque** and additionally, **develop less disease over time** when compared to the neointima following metallic stents.

What is expected for BVS in CTO PCI ??

③ BVS has a potentially advantage in bifurcation area. 1

Case: BVS implant main branch without touching SB
- No Final KISS ; 2Years Later OCT shows “beautiful Opening SB”-

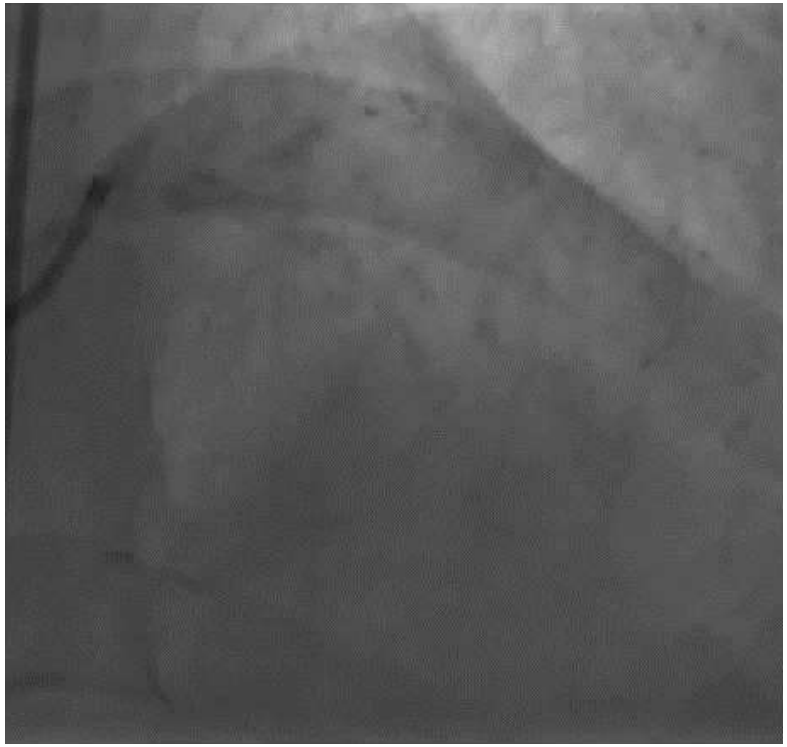


If the side branch is not compromised, single cross-over stenting without any SB intervention could be considered.

What is expected for BVS in CTO PCI ??

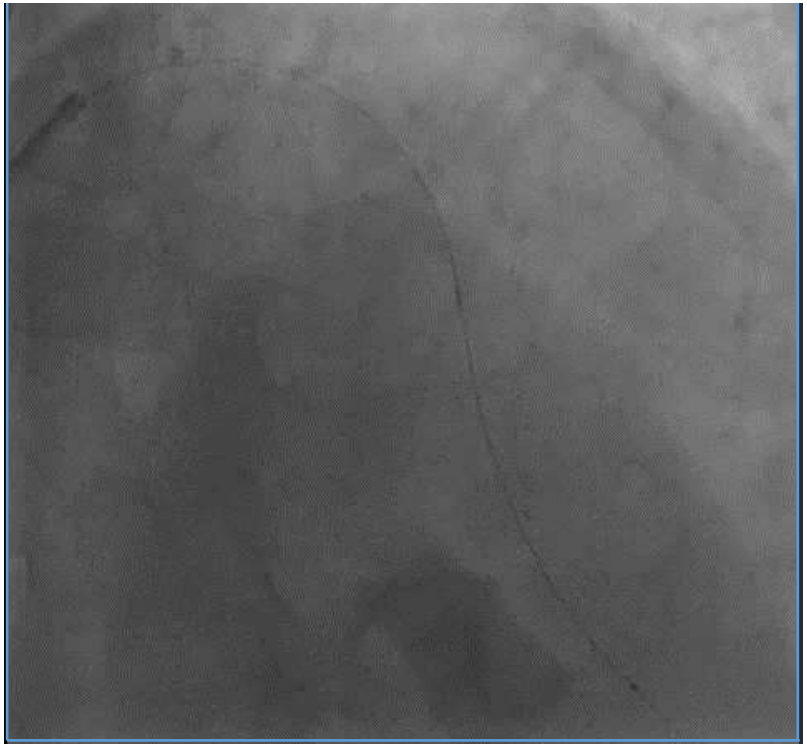
③ BVS has a potentially advantage in bifurcation area. 2

LAD/Dx simple disease



Moderate stenosis at Dx ostium

BVS implat. w/o KBT

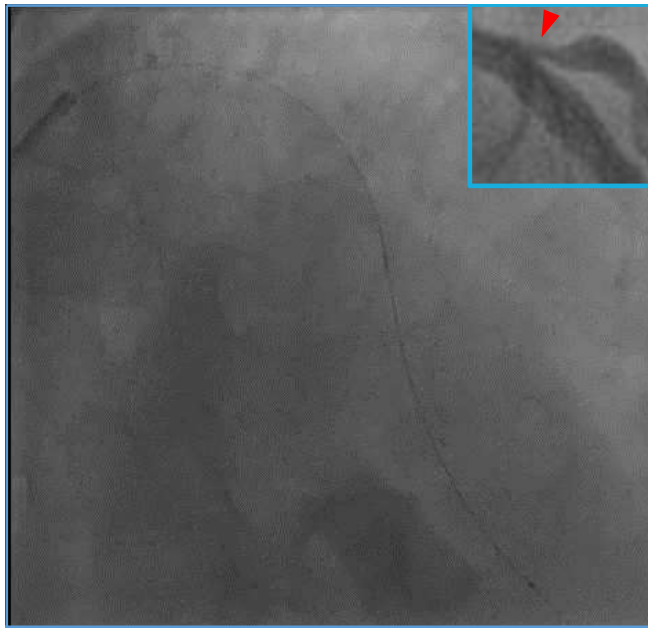


Improvement at ostium diagonal

What is expected for BVS in CTO PCI ??

③ BVS has a potentially advantage in bifurcation area. 2

Carina: going back to the original position



Just after index PCI

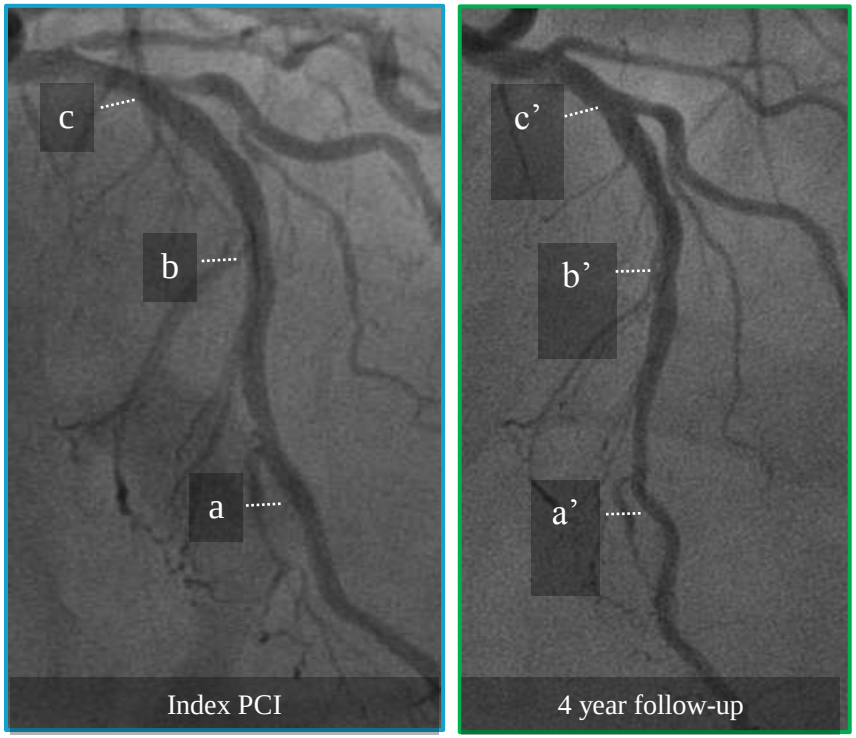
Pinching
at Dx ostium

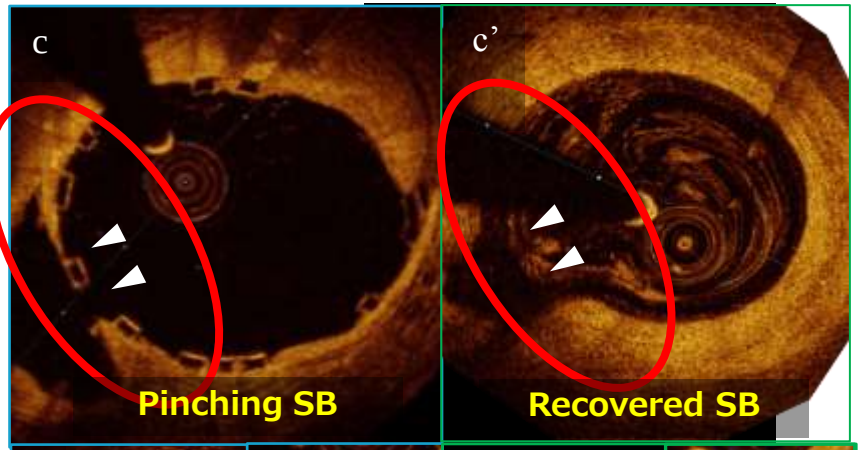
4 Y F/U

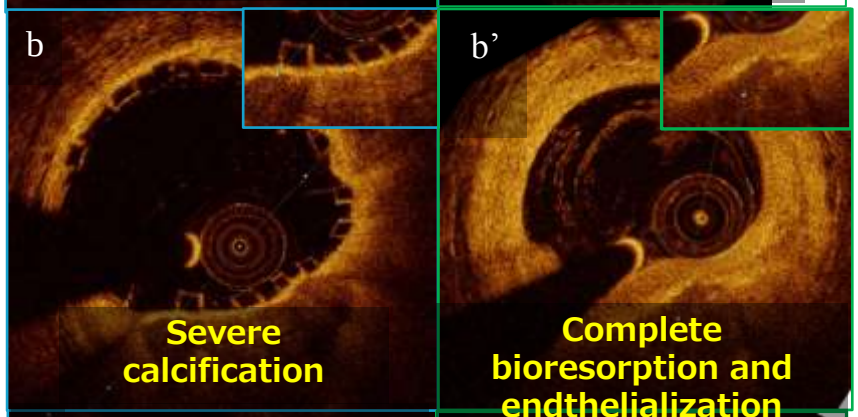
Improvement
at Dx ostium

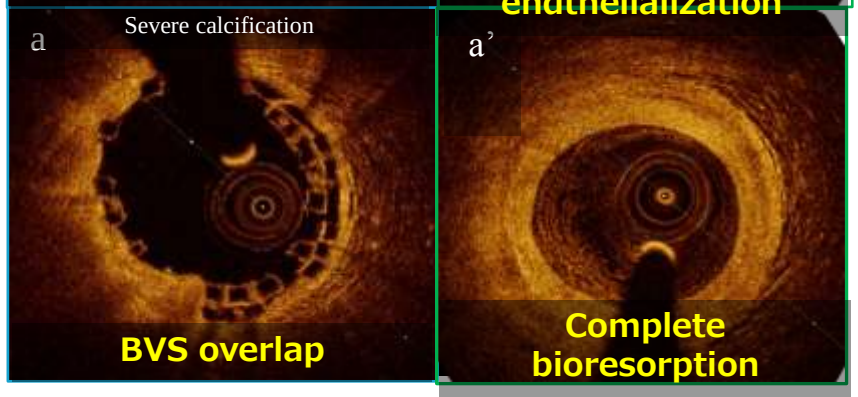
Carina was backed to the original position

Comparison between
index PCI and 4 year F/U









At JIM ; I was a operator (Dr. Colombo' meeting in 2012)

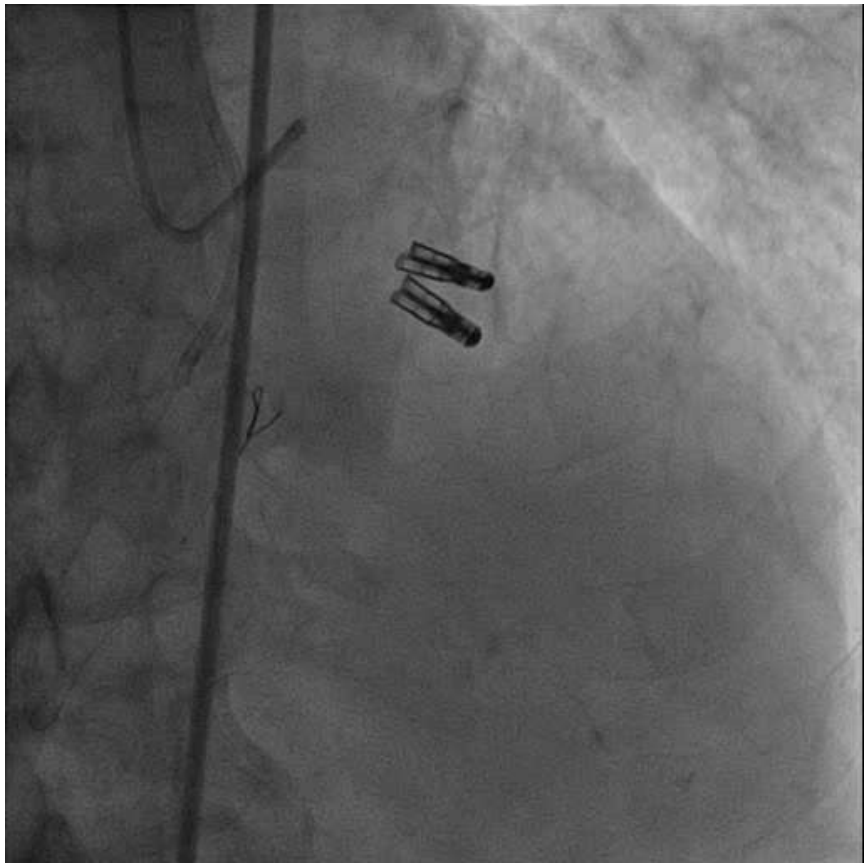
70's male LAD-CTO

At Live Demo. In Milan 2012: I was a operator

70's male
EF: 44%
Normal renal function
Post Mitra-Clip

5th attempt LAD CTO from prox. to mid LAD

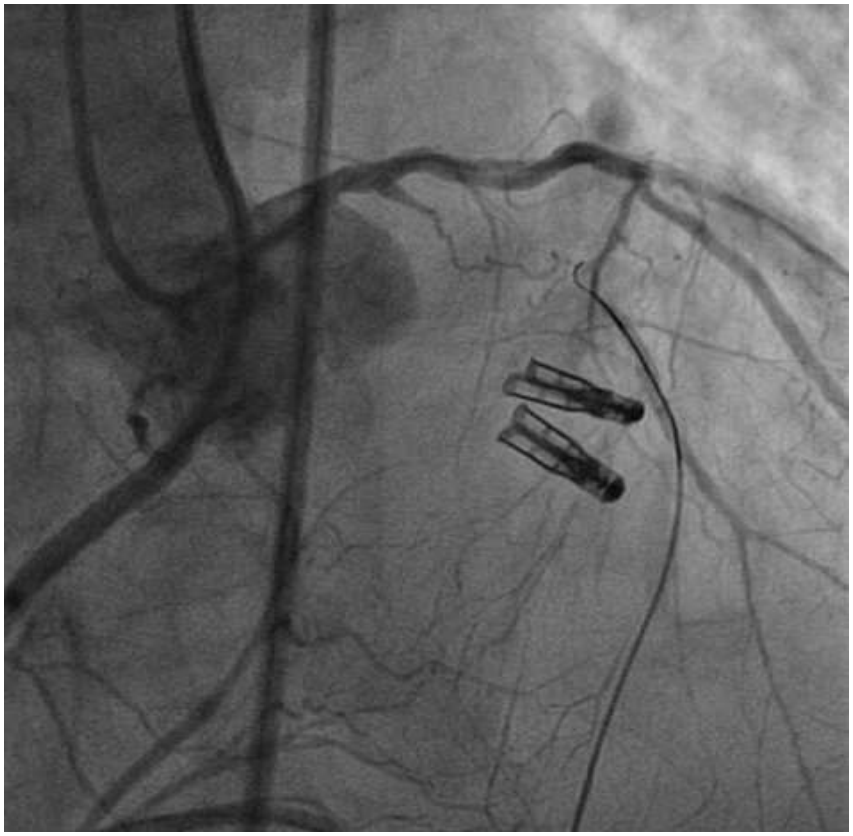
LAD CTO

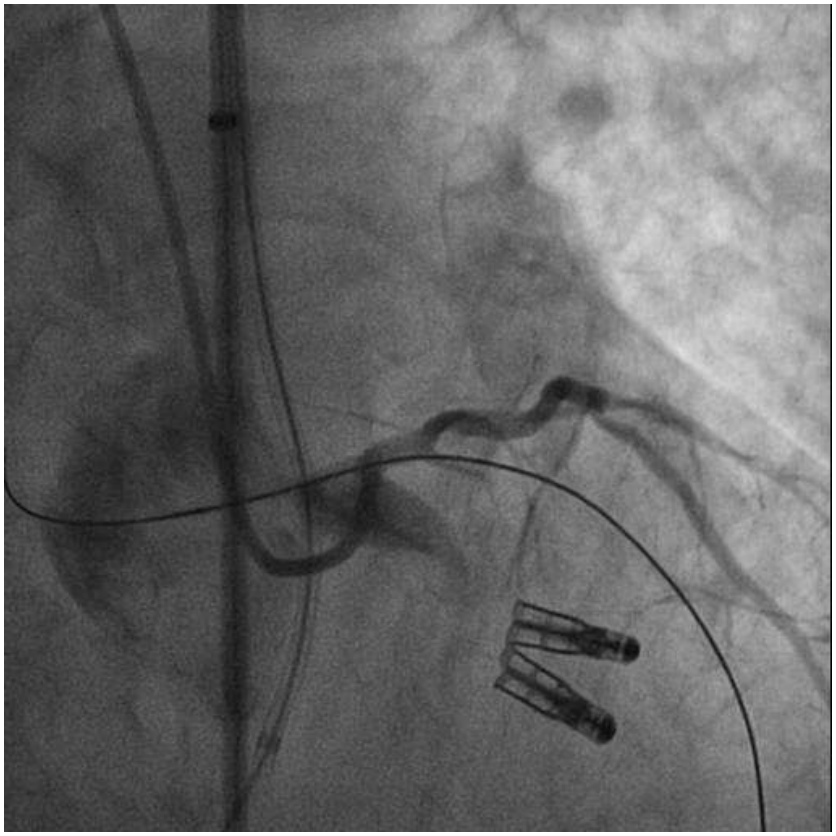


collaterals from 1) distal RCA (PD) via small septal branches
2) conus branch and 3) antegrade small bridge c

70’s male LAD-CTO

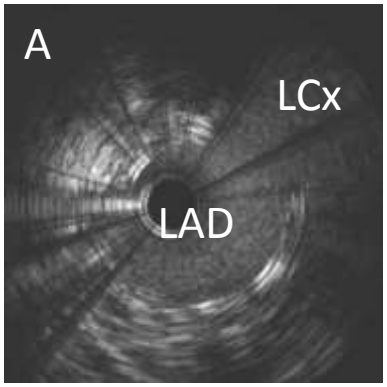
Use Retrograde approach

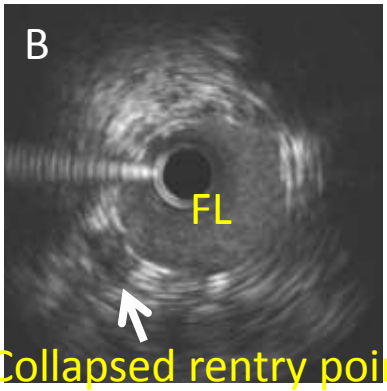




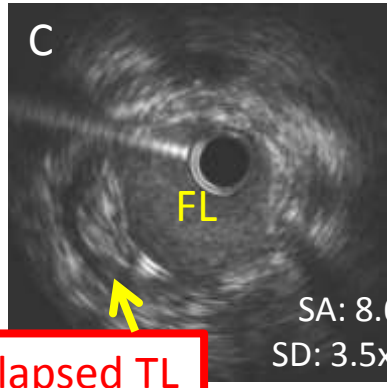
After crossing the GW, Dilated with 2.5mm Balloon and implanted 2BVS(3.0mm and 3.5mm×18mm)

70's male LAD-CTO



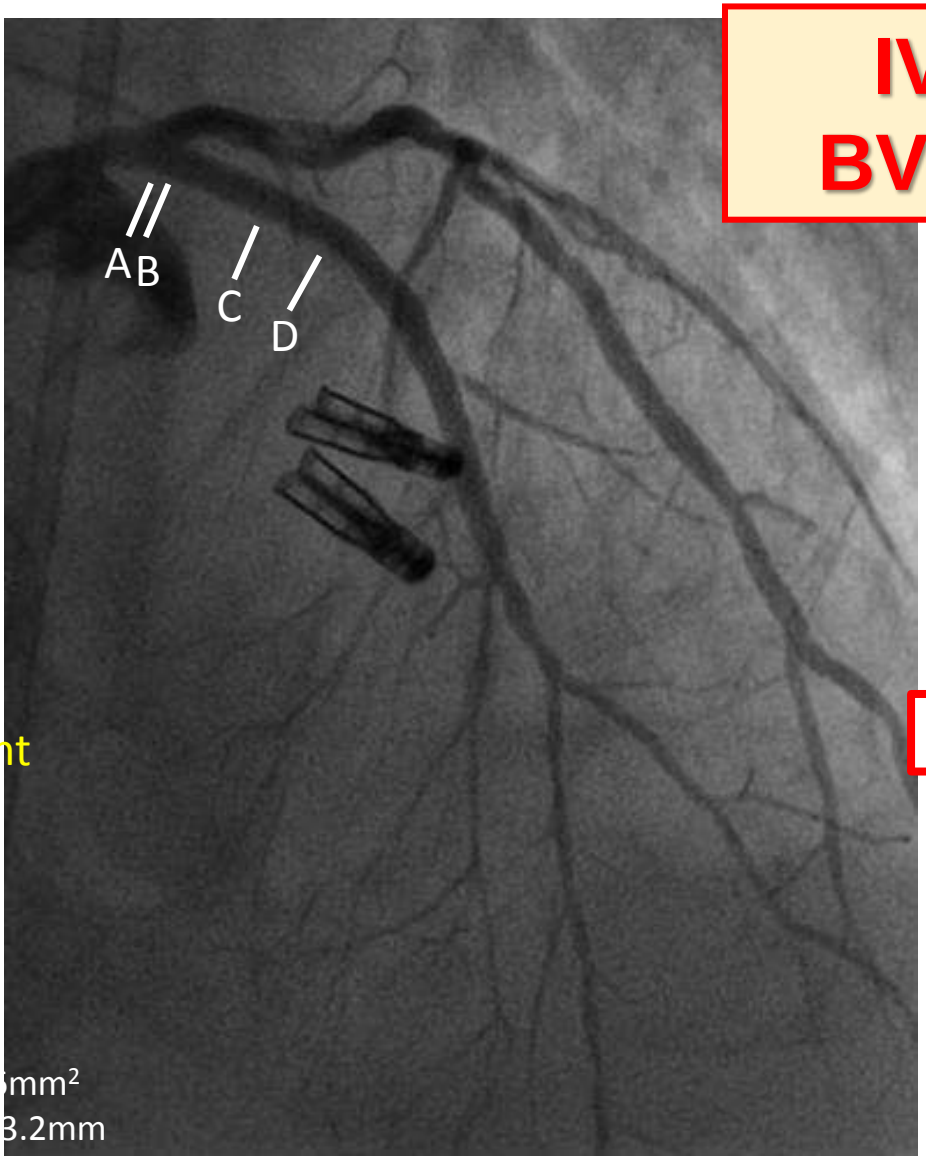


Collapsed rentry point

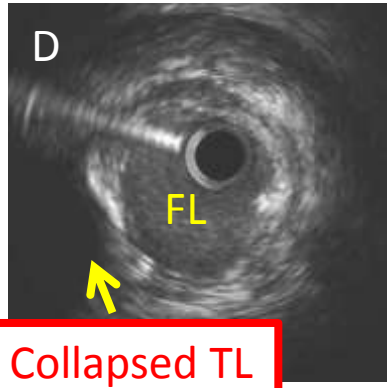


SA: 8.6mm²
SD: 3.5x3.2mm

Collapsed TL



IVUS after BVS implant.



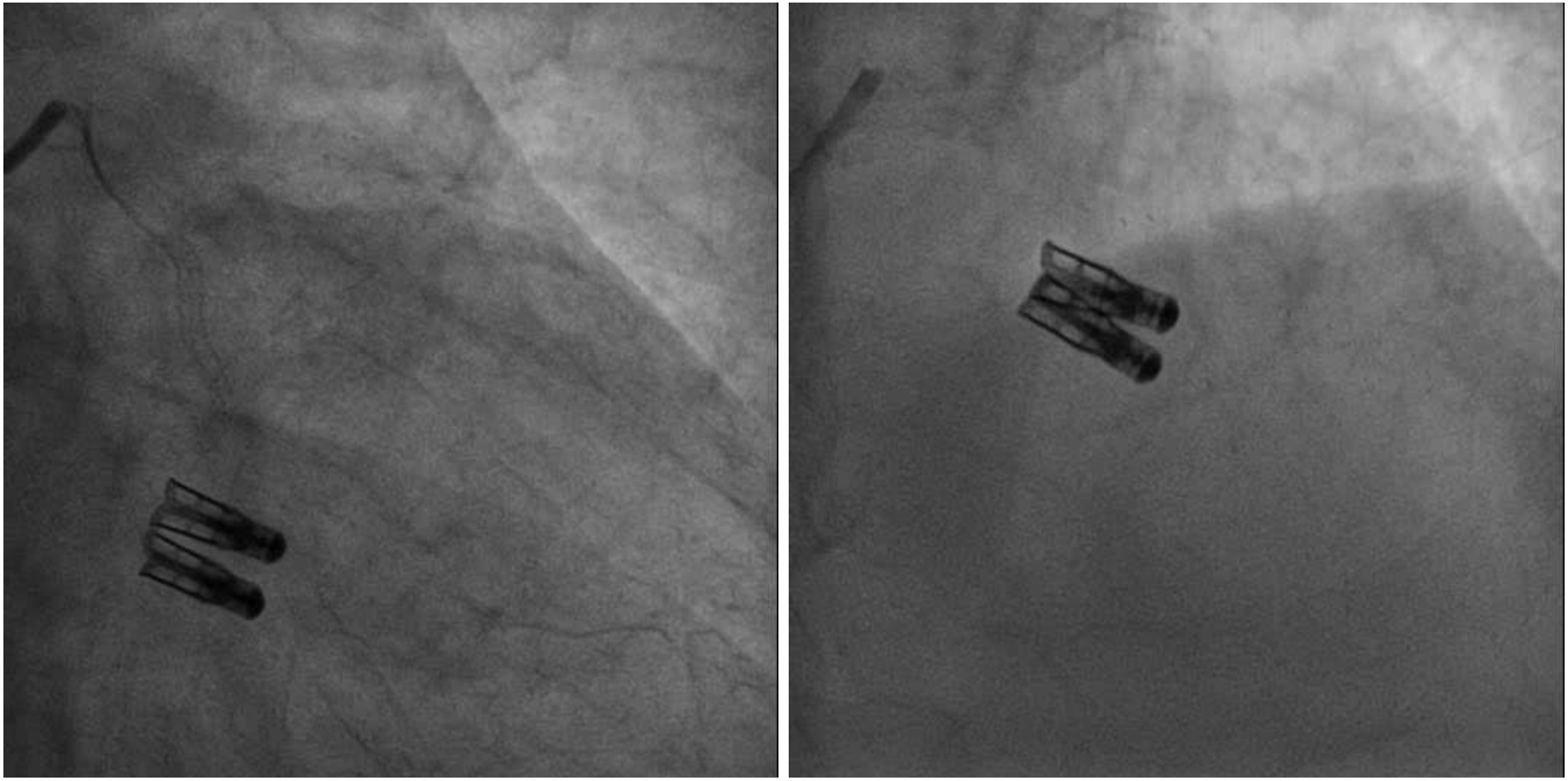
Collapsed TL

SA: 8.1mm²
SD: 3.5x2.8mm

One-year follow-up optical coherence tomography after implantation of bioresorbable vascular scaffolds for a chronic coronary total occlusion

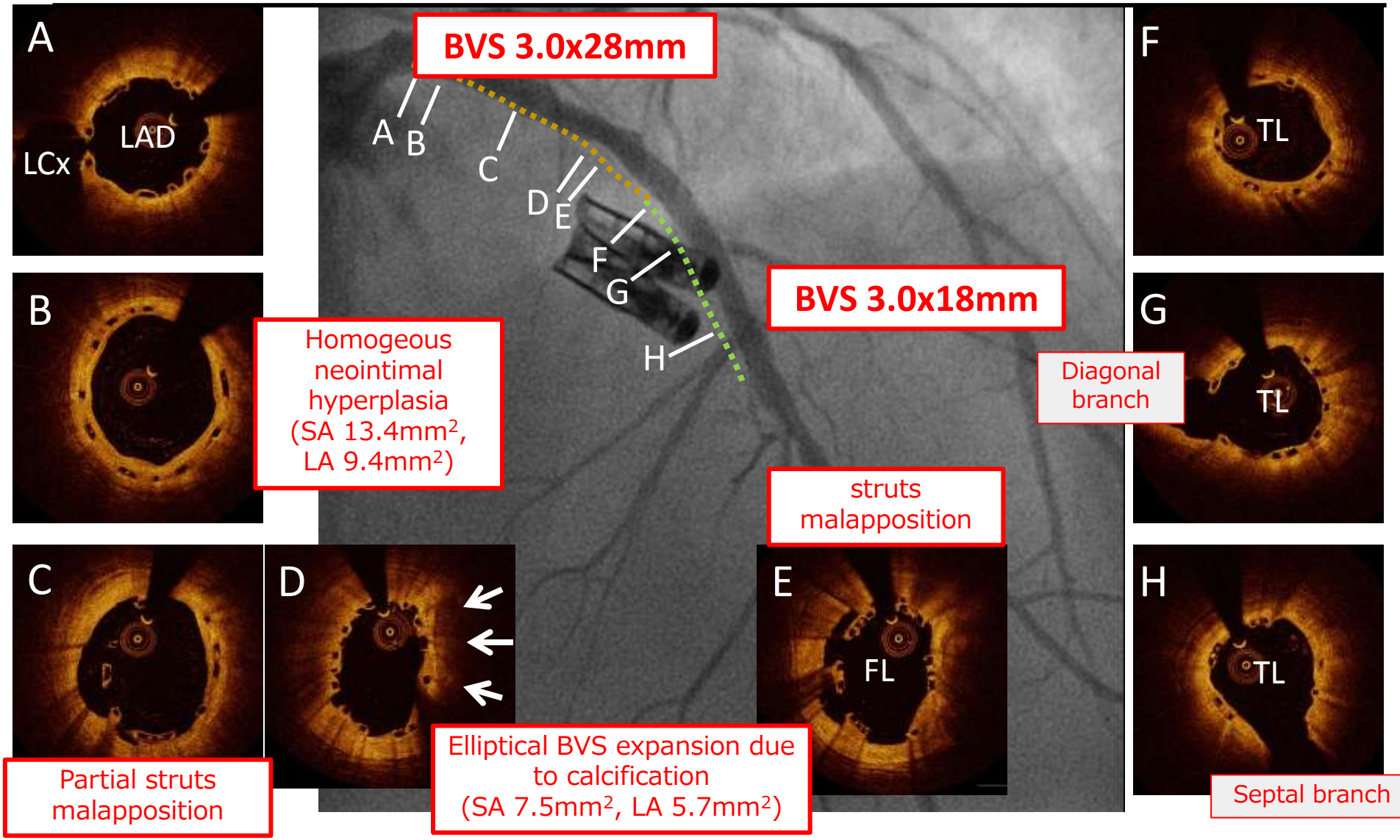
J Am Coll Cardiol Intv 2014 Toru Naganuma MD, Sunao Nakamura MD, Antonio Colombo MD et al

Angio. After 1 Year :Nicely Open !!!



OCT Findings 1 Year After Implant BVS

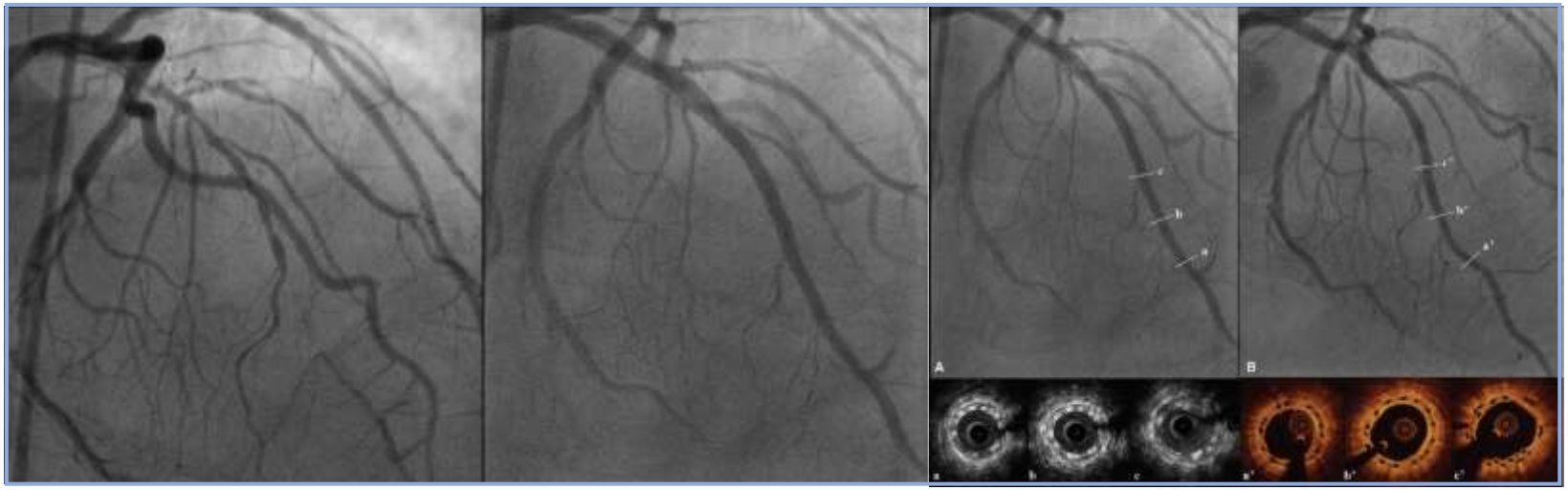
J Am Coll Cardiol Intv 2014 Toru Naganuma MD, Sunao Nakamura MD, Antonio Colombo MD et al



Bioresorbable Vascular Scaffolds for the Treatment of Chronic Total Occlusions

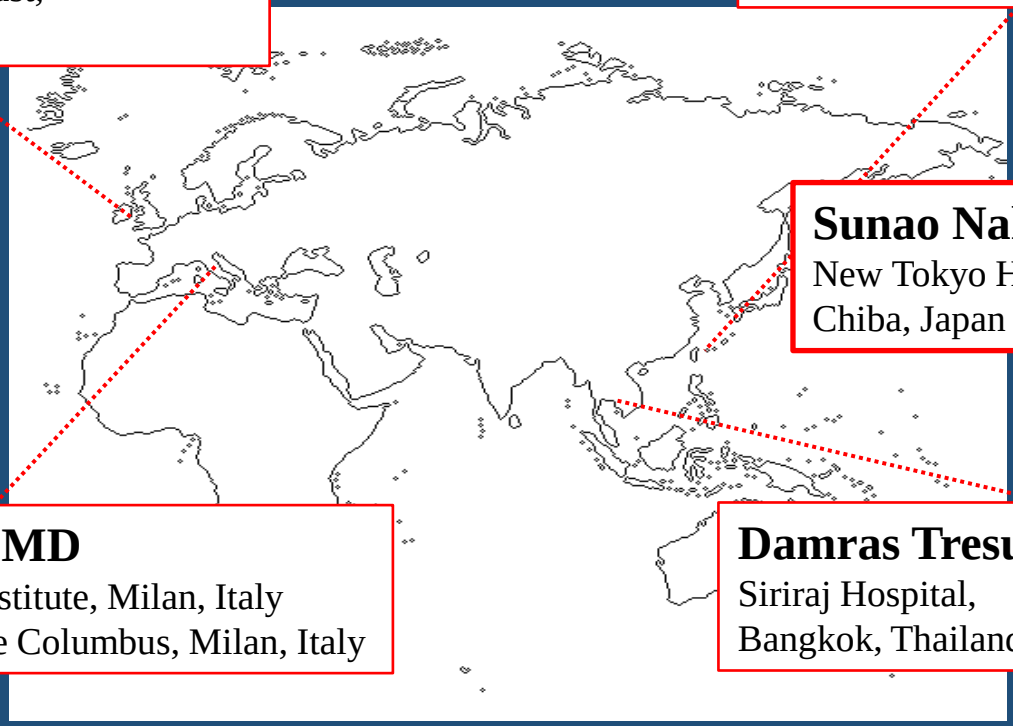
An International Multicenter Registry

Satoru Mitomo, MD; Toru Naganuma, MD; Yusuke Fujino, MD, PhD; Hiroyoshi Kawamoto, MD; Sandeep Basavarajaiah, MD; Michael Pitt, MD; Wei-Hsian Yin, MD, PhD; Damras Tresukosol, MD, PhD; Antonio Colombo, MD, PhD; Sunao Nakamura, MD, PhD



Bioresorbable Vascular Scaffolds for the Treatment of CTOs
An International Multicenter Registry

September 2012 – November 2015
CTO treated with Absorb BVS
5 centers in 4 countries 65 lesions (65 patients)



Sandeep Basavarajaiah, MD
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Heart of England NHS Trust,
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Cheng Hsin Geneal Hospital,
Taipei, Taiwan

Sunao Nakamura, MD, PhD
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San Raffaele Scientific Institute, Milan, Italy
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Damras Tresukosol, MD, PhD
Siriraj Hospital,
Bangkok, Thailand

Bioresorbable Vascular Scaffolds for the Treatment of CTOs
An International Multicenter Registry

Study Population

- ✓ CTO PCI indication: symptomatic angina and/or ischemia on non-invasive functional test(s)
- ✓ Target vessel diameter: 2.5 – 4.0 mm
- ✓ DAPT: eligible for at least 12 month
- ✓ PCI strategy (antegrade or retrograde): Operator's discretion

Definition

CTO: completely occluded vessel with Thrombolysis In Myocardial Infarction (TIMI) flow grade 0 through the affected segment of >3 months estimated duration
Procedural success: <30% in-scaffold residual stenosis and TIMI flow grade >2 after BVS implantation

Primary outcome

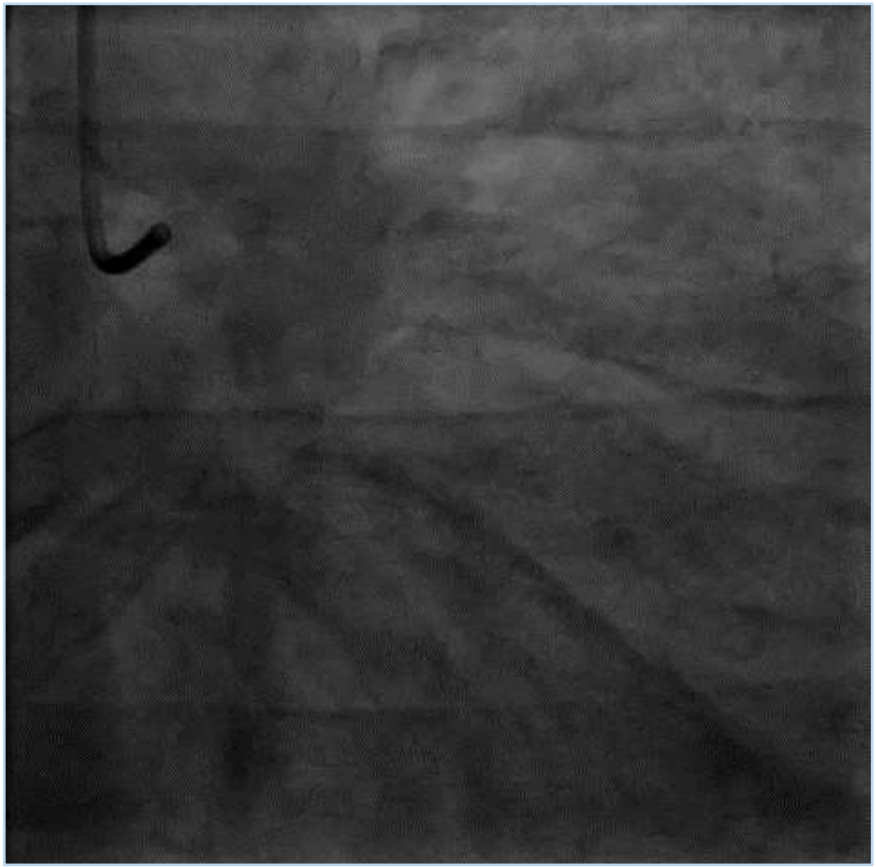
TLF: cardiac death, target vessel MI, and clinically driven TLR

Secondary outcomes

All-cause death, clinically driven TVR, definite/probable ScT

BVS implantation for mid LAD CTO

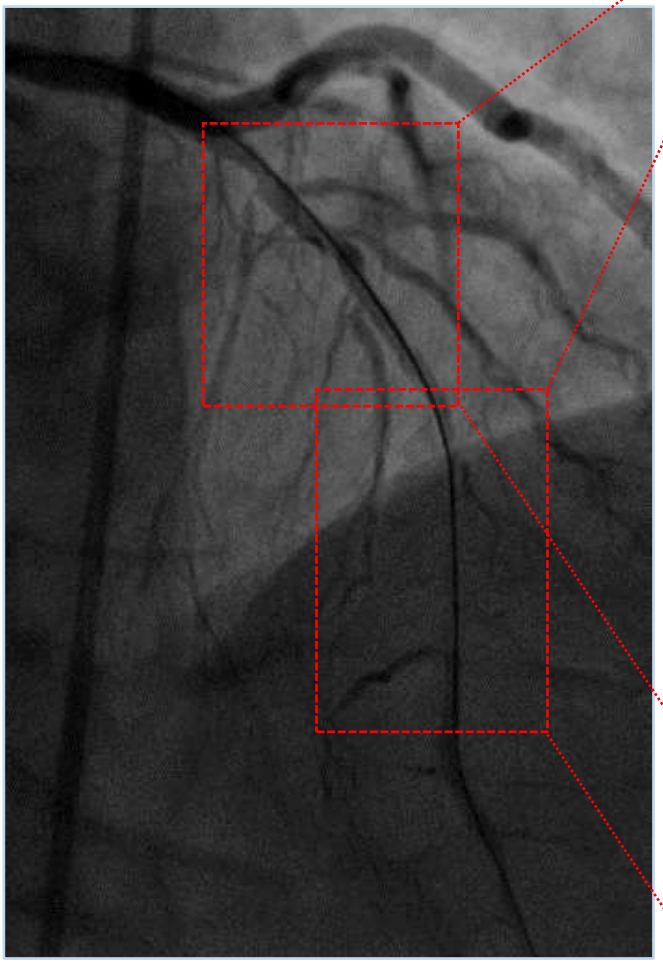
45 year-old, male, Stable angina
Coronary Rrisk F: hypertension, ex-smoker and Low bleeding risk



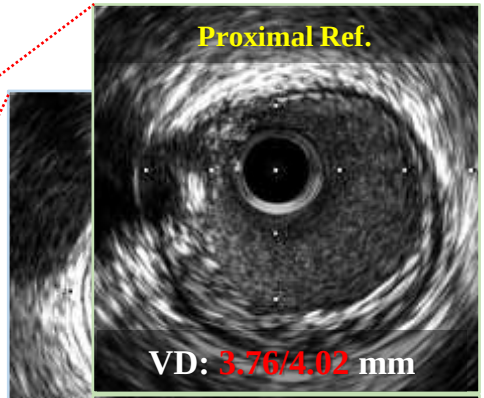
Mid LAD: CTO lesion : Ipsilateral collateral via septal (grade 3)

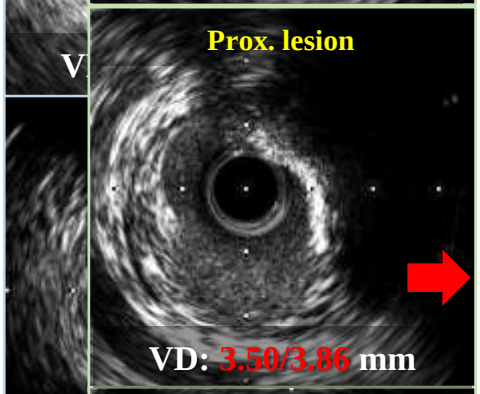
BVS implantation for mid LAD CTO

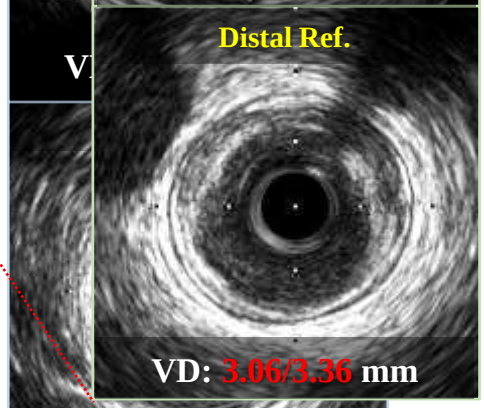
IVUS guided vessel sizing



After antegrade wiring and recanalization with 1.5 mm balloon

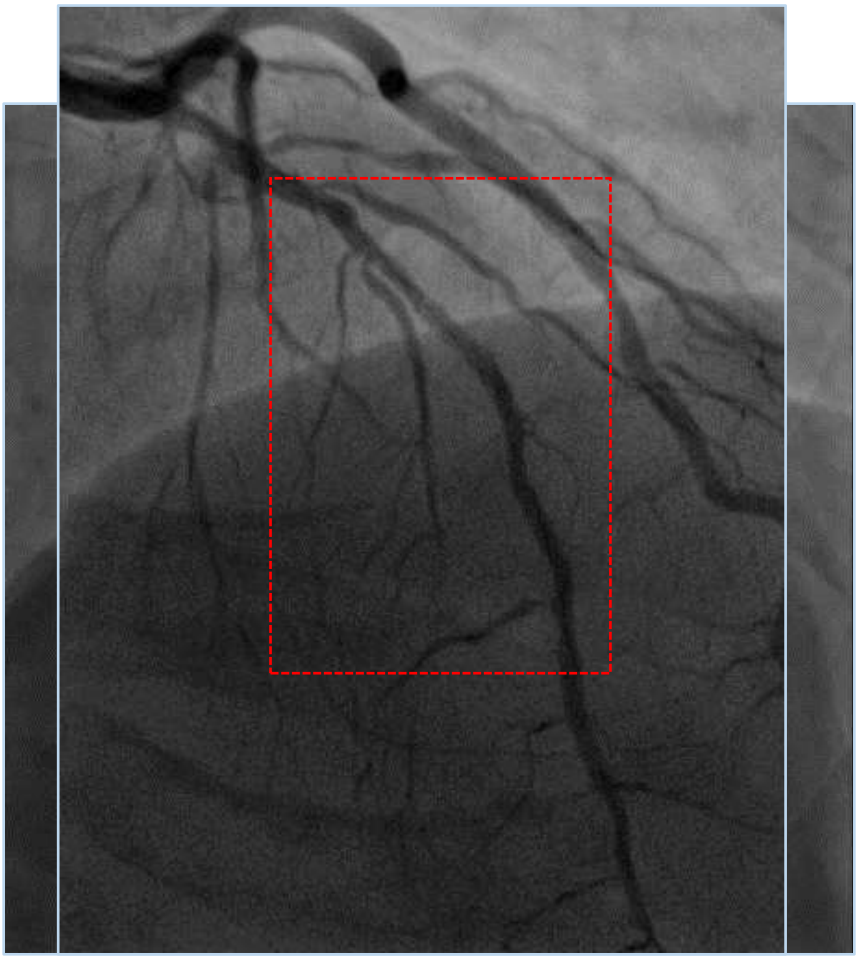




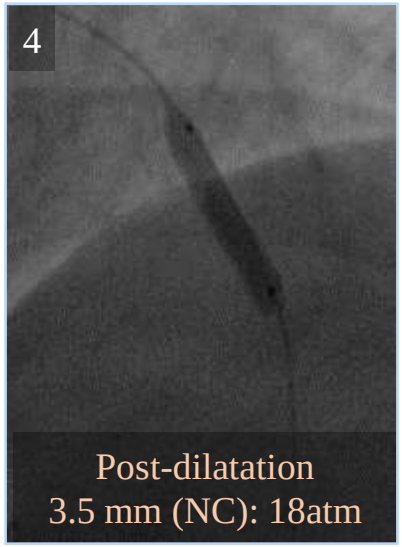


Predilatation: 3.5 mm
Absorb BVS: 3.5 mm
Predilatation: 3.0 mm
Absorb BVS: 3.0 mm

BVS implantation for mid LAD CTO

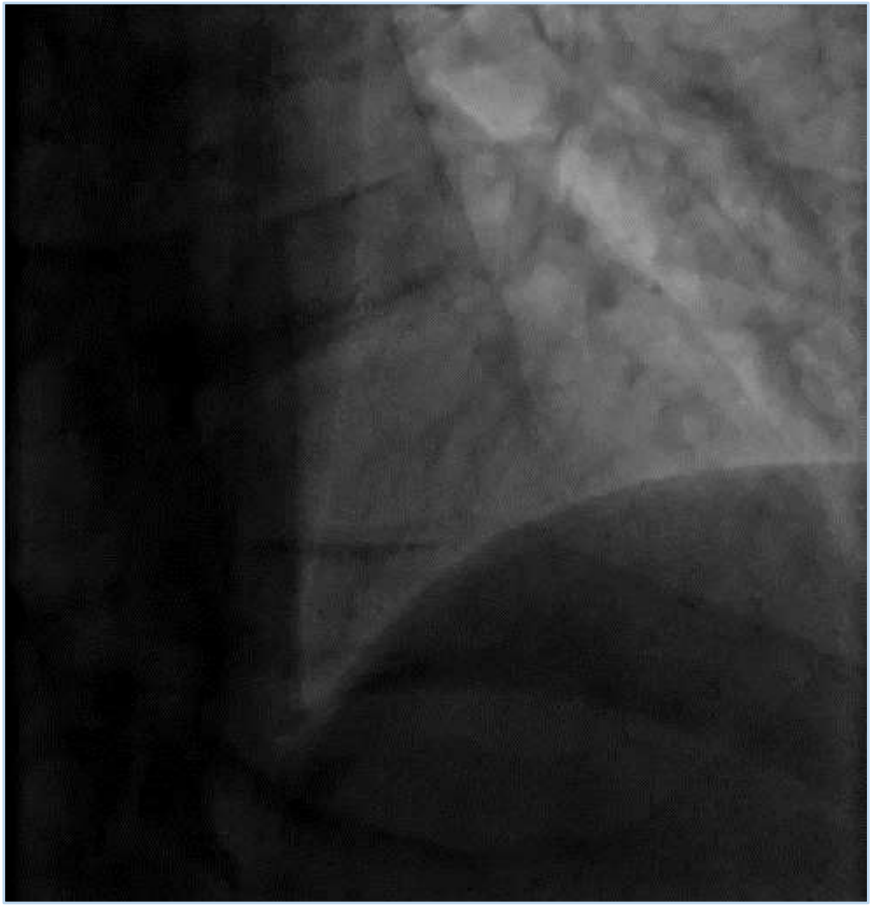


After IVUS guided predilatation
Pro.: 3.5 mm Distal-mid: 3.0 mm

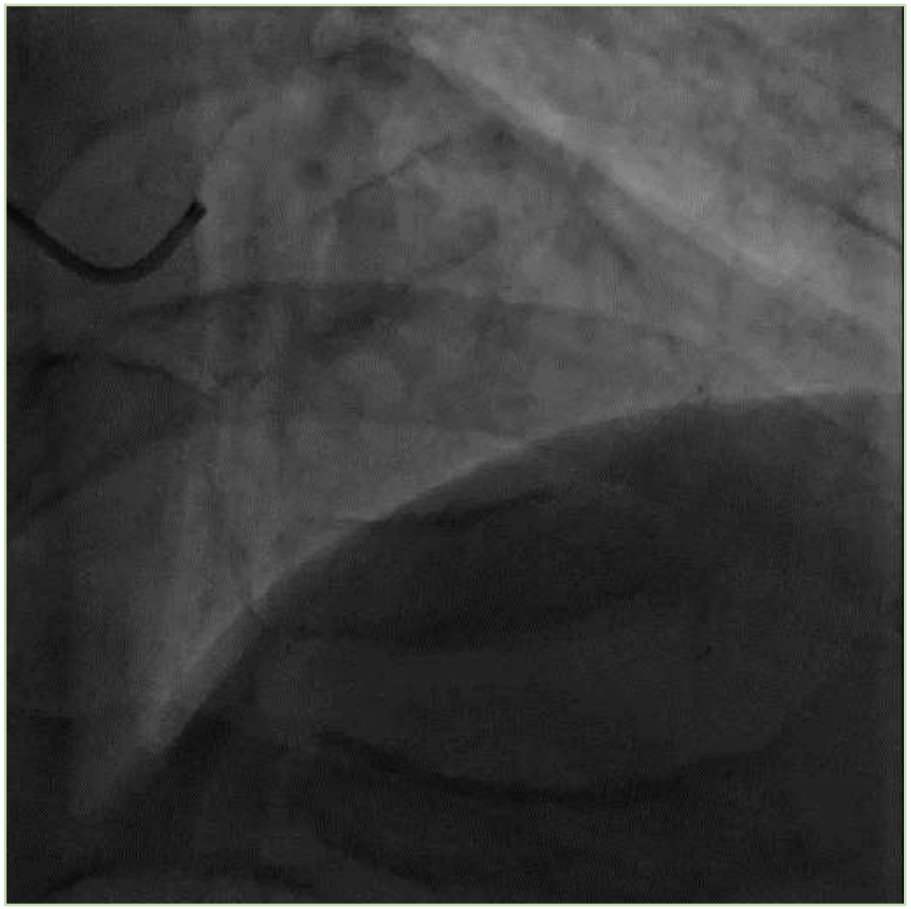


BVS implantation for mid LAD CTO

Final at the index PCI



1-year follow-up
Excellent angiographic results



Circ Cardiovasc Interv. 2017 Jan;10(1). pii: e004265. doi: 10.1161/CIRCINTERVENTIONS.116.004265.

Bioresorbable Vascular Scaffolds for the Treatment of Chronic Total Occlusions: An International Multicenter Registry.

Mitomo S[1], Naganuma T[1], Fujino Y[1], Kawamoto H[1], Basavarajaiah S[1], Pitt M[1], Yin WH[1], Tresukosol D[1], Colombo A[1], Nakamura S[2].

Patients Demographics

	N=65
Age, years	60.8±11.0
Male, n	58 (89.2)
Hypertension, n	44 (67.8)
Dyslipidemia, n	40 (61.5)
Diabetes, n	26 (40.0)
Insulin dependent diabetes, n	2 (3.1)
Chronic kidney disease (eGFR<60), n	26 (40.1)
Peripheral arterial disease, n	6 (9.2)
Previous MI, n	11 (16.9)
Previous PCI, n	35 (53.8)
Previous CABG, n	4 (6.2)
Previous cardiac surgery, n	2 (3.1)
Previous stroke, n	20 (30.8)
LVEF, %	57.7±10.8
DAPT regimen	
Aspirin/Clopidgrel	46 (70.8)
Aspirin/Prasugrel	8 (12.3)
Aspirin/Ticagrelor	11 (16.9)

Lesion characteristics

	N=65
CTO vessel, n	
LMT	1 (1.5)
RCA	26 (40.0)
LAD	30 (46.2)
LCx	8 (12.3)
CTO location, n	
proximal	29 (44.6)
middle	31 (47.7)
distal	5 (7.7)
CTO lesion characteristics	
blunt type entry point, n	26 (40.1)
calcification, n	21 (32.3)
tortuosity, n	6 (9.2)
bent, n	13 (20.0)
bifurcation, n	23 (35.4)
bridge collateral, n	32 (49.2)
J-CTO score≧2, n	42 (64.6)
Vessel diameter by visual estimation, mm	2.97±0.36
CTO length by visual estimation, mm	20.15±2.97
Collaterals Rentrop grade>2	53 (81.5)
In-stent CTO, n	2 (3.1)
Number of diseased vessels	
Single vessel disease	31 (47.7)
2 vessel disease	22 (33.8)
3 vessel disease	12 (18.5)

Procedural Characteristics

	N=65
Number of implanted BVS (/patient), n	1.8±0.7
Patient treated with 1 BVS, n	24 (36.9)
Patient treated with 2 BVSs, n	31 (47.7)
Patient treated with ≥3 BVSs, n	10 (15.4)
BVS diameter (/stent), mm	3.0±0.4
BVS total length (/patient), mm	47.6±19.9
Pre-dilatation balloon diameter, mm	2.6±0.5
Rotational atherectomy, n	3 (4.6)
Post-dilatation balloon diameter, mm	3.3±0.3
Max pressure for post-dilatation, atm	18.6±5.3
Intravascular imaging, n	
IVUS, n	34 (52.3)
OCT, n	31 (47.7)
Antegrade approach, n	53 (81,5)
Retrograde approach, n	12 (18.5)
Double injection, n	51 (78.5)
DES implantation in non-CTO lesions, n	17(26.2)
Complete revascularization, n	52 (80.0)

100 %

100 %

100 %

IVUS results

IVUS findings	N=34
Plaque morphology	
fibrous, n	11 (32.4)
soft, n	2 (5.9)
calcified, n	8 (23.5)
mixed (fibrous/ calcified), n	10 (29.4)
unclassified, n	3 (8.9)
Calcium arch (degree)*	120.0 (80.0-170.0)**
Proximal reference lumen area (mm^2)	9.36±2.41
Proximal reference lumen diameter (mm)	3.02±0.38
Proximal reference vessel area (mm^2)	13.67±3.75
Proximal reference vessel diameter (mm)	3.65±0.58
Distal reference lumen area (mm^2)	6.21±1.69
Distal reference lumen diameter (mm)	2.46±0.30
Distal reference vessel area (mm^2)	9.03±2.96
Distal reference vessel diameter (mm)	2.96±0.48
Initial minimal vessel diameter (mm)	3.28±0.52
Initial maximal vessel diameter (mm)	3.59±0.47
Initial mean vessel diameter (mm)	3.44±0.49
Final minimal scaffold area (mm^2)	7.74±3.21
Final minimal scaffold diameter (mm)	2.71±0.55
Final maximal scaffold diameter (mm)	3.11±0.45
Final minimal vessel area (mm^2)	12.32±4.02
Final minimal vessel diameter (mm)	3.59±0.66
Final maximal vessel diameter (mm)	3.87±0.69
Edge dissection, n	3 (8.9)

OCT results

OCT findings	N=31
Calcification (>180 degrees), n	6 (19.4)
Thrombus, n	4 (12.9)
Proximal reference lumen diameter (mm)	3.31±0.71
Distal reference lumen diameter (mm)	2.29±0.45
Final minimal lumen area (mm^2)	5.69±1.37
Final mean lumen area (mm^2)	7.81±1.87
Final minimal scaffold area (mm^2)	4.89±1.92
Final mean scaffold area (mm^2)	6.19±1.66
Final minimal scaffold diameter (mm)	2.54±0.37
Final maximal scaffold diameter (mm)	3.51±0.31
ISA at CTO lesion, n	3 (9.7)
Proximal edge ISA, n	2 (6.4)
Distal edge ISA, n	1 (3.2)
Scaffold disruption, n	3 (9.7)
Edge dissections, n	9 (29.0)

Primary endpoint:

target lesion failure (TLT); composite of cardiac mortality, target vessel MI, and clinical driven TLR

	in-hospital	follow-up
TLF, n	0	0
All cause mortality, n	0	0
Cardiac mortality, n	0	0
Target vessel MI, n		0
TLR, n	0	0
TVR, n	0	4 (13.5%)
definite/probable ScT, n	0	0

Median follow-up period 453 (IQR 230 - 703) days

Clinical outcomes

Median follow-up 453 days (IQR 230-703)

Clinical follow-up 100 % Follow-up CAG: 22 cases (38.8%)

Primary endpoint **TLF: 0 case**

(TLF: cardiac death, target vessel MI, and clinically driven TLR)

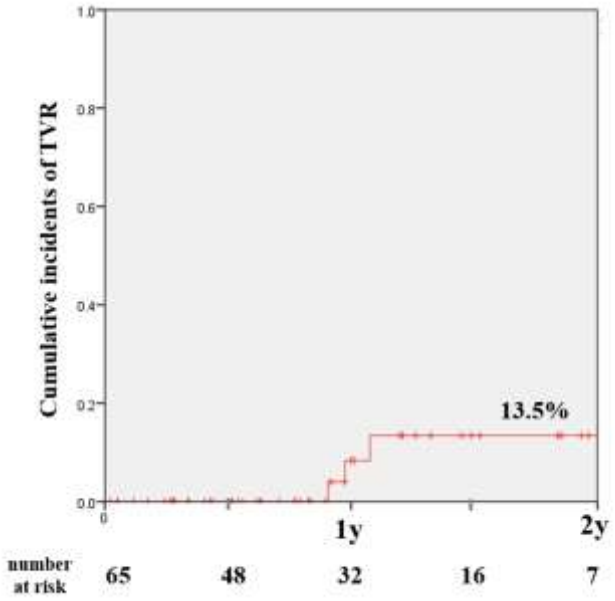
Secondary endpoint

Definite/probable ScT: 0 case

DAPT: only 1 patient stopped within 12 months because of gastric ulcer.

TVR: 4 cases

There were no cases of significant intra-scaffold restenosis, which required revascularization either clinically or angiographically.



Guide Post of BVS

- Important Reminder 6-

BVS implantation for the treatment of CTO seems feasible and safe. Appropriate lesion preparation, high-pressure post-dilatation, and the use of intravascular imaging are recommended to obtain the best possible final result.

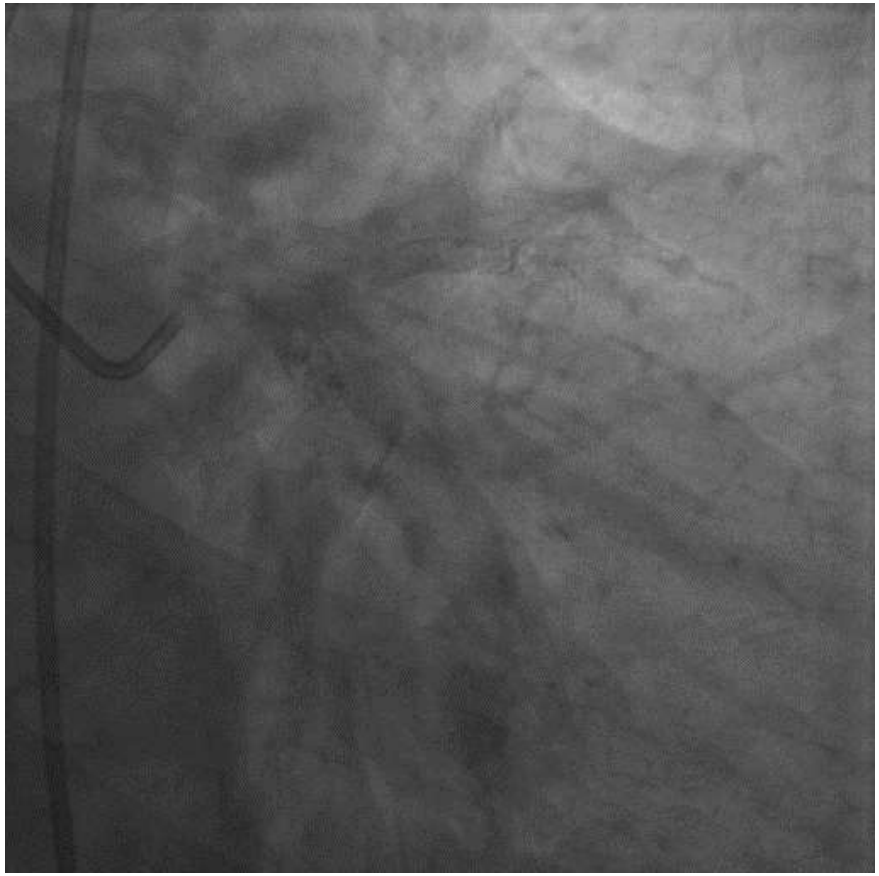
Satoru Mitomo M.D.

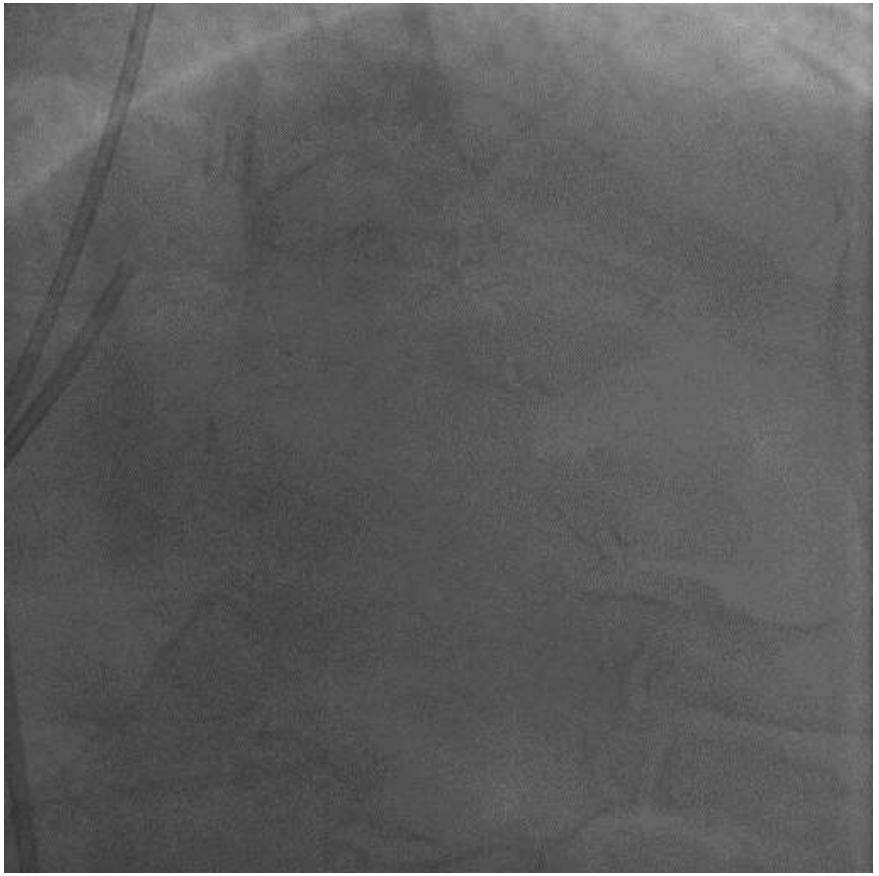
Circ Cardiovasc Interv. 2017;10

Clinical Outcome of Percutaneous Coronary Intervention For Chronic Total Occlusions with BVS:

Satoru Mitomo , Sunao Nakamura, et al : **Circ Cardiovasc Interv. 2017;10**

CTO lesion at RCA and well collateralized from LCA. Since bifurcation area is dull on image, it is difficult figure out the overview of RCA.





Clinical Outcome of Percutaneous Coronary Intervention For Chronic Total Occlusions with BVS:

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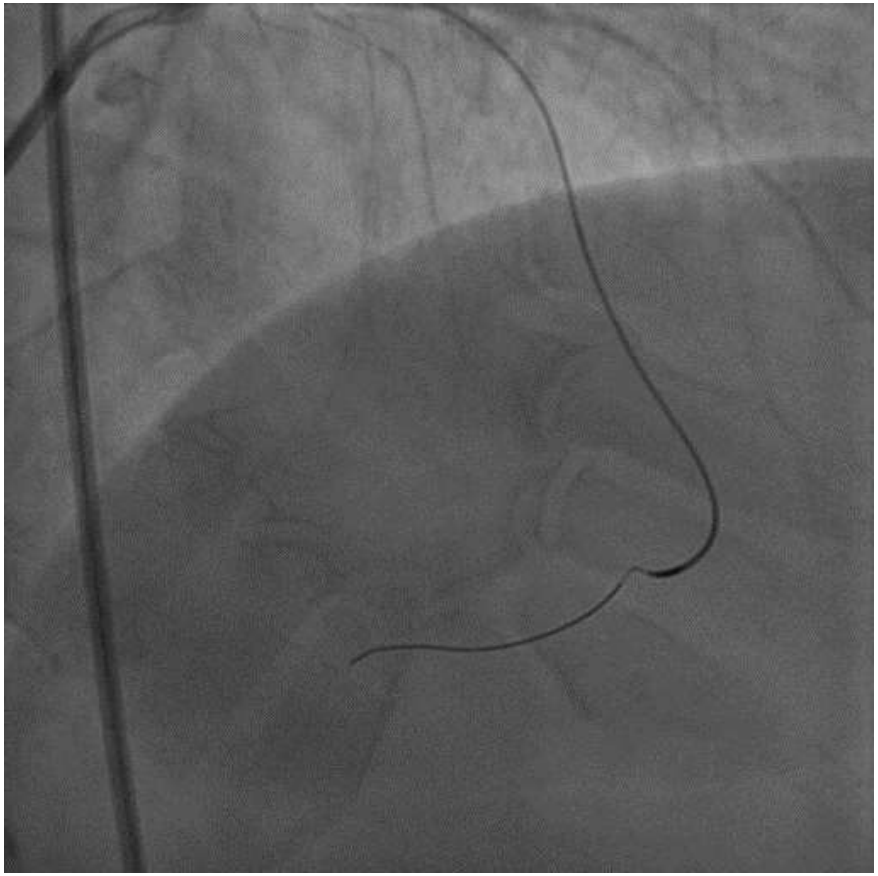
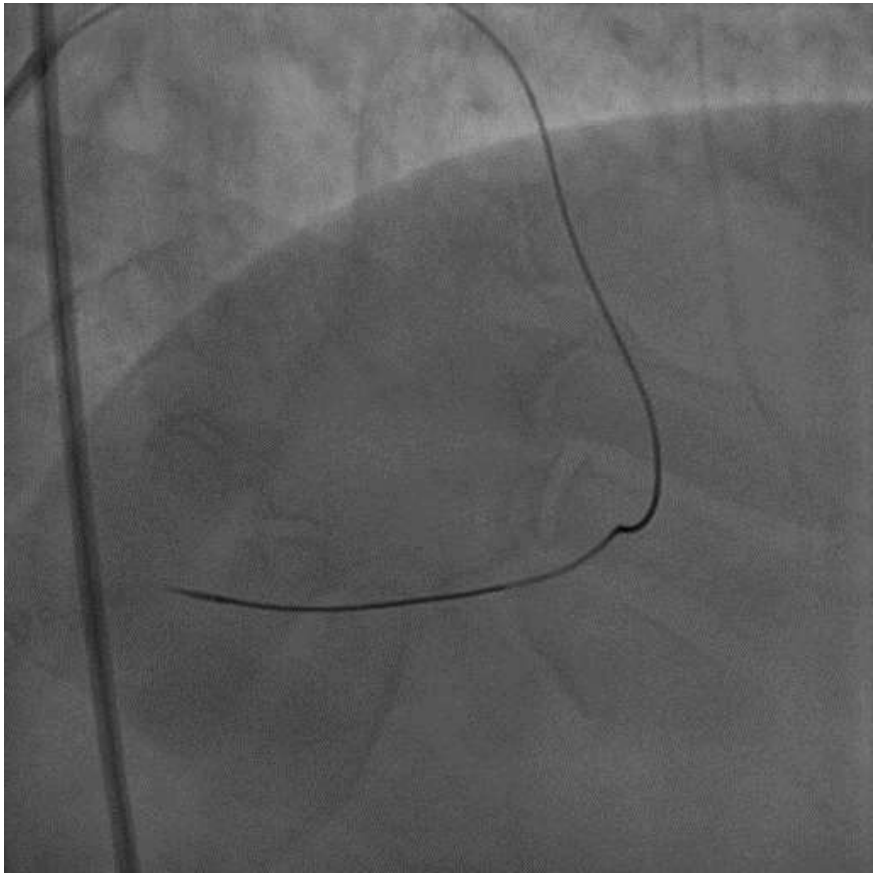
Since the RCA CTO starts from the ostium, Retrograde approach was opted from the beginning. Sion wire advanced from septum and GW was delivered to RCA distal.





Clinical Outcome of Percutaneous Coronary Intervention For Chronic Total Occlusions with BVS:

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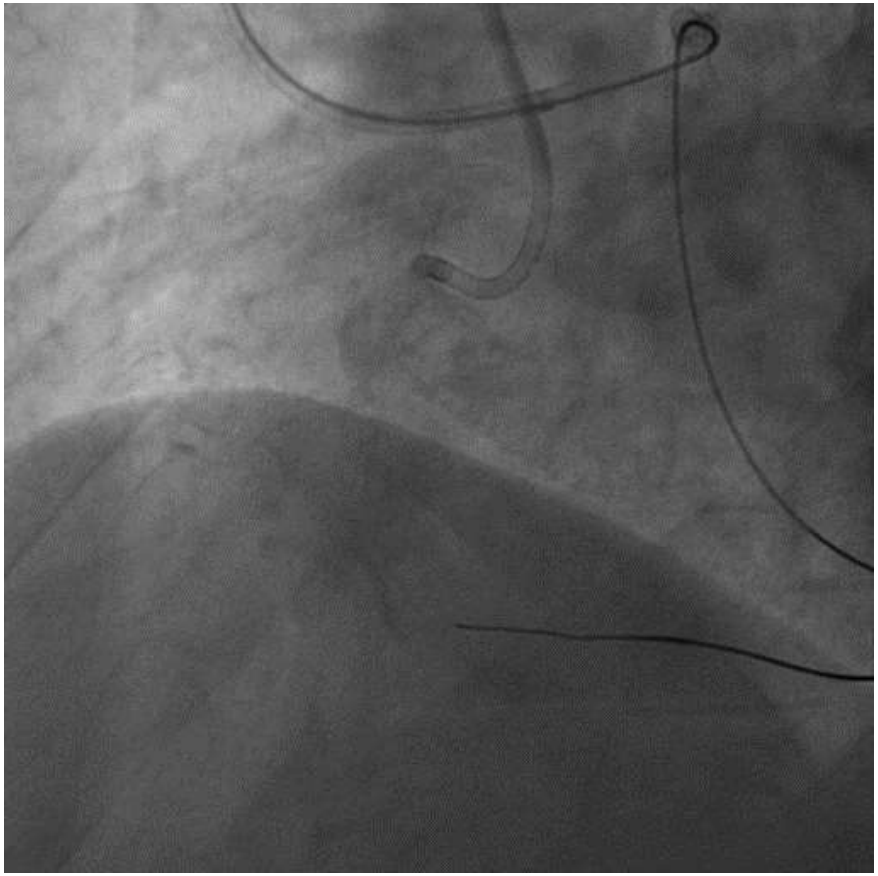
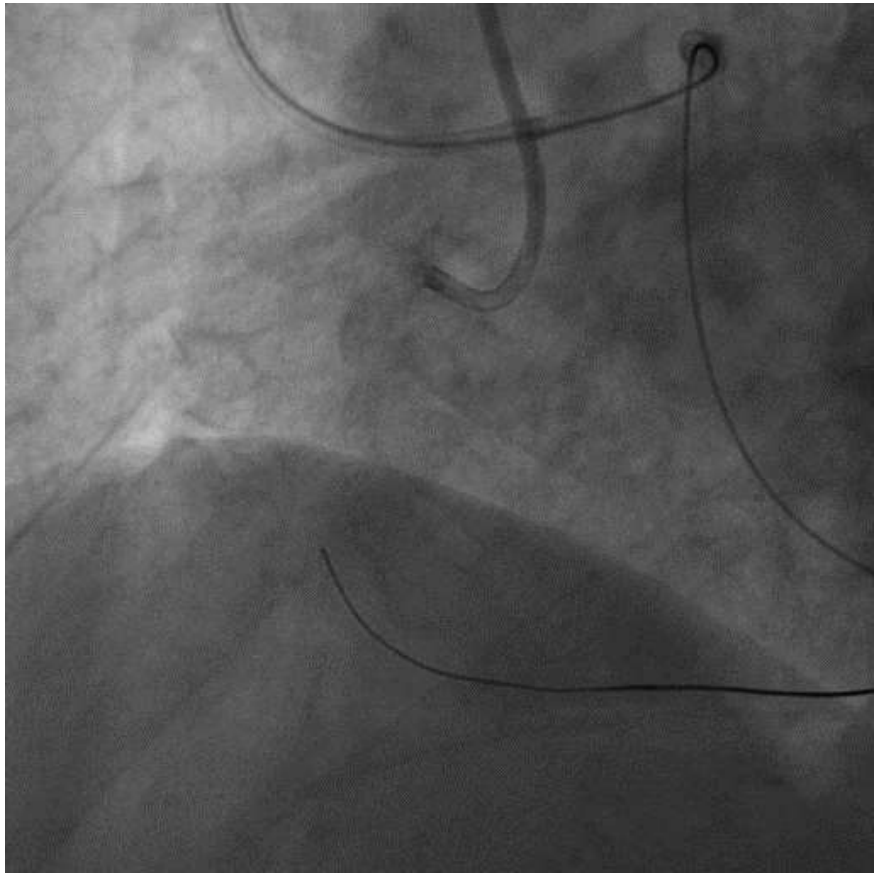
Now, you can see RCA CTO starts from the ost. And the bifurcation area looks dull shape, it was difficult to bring the wire to RCA proximal.





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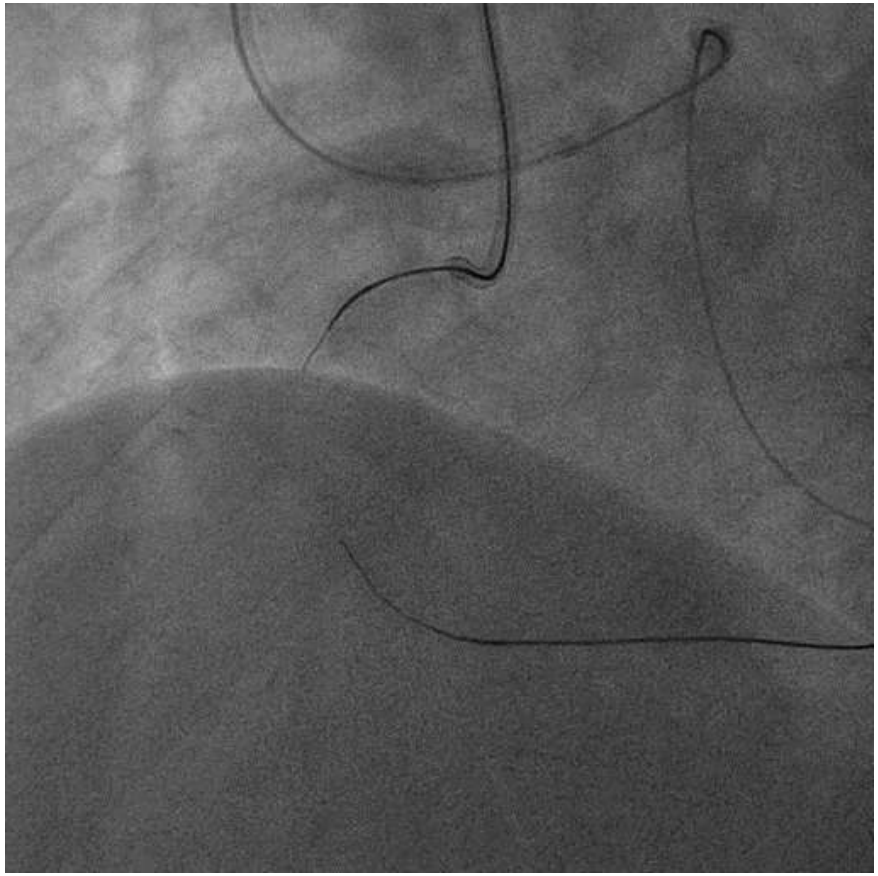
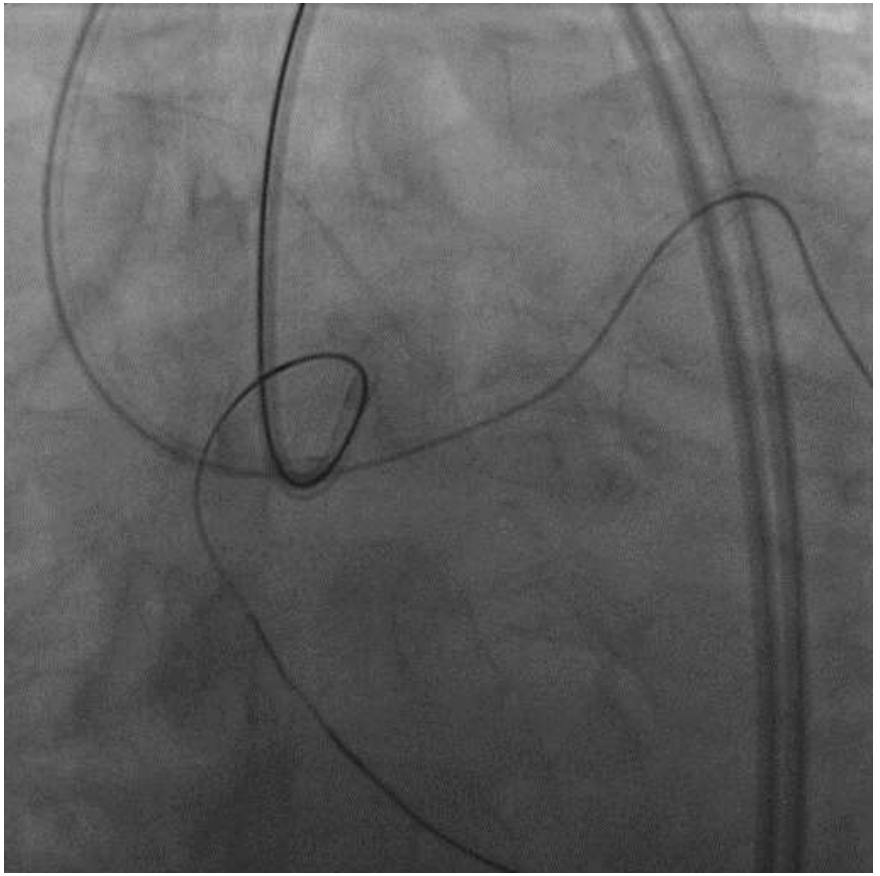
Next, we started antegrade approach. Selecting several angle views which shows both wires of retro and antegrade approach to confirm they are closing each other.





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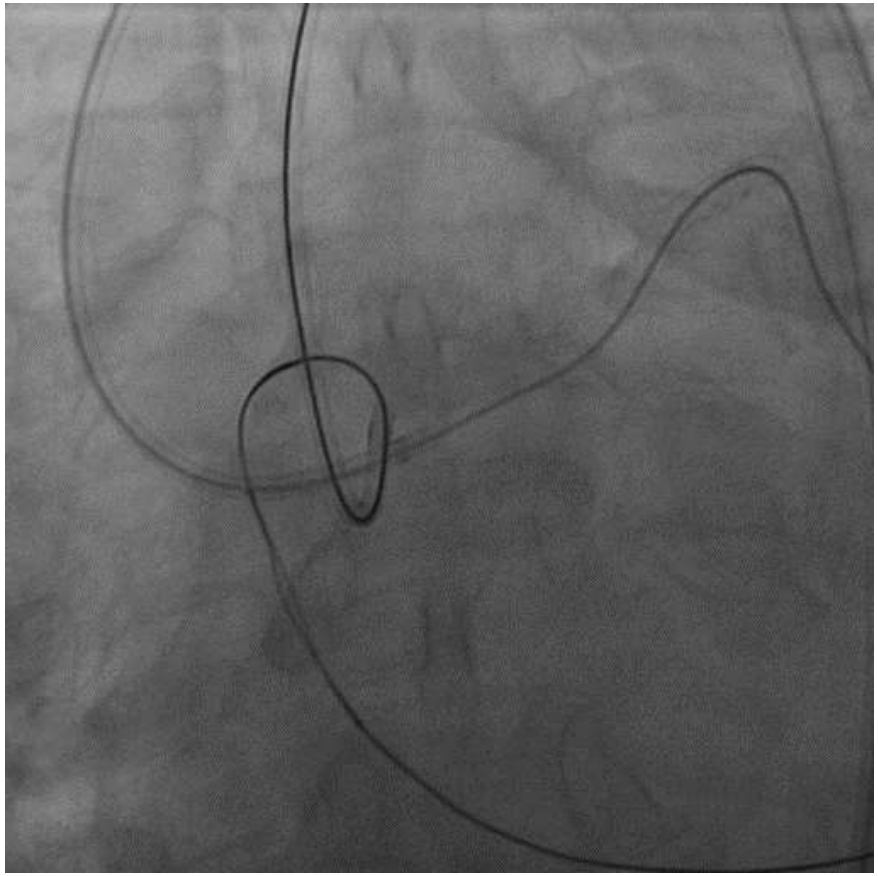
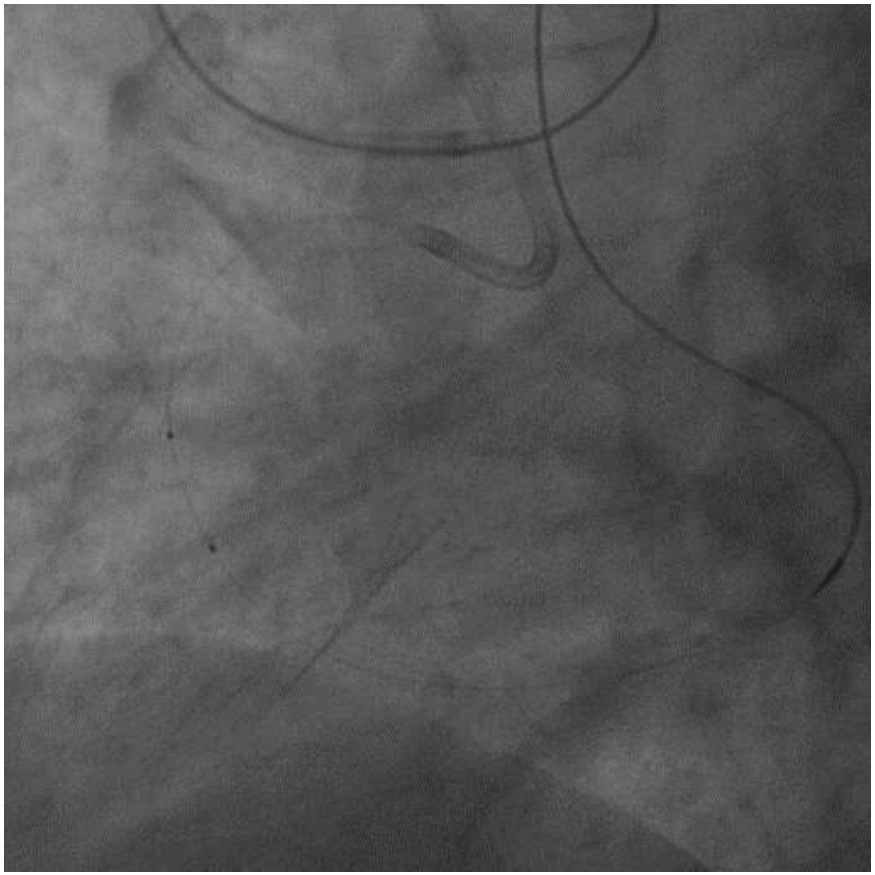
Finally guidewire of retrograde approach was successfully externalized by employing Reverse Cart Technique. Ballooning was done from antegrade.





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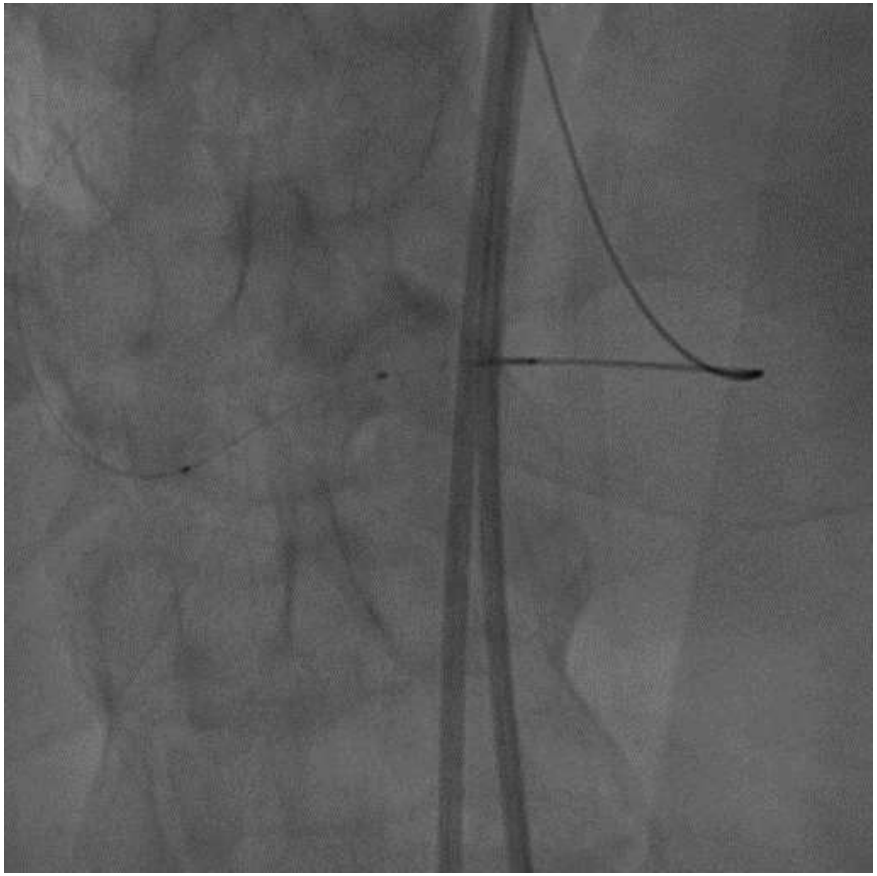
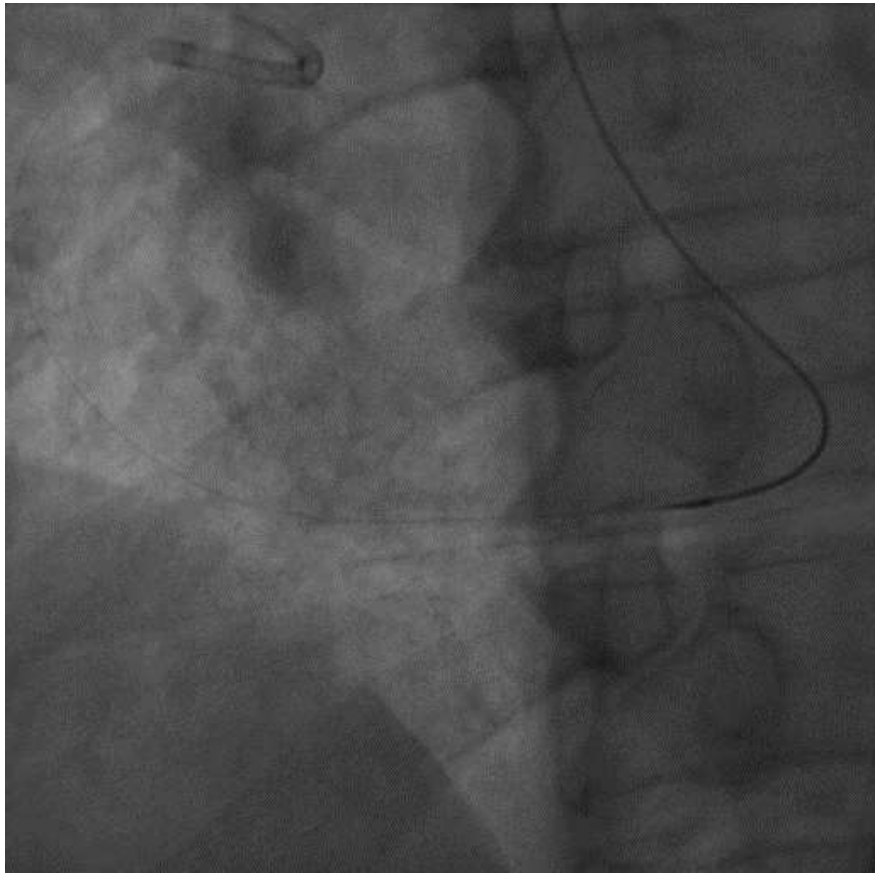
Based on IVUS measurement, vessel diameter was around 3.0mm. BVS 3.0 x 23mm was implanted. BVS distal end was carefully positioned by using collateral angiogram.





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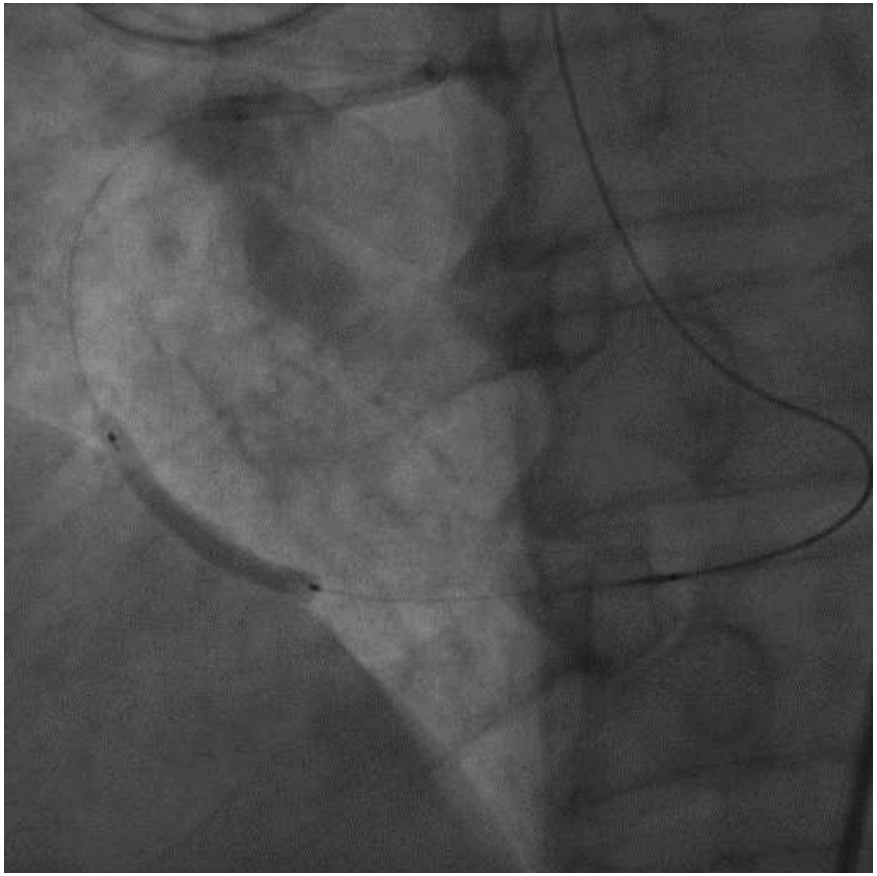
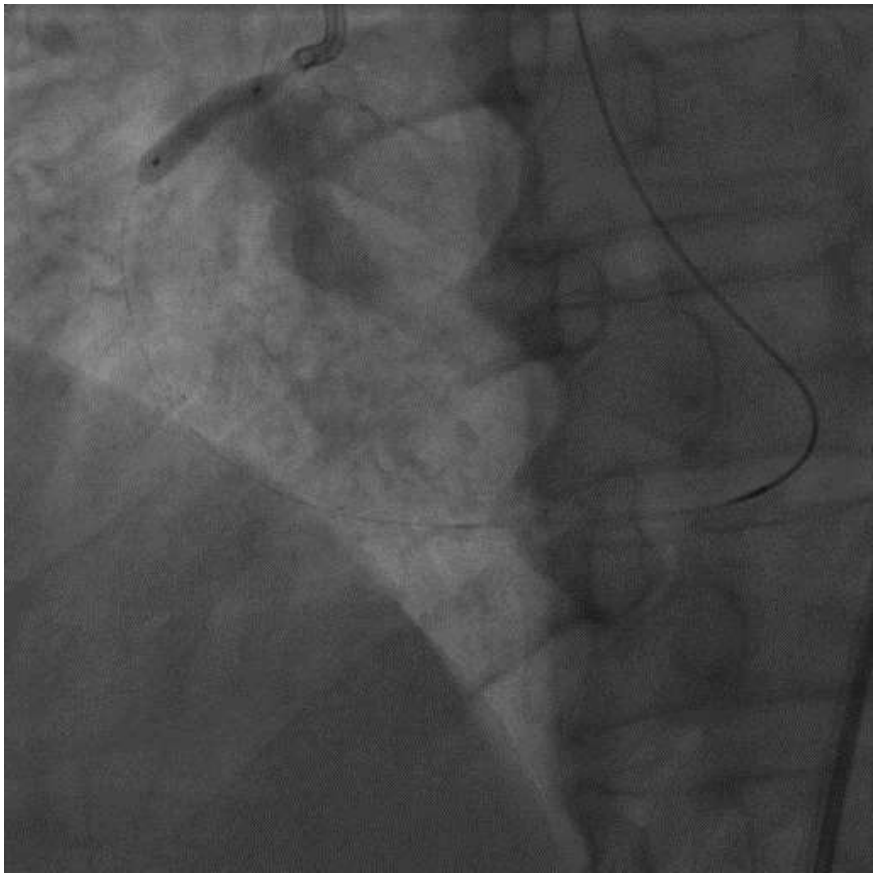
After this, 2 more same size of BVS and 1 BVS of 3.5mmx18mm were implanted followed by post dilatation with 0.5mm bigger size balloon with very high pressure.





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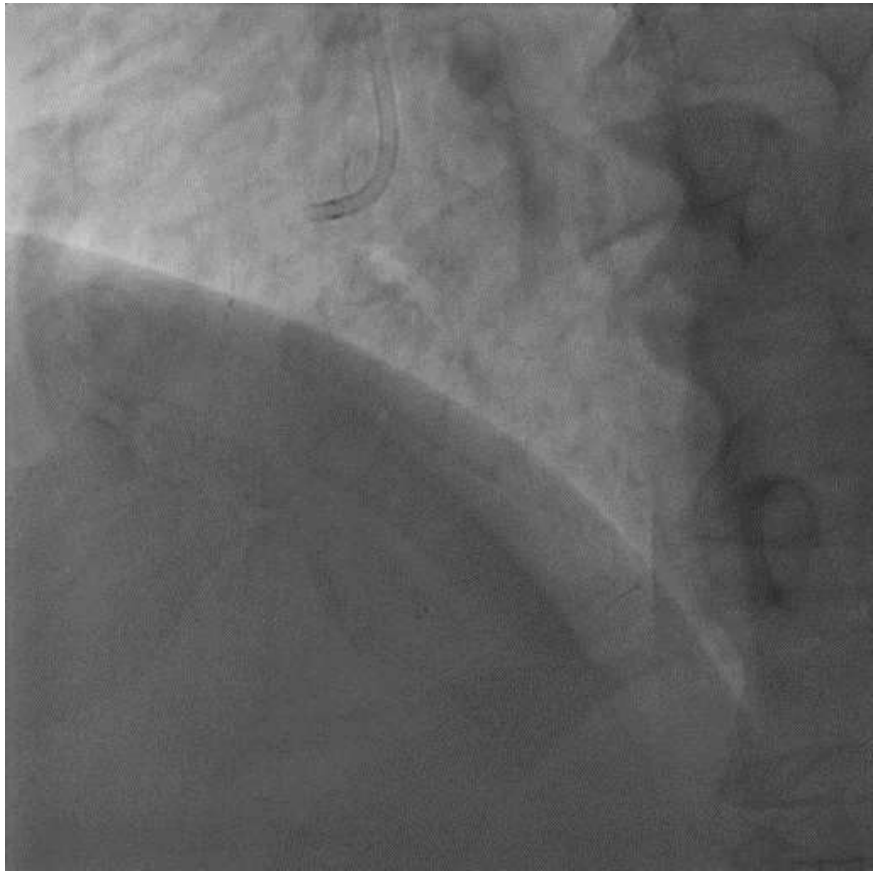
Final Angiogram



What the study adds

Feasibility of CTO PCI with BVS

Even in CTO lesions with high complexity (J-CTO≥2: 65%), if the specific implantation technique is adequately adopted, CTO PCI with BVS appears feasible.

- ✓ Intravascular guidance: 100%
- ✓ Predilatation: 100%
- ✓ Post-dilatation: 100%

Safety of CTO PCI with BVS

During follow-up (median 453 days), there were no cases of TLF and ScT (definite/probable).

- ✓ 98.5% of the patients were on DAPT at 1-year.

What is future needed ??

Long-term F/U

The confirmations are required

- ✓ whether vessel enlargement and plaque reduction could be observed.
- ✓ whether normal endothelialization could be observed.
- ✓ Even subintimal space, whether BRS could behave similarly to the other lesions.

Next Generation BRS

Further investigations are required

- ✓ Feasibility and safety of next generation BRSs (thinner struts, low thrombogenicity, different antiproliferative drugs, etc.) for the treatment of CTO lesions.

I strongly believe BRS future
But ...

We are still on the way. ...

A long distance for touch down !!