KẾT QUẢ HÌNH ẢNH CHỤP MẠCH SAU 6 THÁNG DÙNG DCB TRONG XỬ TRÍ TỔN THƯƠNG BỆNH ĐỘNG MẠCH VÀNH

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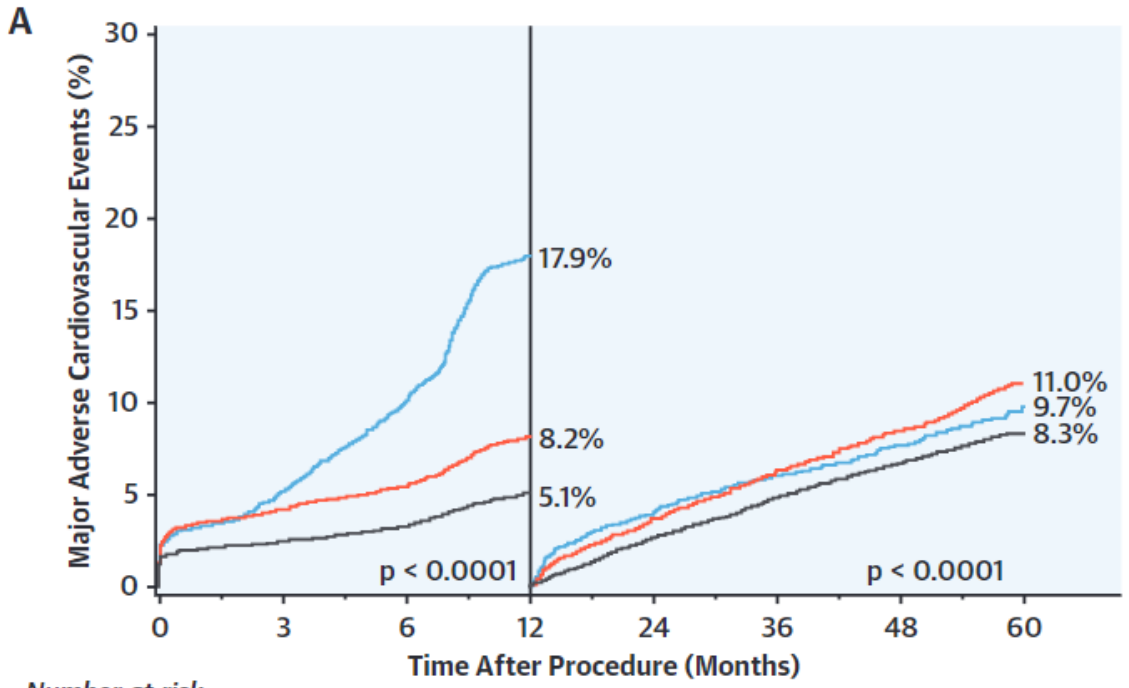
Head of Cardiology, Soc Trang General Hospital

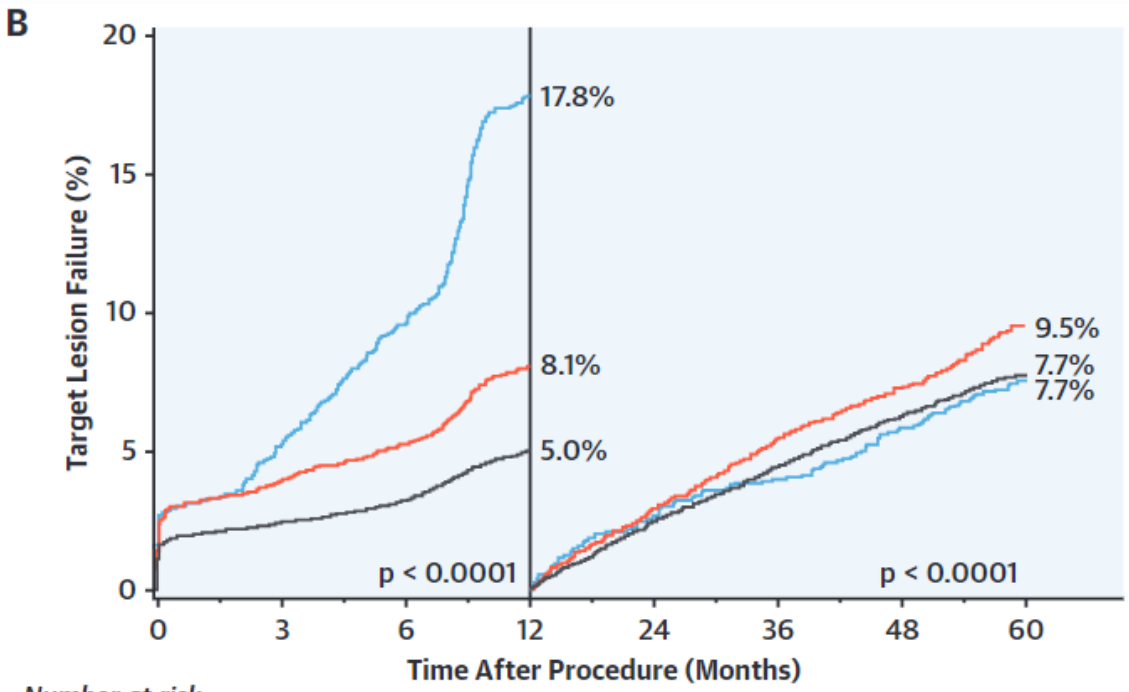
Can Tho Province, Vietnam

CENTRAL ILLUSTRATION Very-Late Stent-Related Cardiovascular Events



Number at risk:

BMS	3,718	3,506	3,309	2,984	2,811	2,497	2,029	746
DES1	7,934	7,543	7,403	7,112	6,707	5,595	3,688	1,757
DES2	13,380	13,003	12,853	12,502	11,998	11,080	5,848	3,523



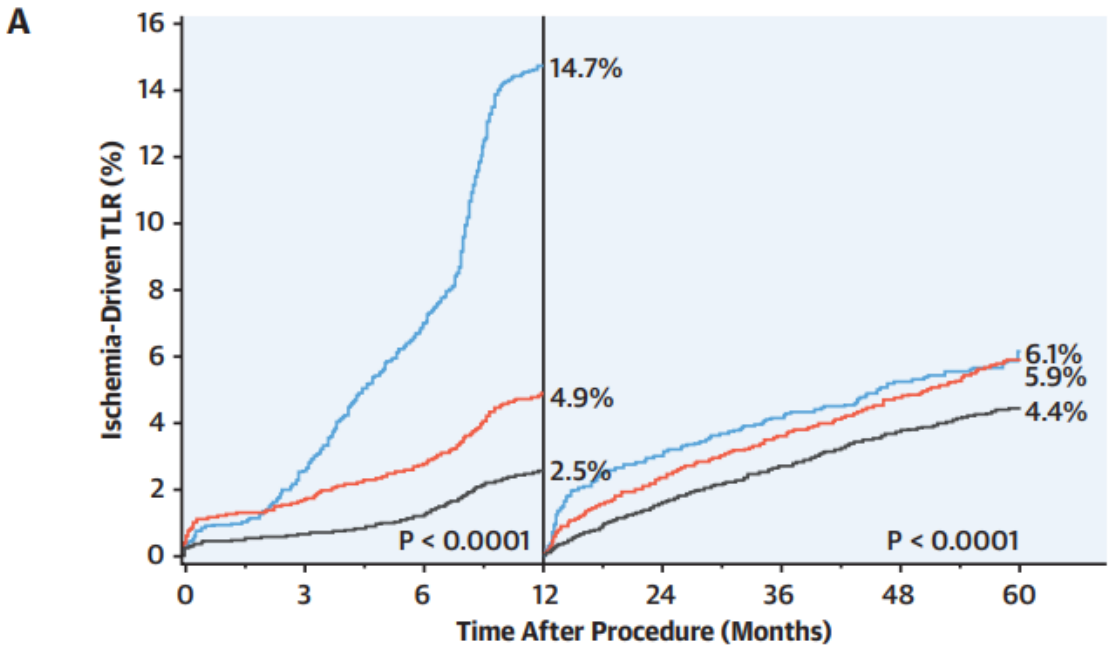
Number at risk:

BMS	1,830	1,725	1,636	1,462	1,395	1,335	1,267	479
DES1	4,591	4,384	4,296	4,108	3,916	3,465	2,850	1,470
DES2	13,157	12,792	12,653	12,287	11,819	10,928	5,679	3,446

Bare-Metal Stent (BMS)
First-Generation Drug-Eluting Stent (DES1)
Second-Generation Drug-Eluting Stent (DES2)

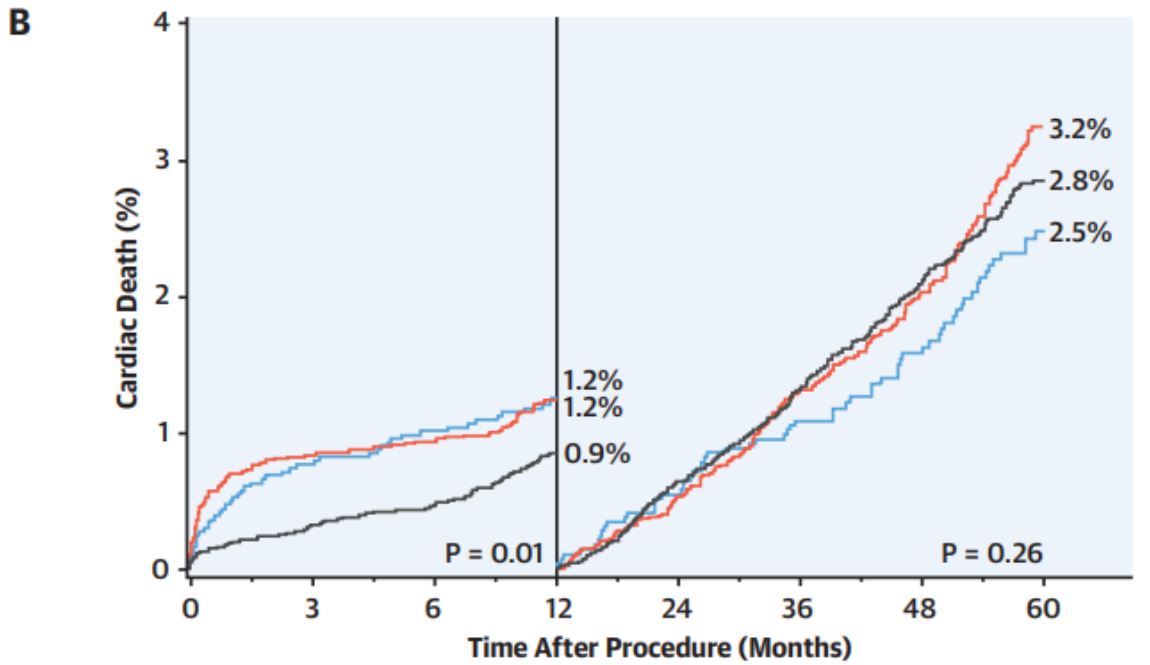
Madhavan, M.V. et al. J Am Coll Cardiol. 2020;75(6):590-604.

FIGURE 1 Time to First Event Curves by Stent Type Within 1 Year and in the Landmark Period of 1 to 5 Years



Number at risk:

BMS	3,449	3,317	3,145	2,768	2,615	2,316	1,851	663
DES1	7,804	7,556	7,428	6,992	6,648	5,572	3,660	1,758
DES2	13,380	13,206	13,074	12,502	12,059	11,191	5,913	3,580

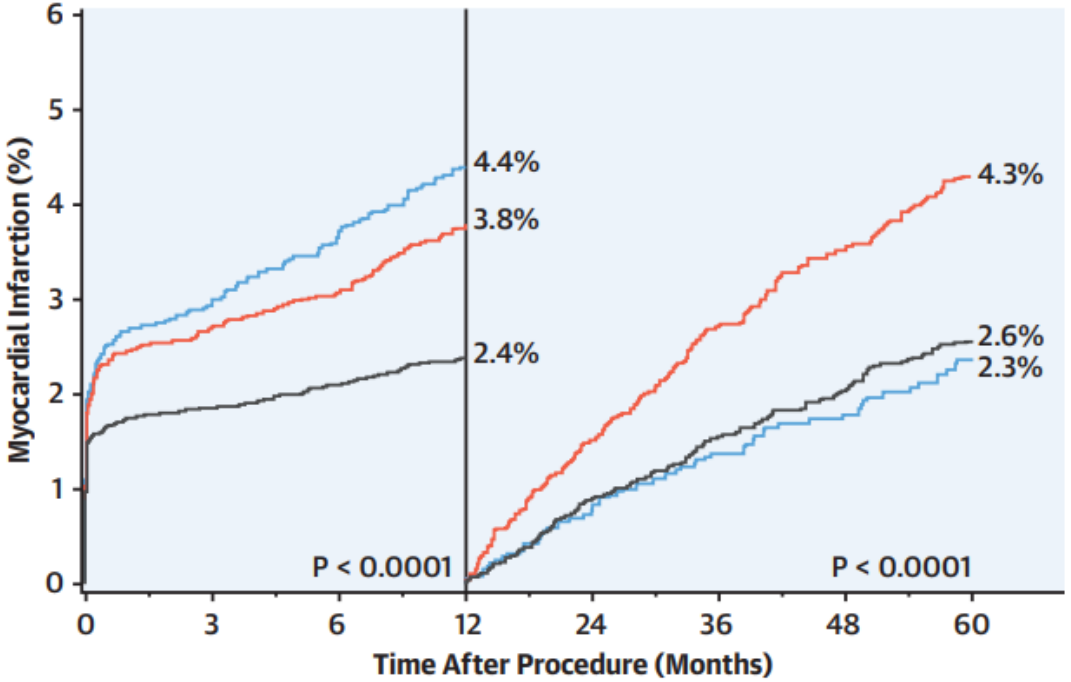


Number at risk:

BMS	3,718	3,663	3,637	3,019	2,945	2,656	2,167	808
DES1	7,934	7,805	7,755	7,118	6,925	5,893	3,915	1,905
DES2	13,380	13,285	13,227	12,502	12,239	11,485	6,101	3,717

Bare Metal Stent — First-Generation DES — Second-Generation DES

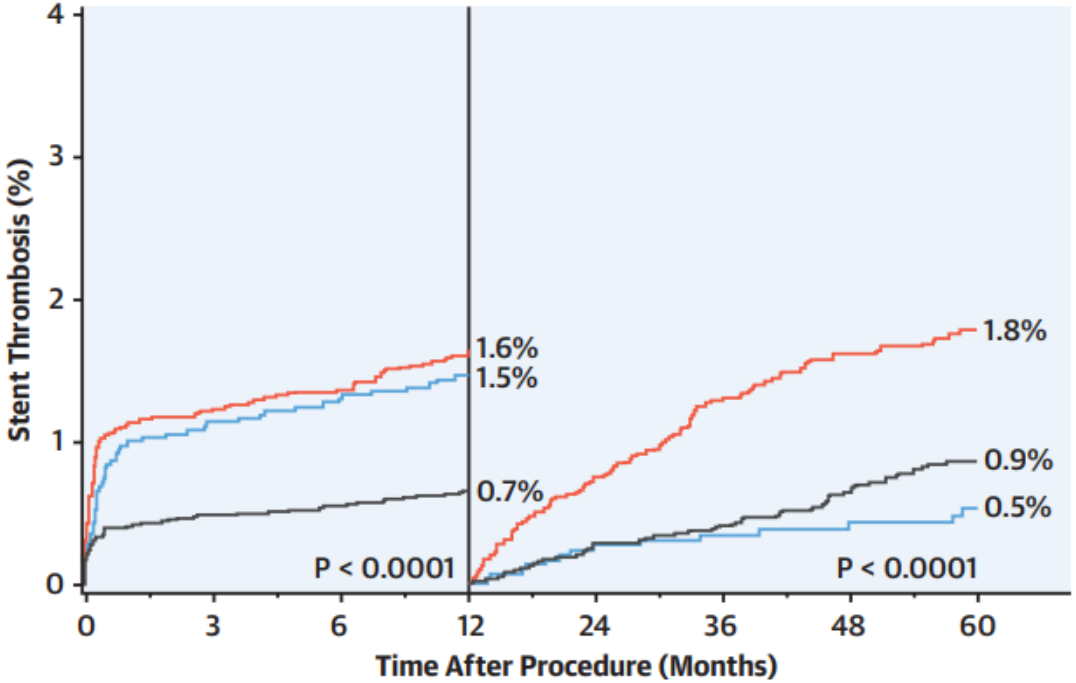
C



Number at risk:

BMS	3,718	3,563	3,513	3,019	2,925	2,625	2,137	792
DES1	7,934	7,604	7,526	7,118	6,828	5,745	3,796	1,820
DES2	13,380	13,046	12,960	12,502	12,147	11,318	6,005	3,631

D



Number at risk:

BMS	3,713	3,631	3,600	3,017	2,936	2,647	2,162	804
DES1	7,915	7,716	7,655	7,106	6,868	5,814	3,862	1,870
DES2	13,380	13,232	13,168	12,498	12,209	11,434	6,068	3,684

Bare Metal Stent — First-Generation DES — Second-Generation DES

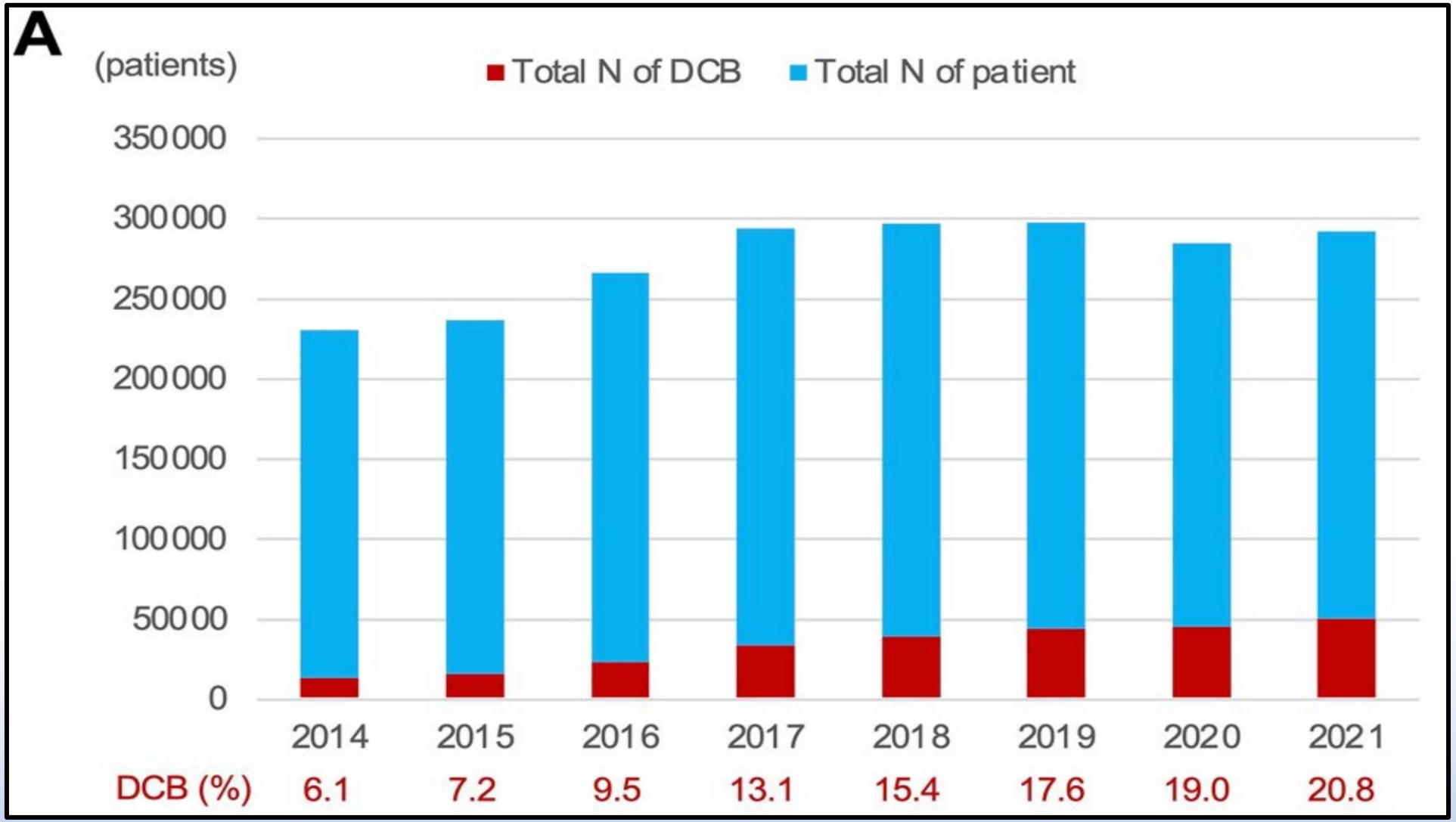
Stent-related events - # of treated lesions and lesion length

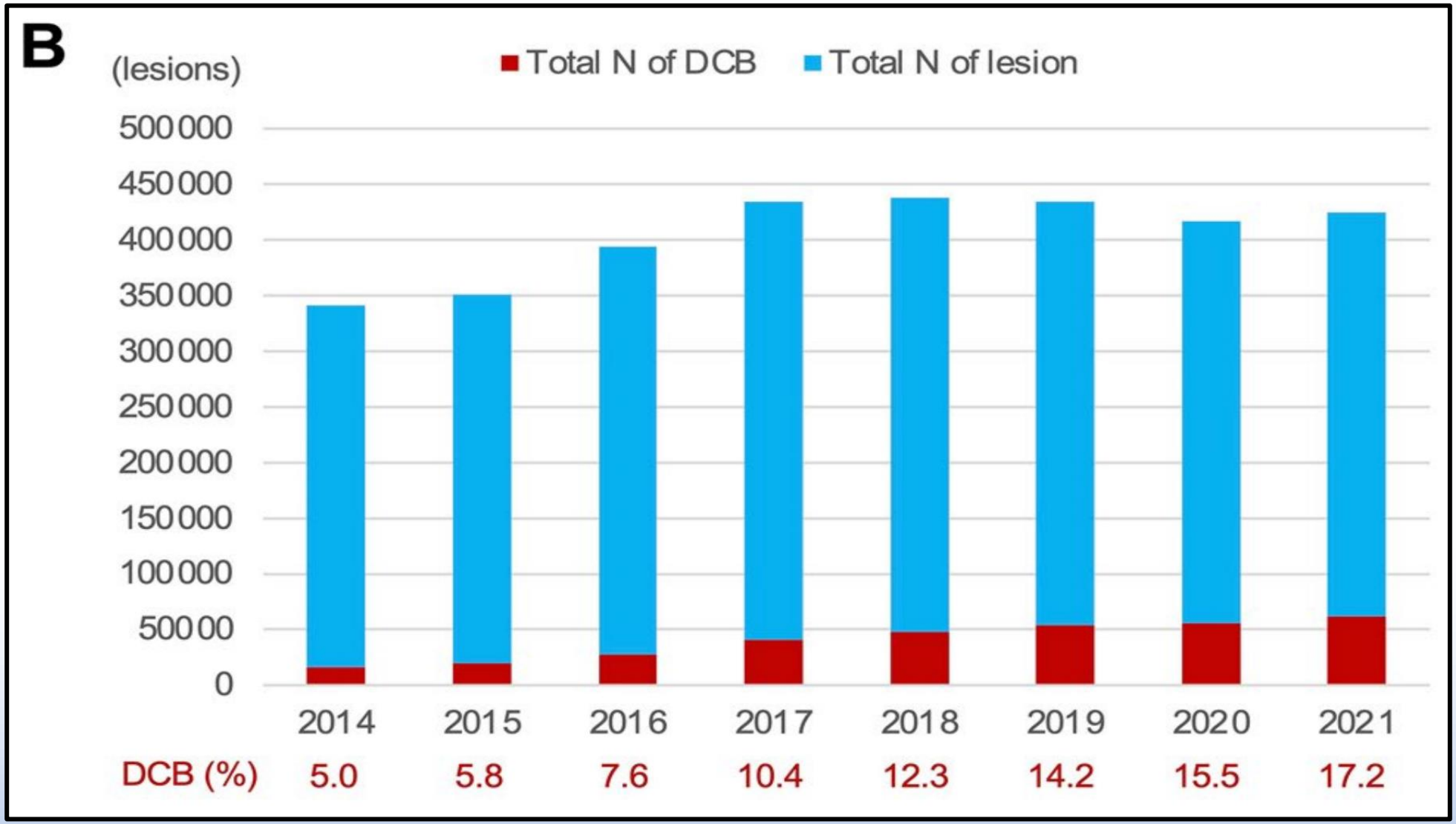
TABLE 6 Multivariable Predictors of Adverse Outcomes by Poisson Regression Analysis

	Major Adverse Cardiovascular Events		Target Lesion Failure		Stent Thrombosis	
	RR (95% CI)	p Value	RR (95% CI)	p Value	RR (95% CI)	p Value
Through 1 yr						
DES1 (vs. BMS)	0.50 (0.43-0.59)	<0.0001	0.56 (0.45-067)	<0.0001	0.83 (0.56-1.26)	0.43
DES1 (vs. DES2)	1.35 (1.09-1.67)	0.006	1.32 (1.05-1.64)	0.02	1.37 (0.71-2.50)	0.32
Age (per 5 yrs)	1.00 (0.99-1.10)	0.16	1.00 (0.97-1.00)	0.76	0.94 (0.87-1.00)	0.12
Male	0.85 (0.76-0.96)	0.007	0.84 (0.73-0.97)	0.02	0.81 (0.58-1.10)	0.23
Diabetes mellitus	1.40 (1.30-1.60)	<0.0001	1.40 (1.20-1.60)	<0.0001	1.80 (1.30-2.50)	0.0006
Recent smoker	1.10 (0.95-1.20)	0.21	1.00 (0.86-1.20)	0.82	1.70 (1.20-2.40)	0.003
ACS (vs. stable presentation)	1.10 (0.94-1.20)	0.38	0.95 (0.82-1.10)	0.44	0.93 (0.62-1.40)	0.72
Hypertension	1.20 (1.10-1.40)	0.002	1.30 (1.10-1.50)	0.003	1.10 (0.81-1.60)	0.49
Hyperlipidemia	0.95 (0.85-1.10)	0.43	0.93 (0.81-1.10)	0.37	0.90 (0.65-1.30)	0.53
Prior CABG	1.40 (1.20-1.70)	0.0002	1.50 (1.20-1.80)	0.0003	1.00 (0.54-1.90)	0.95
Prior myocardial infarction	1.00 (0.91-1.20)	0.65	0.99 (0.85-1.20)	0.94	1.60 (1.10-2.40)	0.009
Prior PCI	1.00 (0.90-1.20)	0.68	1.00 (0.86-1.20)	0.91	1.40 (0.91-2.00)	0.14
Moderate-severe calcium	1.20 (1.00-1.30)	0.01	1.10 (0.98-1.30)	0.09	1.50 (1.10-2.10)	0.008
LM or LAD disease	1.30 (1.10-1.40)	<0.0001	1.20 (1.10-1.40)	0.0006	1.20 (0.86-1.60)	0.32
>1 treated lesion	1.70 (1.40-2.00)	<0.0001	1.60 (1.30-1.90)	<0.0001	2.30 (1.60-3.40)	<0.0001
Baseline RVD (per 1 mm)	0.75 (0.67-0.83)	<0.0001	0.76 (0.67-0.87)	<0.0001	0.92 (0.69-1.20)	0.57
Pre-procedure DS (per 5%)	1.00 (0.98-1.00)	0.77	1.00 (0.97-1.00)	0.99	1.00 (0.96-1.10)	0.54
Lesion length (per 10 mm)	1.20 (1.10-1.30)	<0.0001	1.20 (1.10-1.30)	<0.0001	1.20 (1.10-1.40)	0.003

TABLE 6 Multivariable Predictors of Adverse Outcomes by Poisson Regression Analysis

	Major Adverse Cardiovascular Events		Target Lesion Failure		Stent Thrombosis	
	RR (95% CI)	p Value	RR (95% CI)	p Value	RR (95% CI)	p Value
Between 1 and 5 yrs						
DES1 (vs. BMS)	1.00 (0.83-1.19)	0.95	1.16 (0.91-1.54)	0.30	2.38 (1.30-4.35)	0.005
DES1 (vs. DES2)	1.30 (1.09-1.56)	0.004	1.25 (1.04-1.51)	0.02	1.96 (1.20-3.22)	0.007
Age (per 5 yrs)	1.00 (1.00-1.10)	0.01	1.10 (1.00-1.10)	0.005	0.92 (0.85-1.00)	0.04
Male	1.10 (0.97-1.20)	0.14	1.10 (0.92-1.20)	0.42	1.40 (0.94-2.10)	0.10
Diabetes mellitus	1.50 (1.30-1.60)	<0.0001	1.50 (1.30-1.70)	<0.0001	1.20 (0.85-1.80)	0.29
Recent smoker	1.40 (1.30-1.60)	<0.0001	1.40 (1.20-1.70)	<0.0001	1.50 (1.10-2.10)	0.02
ACS (vs. stable presentation)	0.99 (0.88-1.10)	0.84	1.10 (0.92-1.20)	0.42	1.10 (0.77-1.60)	0.59
Hypertension	1.10 (0.97-1.20)	0.17	1.00 (0.89-1.20)	0.69	1.10 (0.75-1.50)	0.78
Hyperlipidemia	0.92 (0.82-1.00)	0.18	0.92 (0.80-1.10)	0.27	1.00 (0.72-1.40)	0.98
Previous CABG	1.90 (1.60-2.30)	<0.0001	2.00 (1.70-2.40)	<0.001	1.30 (0.75-2.40)	0.33
Previous myocardial infarction	1.20 (1.00-1.30)	0.04	1.00 (0.89-1.20)	0.62	1.30 (0.92-2.00)	0.13
Previous PCI	1.30 (1.10-1.50)	<0.0001	1.30 (1.10-1.50)	0.004	1.50 (1.00-2.20)	0.04
Moderate-severe calcium	1.10 (0.99-1.30)	0.06	1.20 (1.00-1.30)	0.03	1.10 (0.79-1.60)	0.55
LM or LAD disease	1.10 (0.95-1.20)	0.32	1.10 (0.92-1.20)	0.48	1.00 (0.73-1.40)	0.98
>1 treated lesion	1.30 (1.10-1.50)	0.0008	1.30 (1.10-1.60)	0.001	1.20 (0.80-1.80)	0.38
Baseline RVD (per 1 mm)	0.79 (0.71-0.88)	<0.0001	0.70 (0.62-0.80)	<0.0001	0.81 (0.60-1.10)	0.16
Pre-procedure DS (per 5%)	0.98 (0.96-1.00)	0.07	0.98 (0.96-1.00)	0.21	1.00 (0.95-1.0)	0.88
Lesion length (per 10 mm)	1.10 (1.00-1.10)	0.005	1.10 (0.99-1.10)	0.11	1.20 (1.10-1.30)	0.006


A
(patients)
Total N of DCB
Total N of patient
350000
300000
250000
200000
150000
100000
50000
0
2014
2015
2016
2017
2018
2019
2020
2021
DCB (%)
6.1
7.2
9.5
13.1
15.4
17.6
19.0
20.8


B
(lesions)
Total N of DCB
Total N of lesion
500 000
450 000
400 000
350 000
300 000
250 000
200 000
150 000
100 000
50 000
0
2014
2015
2016
2017
2018
2019
2020
2021
DCB (%)
5.0
5.8
7.6
10.4
12.3
14.2
15.5
17.2

From: Clinical expert consensus document on drug-coated balloon for coronary artery disease from the Japanese Association of Cardiovascular Intervention and Therapeutics

1st Step: *Suitability for DCB*

Patients with
- multiple metallic stents implanted
- concerns about long-term presence of metallic stents (e.g., young adults, suspected metal allergy)
- high bleeding risk

Angiographic conditions with
- in-stent restenosis
- small vessel lesions
- ostial lesions
- bifurcation lesions requiring side branch dilatation
- calcified lesions not expected to be well expandable (e.g., nodular calcification)

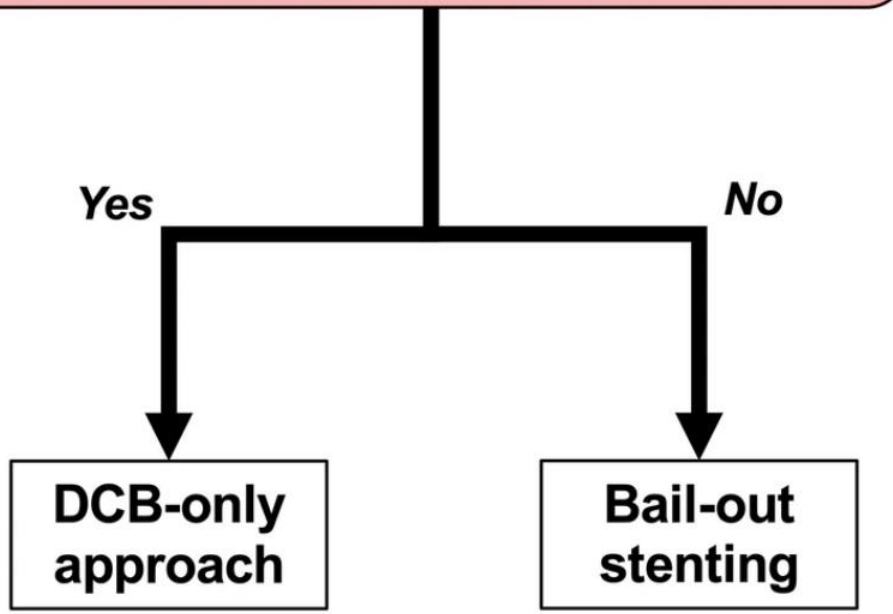
2nd Step: *Optimal lesion preparation before using DCB*

Pre-dilatation with
- modified balloons (cutting or scoring) are recommended.
- balloon-to-artery ratio 1:1
- Intracoronary imaging guidance is encouraged.

If moderate to severe calcification is evident, adjunctive rotational atherectomy, orbital atherectomy, or lithotripsy should be considered.

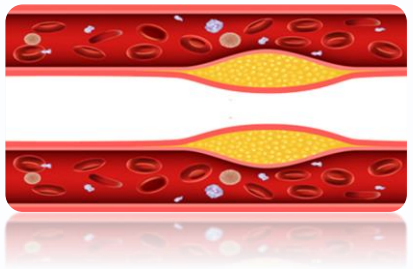
3rd Step: *Assessment after pre-dilatation*

To be confirmed
- TIMI grade 3 flow (non-flow limiting)
- angiographic residual stenosis ≤30 %
- absence of major dissection (type C-F in angiography, or medial involvement or hematoma detected in IVUS/OCT)
- absence of findings suggestive of thrombus
- fractional flow reserve (FFR) >0.80 (option)



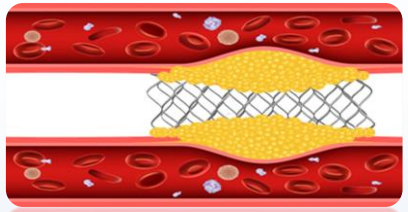
A proposed step-by-step approach for the DCB-only strategy. For possible indication of large vessel (≥3.0 mm) lesions, refer to an official statement of the CVIT issued on 1st Dec, 2022. (https://www.cvit.jp/_assets/documents/news/2023/0104.pdf). DCB, drug-coated balloon; IVUS, intravascular ultrasound; OCT, optical coherence tomography; DES, drug-eluting stent

Chỉ định hiện nay của bóng phủ thuốc (Paclitaxel) dựa trên nghiên cứu lâm sàng

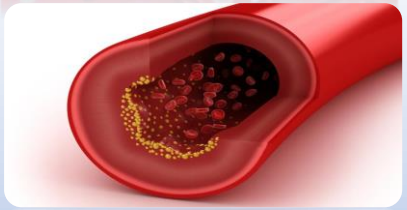


De-Novo Lesions

Bifurcation Lesions



In-Stent Restenosis



Small Vessels

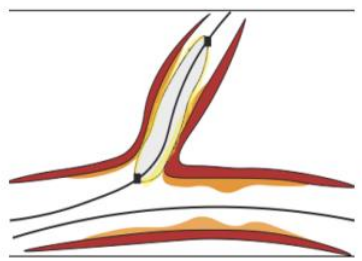
DCB in bifurcation

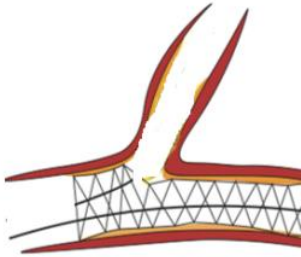
LESION PREP FIRST

(including SB if necessary)

BLENDED APPROACH

DCB SB, DES MB (no final kiss)

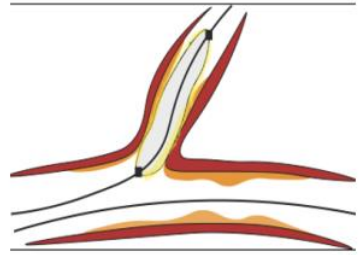


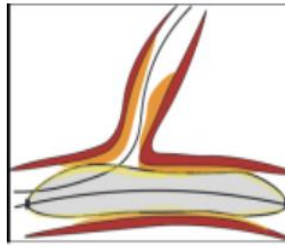


LEAVE NOTHING BEHIND (PURISTIC)

Prep MB, prep SB

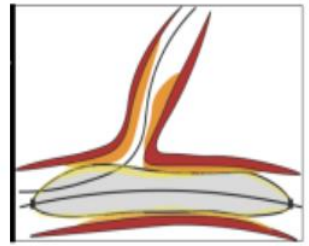
Sequential use: DCB SB, DCB MB, (no final kiss)

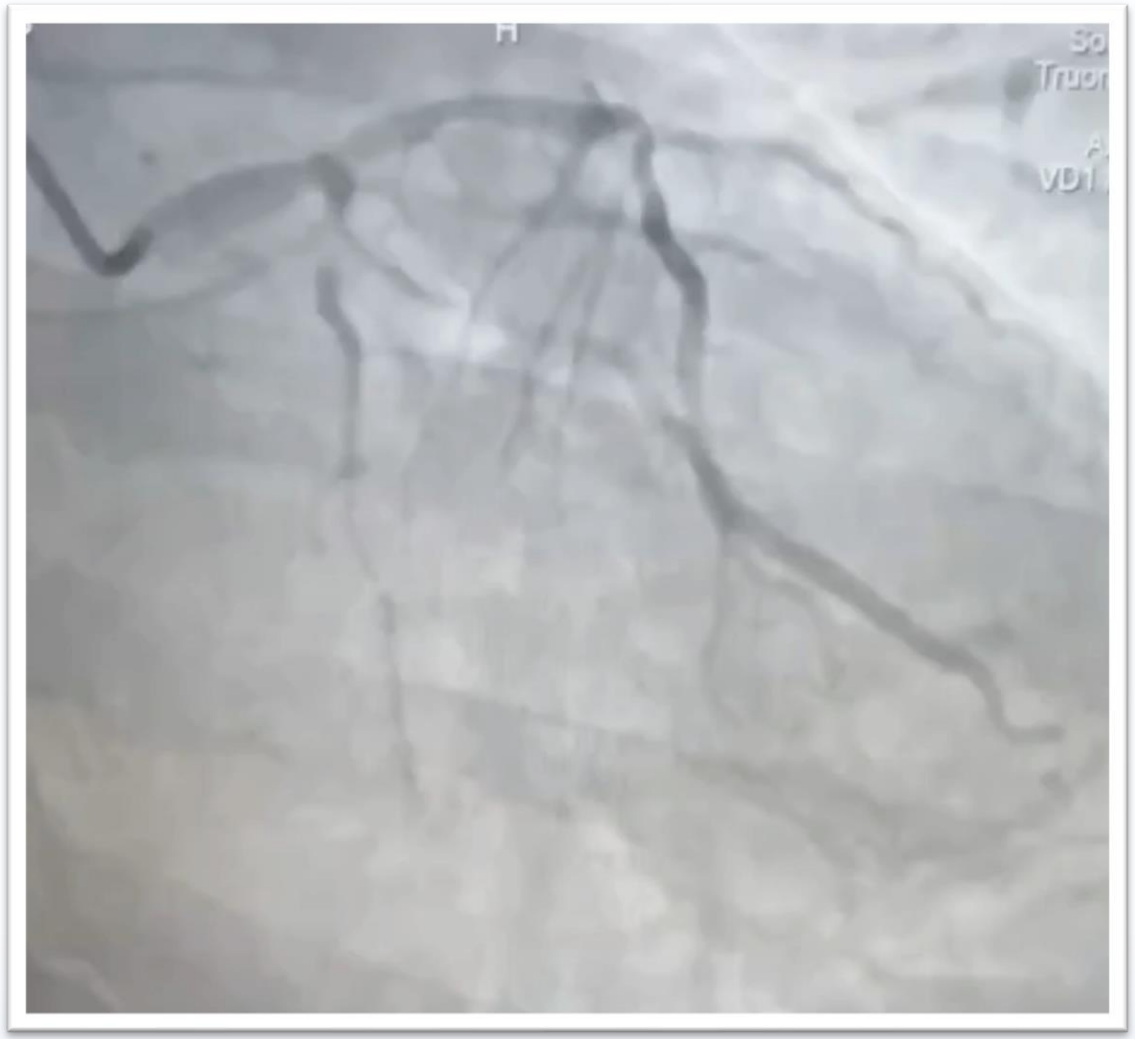




SIMPLE FOR SMALL SB

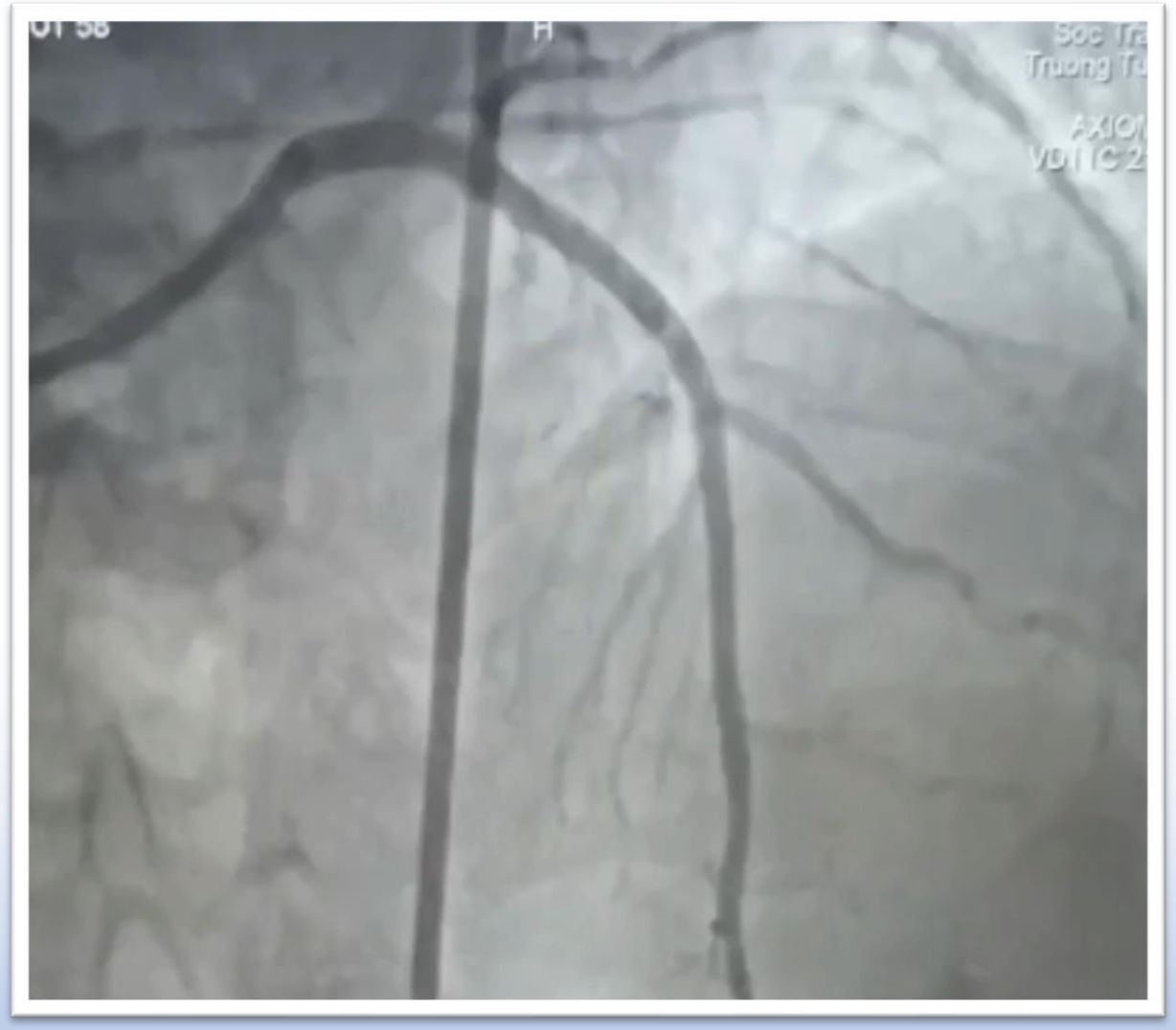
DCB MB, SB no treatment





Ca lâm sàng 1:

- Tổn thương LM, LAD và Cx
- Hybrid PCI: DES + DCB
- Sau DCB bóc tách type B



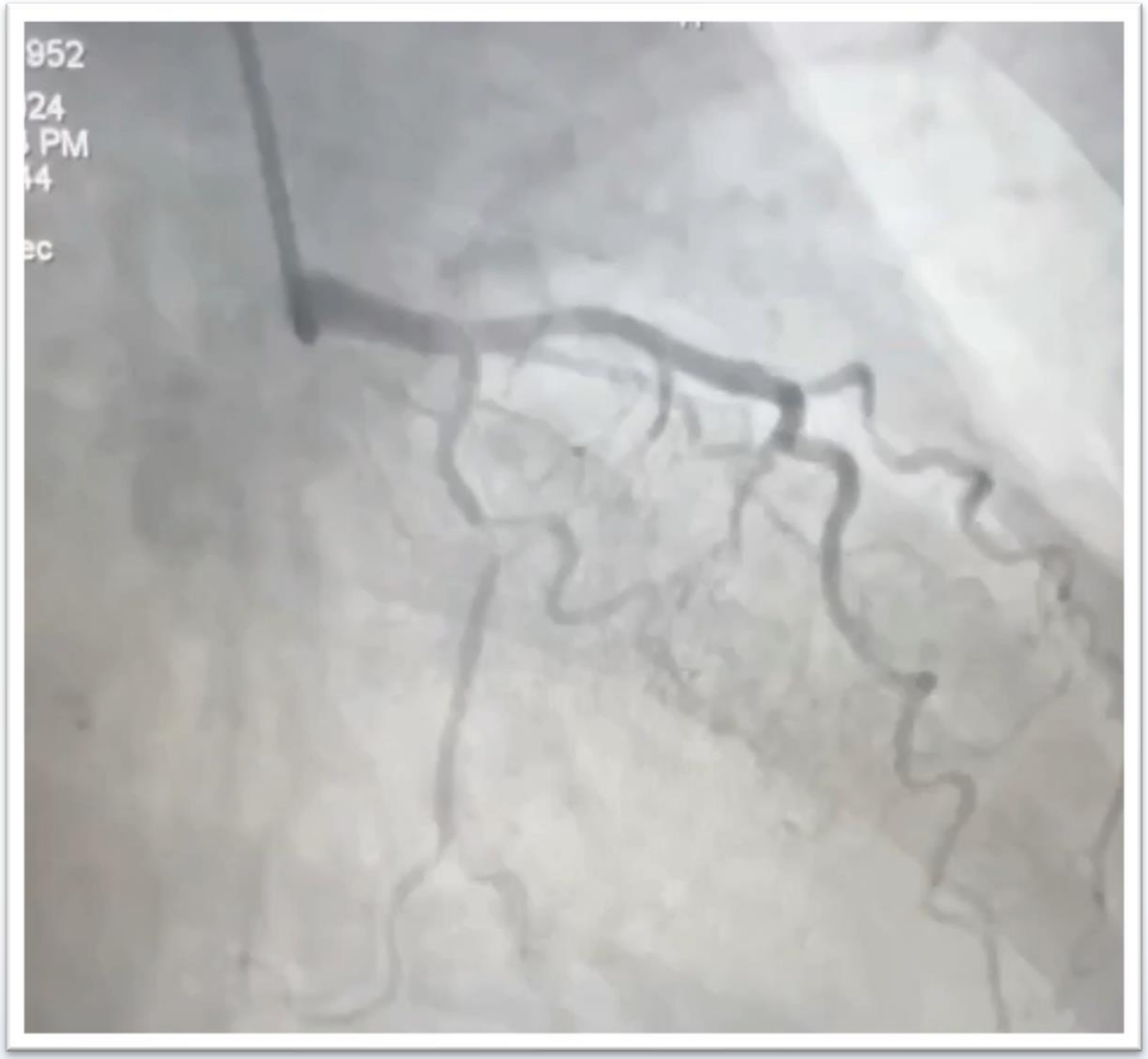
ASIC CONGRESS 2026

Ca lâm sàng 1:

- Kết quả chụp kiểm tra sau 6 tháng

Ca lâm sàng 2:

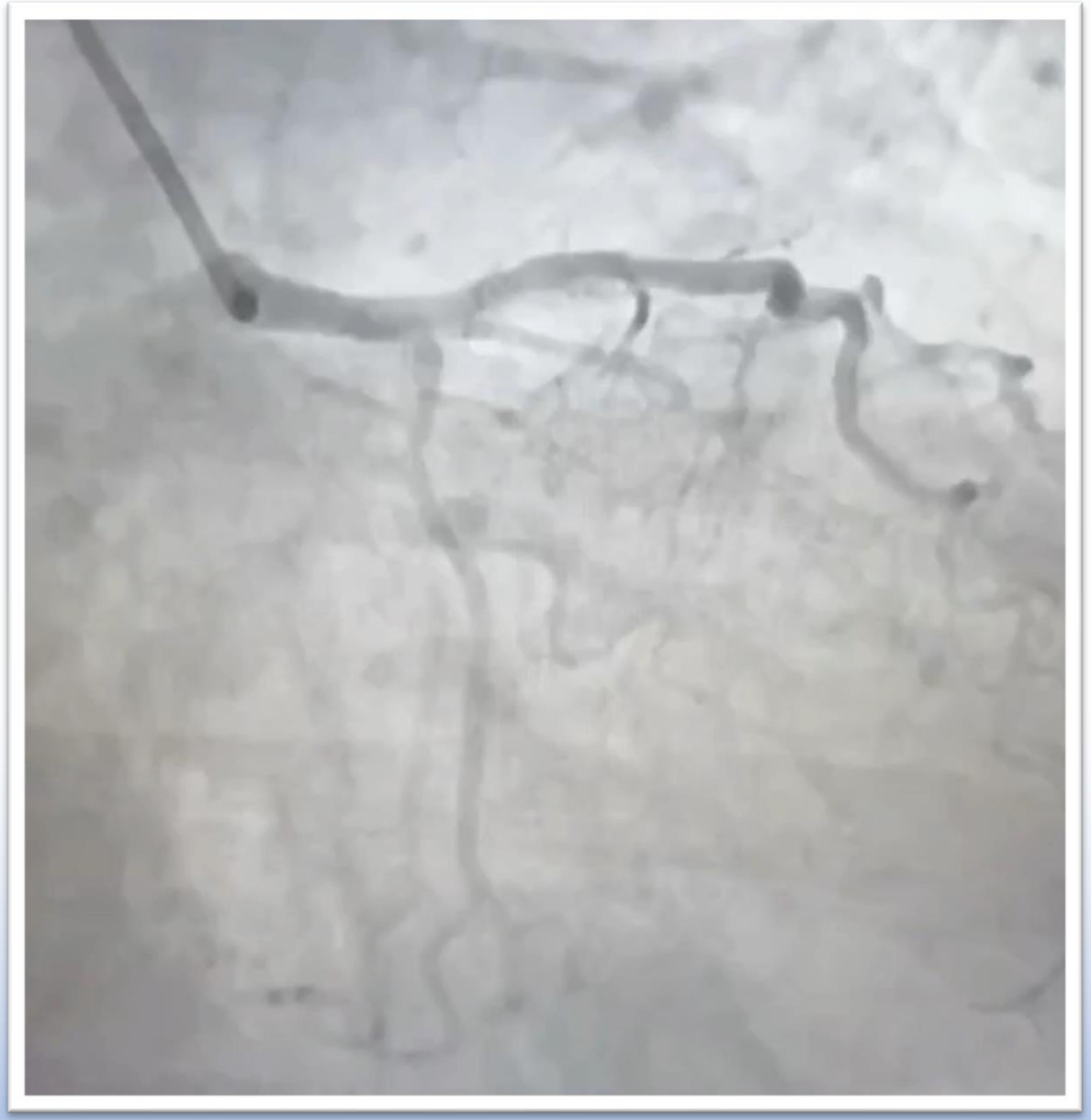
- Tổn thương mạch máu nhỏ
- Can thiệp với DCB



ASIC CONGRESS 2026

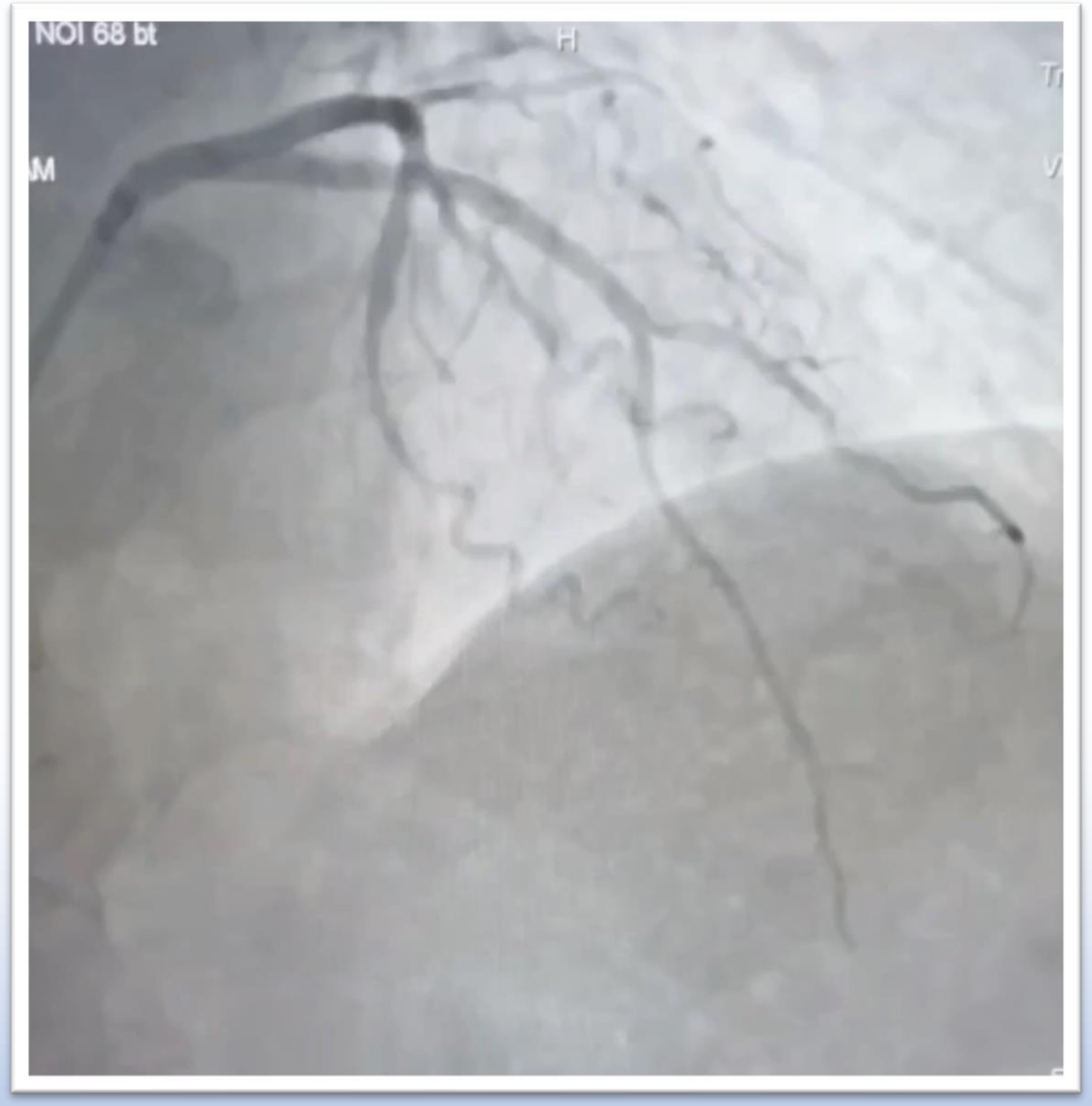
Ca lâm sàng 2:

- Kết quả chụp kiểm tra sau 6 tháng



Ca lâm sàng 3:

- ACS: tắc LAD và hẹp Cx
- Hybrid PCI: DES + DCB



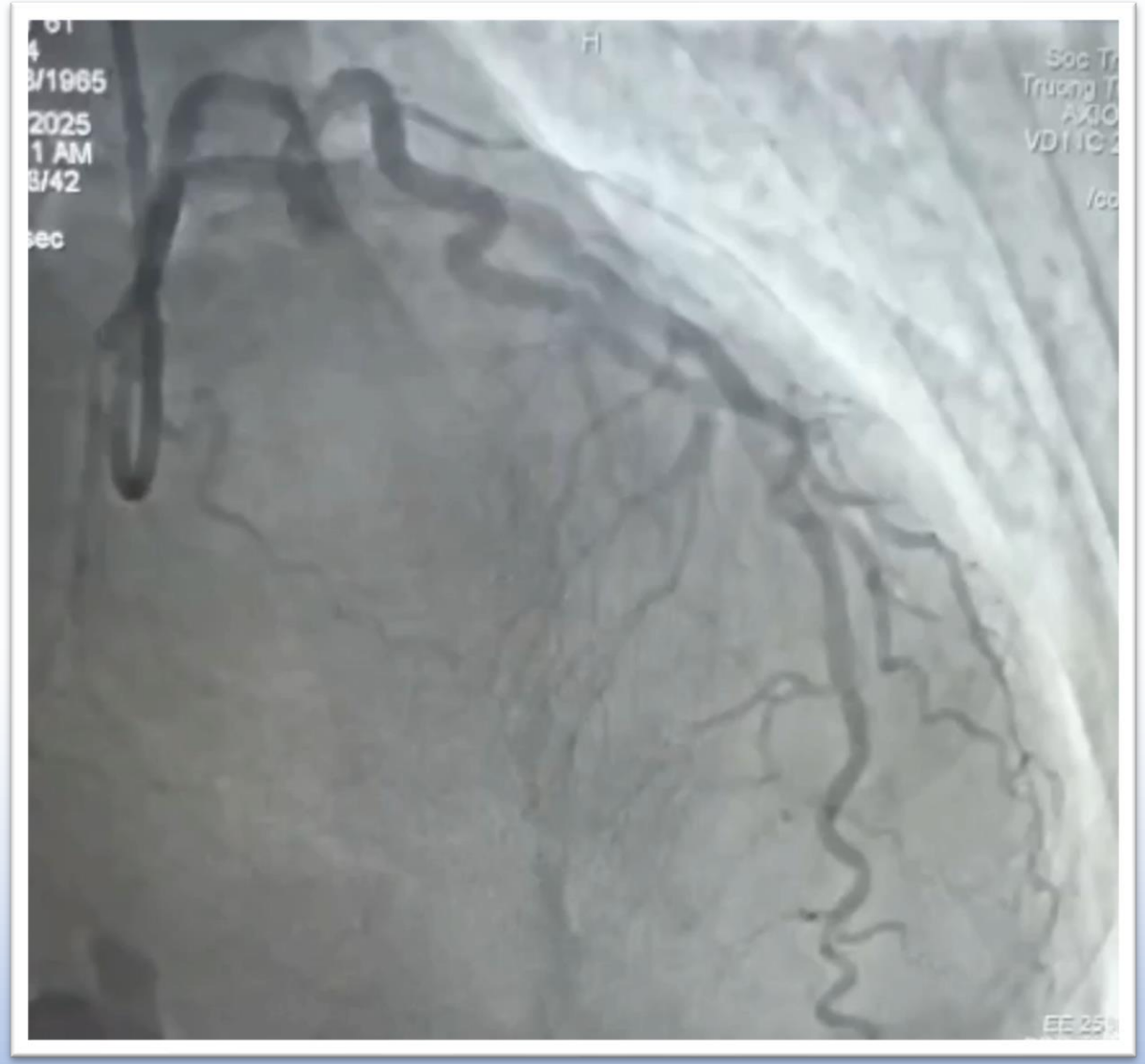
ASIC CONGRESS 2026

Ca lâm sàng 3:

- Kết quả chụp kiểm tra sau 6 tháng

Ca lâm sàng 4:

- CTO Cx, hẹp đoạn giữa LAD
- Leave Nothing Behind PCI: DCB
- Kết quả sau can thiệp và 6 tháng sau



ASIC CONGRESS 2026

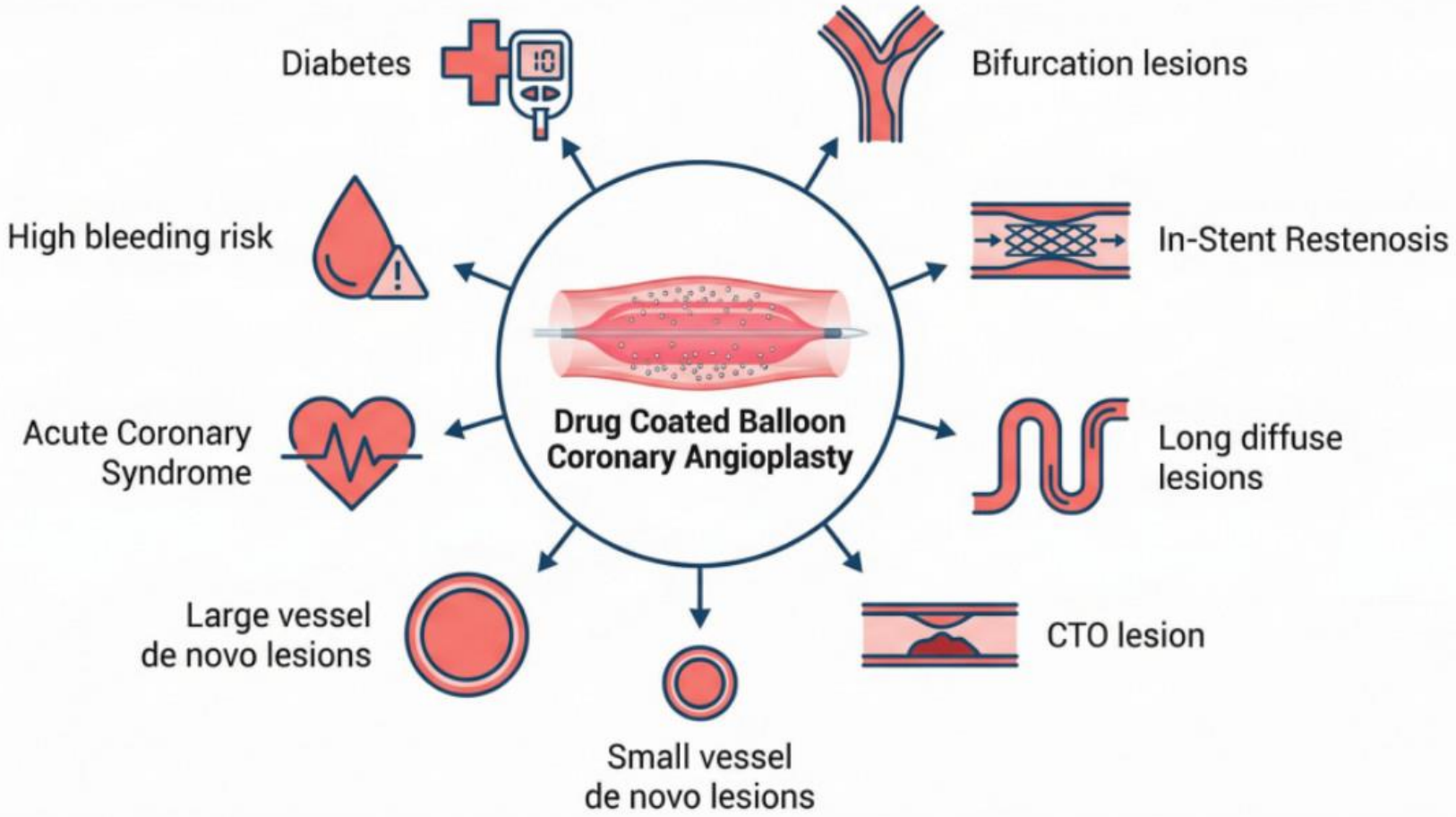
Ca lâm sàng 5:

- CTO Cx , hẹp lan tỏa LAD, HBR
- Hybrid PCI: DES + DCB
- Kết quả sau can thiệp 2 DCB (05/1)

Ca lâm sàng 5:

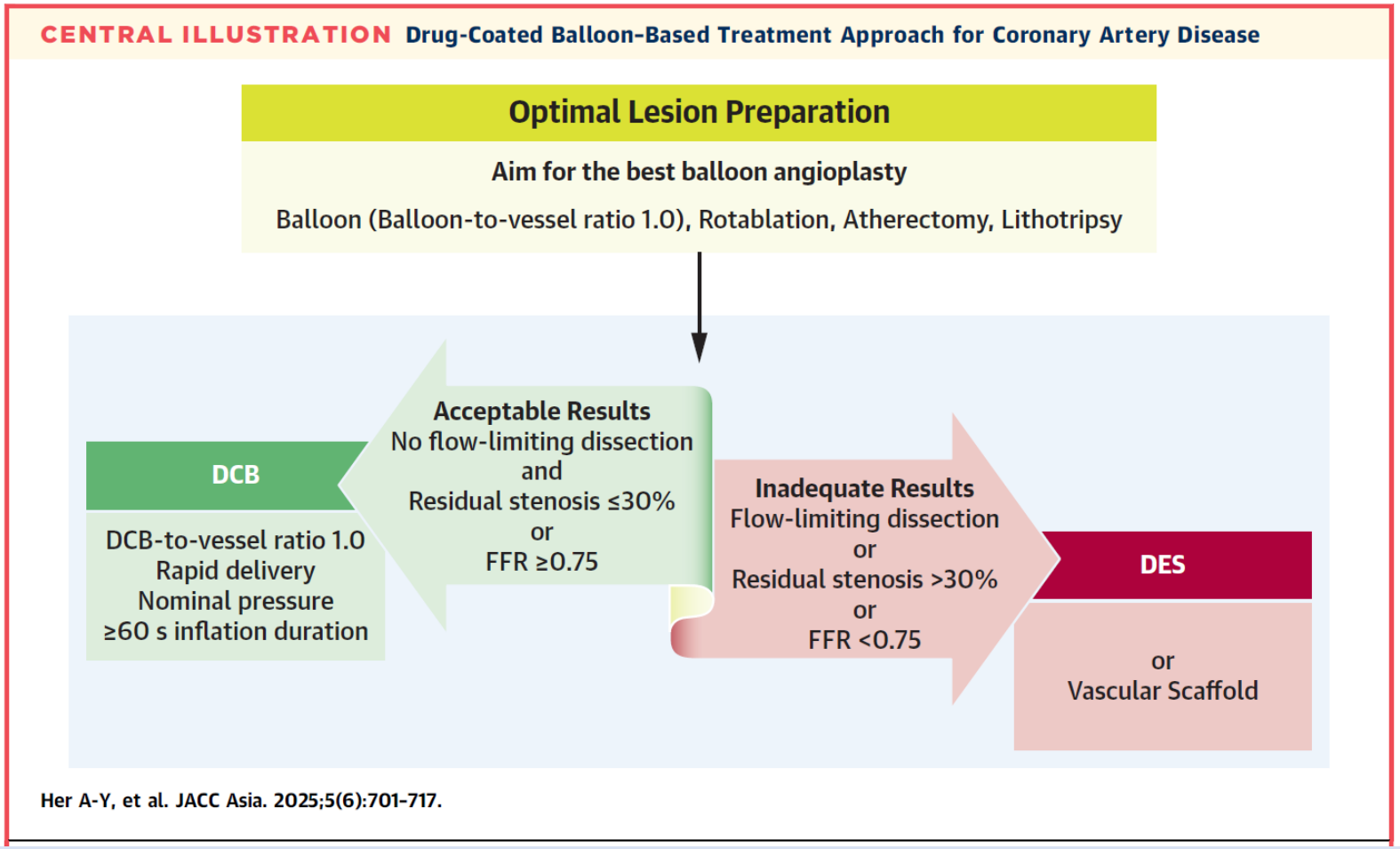
- Kết quả sau can thiệp 1 DES + 2 DCB (12/1)

Chỉ định mở rộng của bóng phủ thuốc



Điều trị bệnh lý động mạch vành bằng DCB

The Second Report of Asia-Pacific Consensus Group



- Drug-coated balloon (DCB)–based PCI **prioritizes optimal lesion preparation,** using DCB as the default device and deciding between DCB or DES based on outcomes.
- This approach minimized stent use, ensuring effective drug delivery and reducing the need for bailout stenting.
- FFR ¼ fractional flow reserve.

Không phải tất cả DCB đều giống nhau

The Second Report of Asia-Pacific Consensus Group

«NO DCB Class Effect» largely observed, recognized

These documents emphasized that not all DCB are created equal and that a 'class effect' cannot be anticipated as the results obtained with different DCB are not uniform. This remains a major challenge

Drug-coated balloon treatment for lower extremity vascular disease intervention: an international positioning document – B.Cortese et al. Eur Heart J. 2016

col, respectively (Supporting Information Table S5). A systematic analysis of DCB trials suggests that there may not be a class effect and that

SCAI consensus guidelines for device selection in femoral-popliteal arterial interventions 2018

comparative randomized trials are lacking, a class effect for all DCBs cannot be assumed [598]. Randomized trial data supporting the use of DCB angioplasty are limited to the treatment of in-stent restenosis

2018 ESC/EACTS Guidelines on myocardial revascularization

- Hiệu suất của mỗi DCB phụ thuộc vào sự cân bằng tương hỗ của nhiều yếu tố khác nhau:
  1. Loại thuốc
  2. Liều lượng
  3. Cách bào chế
  4. Tá dược
  5. Công nghệ phủ

Những yếu tố này quyết định sinh khả dụng sinh học của thuốc trong mô.

- Hiệu quả điều trị của DCB dựa trên đặc điểm riêng của công nghệ và dữ liệu nghiên cứu lâm sàng của chính nó.

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CHÂN THÀNH CẢM ƠN