The Spencer B. King III
导管室 南京市第一医院
Chief: Prof. Shao-Liang Chen

The 3rd Complex PCI Forum
Nov 30, Breakfast Meeting, Room 1, B2
Seoul, South Korea

Complex PCI

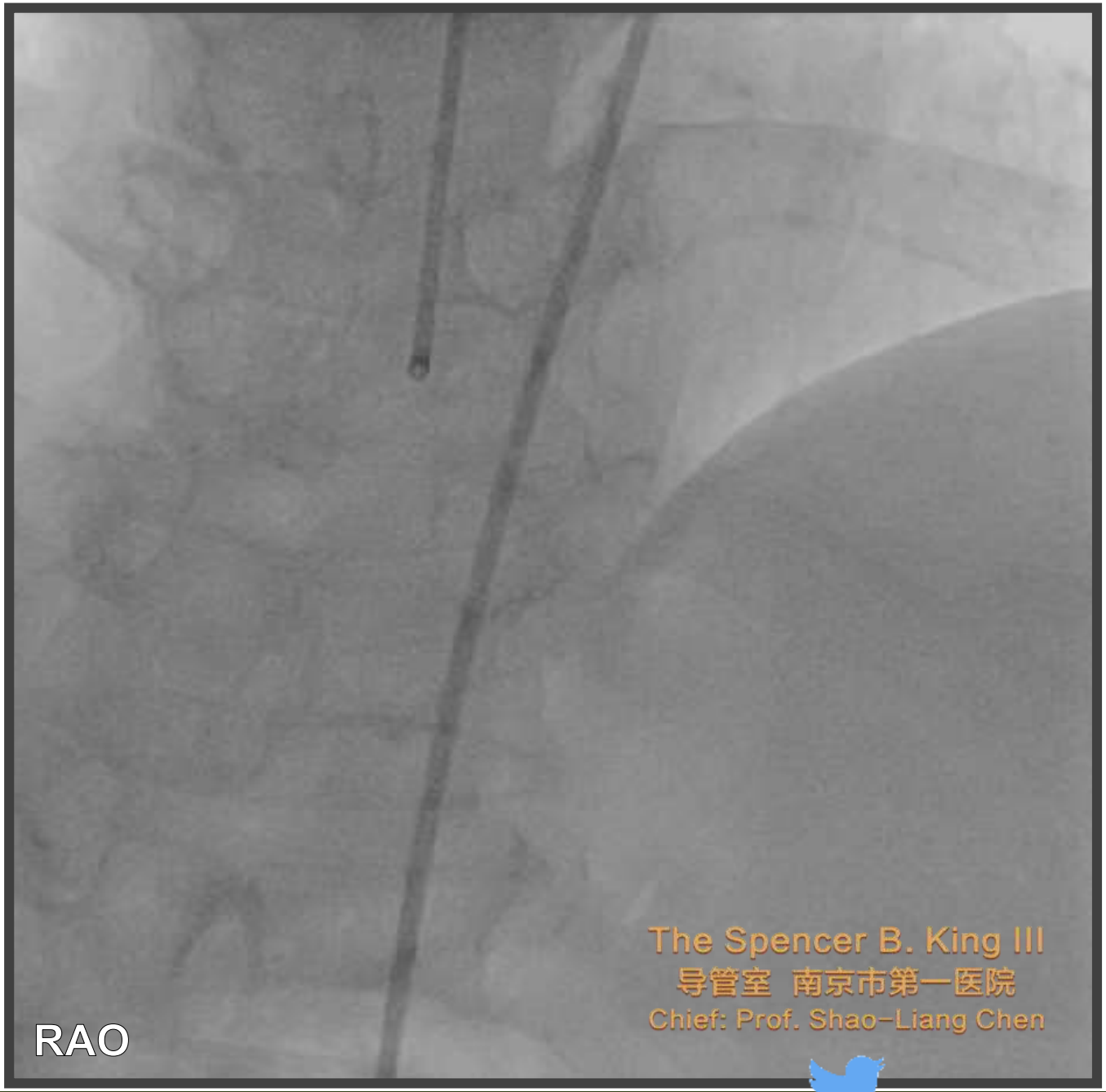
on behalf of Prof. Shao Liang Chen, MD, PhD

Bill D Gogas MD, PhD, FACC

Interventional Cardiologist | "The Spencer B. King III Cath Lab"| Nanjing | CN
Fmr Instructor of Medicine | Emory University | Atlanta | GA | US
Visiting Professor of Medicine | Nanjing Medical University | Nanjing | CN
CME/MOC Editor: JACC CV Interventions

@bgmdphd

M, 54 yo, UA / DM I, Hypertension
Echo: HFpEF (EF:40%) /mild MR + / mild AR +
ASA: 100mg x 1, Ticagrelor: 90mg x 2, Losartan: 80mg x 1, Lipitor 20mg x 1

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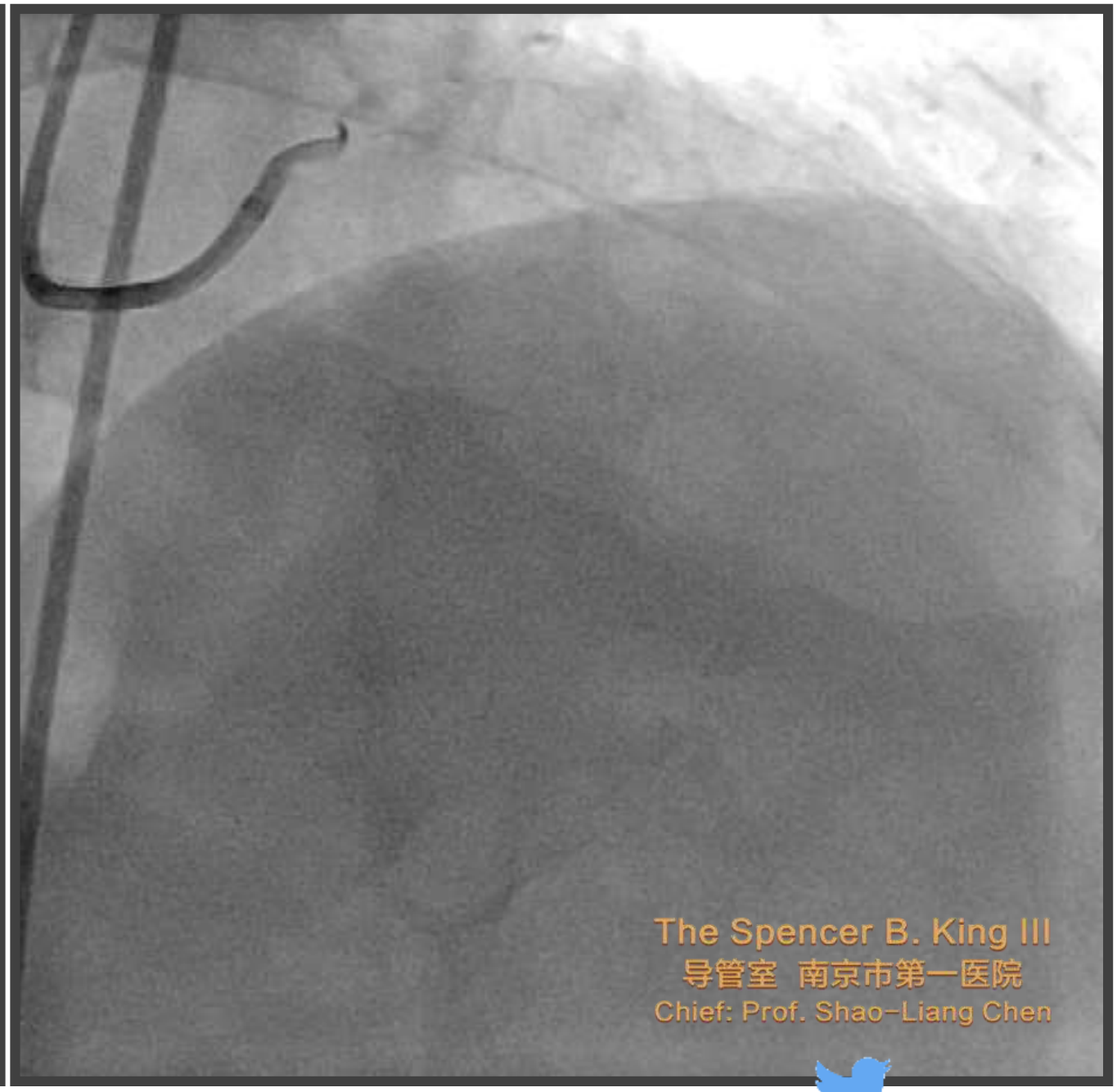
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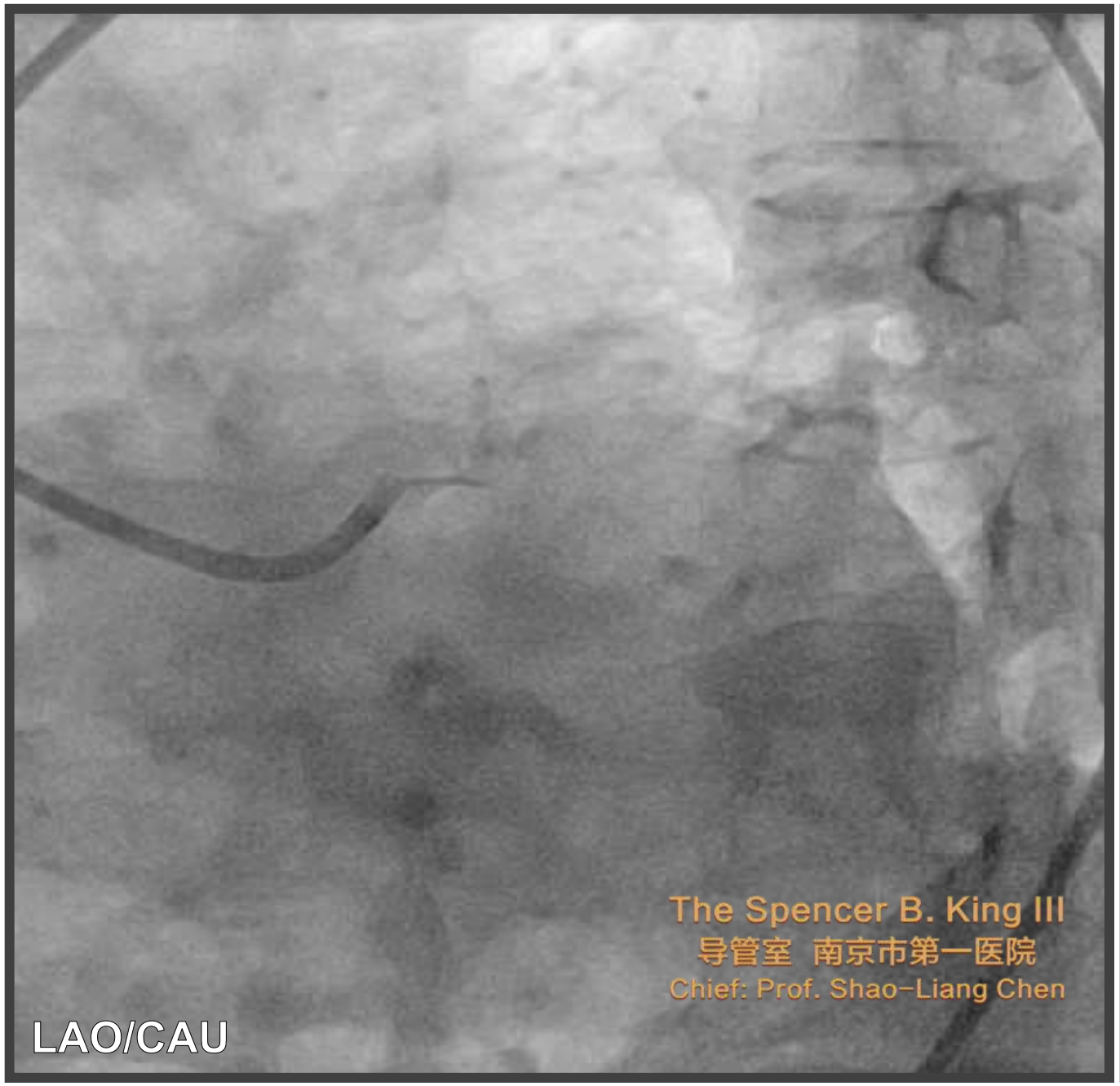
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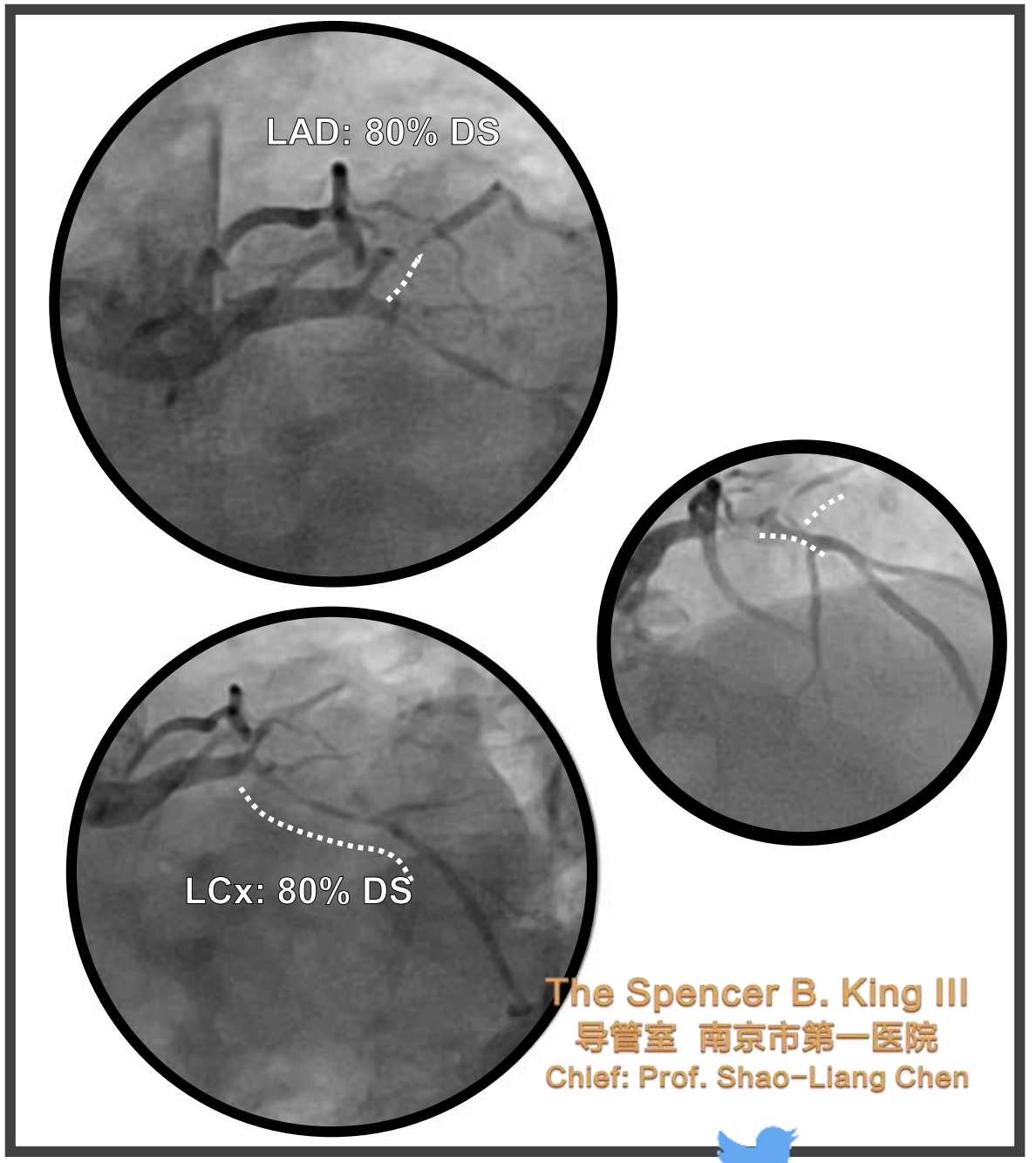
LAO/CAU


LAD: 80% DS
LCx: 80% DS
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Is this Complex Bifurcation Lesion? (CBL?)

Treatment effects of systematic two-stent and provisional stenting techniques in patients with complex coronary bifurcation lesions: rationale and design of a prospective, randomised and multicentre DEFINITION II trial

Jun-Jie Zhang,[1] Xiao-Fei Gao,[1] Ya-Ling Han,[2] Jing Kan,[3] Ling Tao,[4] Zhen Ge,[1] Damras Tresukosol,[5] Shu Lu,[6] Li-Kun Ma,[7] Feng Li,[8] Song Yang,[9] Jun Zhang,[10] Muhammad Munawar,[11] Li Li,[12] Rui-Yan Zhang,[13] He-Song Zeng,[14] Teguh Santoso,[15] Ping Xie,[16] Ze-Ning Jin,[17] Leng Han,[18] Wei-Hsian Yin,[19] Xue-Song Qian,[20] Qi-Hua Li,[21] Lang Hong,[22] Chotnoparatpat Paiboon,[23] Yan Wang,[24] Li-Jun Liu,[25] Lei Zhou,[26] Xue-Ming Wu,[27] Shang-Yu Wen,[28] Qing-Hua Lu,[29] Jun-Qiang Yuan,[30] Liang-Long Chen,[31] Francesco Lavarra,[32] Alfredo E Rodríguez,[33] Li-Min Zhou,[34] Shi-Qin Ding,[35] Kitigon Vichairuangthum,[36] Yuan-Sheng Zhu,[37] Meng-Yue Yu,[38] Chan Chen,[39] Imad Sheiban,[40] Yong Xia,[41] Yu-Long Tian,[42] Zheng-Lu Shang,[43] Qing Jiang,[44] Yong-Hong Zhen,[45] Xin Wang,[46] Fei Ye,[1] Nai-Liang Tian,[1] Song Lin,[1] Zhi-Zhong Liu,[1] Shao-Liang Chen[1,3]

BMJ

Zhang J-J, Gao XF, Han YL et al. BMJ Open 2018;8:e020019

Treatment effects of systematic two-stent and provisional stenting techniques in patients with complex coronary bifurcation lesions: rationale and design of a prospective, randomised and multicentre DEFINITION II trial

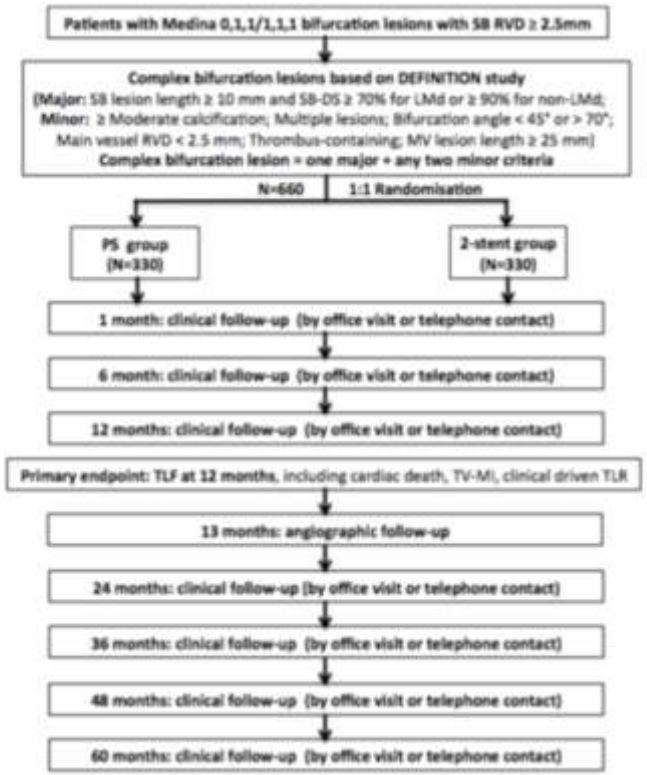

Table 1 Criteria of complex bifurcation lesions

Criteria	Lesion characteristics
Major 1	Distal LM bifurcation: SB-DS ≥70% and SB lesion length ≥10 mm
Major 2	Non-LM bifurcation: SB-DS ≥90% and SB lesion length ≥10 mm
Minor 1	Moderate to severe calcification
Minor 2	Multiple lesions
Minor 3	Bifurcation angle <45° or >70°
Minor 4	Main vessel RVD <2.5 mm
Minor 5	Thrombus-containing lesions
Minor 6	MV lesion length ≥25 mm
Major 1+any 2 minor 1–6=complex bifurcation lesion	
Major 2+any 2 minor 1–6=complex bifurcation lesion	

Zhang J-J, Gao XF, Han YL et al. BMJ Open 2018;8:e020019

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Is IVUS-guidance mandatory for CBLs?

Intravascular Ultrasound Versus Angiography-Guided Drug-Eluting Stent Implantation

Junjie Zhang, PhD,[a] Xiaofei Gao, MD,[a,*] Jing Kan, MBBS,[a,*] Zhen Ge, MD,[a] Leng Han, MD,[b] Shu Lu, MD,[c] Nailiang Tian, MD,[a] Song Lin, MD,[a] Qinghua Lu, MD,[d] Xueming Wu, MD,[e] Qihua Li, MD,[f] Zhizhong Liu, PhD,[a] Yan Chen, MD,[g] Xuesong Qian, MD,[h] Juan Wang, MD,[b] Dayang Chai, MD,[c] Chonghao Chen, MD,[e] Xiaolong Li, MD,[f] Bill D. Gogas, MD,[i] Tao Pan, MBBS,[a] Shoujie Shan, MD,[a] Fei Ye, MD,[a] Shao-Liang Chen, MD, PhD[a]

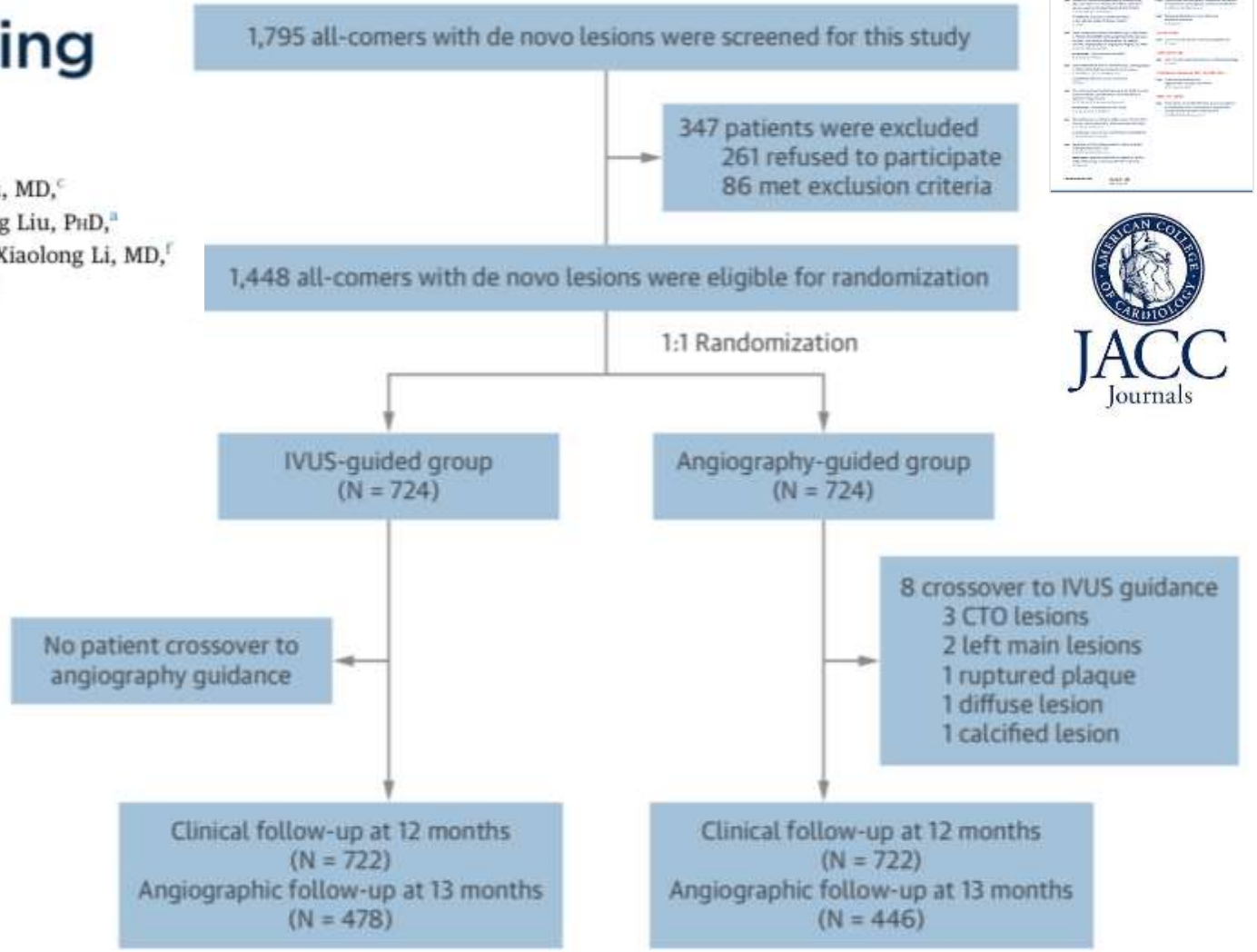
BACKGROUND Intravascular ultrasound (IVUS)-guided drug-eluting stent (DES) implantation is associated with fewer major adverse cardiovascular events compared with angiography guidance for patients with individual lesion subset. However, the beneficial effect on major adverse cardiovascular event outcome of IVUS guidance over angiography guidance in all-comers who undergo DES implantation still remains understudied.

OBJECTIVES This study aimed to determine the benefits of IVUS guidance over angiography guidance during DES implantation in all-comer patients.

METHODS A total of 1,448 all-comer patients who required DES implantation were randomly assigned (1:1 ratio) to either an IVUS guidance or angiography guidance group. The primary endpoint was target-vessel failure (TVF) at 12 months, including cardiac death, target-vessel myocardial infarction, and clinically driven target-vessel revascularization (TVR). The procedure was defined as a success if all IVUS-defined optimal criteria were met.

RESULTS At 12 months follow-up, 60 TVFs (4.2%) occurred, with 21 (2.9%) in the IVUS group and 39 (5.4%) in the angiography group (hazard ratio [HR]: 0.530; 95% confidence interval [CI]: 0.312 to 0.901; p = 0.019). In the IVUS group, TVF was recorded in 1.6% of patients with successful procedures, compared with 4.4% in patients who failed to achieve all optimal criteria (HR: 0.349; 95% CI: 0.135 to 0.898; p = 0.029). The significant reduction of clinically driven target-lesion revascularization or definite stent thrombosis (HR: 0.407; 95% CI: 0.188 to 0.880; p = 0.018) based on lesion-level analysis by IVUS guidance was not achieved when the patient-level analysis was performed.

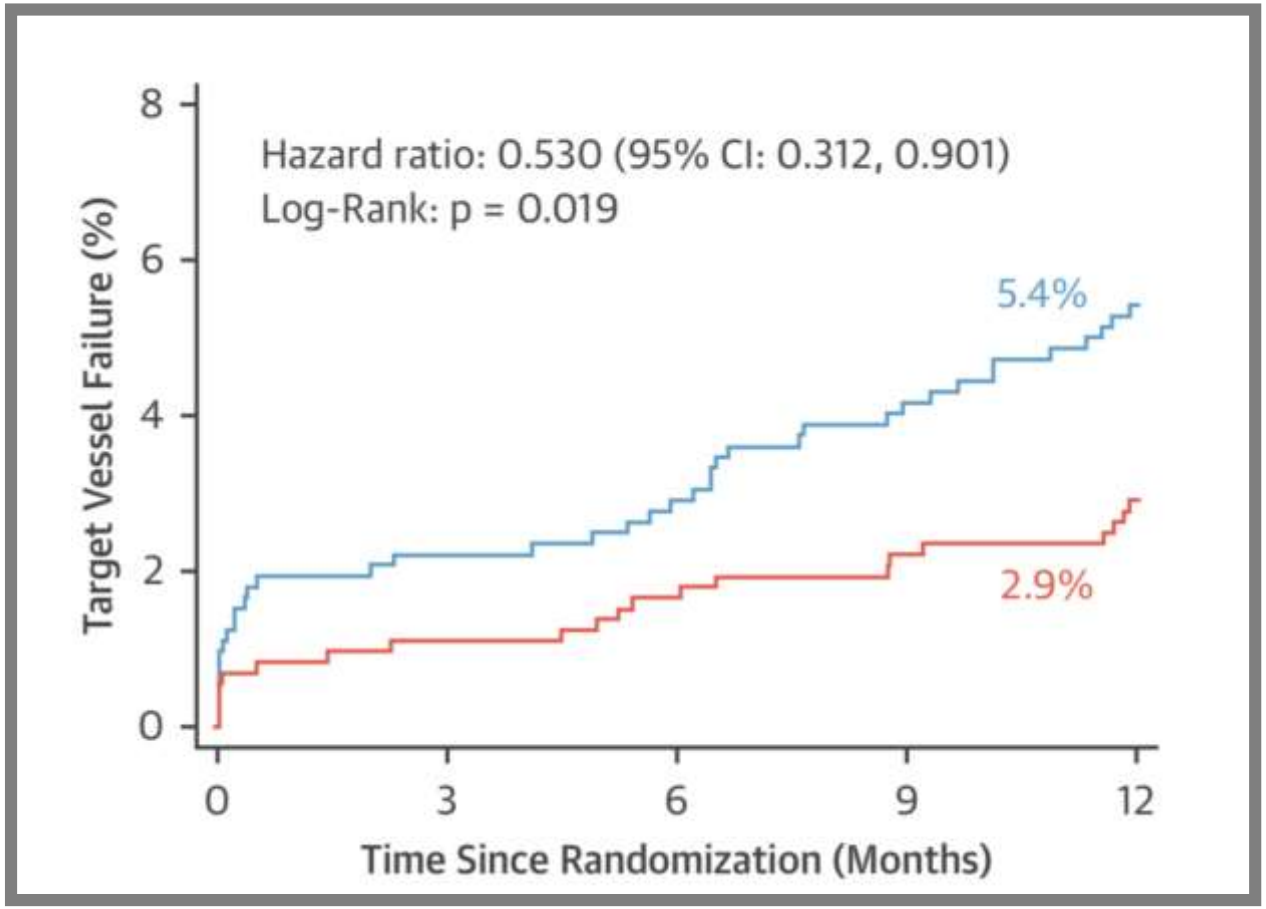
CONCLUSIONS The present study demonstrates that IVUS-guided DES implantation significantly improved clinical outcome in all-comers, particularly for patients who had an IVUS-defined optimal procedure, compared with angiography guidance. (Intravascular Ultrasound Guided Drug Eluting Stents Implantation in "All-Comers" Coronary Lesions [ULTIMATE]; NCT02215915) (J Am Coll Cardiol 2018;72:3125–36) © 2018 by the American College of Cardiology Foundation.

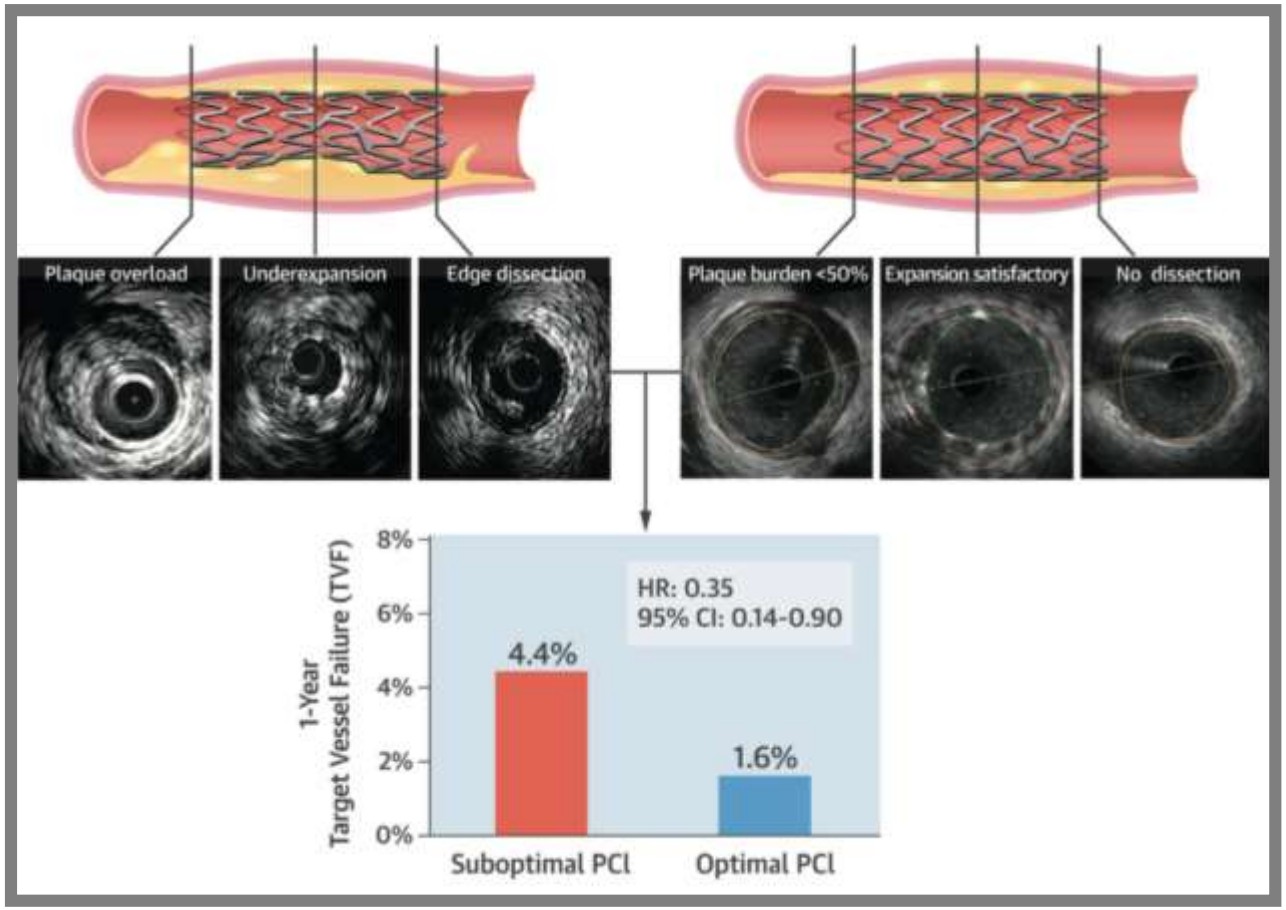


JACC Journals

Zhang JJ, Gao, X, Kan J, J Am Coll Cardiol 2018;72:3125–36

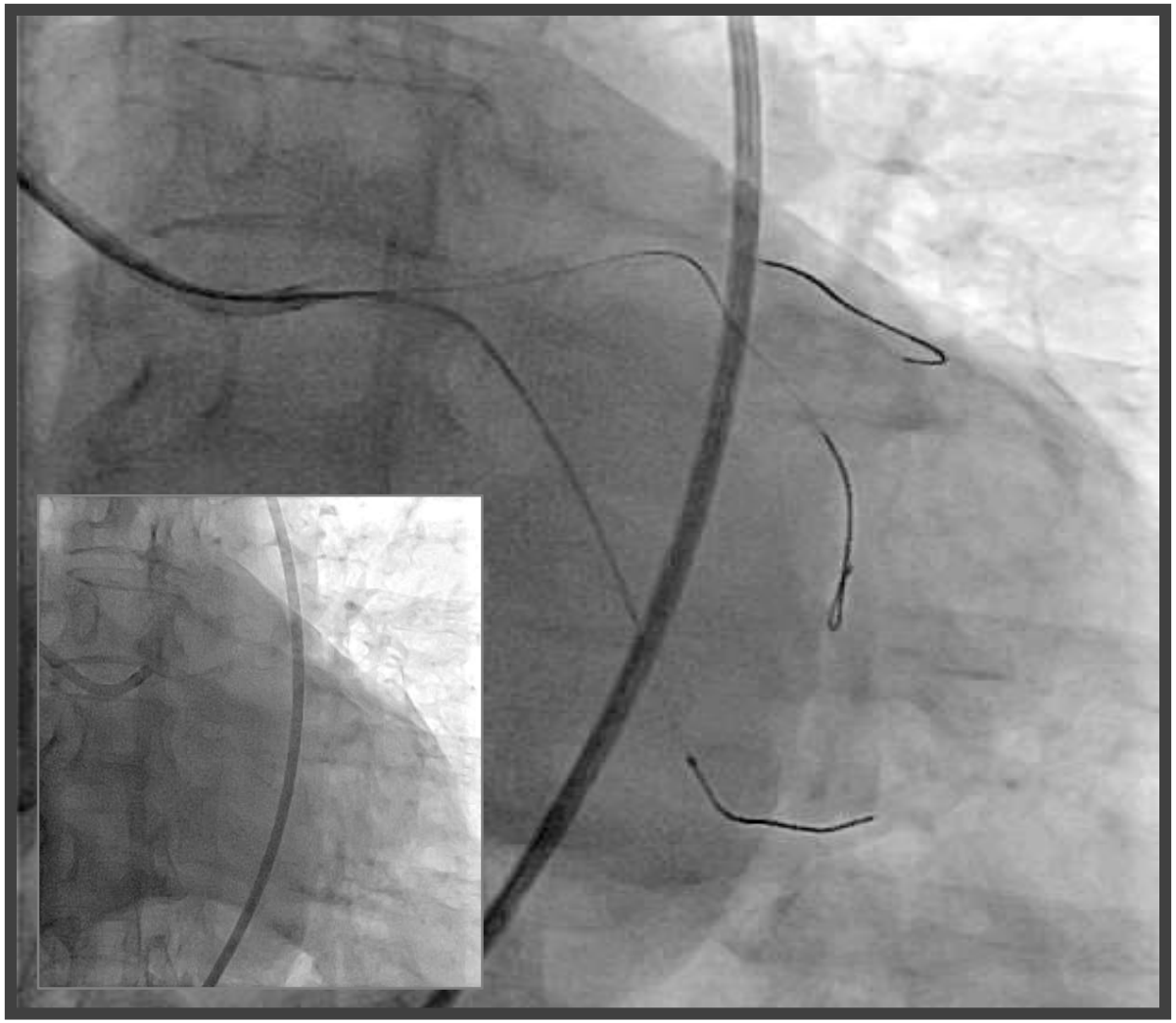
Intravascular Ultrasound Versus Angiography-Guided Drug-Eluting Stent Implantation

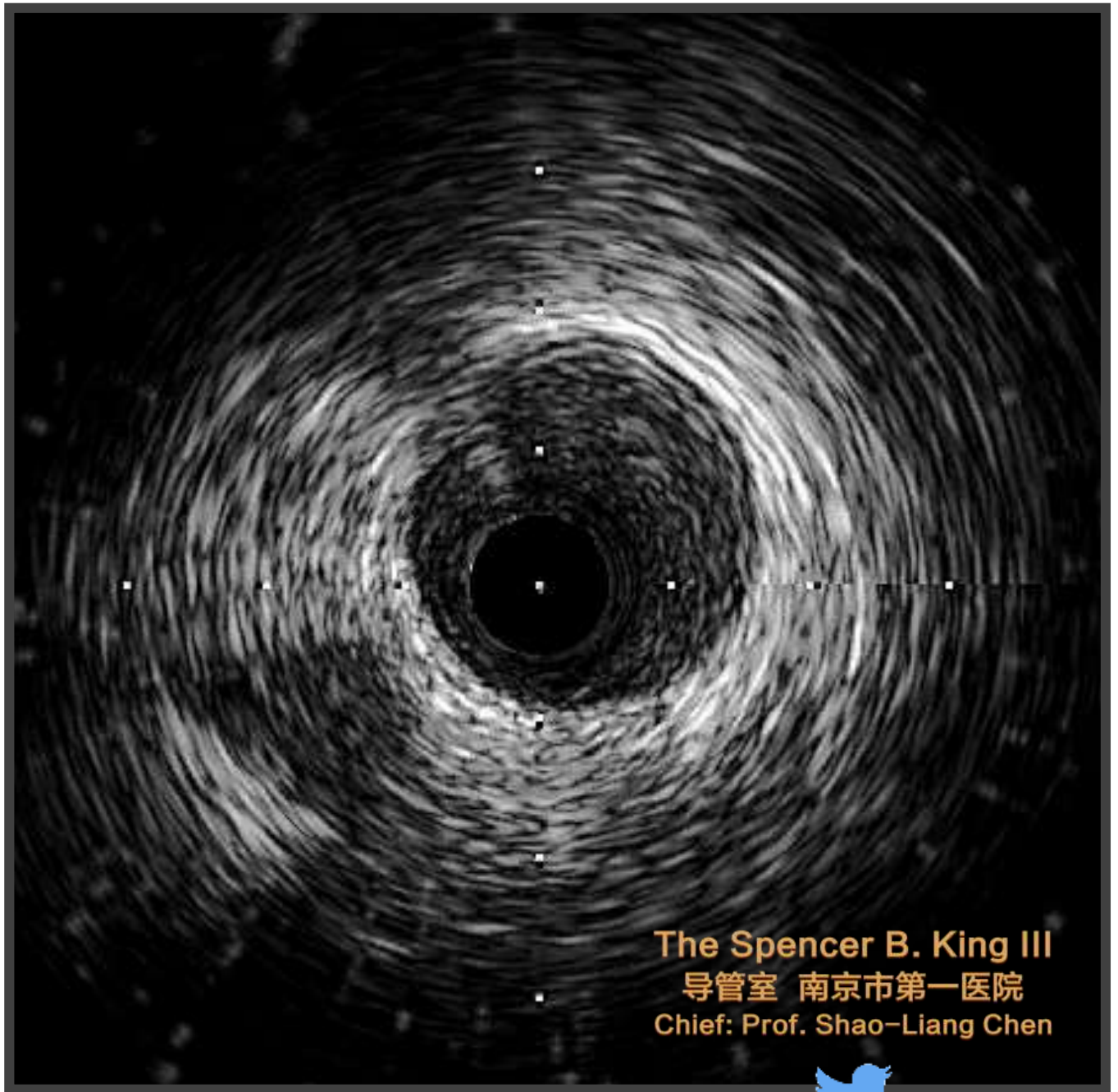




Zhang JJ, Gao, X, Kan J, J Am Coll Cardiol 2018;72:3125–36

Wires: BMW (Abbott Vascular) 190 cm x 3
IVUS catheter: OptiCross™
(Boston Scientific) 2,5 F





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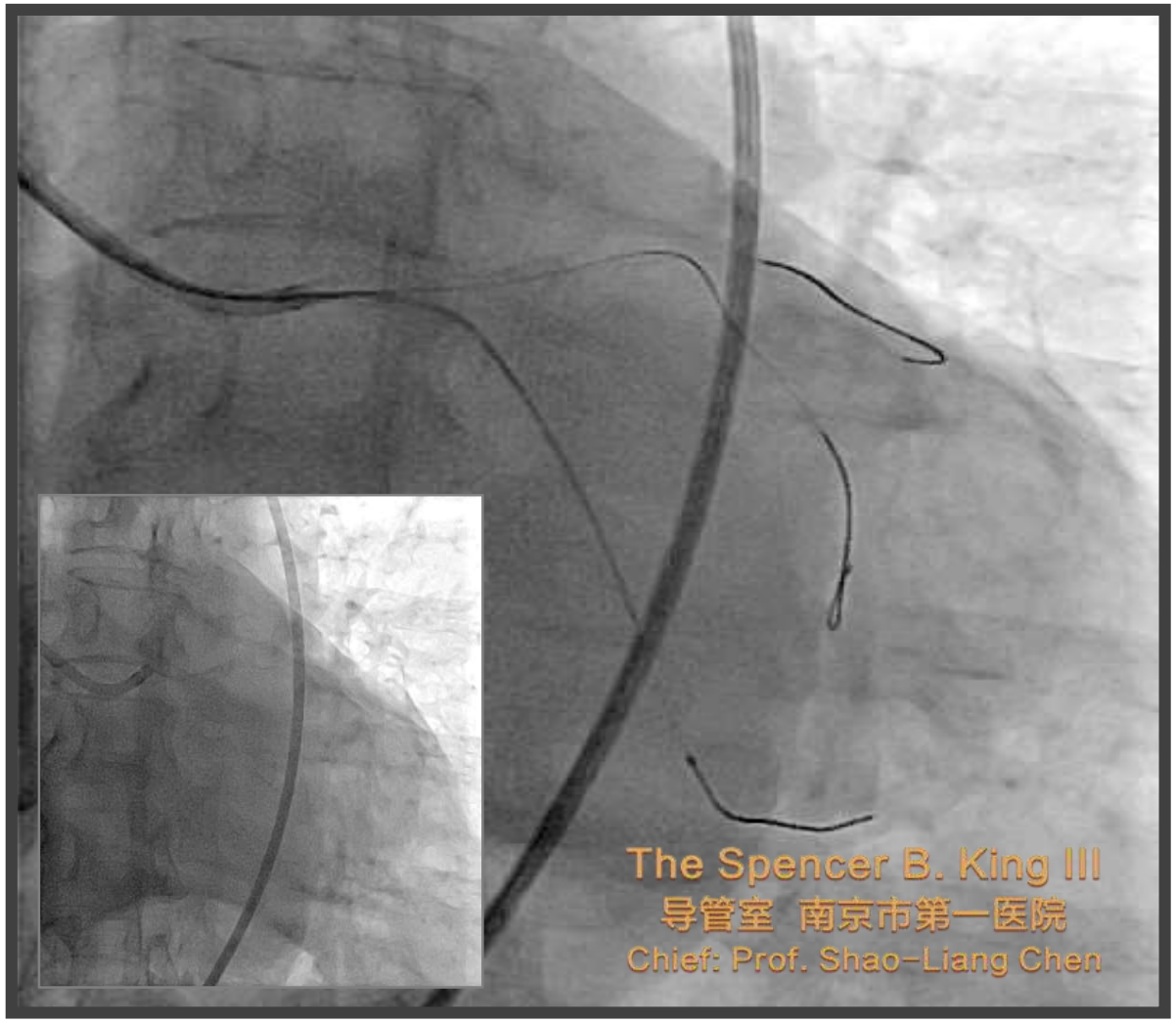

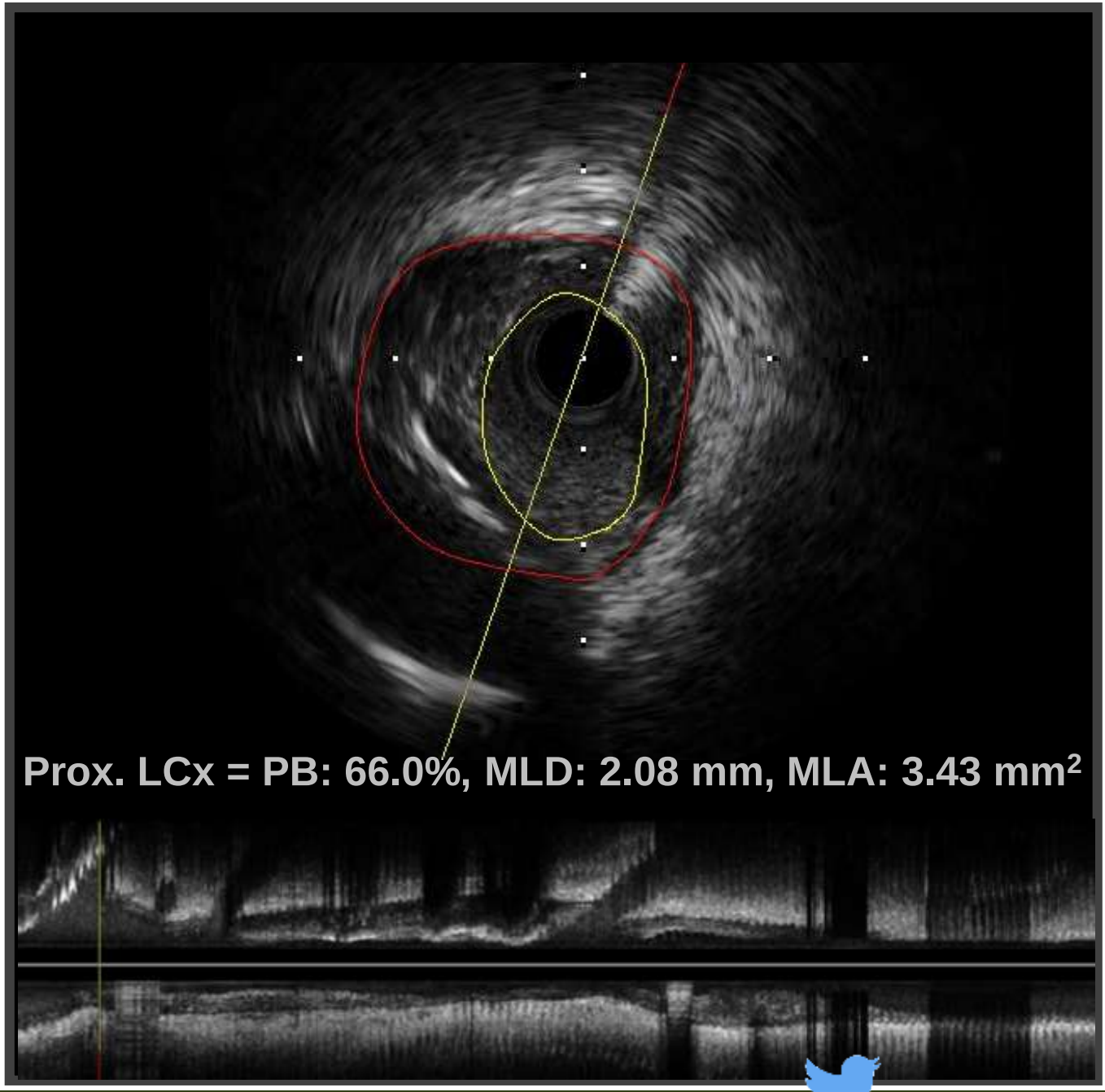

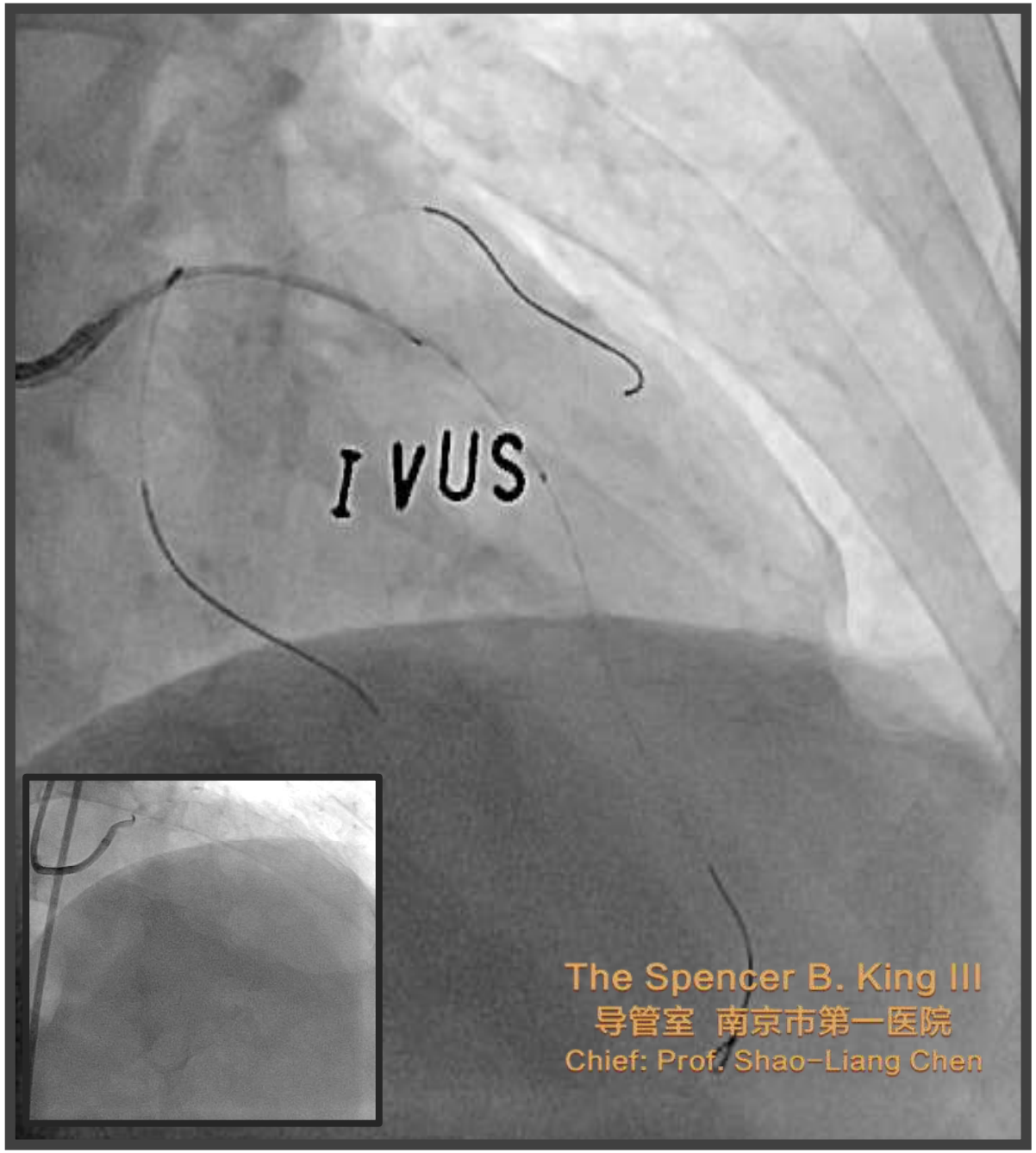
IVUS
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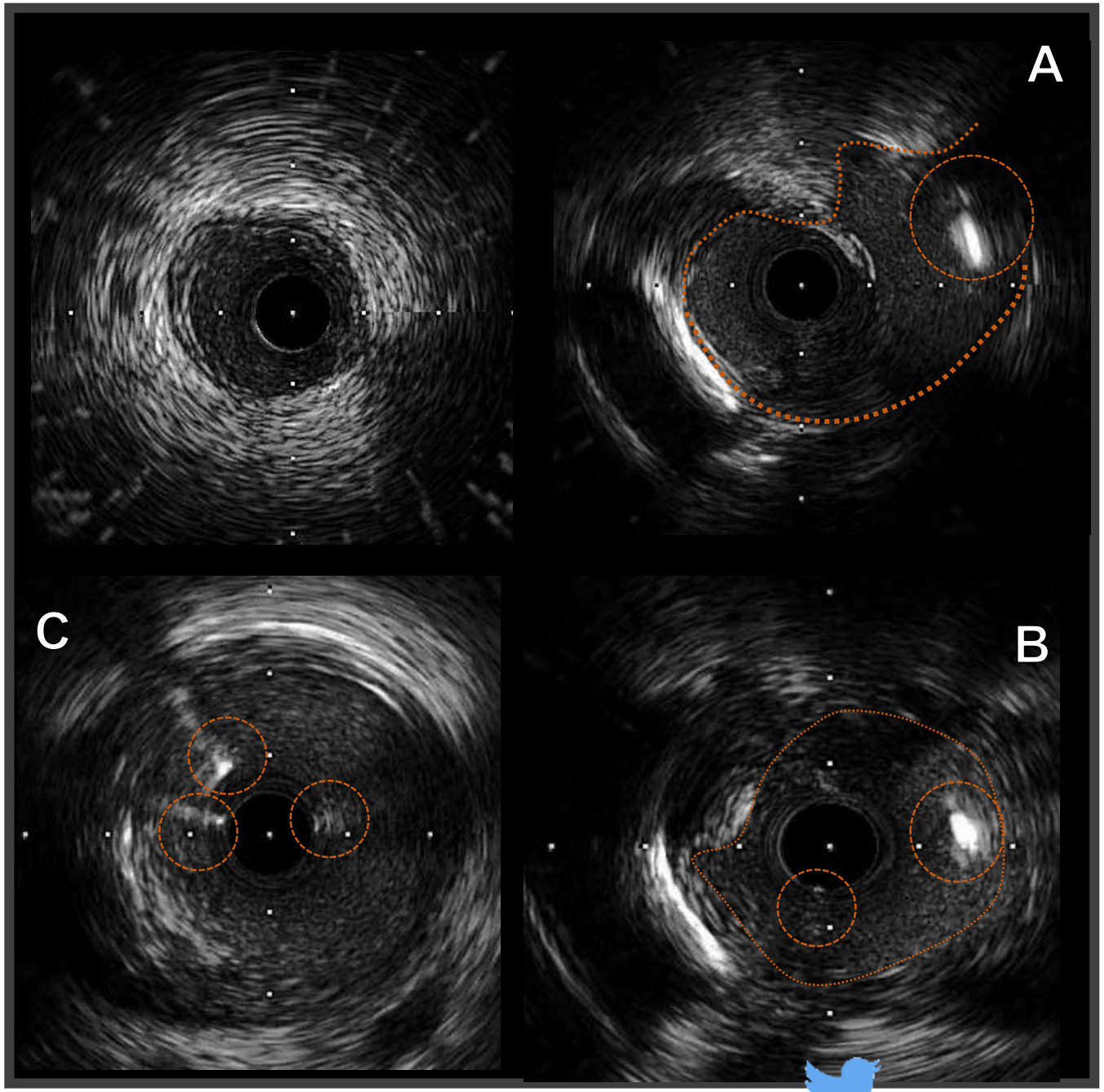
Chief: Prof. Shao-Liang Chen


A
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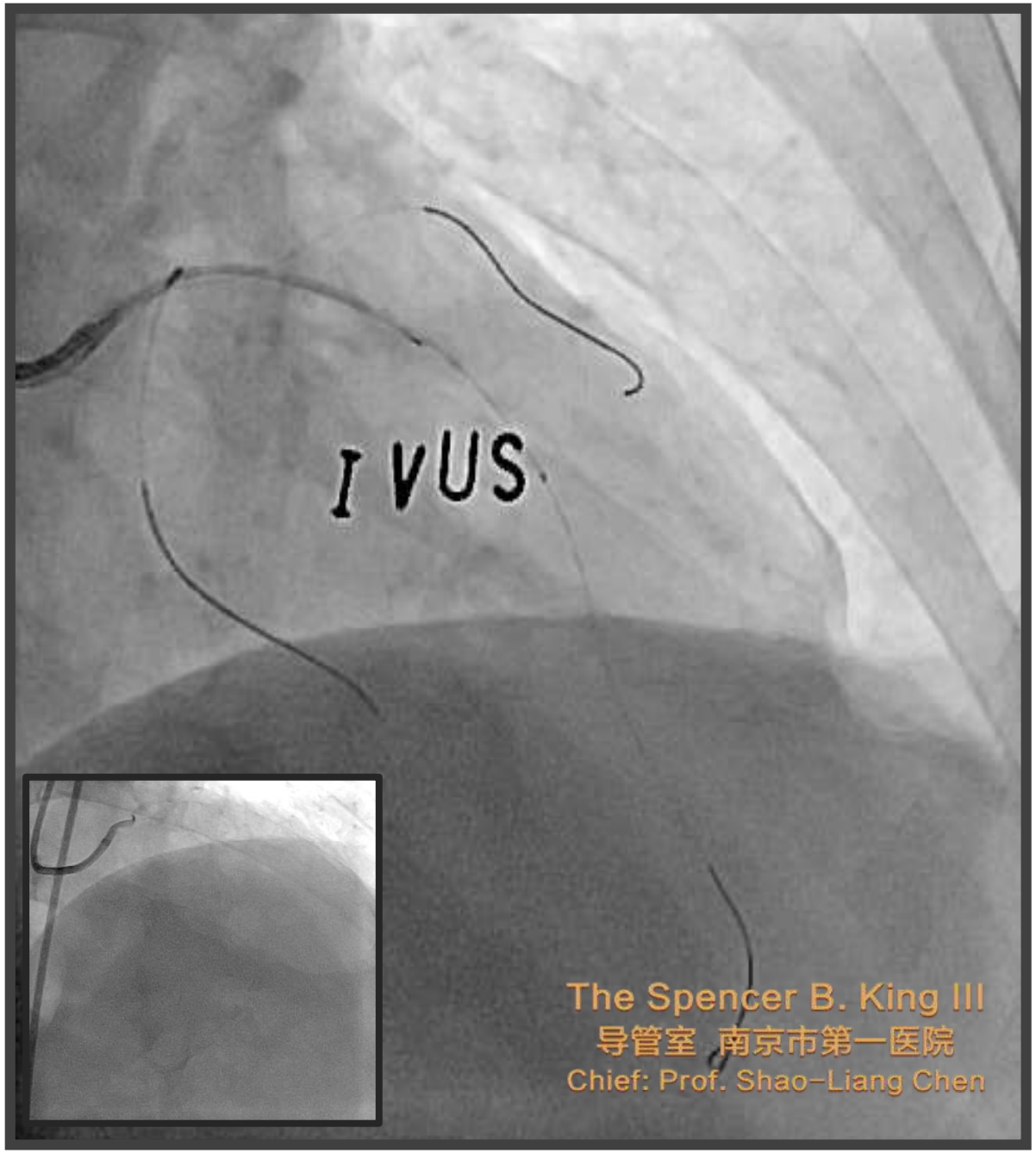
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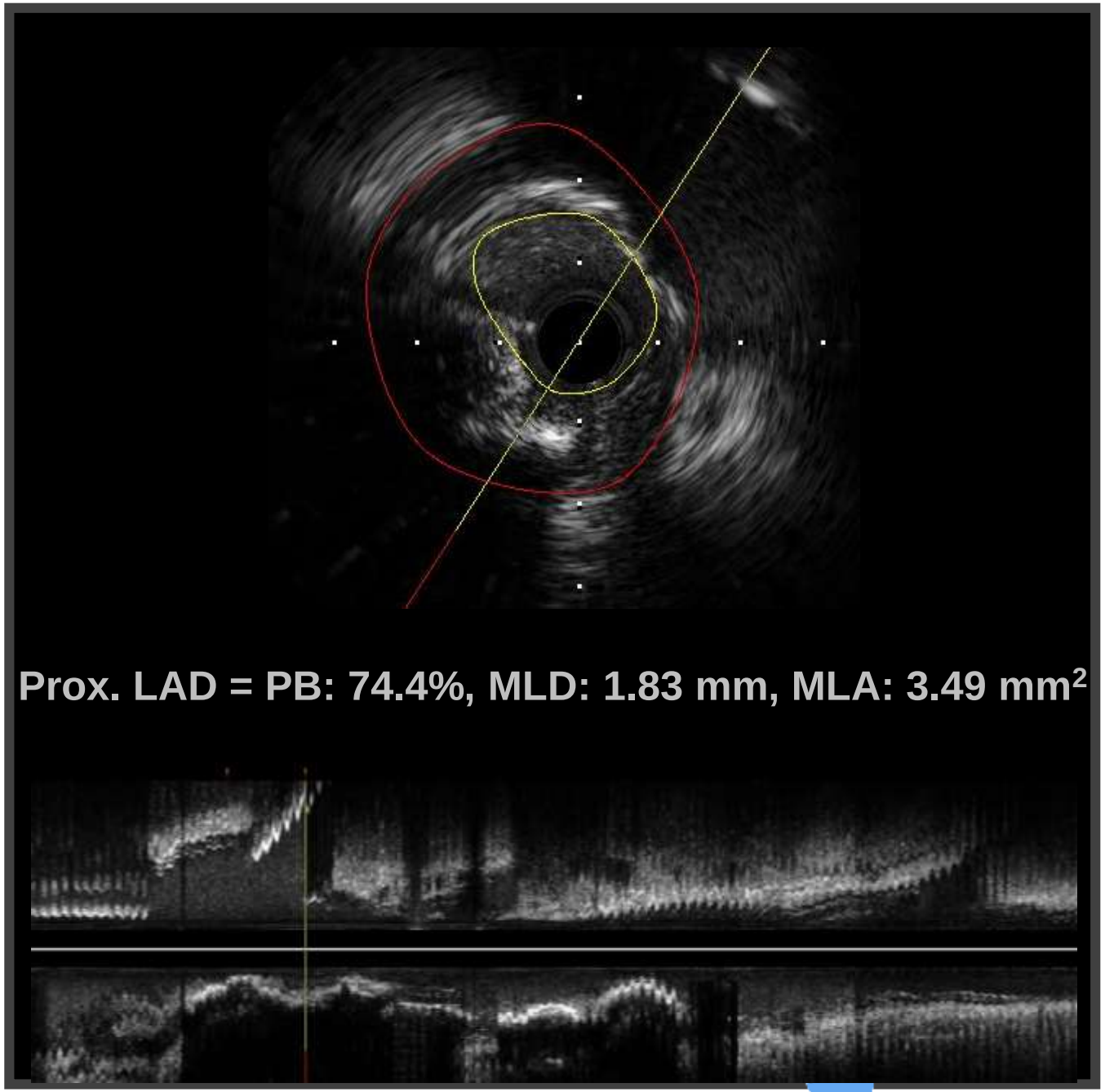
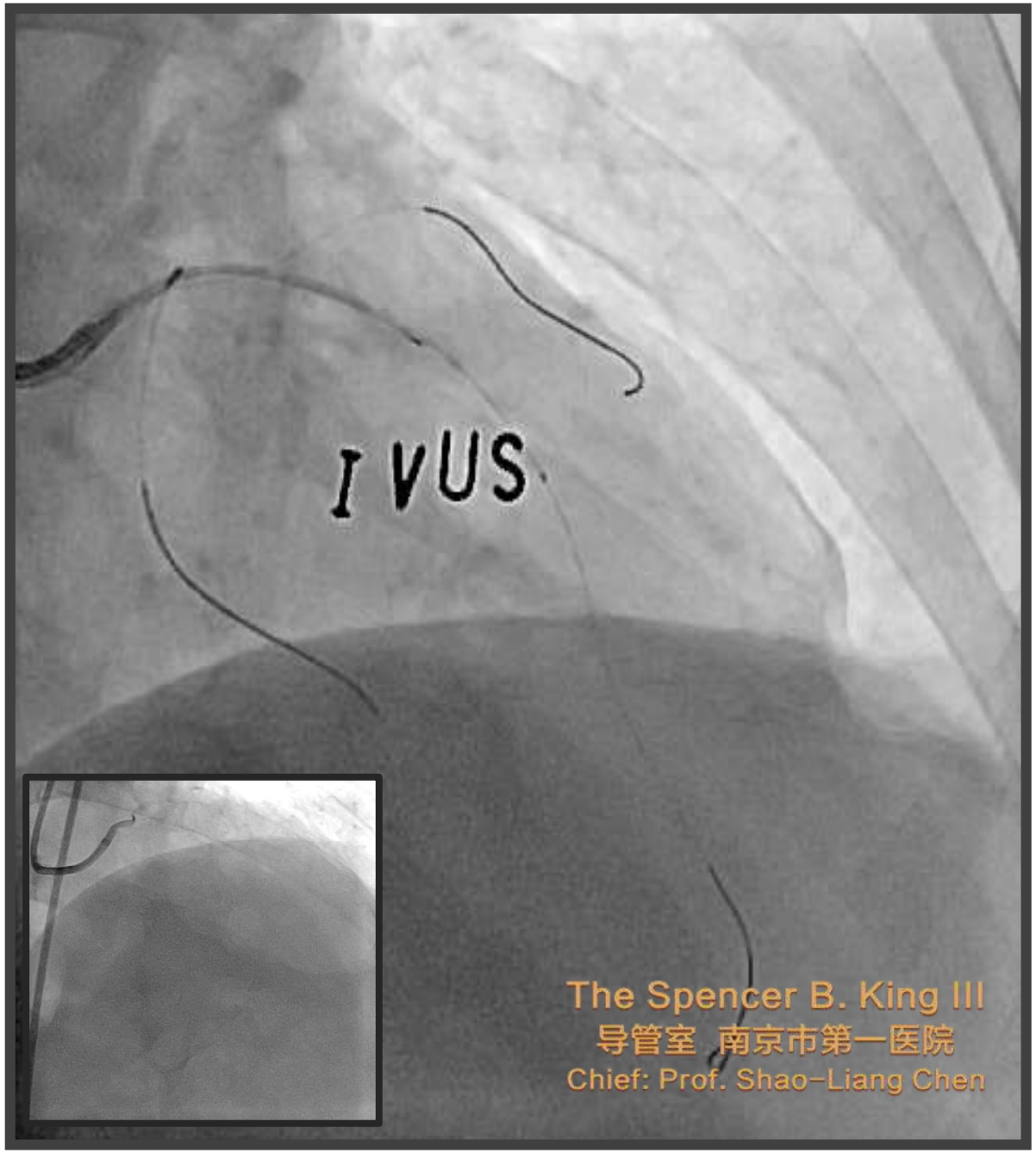

Prox. LAD = PB: 74.4%, MLD: 1.83 mm, MLA: 3.49 mm²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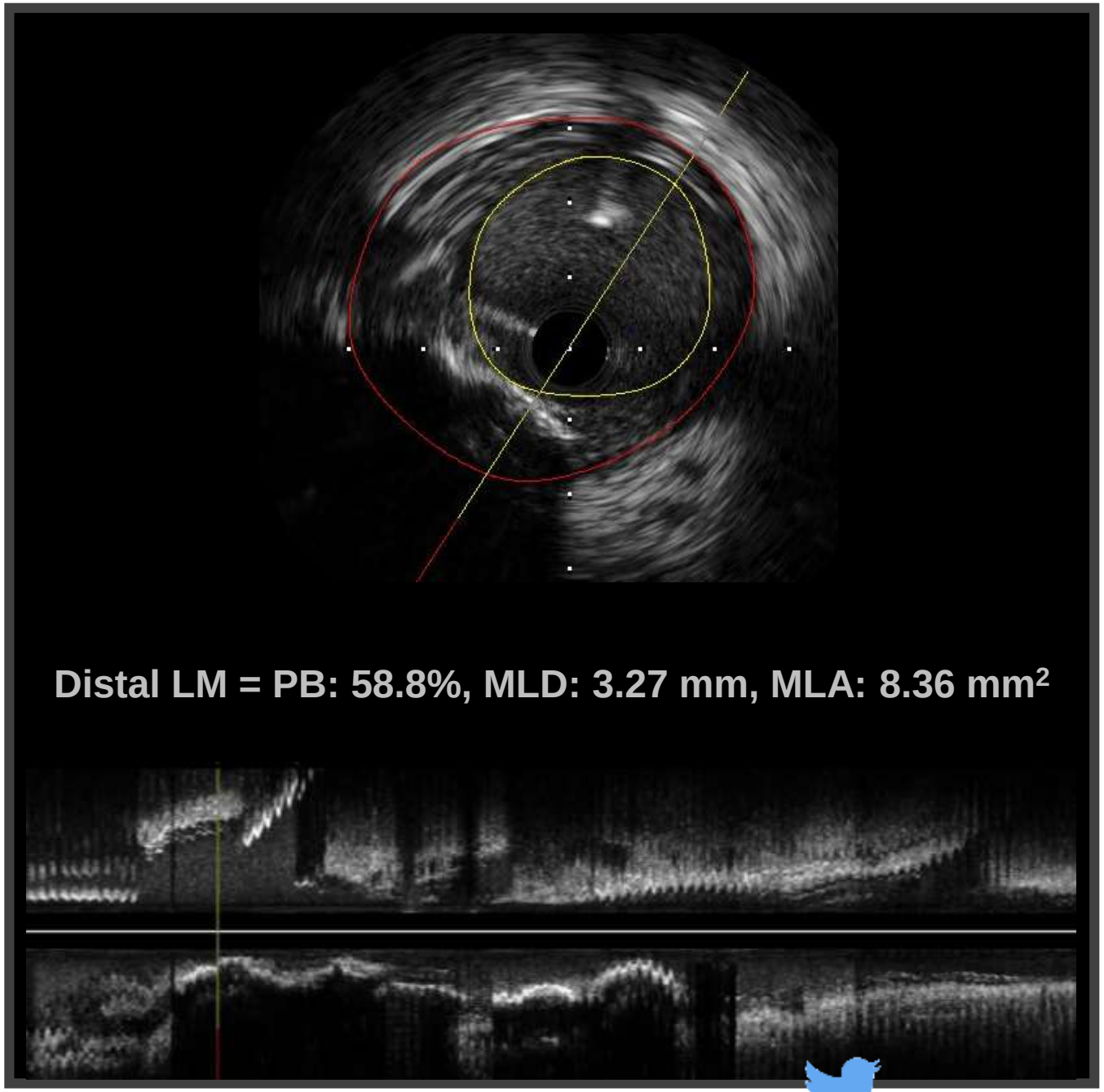
Distal LM = PB: 58.8%, MLD: 3.27 mm, MLA: 8.36 mm²

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Which is the most Appropriate Technique to Treat Distal LM 0,1,1 CBLs?

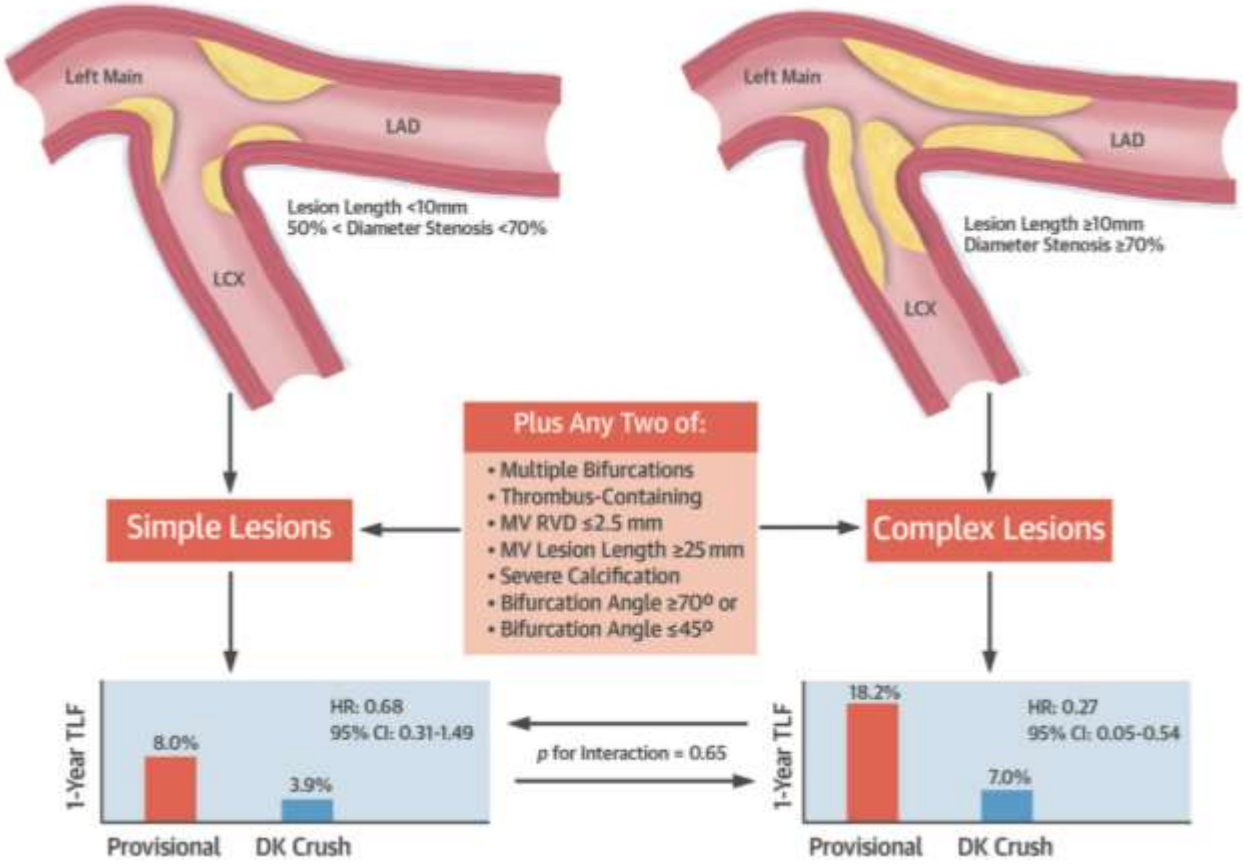
Double Kissing Crush Versus Provisional Stenting for Left Main Distal Bifurcation Lesions

DKCRUSH-V Randomized Trial

Shao-Liang Chen, MD,[a] Jue-Jie Zhang, PhD,[a] Yaling Han, MD,[b] Jing Kan, MBBS,[a] Lianglong Chen, MD,[c] Chunguang Qiu, MD,[d] Tiemin Jiang, MD,[e] Ling Tao, MD,[f] Hesong Zeng, MD,[g] Li Li, MD,[h] Yong Xia, MD,[i] Chuanyu Gao, MD,[j] Teguh Santoso, MD,[k] Chootopol Paiboon, MD,[l] Yan Wang, MD,[m] Tak W. Kwan, MD,[n] Fei Ye, MD,[o] Nailiang Tian, MD,[o] Zhizhong Liu, PhD,[a] Song Lin, MD,[o] Chengzhi Lu, MD,[p] Shangyu Wen, MD,[q] Lang Hong, MD,[r] Qi Zhang, MD,[s] Imad Sheiban, MD,[t] Yawei Xu, MD,[u] Lefeng Wang, MD,[v] Tanveer S. Rab, MD,[w] Zhanquan Li, MD,[x] Guanchang Cheng, MD,[y] Lianqun Cui, MD,[z] Martin B. Leon, MD,[aa] Gregg W. Stone, MD[aa]

Chen SL, Zhang JJ, Han Y, Kan J et al. J Am Coll Cardiol 2017;70:2605–17

Double Kissing Crush Versus Provisional Stenting for Left Main Distal Bifurcation Lesions



Chen SL, Zhang JJ, Han Y, Kan J et al. J Am Coll Cardiol 2017;70:2605–17

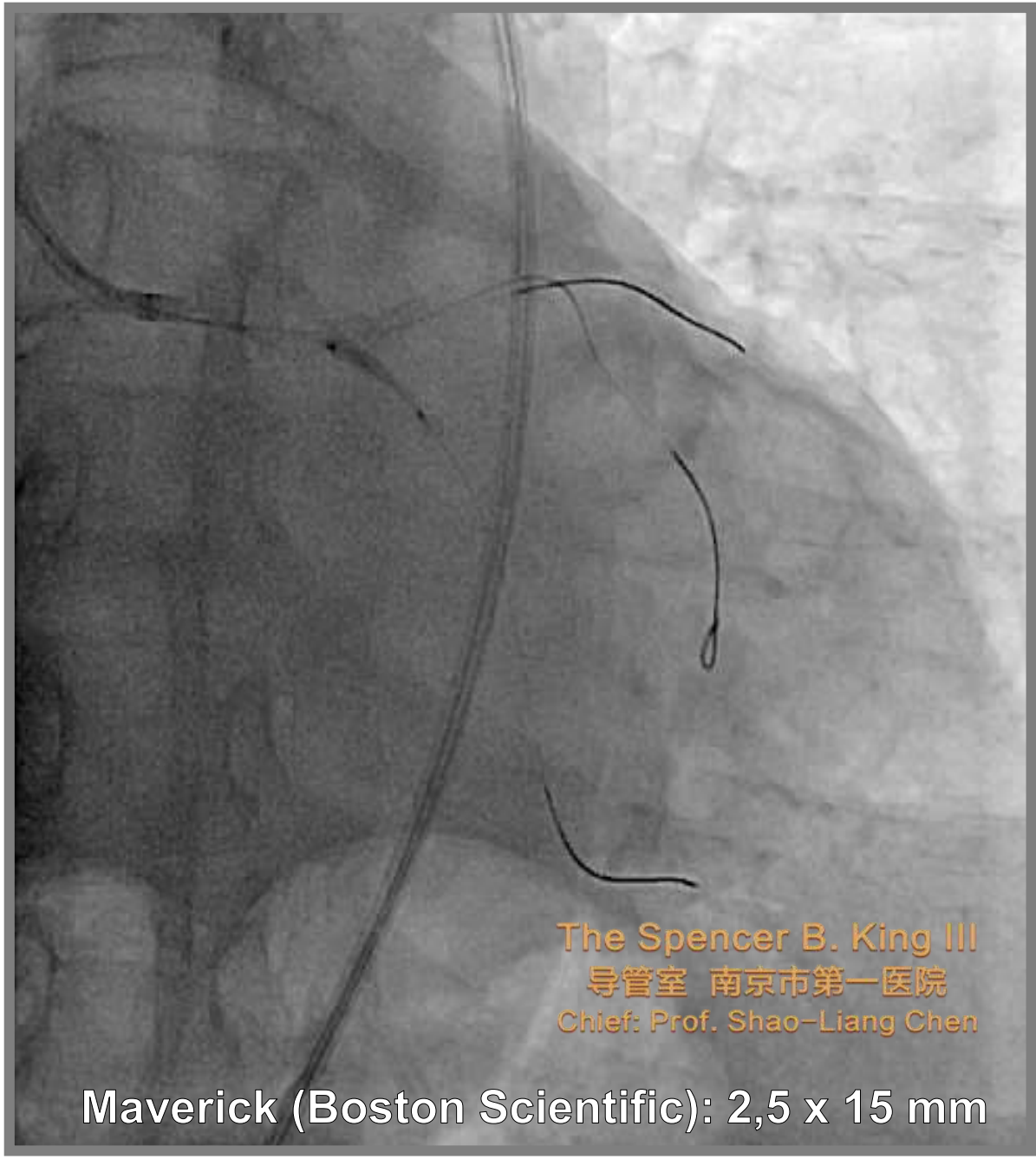
Classic crush and DK crush stenting techniques

Jun-Jie Zhang, PhD; Shao-Liang Chen*, MD, FACC

EuroIntervention
Official Journal of EuroPCR and the European Association of Percutaneous Cardiovascular Interventions (EAPCI)

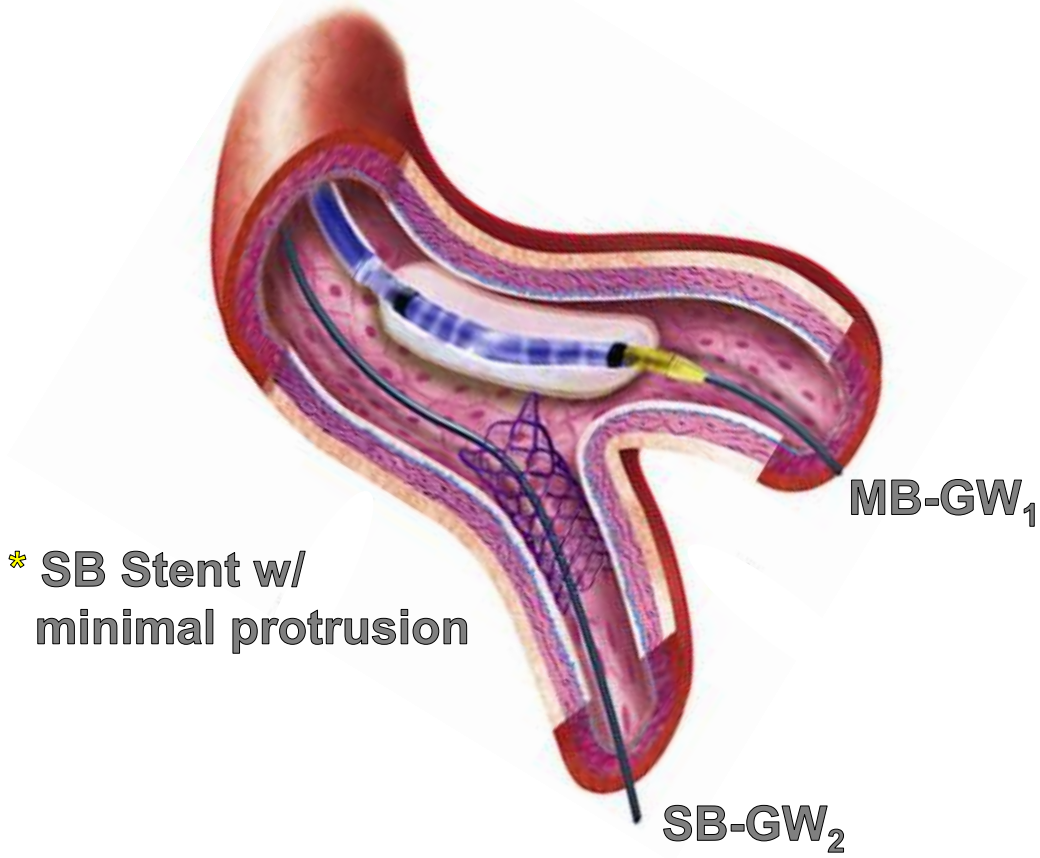
1. Balloon in the MV and stent the SB
2. MV Balloon inflation to Crush the SB Stent
3. Proximal Rewiring of the SB
4. 1st Kissing Balloon Inflation
5. MB Stenting
6. 1st Proximal Optimization Technique (POT)
7. SB Rewiring
8. 2nd Kissing Balloon Inflation
9. Re POT

Zhang JJ, Chen SL. EuroIntervention 2015;11 Suppl V:V102-5.

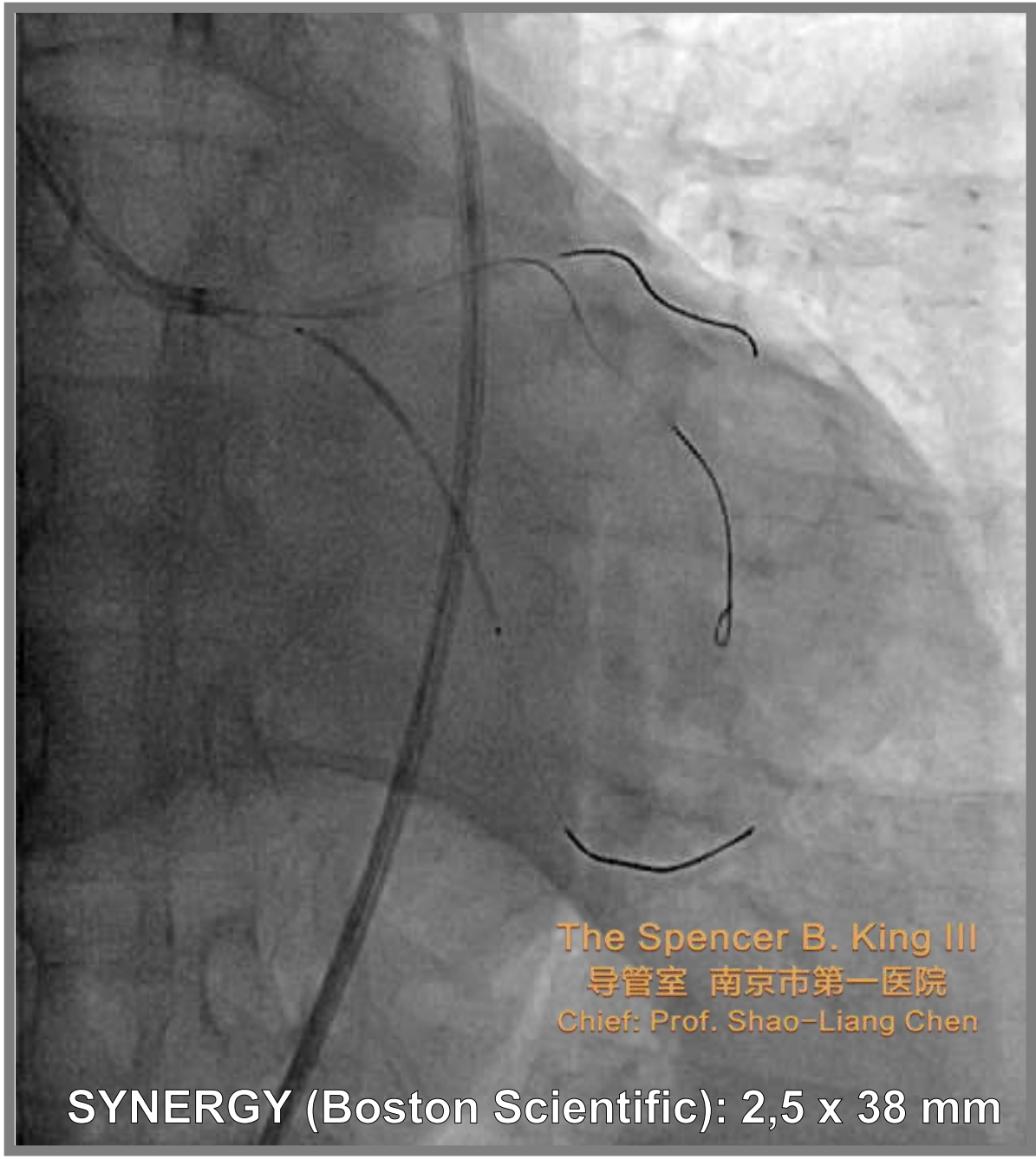


Maverick (Boston Scientific): 2,5 x 15 mm

1. Balloon in the MV and stent the SB

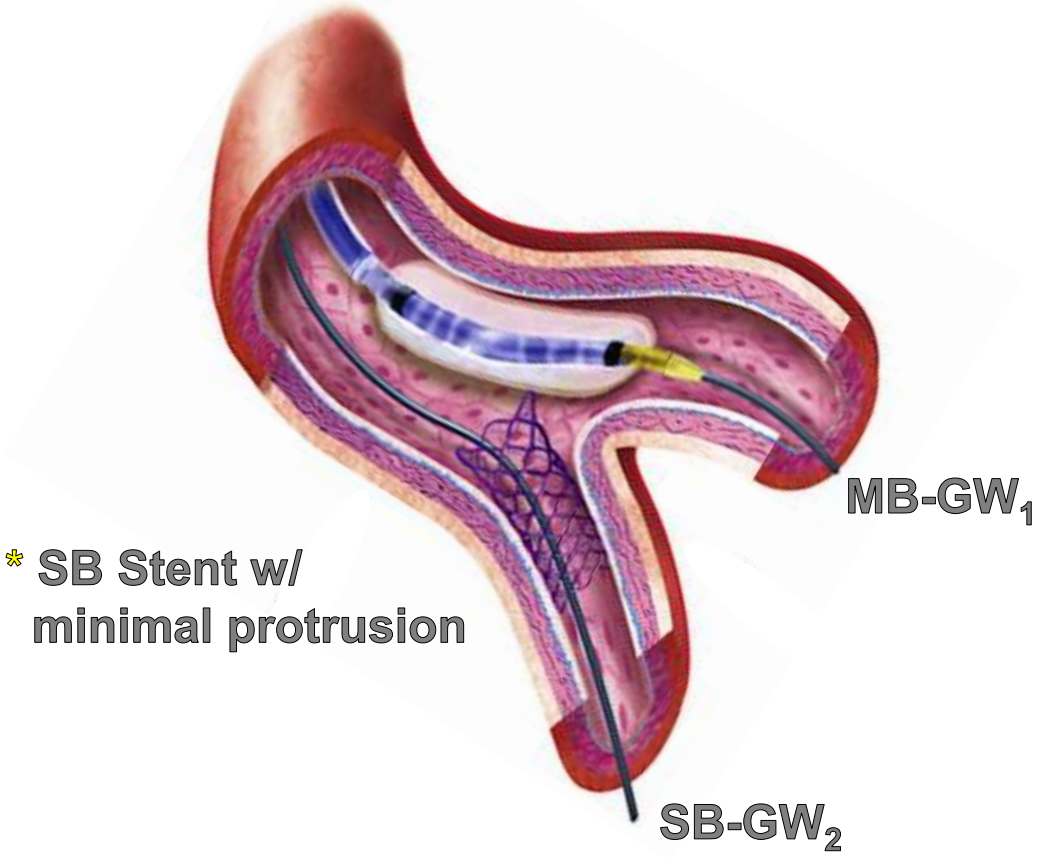


J Am Coll Cardiol Intv 2016;9:1861–78

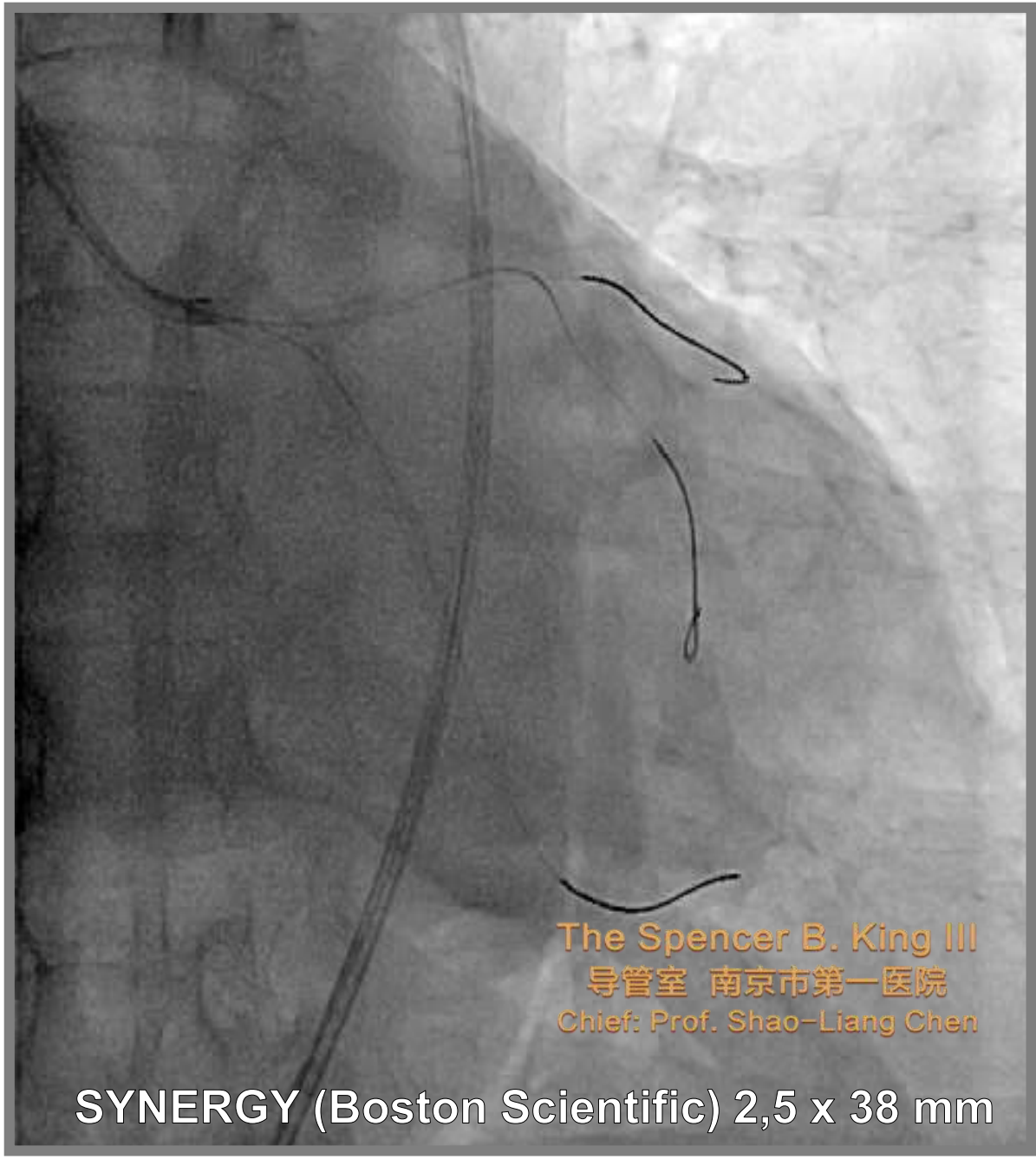


SYNERGY (Boston Scientific): 2,5 x 38 mm

1. Balloon in the MV and stent the SB

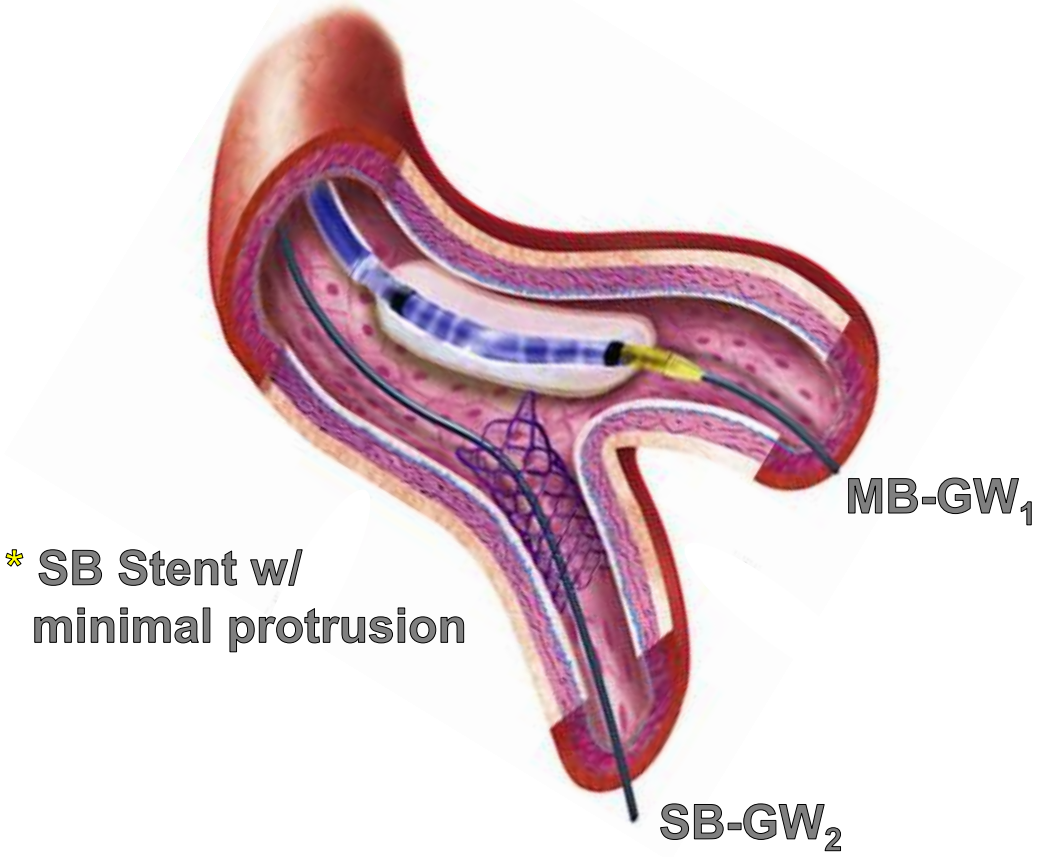


J Am Coll Cardiol Intv 2016;9:1861–78

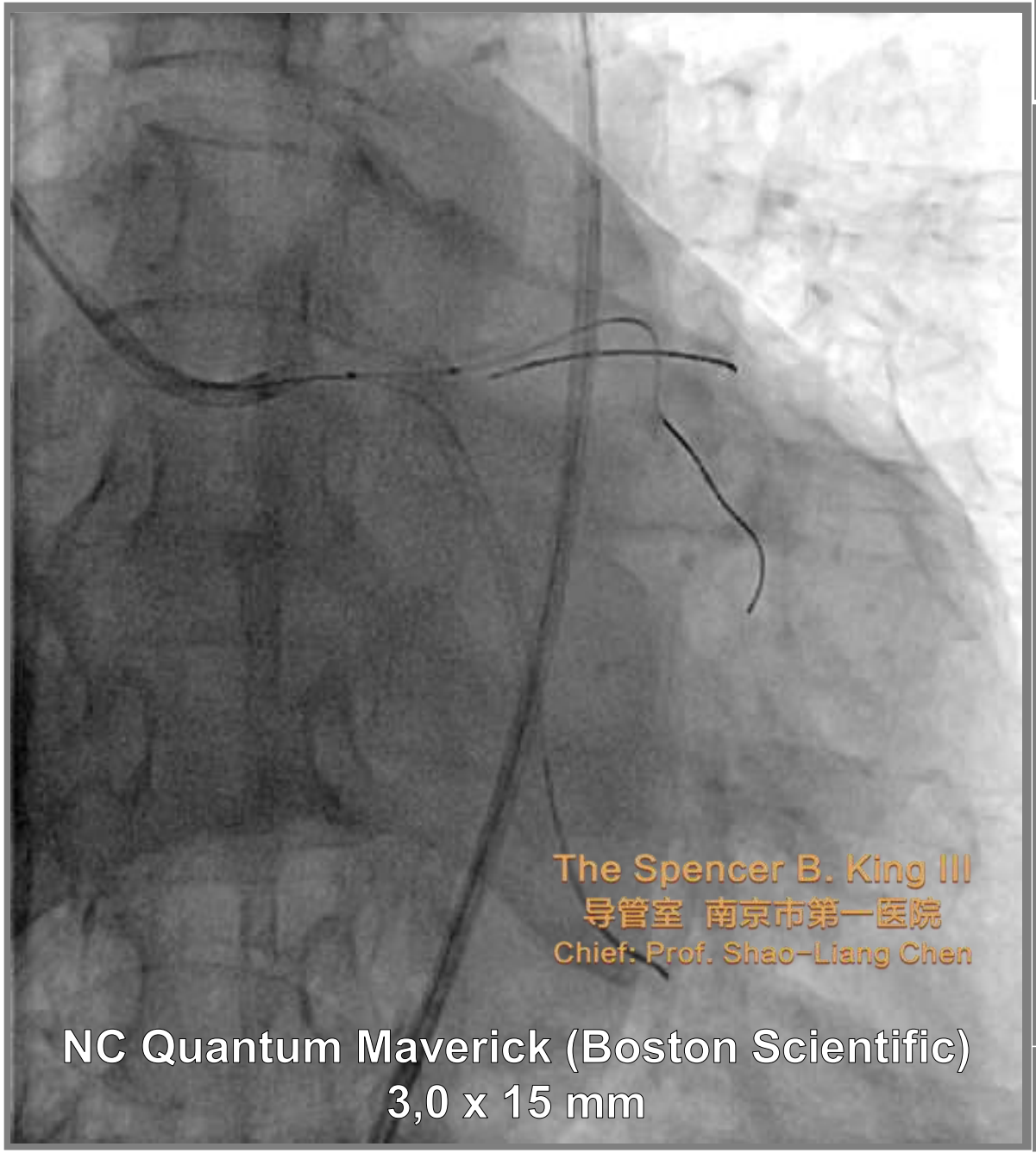


SYNERGY (Boston Scientific) 2,5 x 38 mm

1. Balloon in the MV and stent the SB

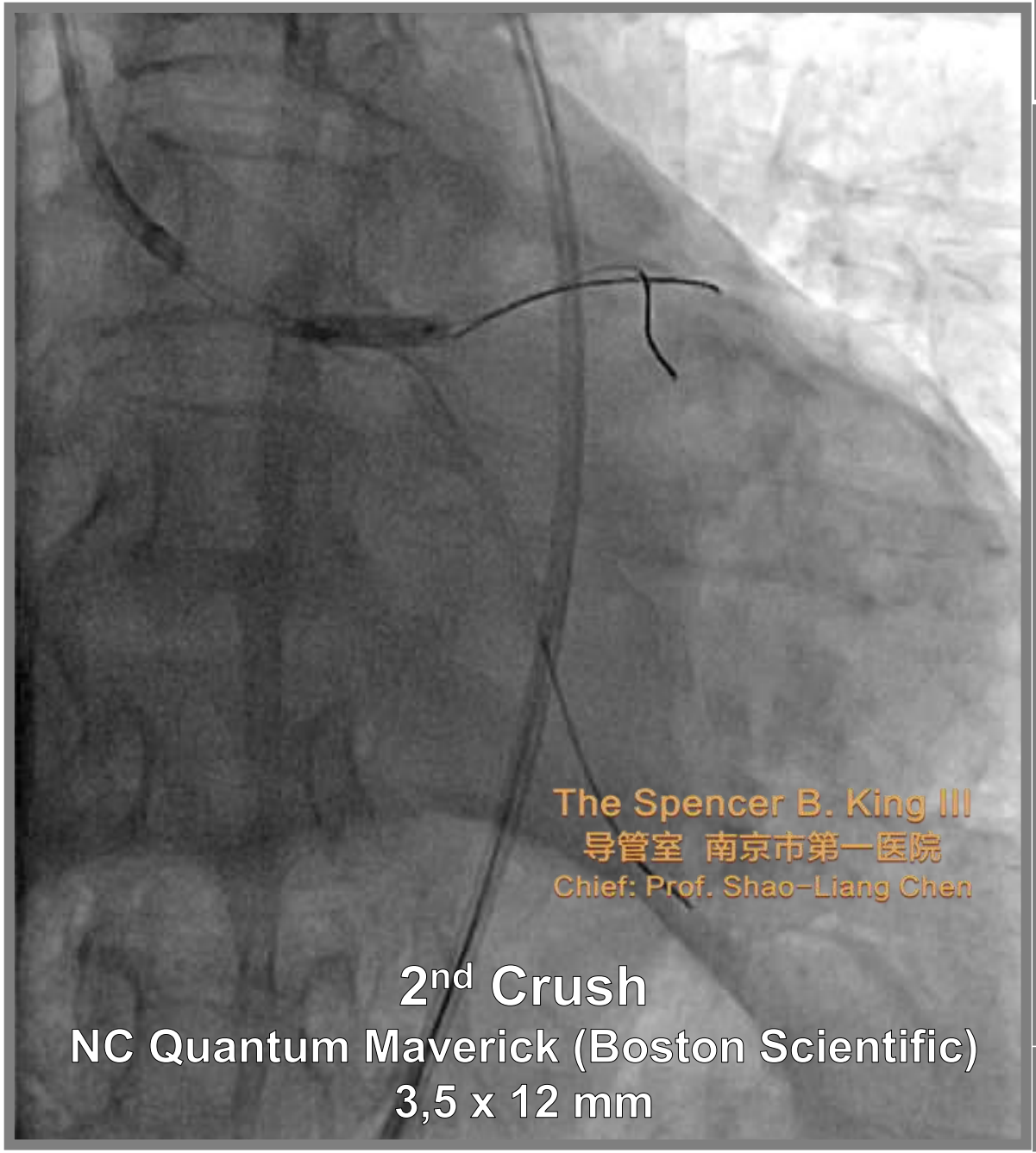


J Am Coll Cardiol Intv 2016;9:1861–78



2. MV Balloon inflation to Crush the SB Stent

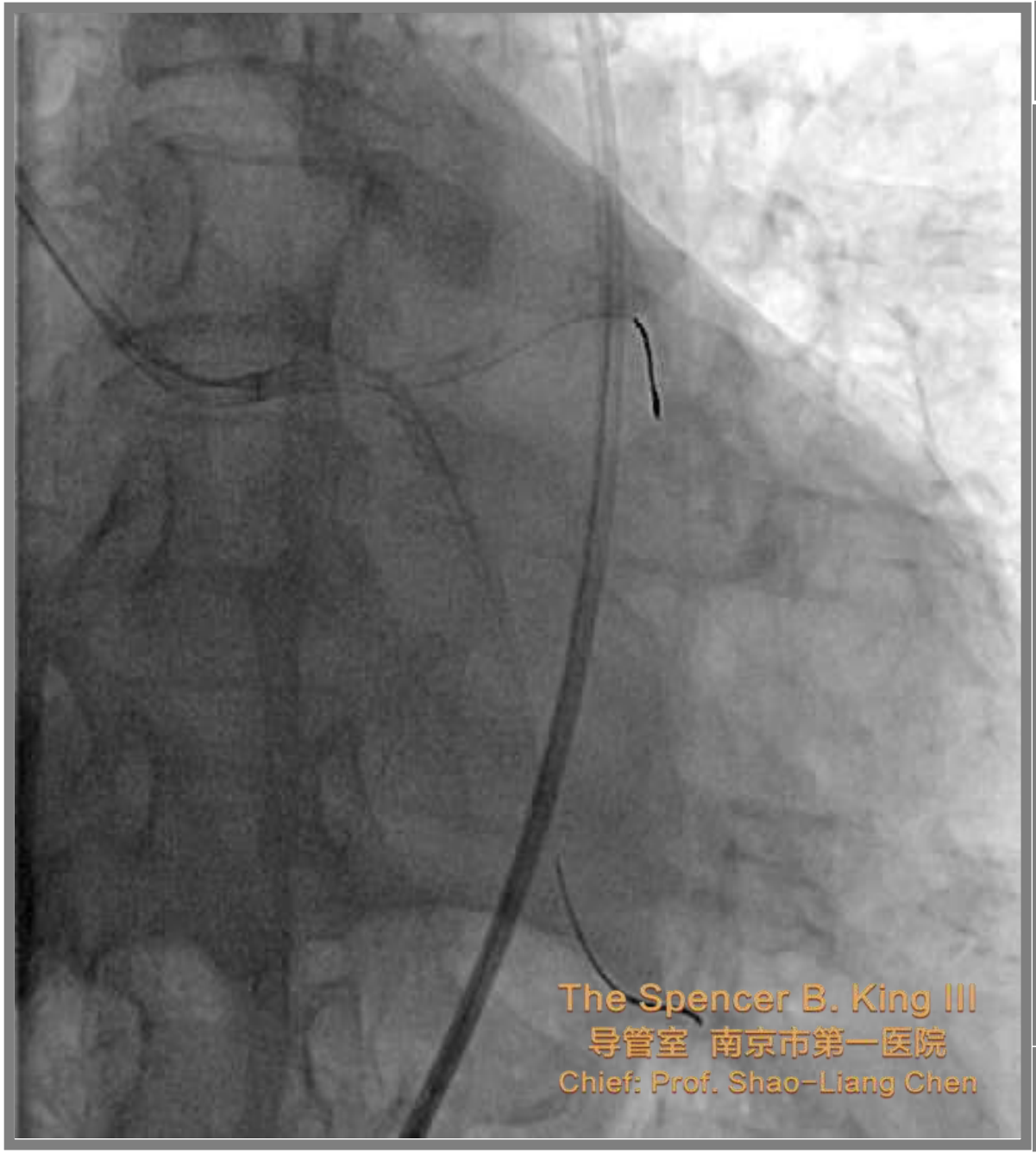
J Am Coll Cardiol Intv 2016;9:1861–78



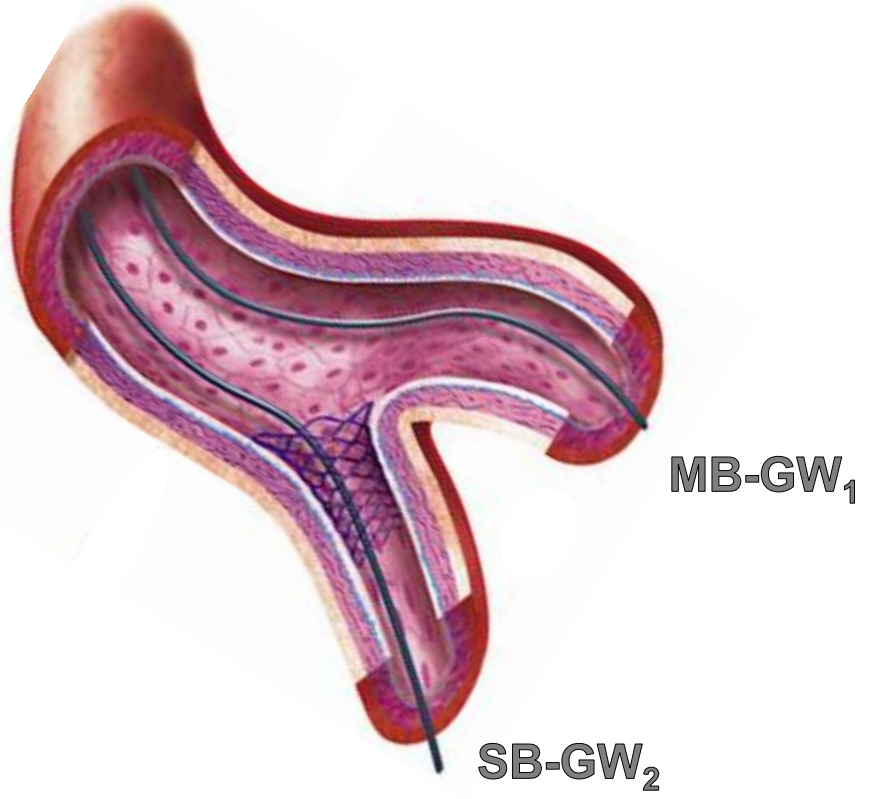
2nd Crush
NC Quantum Maverick (Boston Scientific)
3,5 x 12 mm

2. MV Balloon inflation to Crush the SB Stent

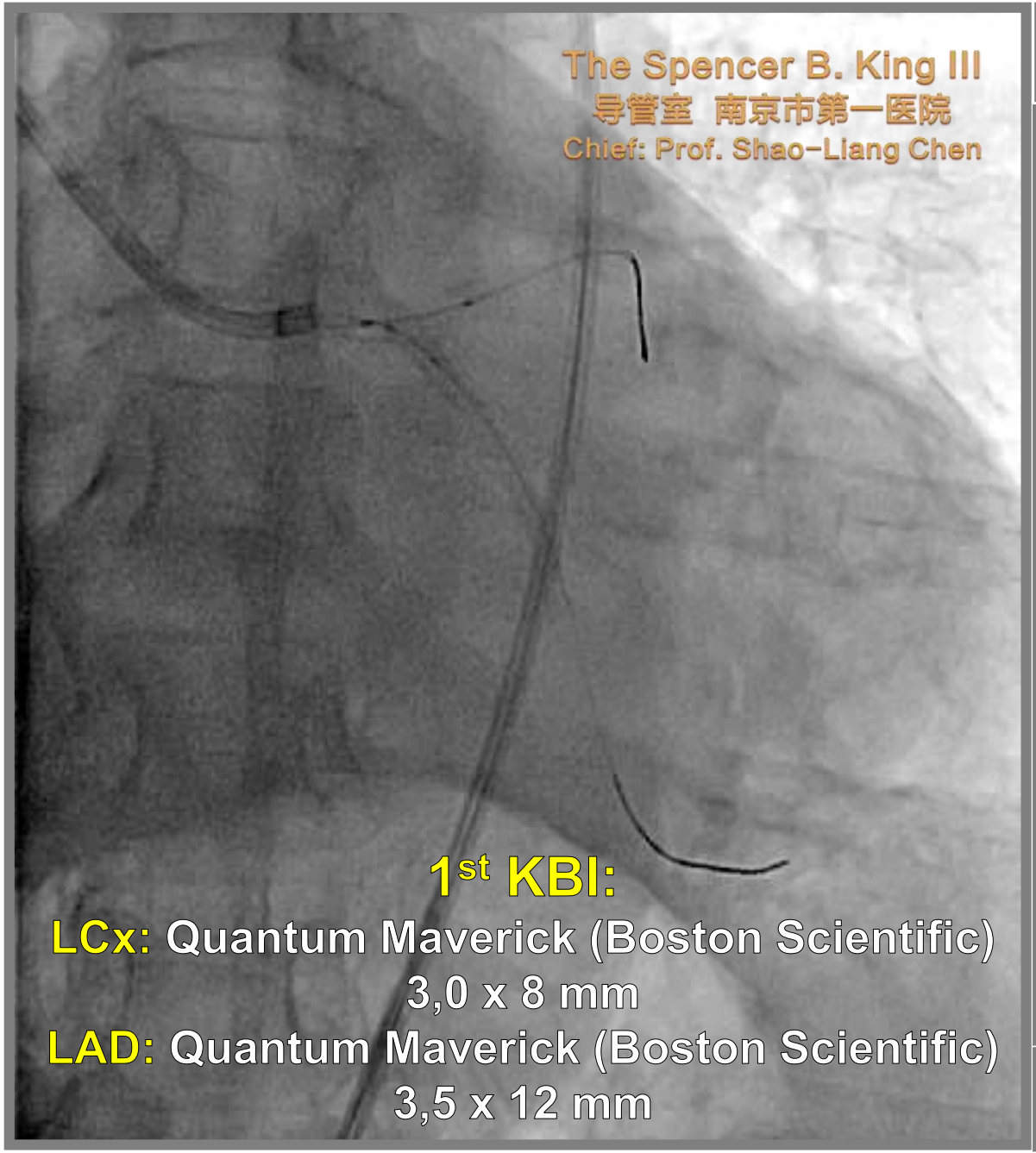
J Am Coll Cardiol Intv 2016;9:1861–78



3. Proximal Rewiring of the SB

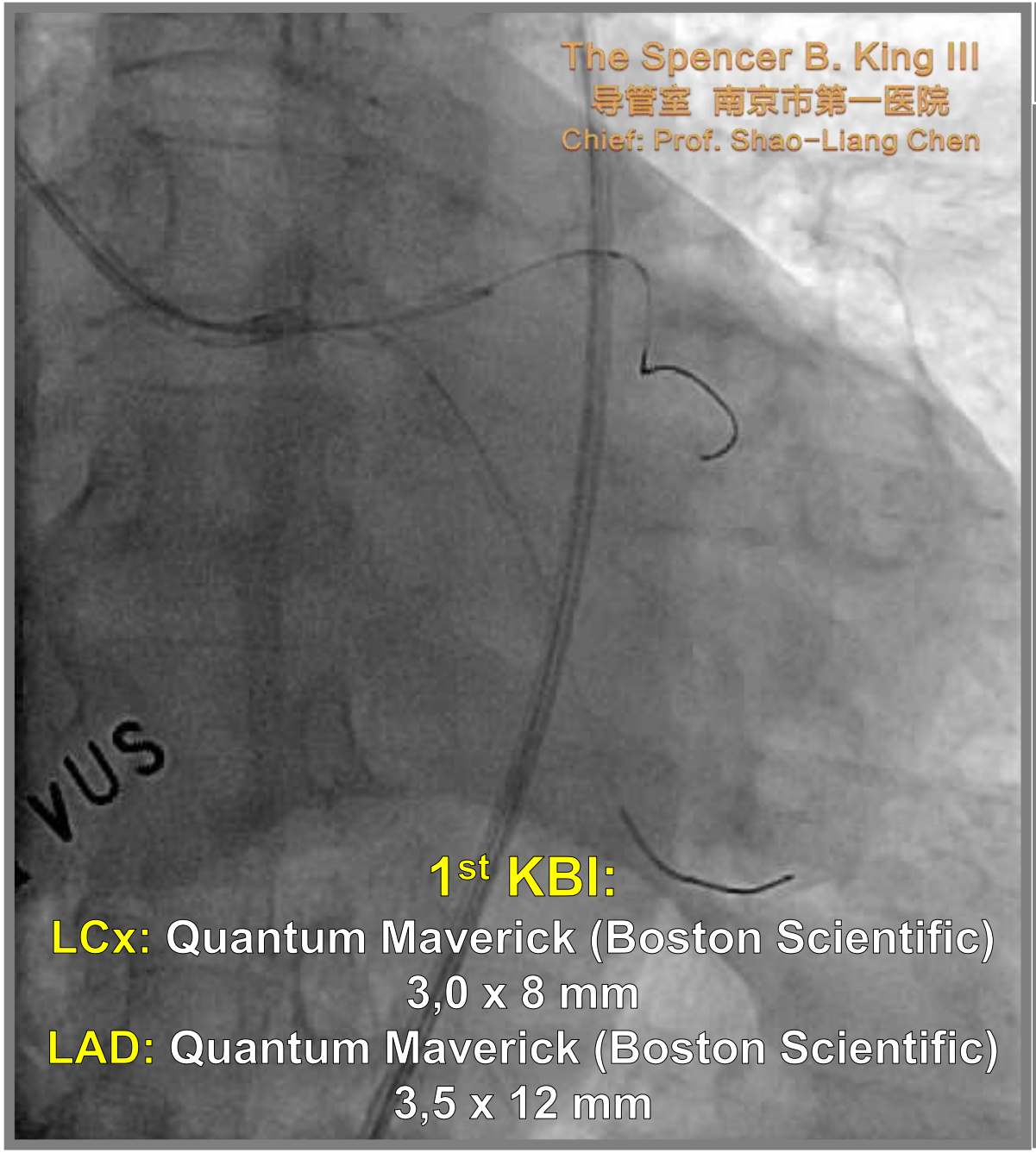


J Am Coll Cardiol Intv 2016;9:1861–78

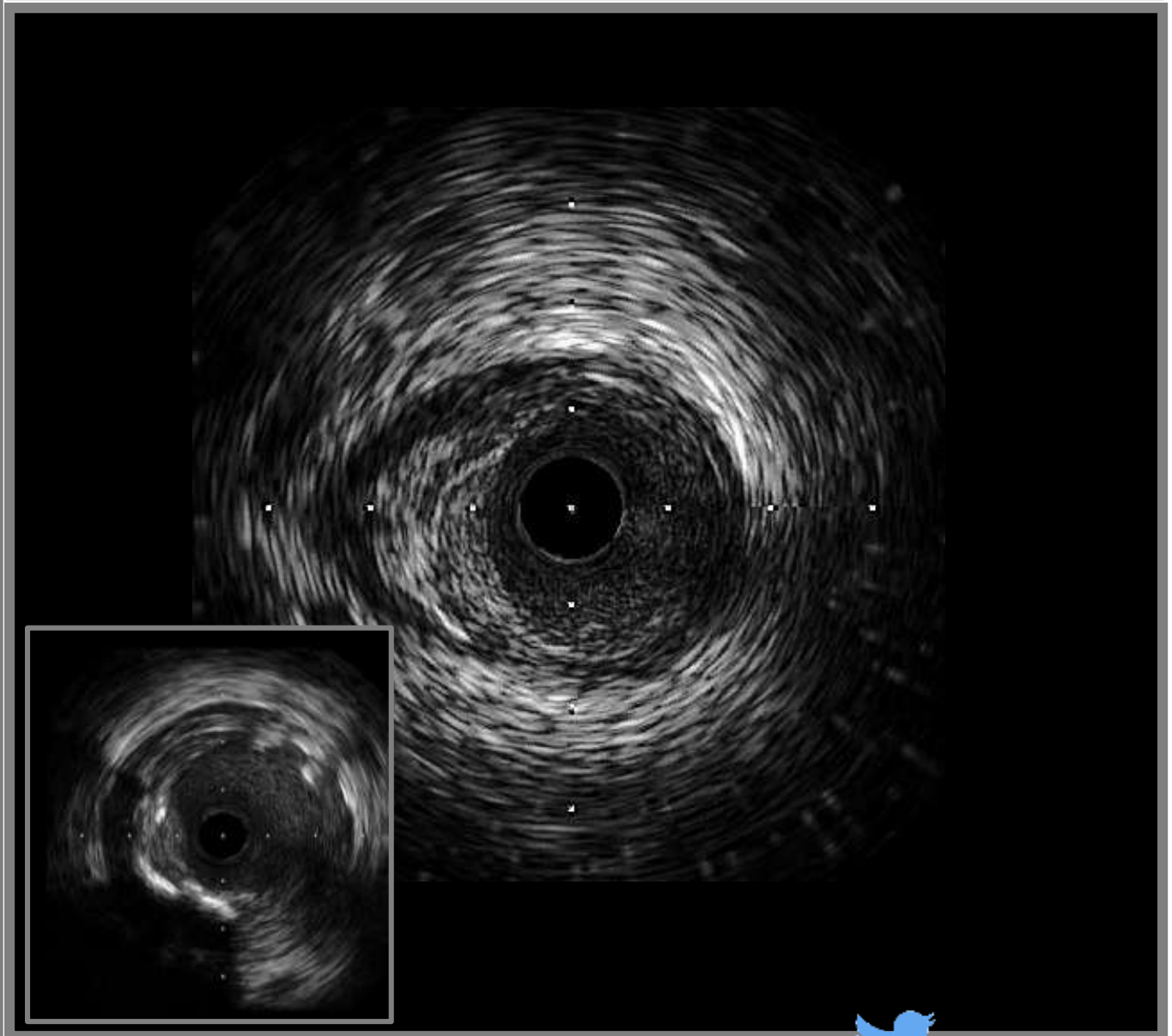


4. 1st Kissing Balloon Inflation

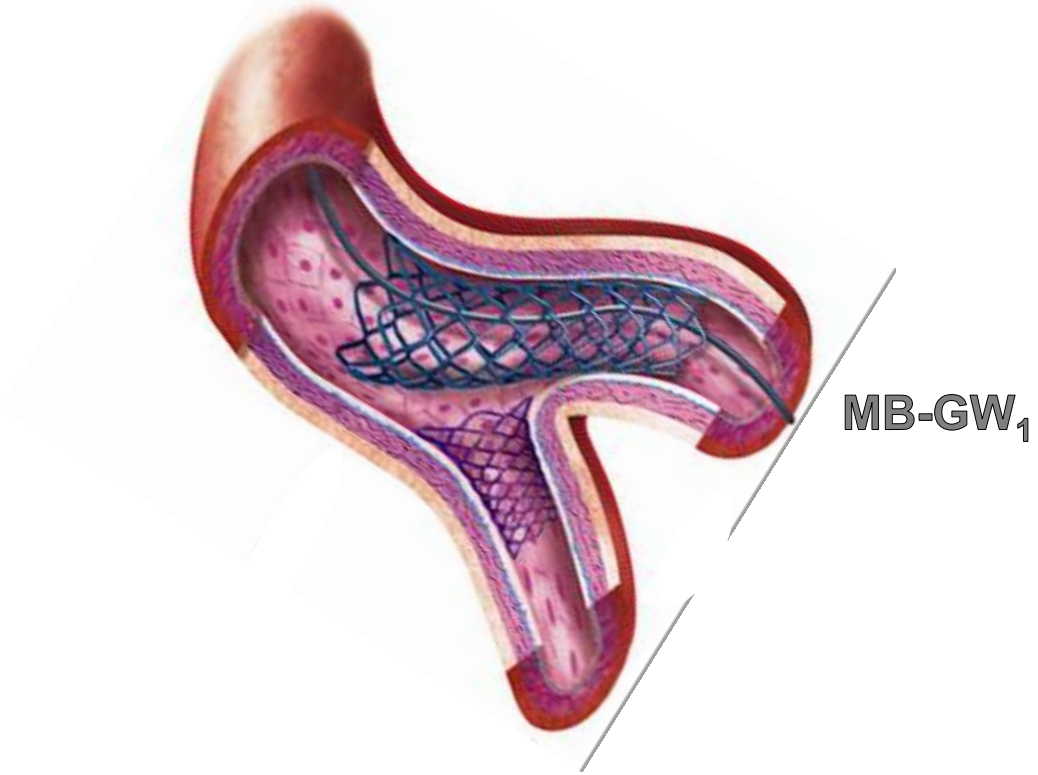
J Am Coll Cardiol Intv 2016;9:1861–78



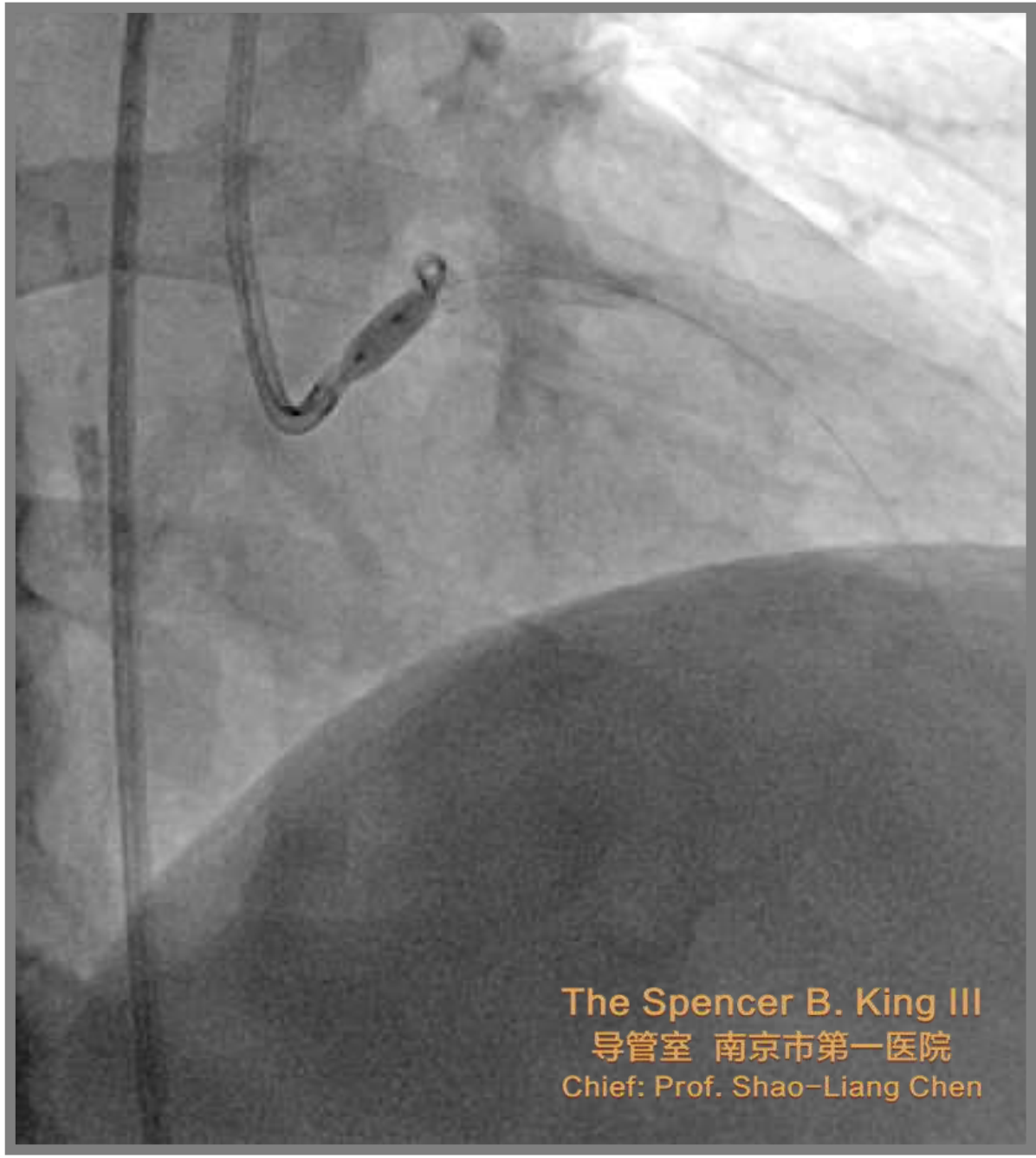
4. 1st Kissing Balloon Inflation



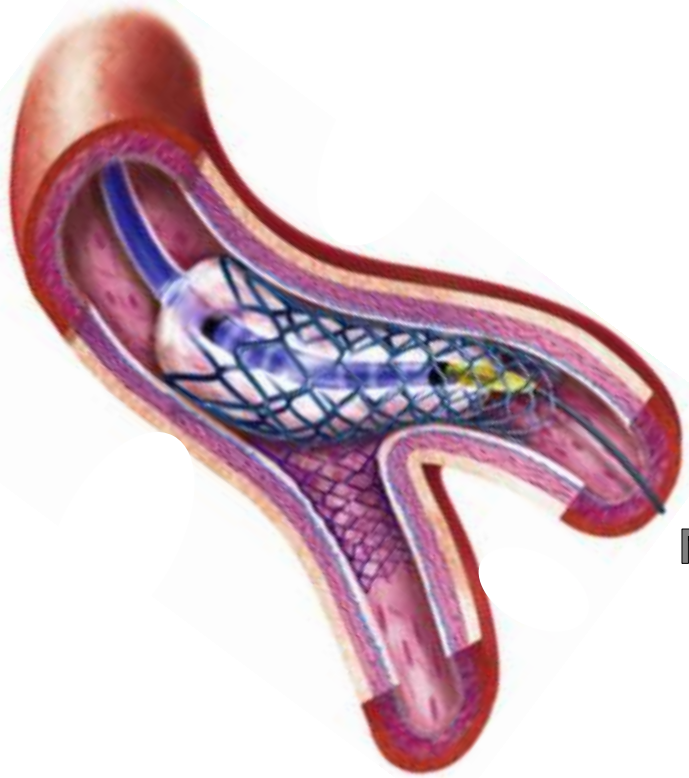
5. MB Stenting



J Am Coll Cardiol Intv 2016;9:1861–78



6. POT



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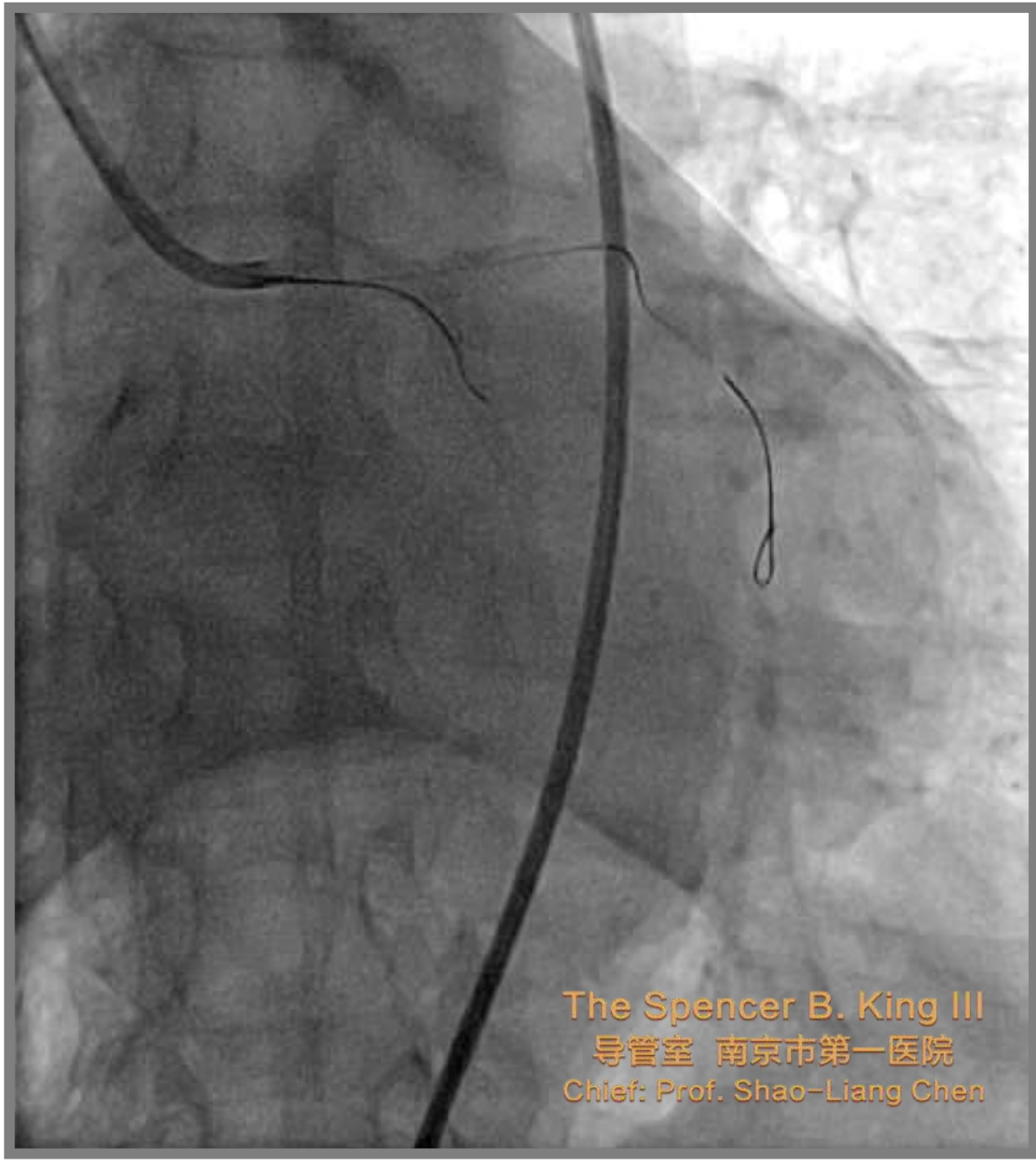
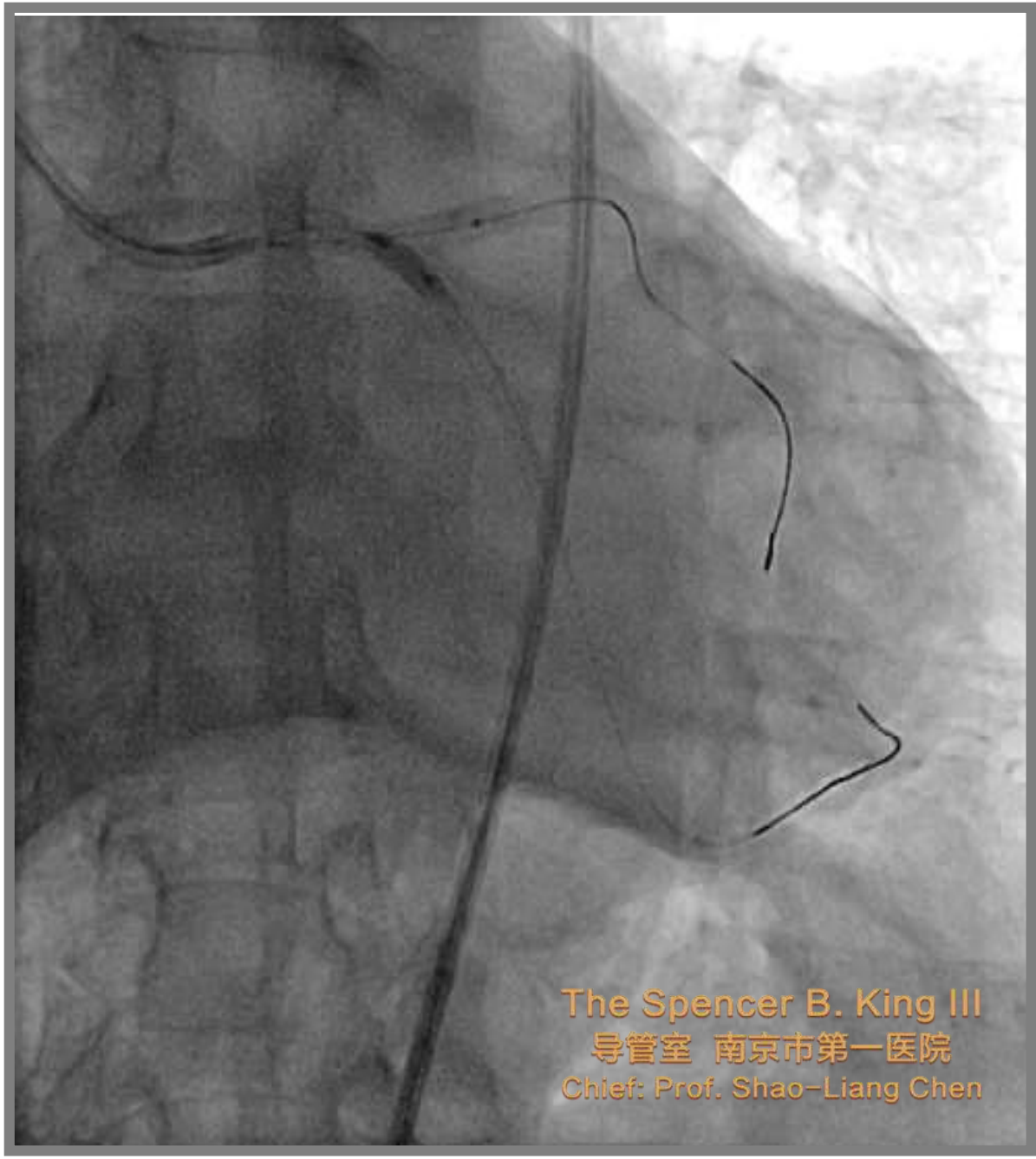


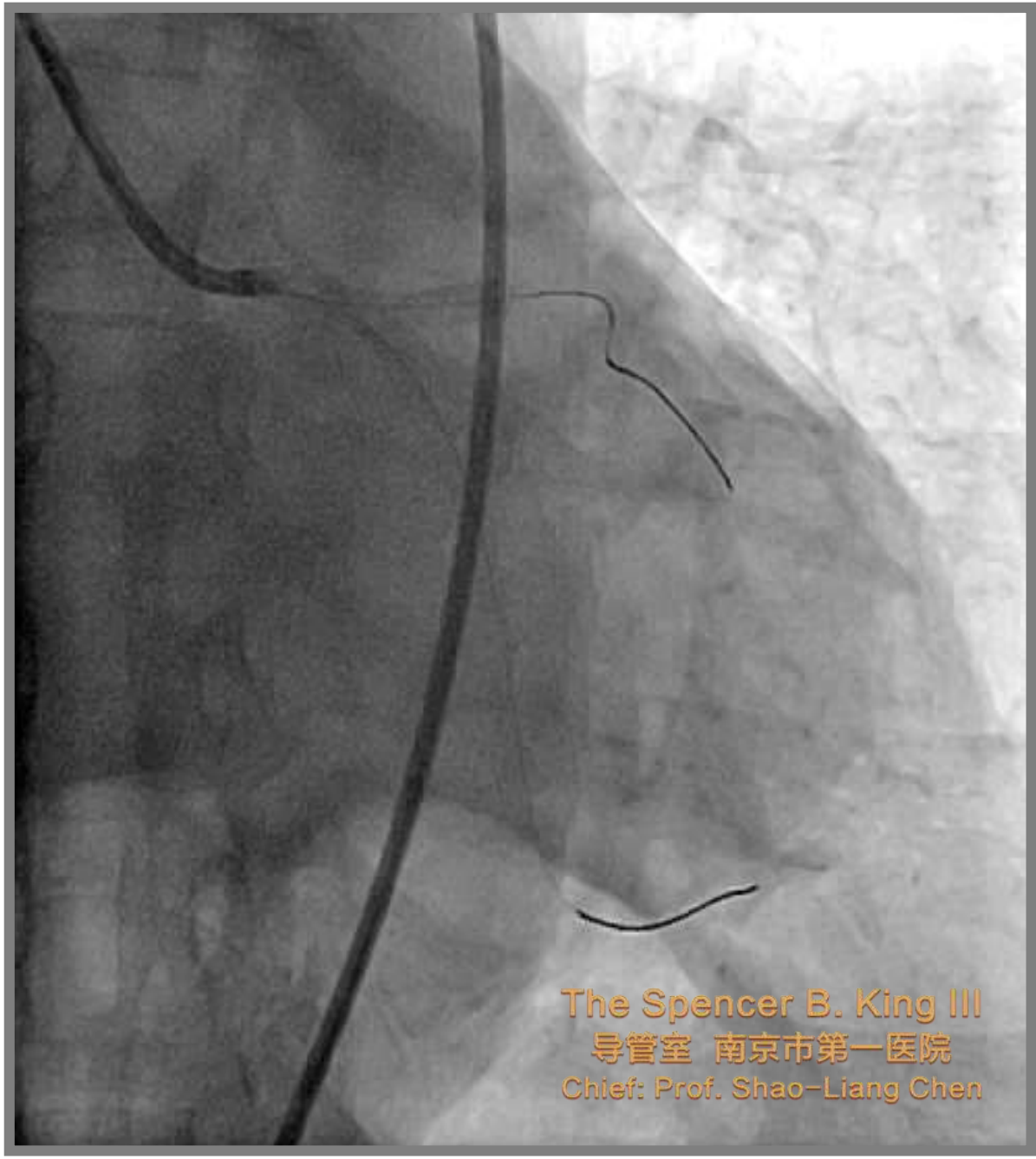
7. SB Rewiring

J Am Coll Cardiol Intv 2016;9:1861–78



8. 2nd KBI

J Am Coll Cardiol Intv 2016;9:1861–78

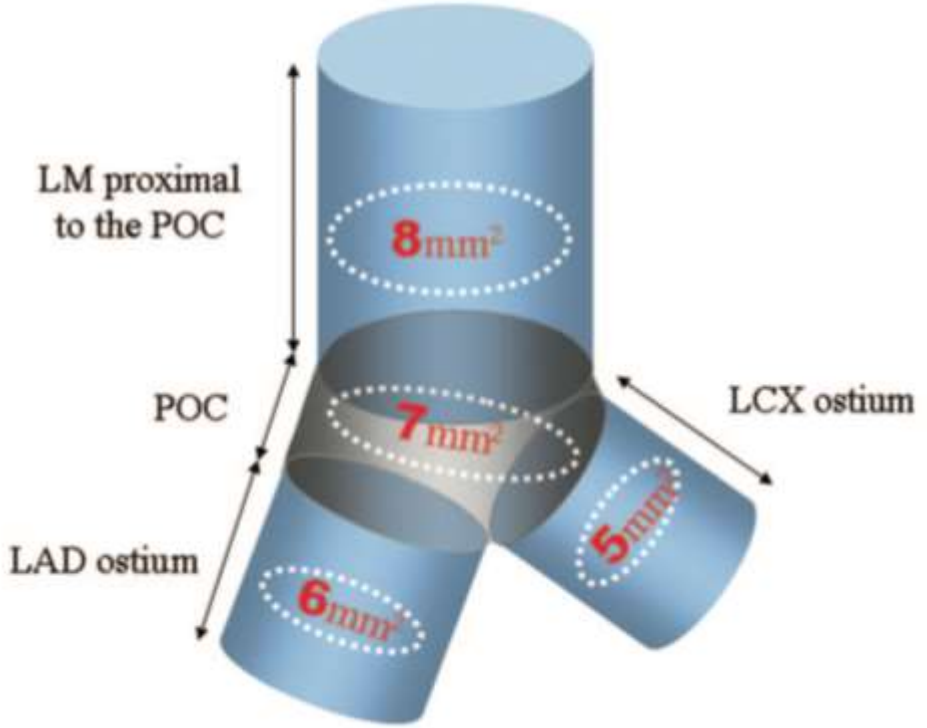


9. Re-POT / 10. Final Result

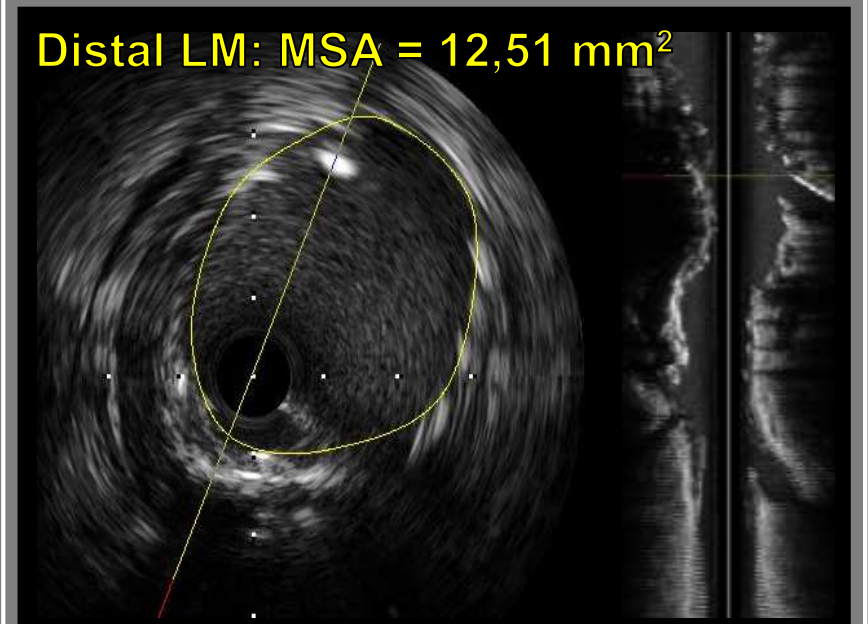
J Am Coll Cardiol Intv 2016;9:1861–78

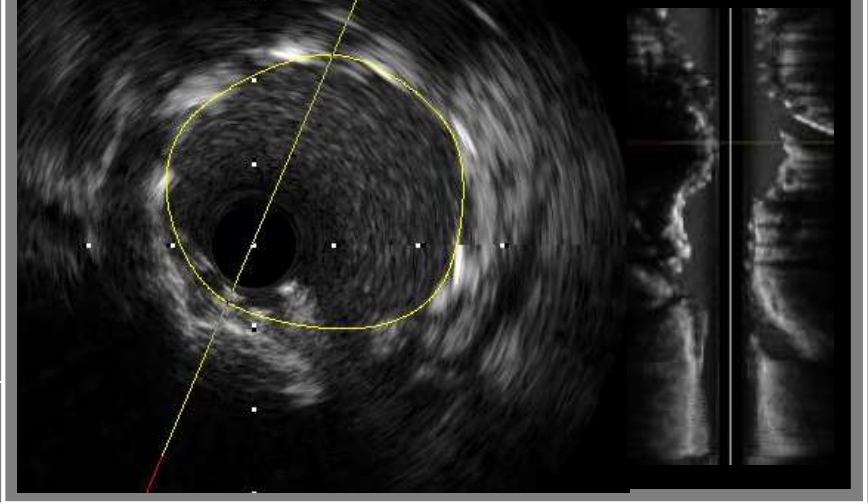
Comprehensive Intravascular Ultrasound Assessment of Stent Area and Its Impact on Restenosis and Adverse Cardiac Events in 403 Patients With Unprotected Left Main Disease

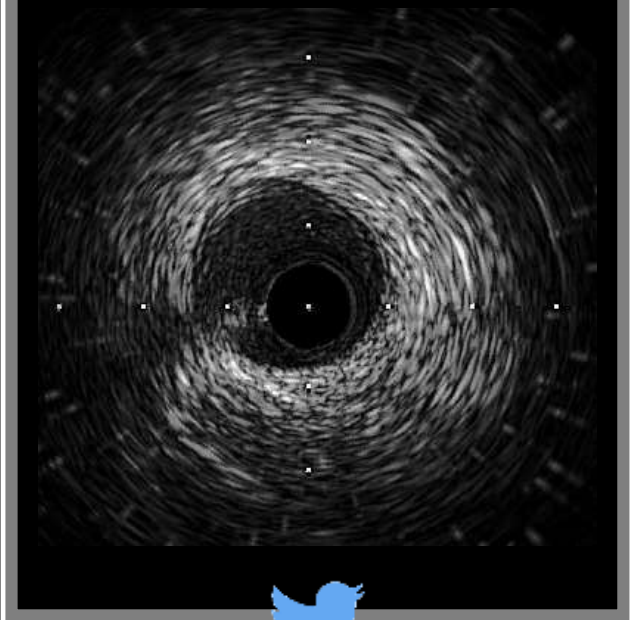
Soo-Jin Kang, MD, PhD; Jung-Min Ahn, MD; Haegeun Song, MD; Won-Jang Kim, MD; Jong-Young Lee, MD; Duk-Woo Park, MD, PhD; Sung-Cheol Yun, PhD; Seung-Whan Lee, MD, PhD; Young-Hak Kim, MD, PhD; Cheol Whan Lee, MD, PhD; Gary S. Mintz, MD; Seong-Wook Park, MD, PhD; Seung-Jung Park, MD, PhD



Circ Cardiovasc Interv. 2011;4:562-569







The Spencer B. King III
导管室 南京市第一医院
Chief: Prof. Shao-Liang Chen

The 3rd Complex PCI Forum
Nov 30, Breakfast Meeting, Room 1, B2
Seoul, South Korea

Take Home Messages

DK Crush is the go-to technique for Distal LM CBLs
IVUS guidance mandatory to optimize results
The DK-Crush VIII will assess the superiority of
IVUS-guided DK Crush vs. Angio-guided DK Crush (Q4 2020)