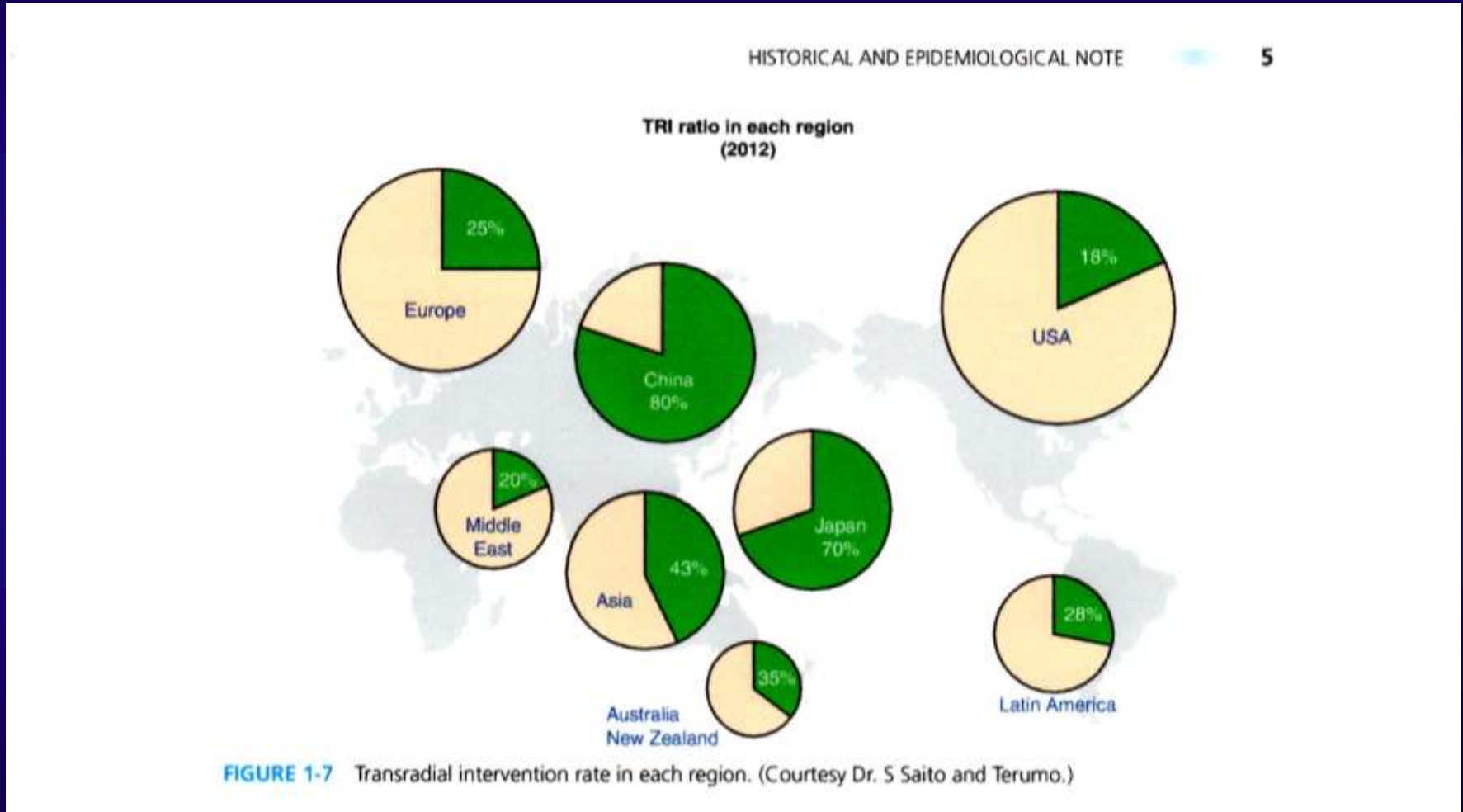


# Disclosure Statement of Financial Interest

I, Kenji Wagatsuma DO NOT have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation

# TRI rate in each region



Courtesy Drs. Ludwig and Saito

# What we can do with 6Fr. TRI

- **Wires and devices**
  - 3 wires, 1 stent and 1 balloon**
  - Balloon anchoring technique**
- **Microcatheters**
  - 2 microcatheters except for 2 Corsair**
- **Rotablator**
  - Burr size: max 1.75mm**
- **Mother child catheter technique**
  - Guideliner™, Guidezilla™, 5Fr.ST-01,**
  - 4Fr.KIWAMI, 4.5Fr.Cokatte**

# TRI for double bifurcated lesions

## Case

**AP, 50 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**GWs: BMW univ. II x3**

**(Abbott Vascular)**

**Stent: 2.5/18 mm Nobori**

**(Terumo)**

**Balloon:**

**2.5/15 mm Tazuna**

**(Terumo)**



# Balloon Anchoring Technique in TRI

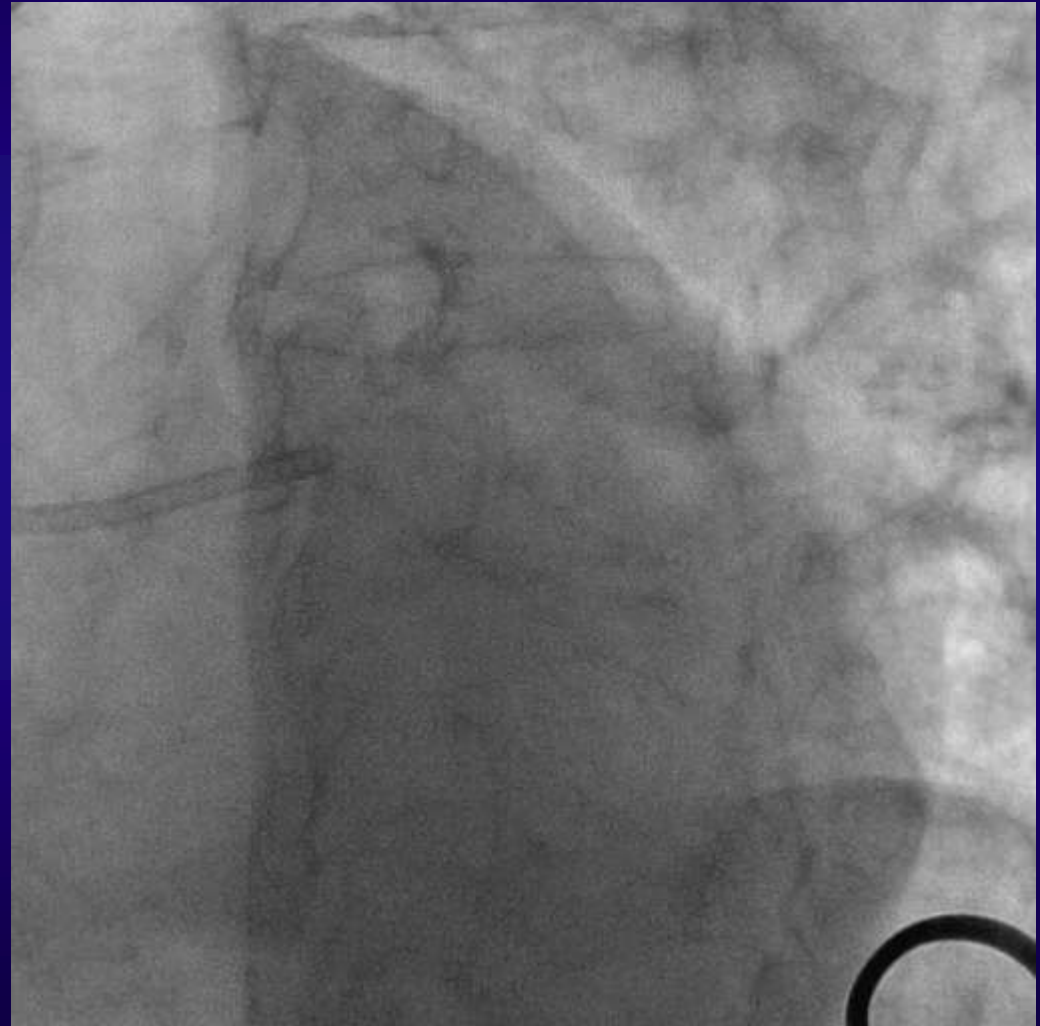
## Case

**AP, 81 y.o. Male**

**Lt. radial approach**

**GC: 6Fr. VL3.5 SH**

**(Mach 1 BSC)**



# Balloon Anchoring Technique in TRI

## Case

***AP, 81 y.o. Male***

***Lt. radial approach***

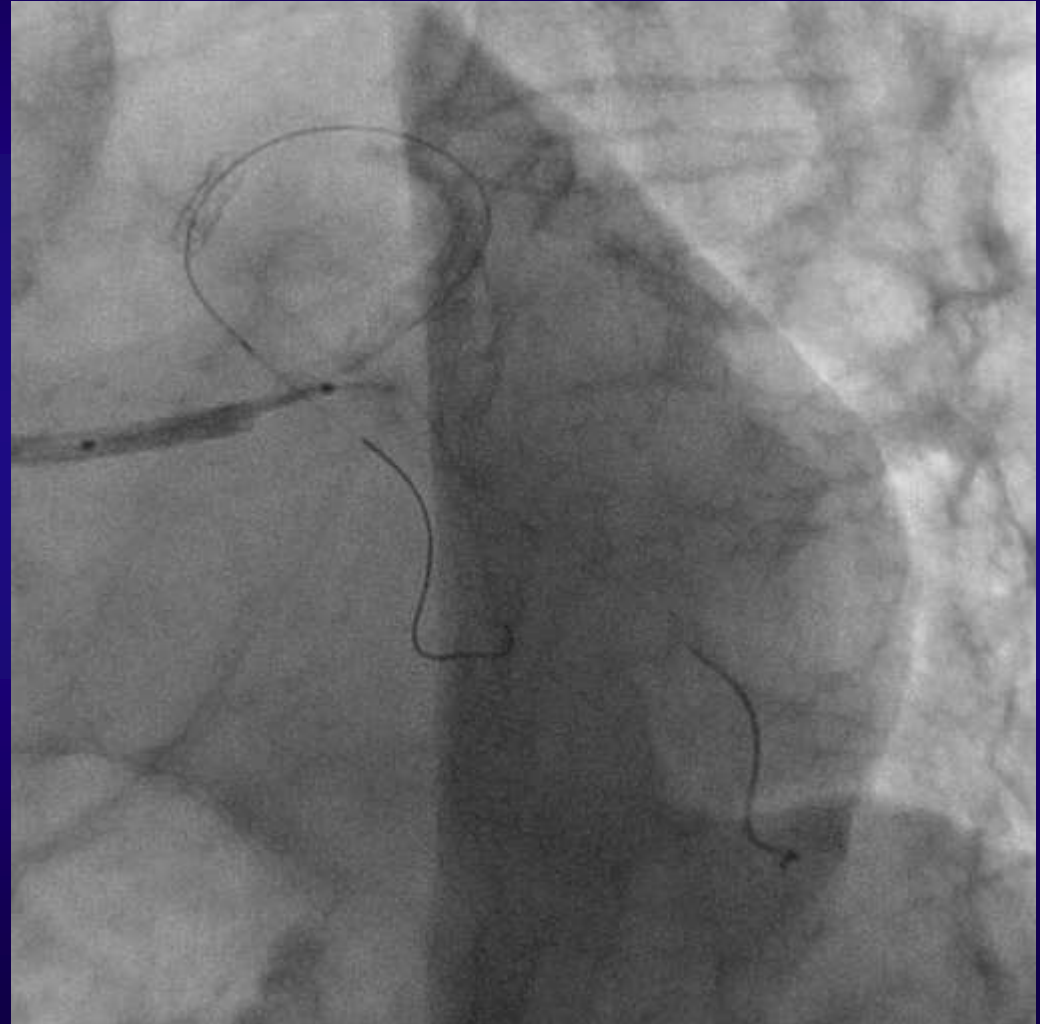
***GC: 6Fr. VL3.5 SH***

***(Mach 1 BSC)***

***GWs: BMW univ. II x2***  
***(Abbott Vascular)***

***Stent: 2.25/16 mm***

***Promus Element (BSC)***



# Balloon Anchoring Technique in TRI

## Case

**AP, 81 y.o. Male**

**Lt. radial approach**

**GC: 6Fr. VL3.5 SH**

**(Mach 1 BSC)**

**GWs: BMW univ. II x2**

**(Abbott Vascular)**

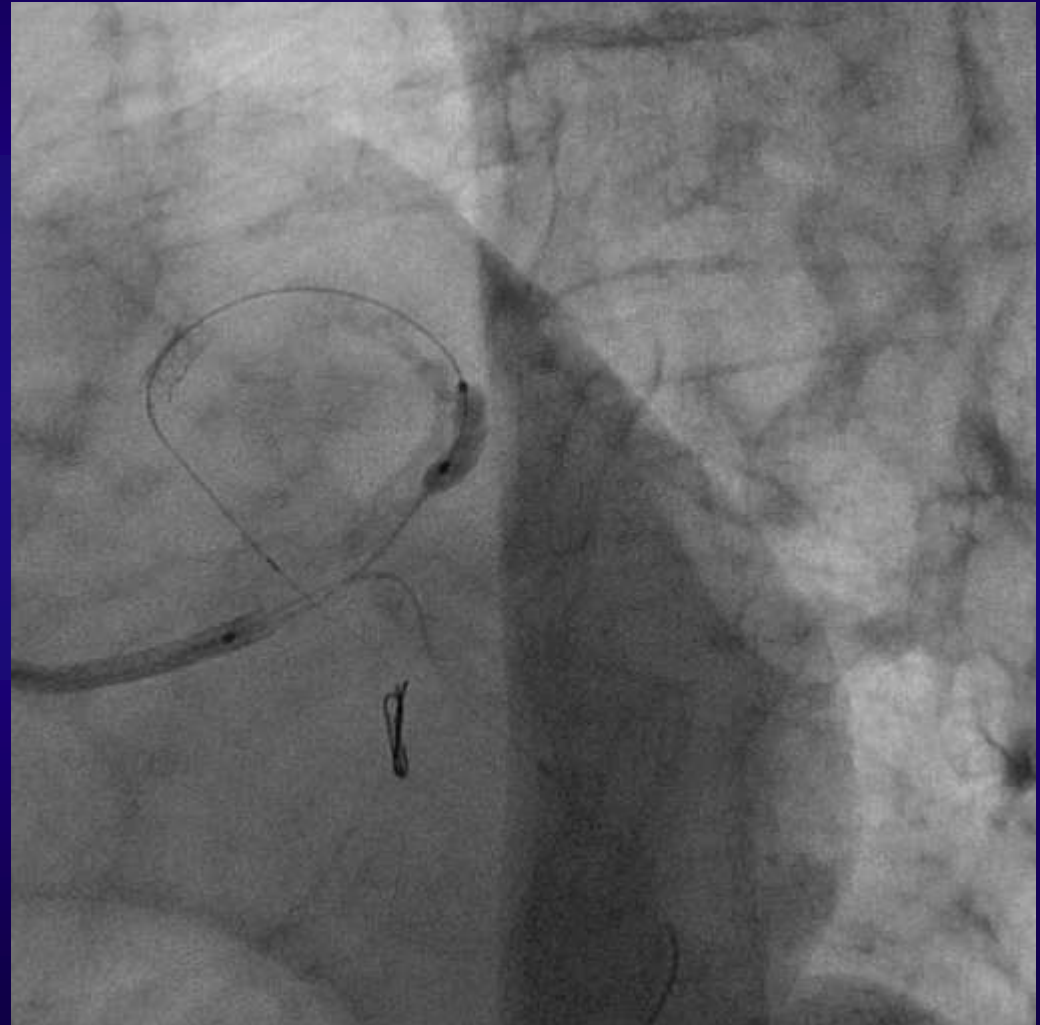
**Stent: 2.25/16 mm**

**Promus Element (BSC)**

**Anchor balloon:**

**2.5/15mm Tazuna**

**(Terumo)**



# Balloon Anchoring Technique in TRI

## Case

***AP, 81 y.o. Male***

***Lt. radial approach***

***GC: 6Fr. VL3.5 SH***

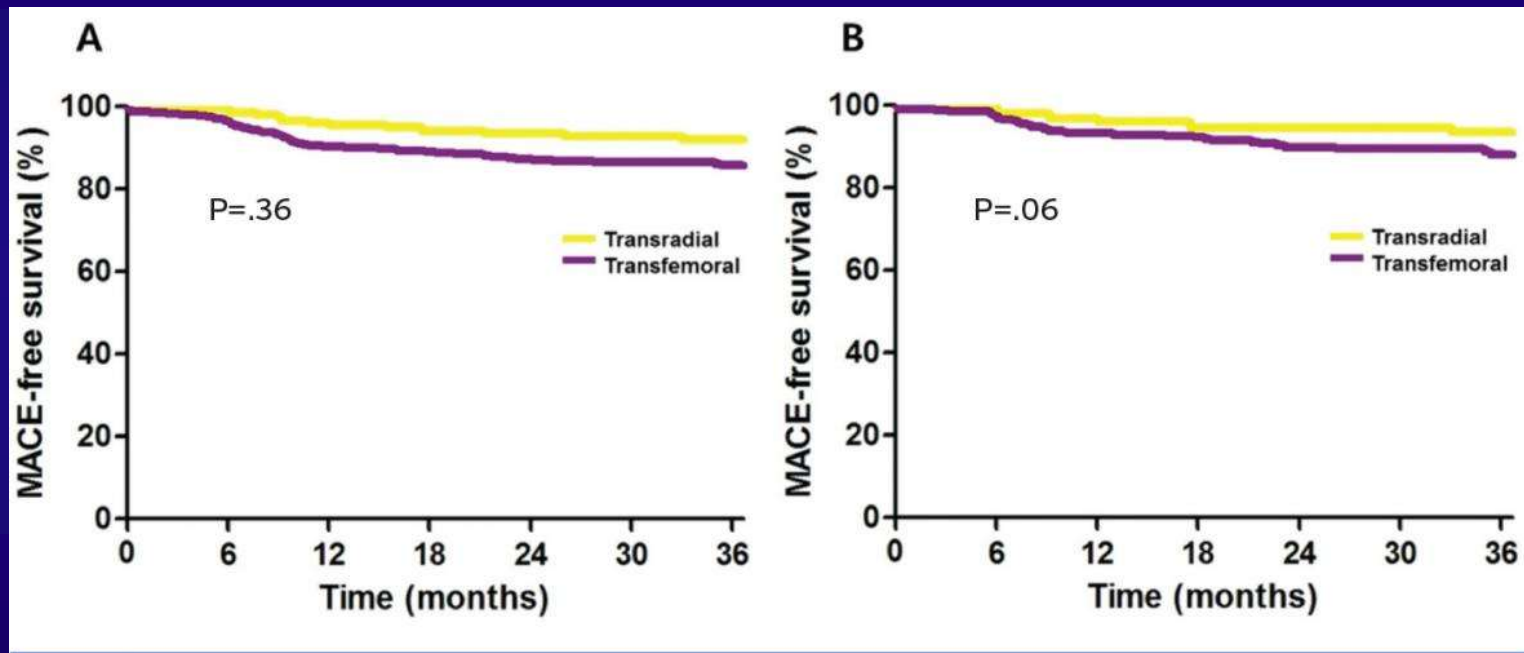
***(Mach 1 BSC)***

***Final result***





# Transradial Versus Transfemoral Intervention for the Treatment of Left Main Coronary Bifurcations: Results From the COBIS (COronary BIfurcation Stenting) II Registry



**FIGURE 1.** [A] Kaplan-Meier curves for major adverse cardiac event [MACE] rates in the overall population treated by transradial approach [TR group] vs transfemoral approach [TF group]. [B] Kaplan-Meier curves for MACE rates in propensity-matched patients.



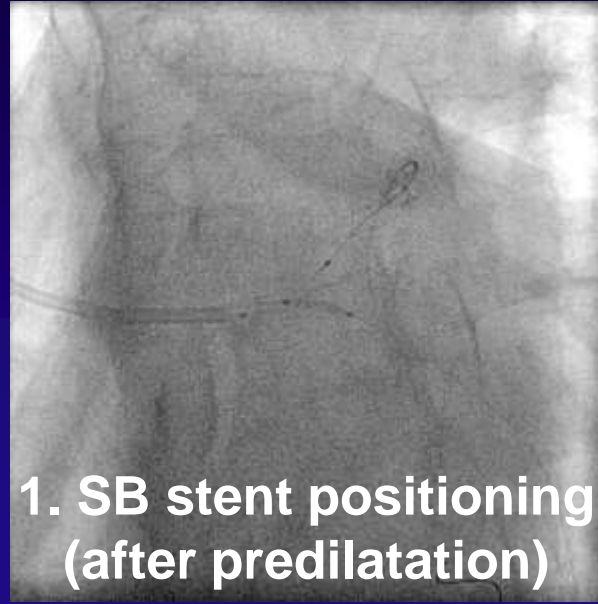
# Transradial Versus Transfemoral Intervention for the Treatment of Left Main Coronary Bifurcations: Results From the COBIS (COronary BIfurcation Stenting) II Registry

	Total Population (n = 853)			Propensity-Matched Population (n = 483)		
	Transradial (n = 212)	Transfemoral (n = 641)	P-Value	Transradial (n = 161)	Transfemoral (n = 322)	P-Value
True bifurcation by Medina classification	64 [30.2%]	294 [45.9%]	<.001	57 [35.4%]	111 [34.5%]	.84
Bifurcation angle [°]	81 ± 26	84 ± 28	.09	84 ± 26	84 ± 28	.83
Intravascular ultrasound	159 [75.0%]	327 [51.0%]	<.001	109 [67.7%]	218 [67.7%]	>.99
Guiding catheter size [Fr]	6.5 ± 0.6	7.1 ± 0.6	<.001	6.5 ± 0.6	7.1 ± 0.5	<.001
6 Fr guiding catheter	105 [49.5%]	44 [6.9%]	<.001	84 [52.2%]	23 [7.1%]	<.001
Stent technique			<.001			<.001
One stent	157 [74.1%]	352 [54.9%]		107 [66.5%]	223 [69.3%]	
T-stenting	42 [19.8%]	82 [12.8%]		41 [25.5%]	28 [8.7%]	
Crush	8 [3.8%]	135 [21.2%]		8 [5.0%]	51 [15.8%]	
Culottes	0	12 [1.9%]		0	3 [0.9%]	
Kissing	4 [1.9%]	56 [8.7%]		4 [2.5%]	16 [5.0%]	
Others	1 [0.5%]	4 [0.6%]		1 [0.6%]	1 [0.3%]	
Two stent	55 [25.9%]	289 [45.1%]	<.001	54 [33.5%]	99 [30.7%]	.53
Final kissing balloon	108 [50.9%]	391 [61.0%]	.01	81 [50.3%]	168 [52.2%]	.70

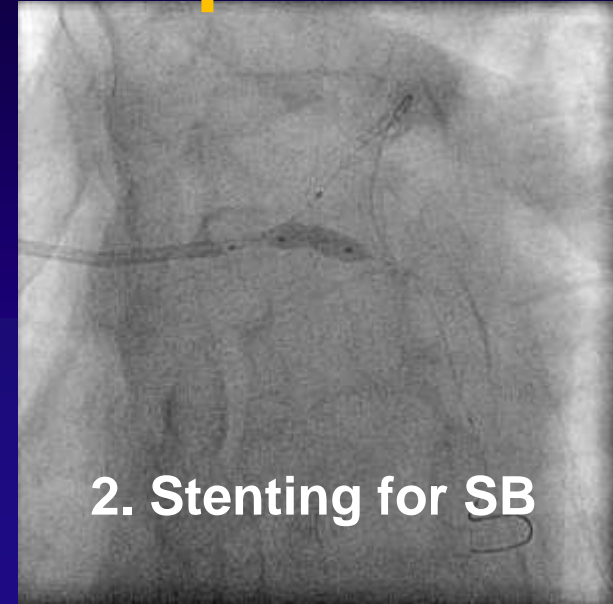
# Bifurcation stenting: Advantage and Disadvantage

	Crush	Culottes	TAP	SKS	T
Complete coverage of SB ostium	○	○	○	○	Depends on SB angulation
Assure SB patency during procedure	○			○	○ (Classic T)
Long term problems	SB restenosis			Neo carina by struts	(SB restenosis by gap)
KBT complexity	troublesome				
6Fr.compatibility	○ (Modified crush)	○	○		○
Other technical problems		(MV/SB diam. Discrepancy)			

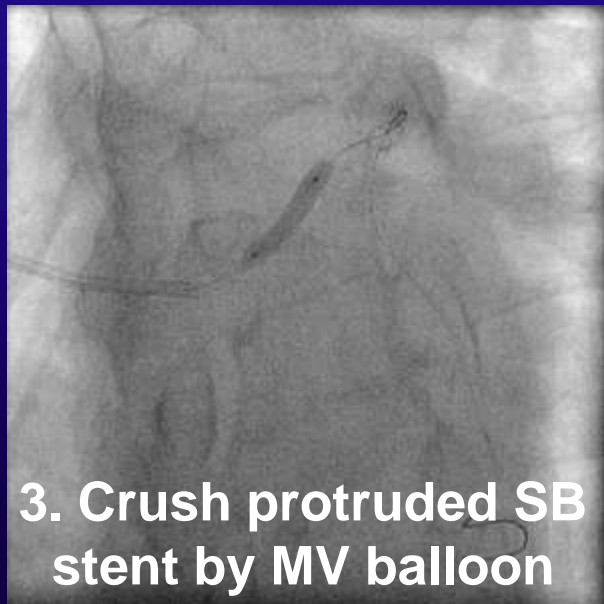
# Modified mini-crush technique



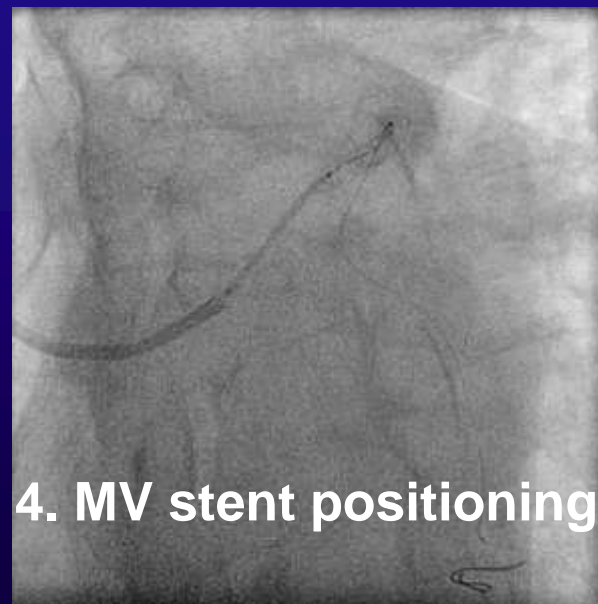
1. SB stent positioning  
(after predilatation)



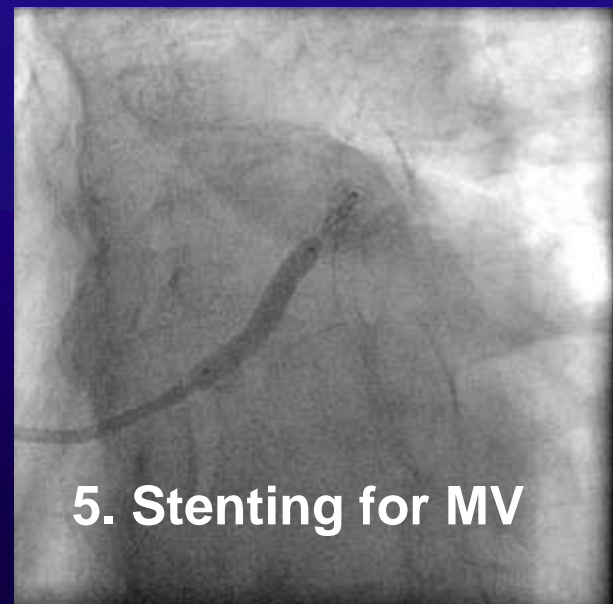
2. Stenting for SB



3. Crush protruded SB  
stent by MV balloon

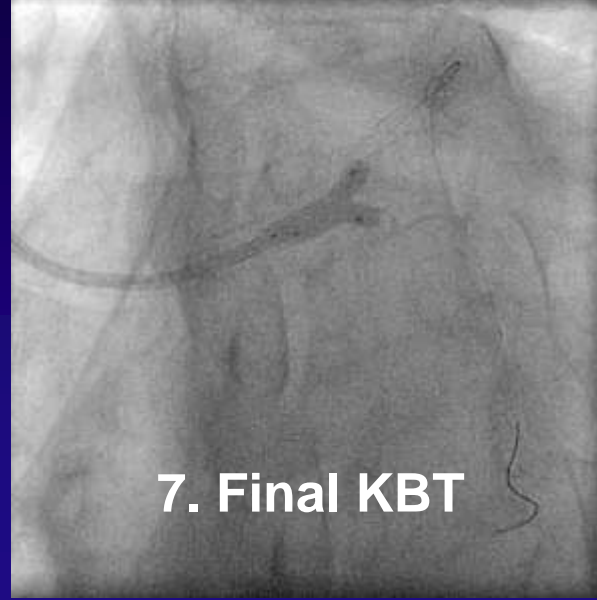
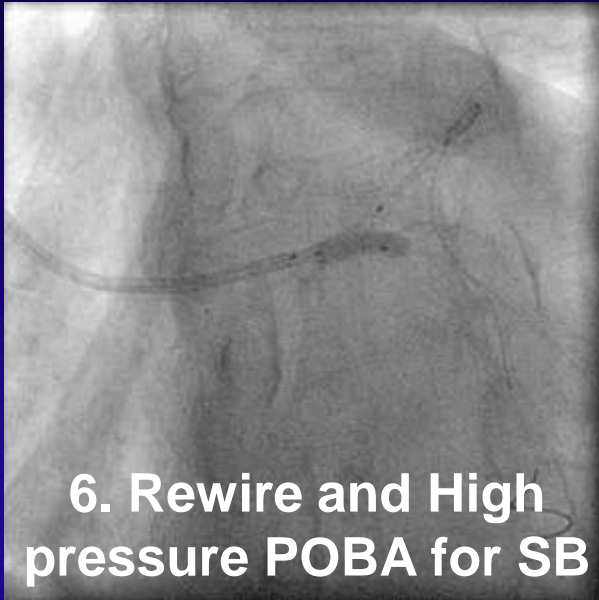


4. MV stent positioning



5. Stenting for MV

# Modified mini-crush technique



## Steps of Safe LM treatment by TRI

- **Step 1**  
Ostial or mid shaft lesion (Single stenting)
- **Step 2**  
Bifurcation lesion (Single stenting)
- **Step 3**  
Bifurcation lesion (Complex stenting)  
7Fr.TRI ⇒ 6Fr.TRI
- **Step 4**  
Trifurcation lesion, Rotablator case,  
Tortuous and/or calcified LCx, Involving  
CTO lesion, STEMI, Low LV function case,  
etc. 7Fr.TRI ⇒ 6Fr.TRI

***Trifurcated lesion  
Complicated by Cardiogenic Shock  
6Fr. TRI Case***

# Case: Trifurcation LM lesion

## Case

***UAP complicated by  
cardiogenic shock,***

***71 y.o. Male***

***Rt. radial approach***

***GC: 6Fr. VL3.0***

***(Mach 1, BSC)***

***IABP assisted***

***Post CABG***

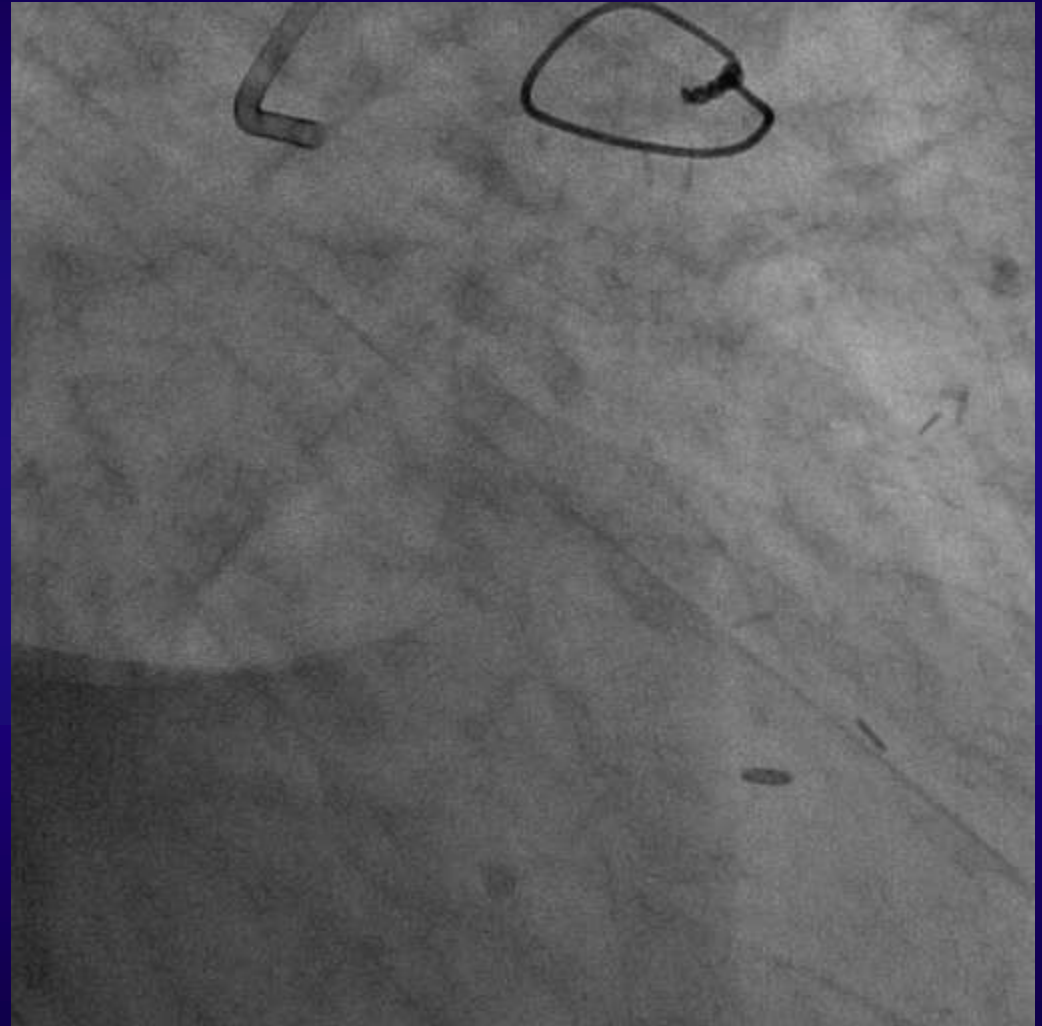
***LITA-LAD: closed***

***SVG-IM: closed***

***SVG-OM: patent***

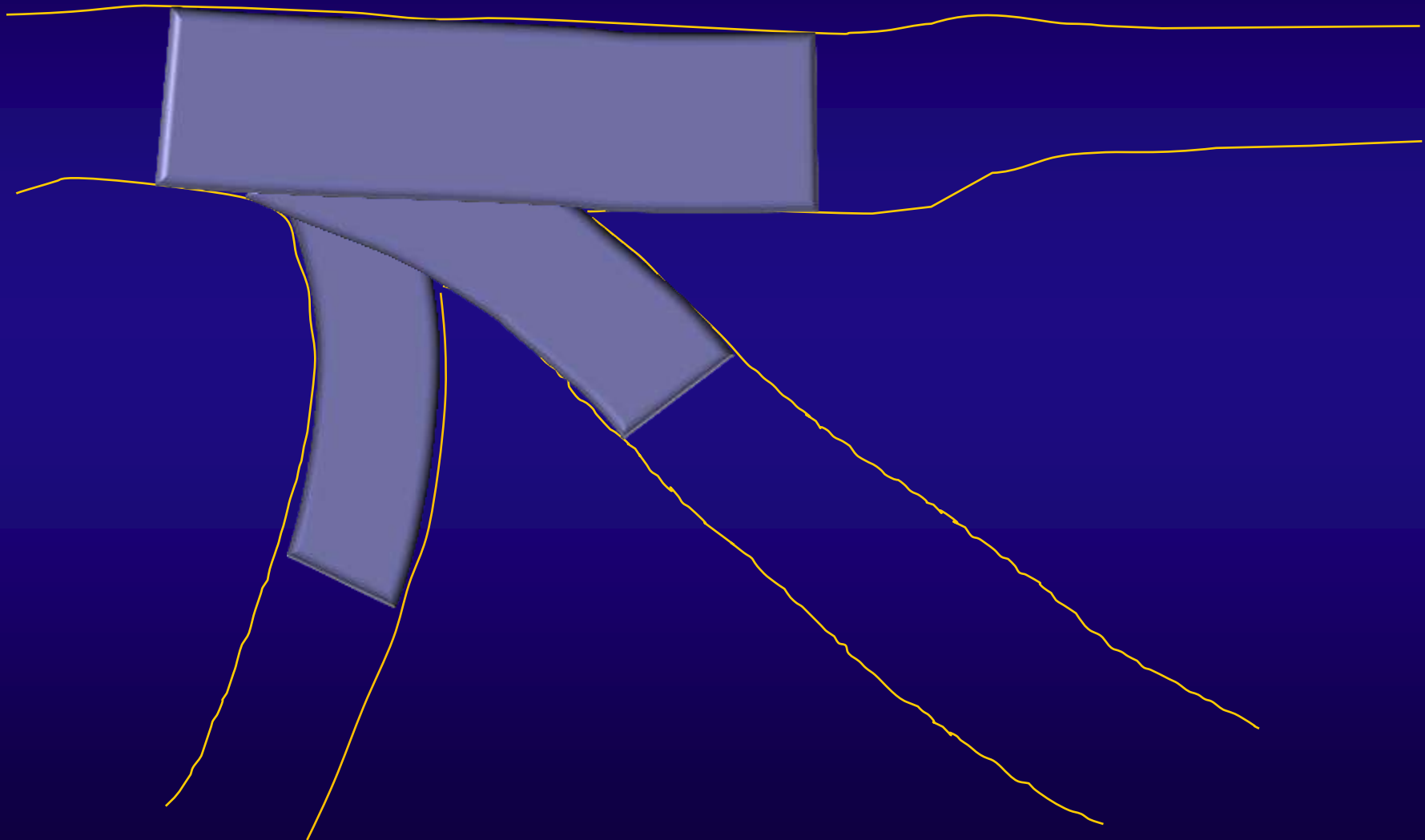
***Euro Score 17***

***SYNTAX Score 34***





# Double Mini-Crush Technique for Trifurcation Lesions by 6Fr TRI



# Case: Trifurcation LM lesion

## Case

***UAP complicated by  
cardiogenic shock,***

***71 y.o. Male***

***Rt. radial approach***

***GC: 6Fr. VL3.0***

***(Mach 1, BSC)***

***Final result***



# Case: Trifurcation LM lesion

## Case

*UAP complicated by  
cardiogenic shock,*

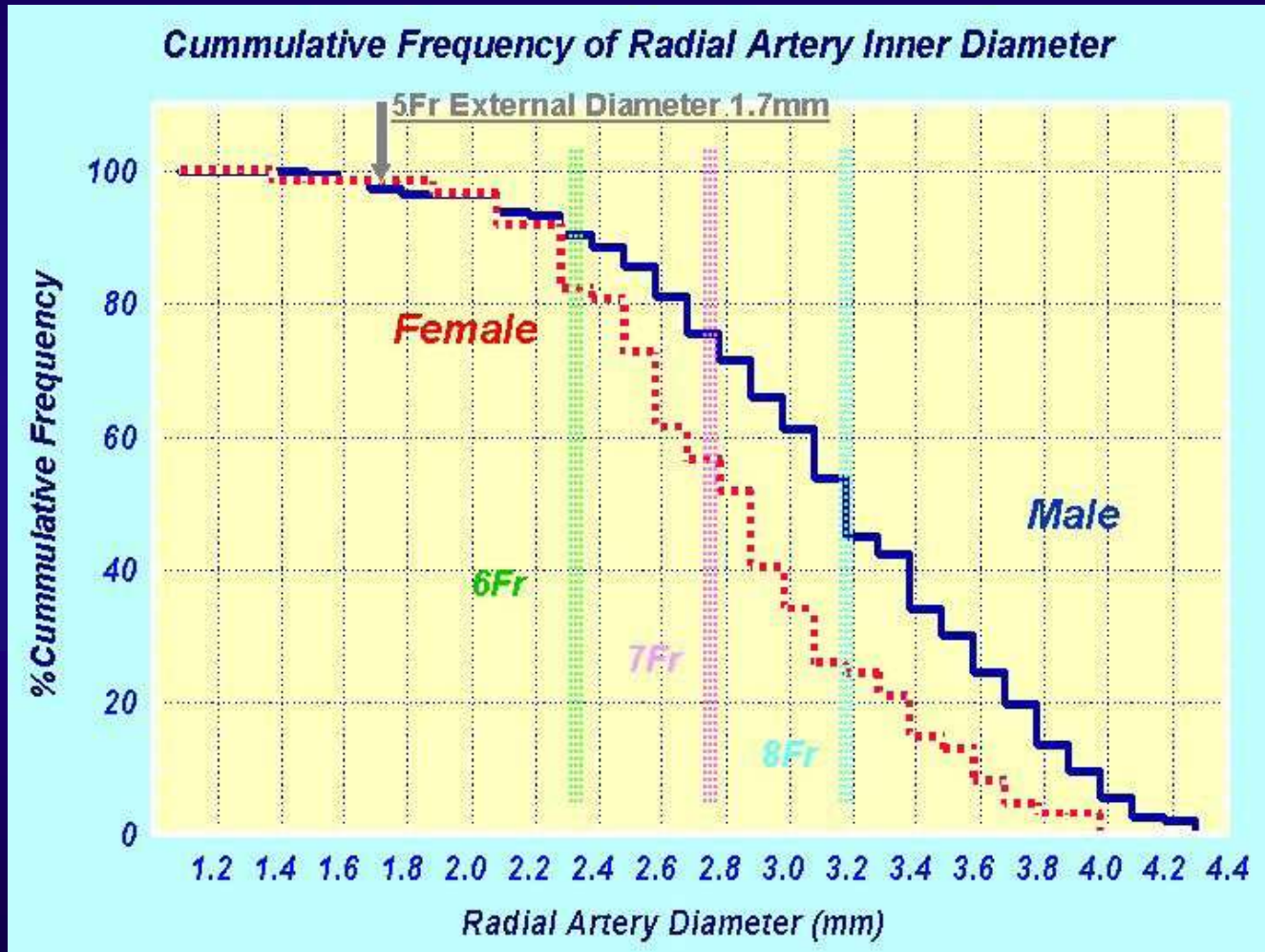
*72 y.o. Male*

*F-up CAG*

*12 month after PCI*



# Seven Fr. guiding catheter could be inserted through radial artery in 70% of Japanese male



# ***Bailout situation for LM thrombus 6Fr. TRI Case***

# Bailout situation by TRI

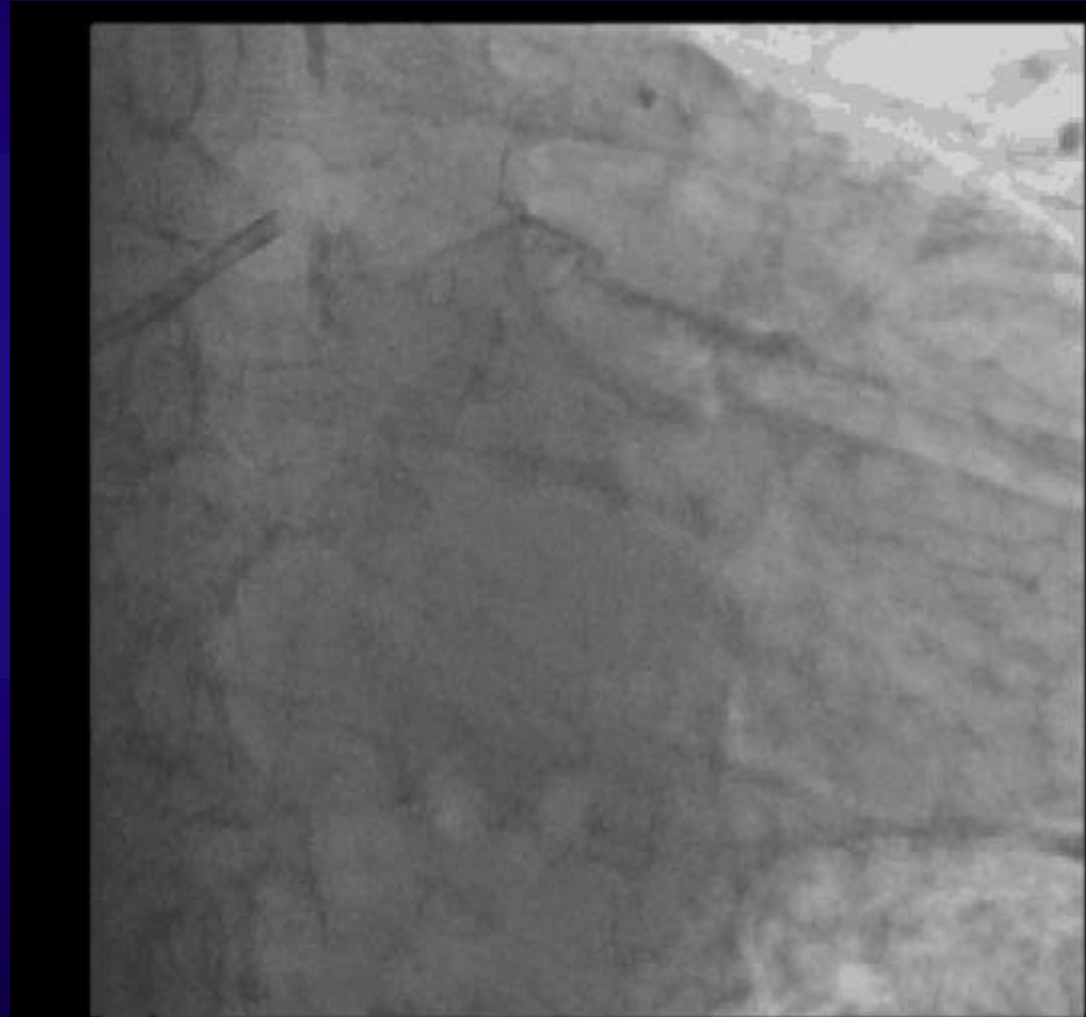
## Case

**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**



# Bailout situation by TRI

## Case

**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**GWs: BMW univ. II x2**

**(Abbott Vascular)**



# Bailout situation by TRI

## Case

**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**GWs: BMW univ. II x3  
(Abbott Vascular)**





# Bailout situation by TRI

## Case

**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**GWs: BMW univ. II x3**

**(Abbott Vascular)**

**Balloon:**

**3.0/15 mm Tazuna**

**(Terumo)**



# Bailout situation by TRI

## Case

**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

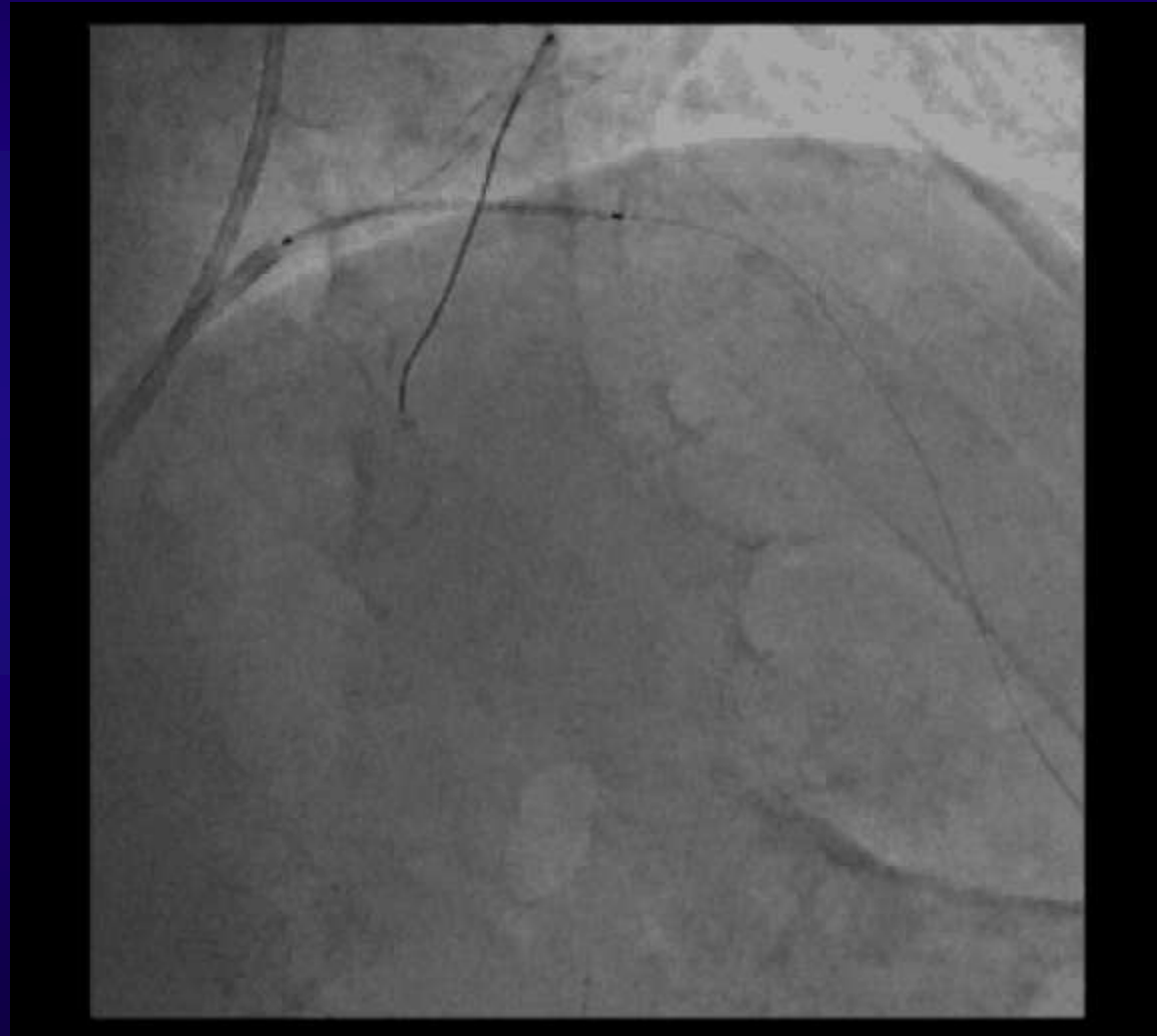
**GWs: BMW univ. II x2**

**(Abbott Vascular)**

**Stent:**

**3.0/24 mm Nobori**

**(Terumo)**



# Bailout situation by TRI

## Case

**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

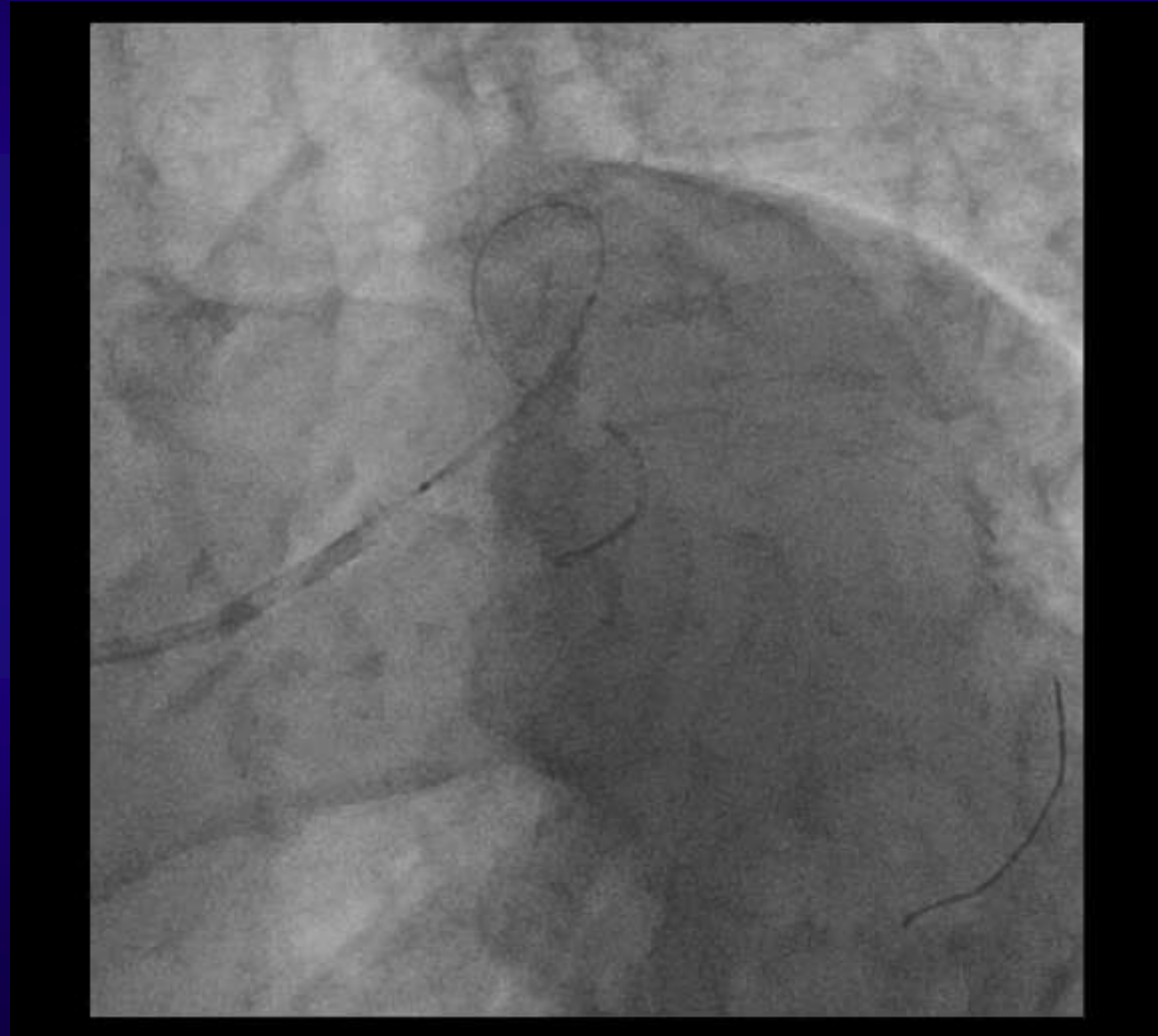
**GWs: BMW univ. II x2**

**(Abbott Vascular)**

**Stent:**

**3.0/24 mm Nobori**

**(Terumo)**



# Bailout situation by TRI

## Case

**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**GWs: BMW univ. II x2**

**(Abbott Vascular)**

**Stent:**

**3.0/24 mm Nobori**

**(Terumo)**



# Bailout situation by TRI

## Case

**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**GWs: BMW univ. II x2  
(Abbott Vascular)**

**Stent:**

**3.0/24 mm Nobori  
(Terumo)**



# Bailout situation by TRI

## Case

**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**GWs:BMW univ. II**

**(Abbott Vascular)**

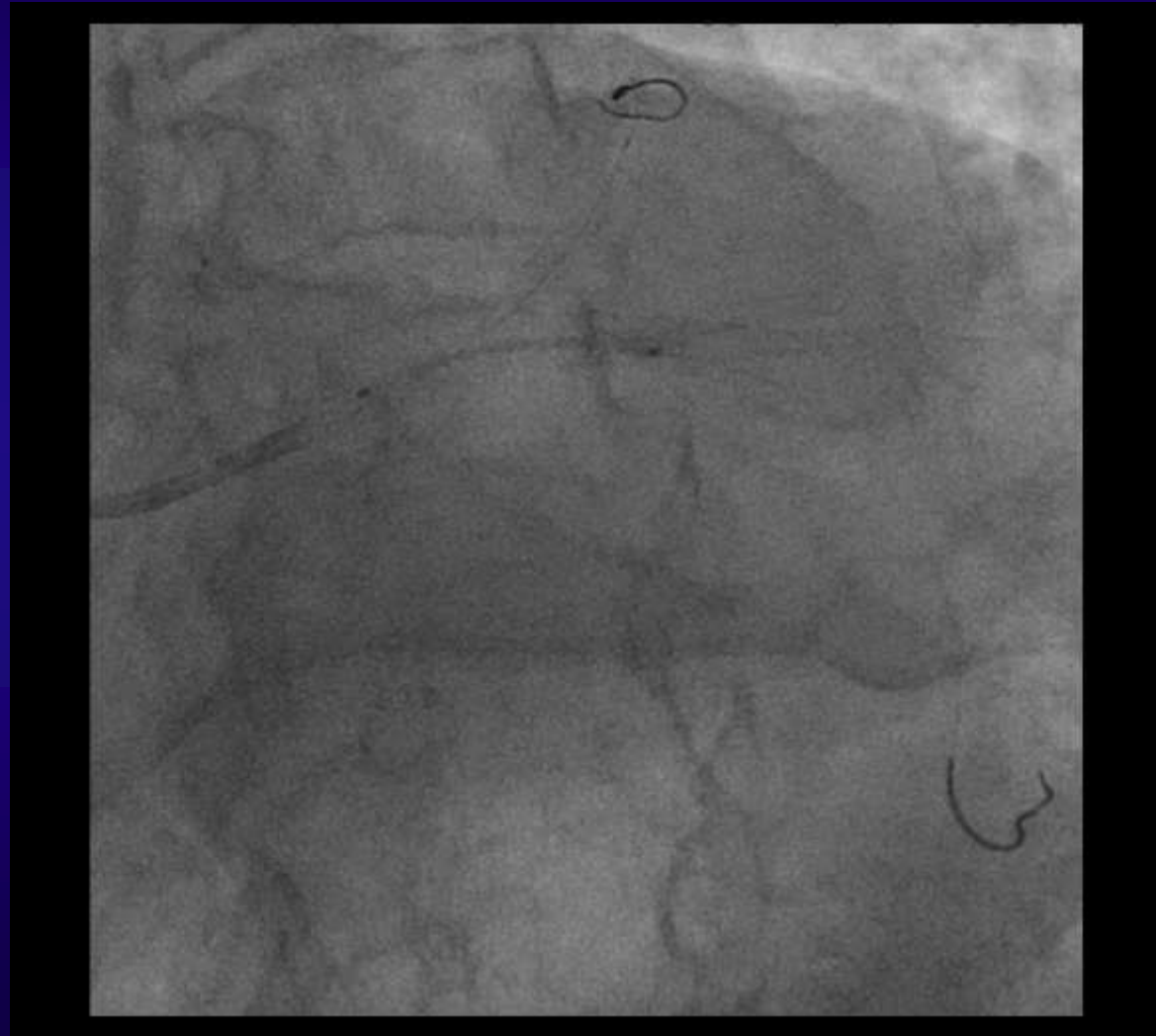
**SION blue (ASAHI**

**INTECC)**

**Stent:**

**3.0/24 mm Nobori**

**(Terumo)**



# Bailout situation by TRI

## Case

**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**GWs: BMW uni. II**

**(Abbott Vascular)**

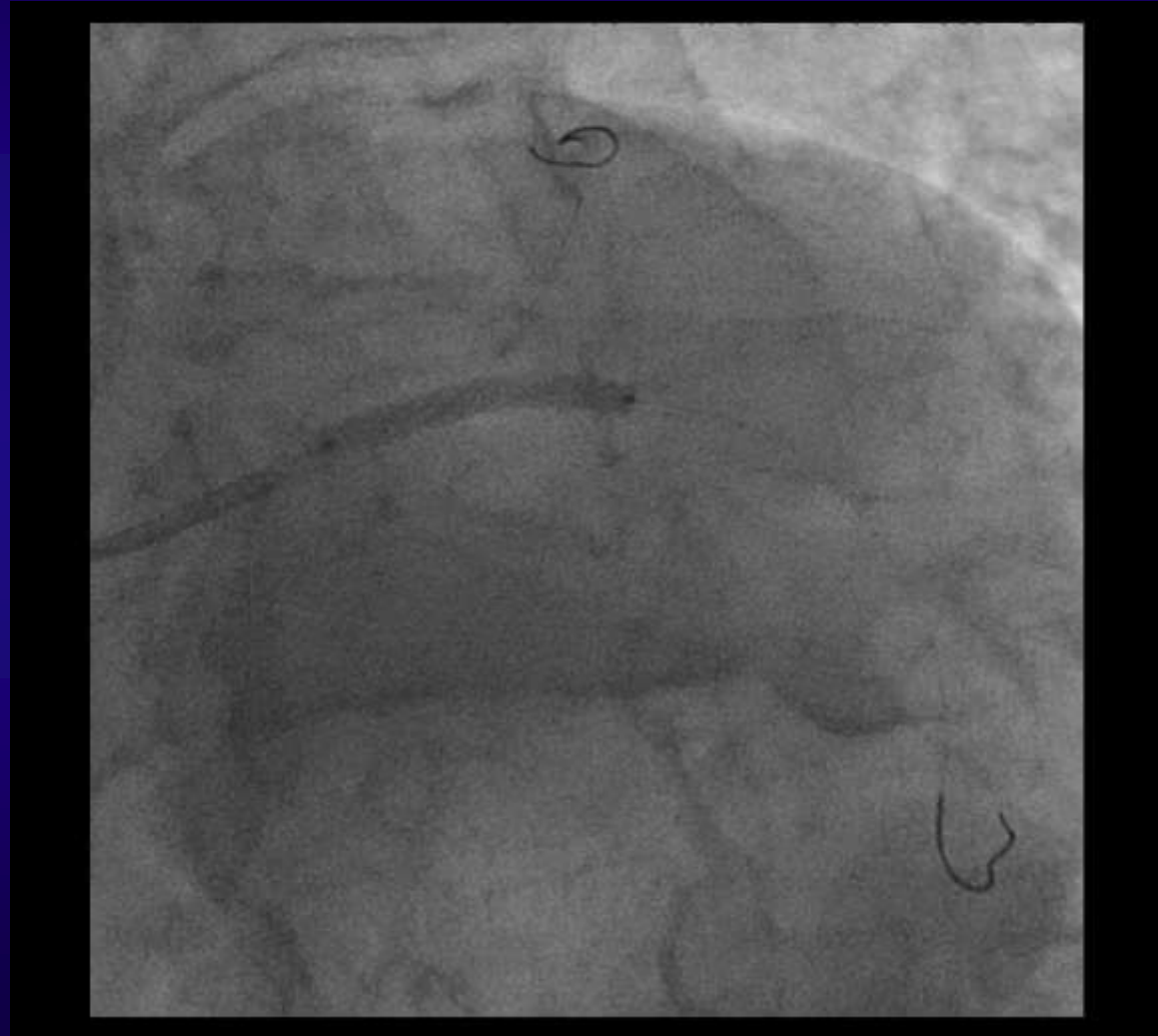
**SION blue (ASAHI**

**INTECC)**

**Stent:**

**3.0/24 mm Nobori**

**(Terumo)**



# Bailout situation by TRI

## Case

**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**GWs:BMW univ. II**

**(Abbott Vascular)**

**SION blue (ASAHI**

**INTECC)**

**Balloon: LAD**

**3.25/15 mm Hiryu Plus**

**(Terumo)**

**LCx 3.0/15 mm Tazuna**

**(Terumo)**





# Bailout situation by TRI

## Case

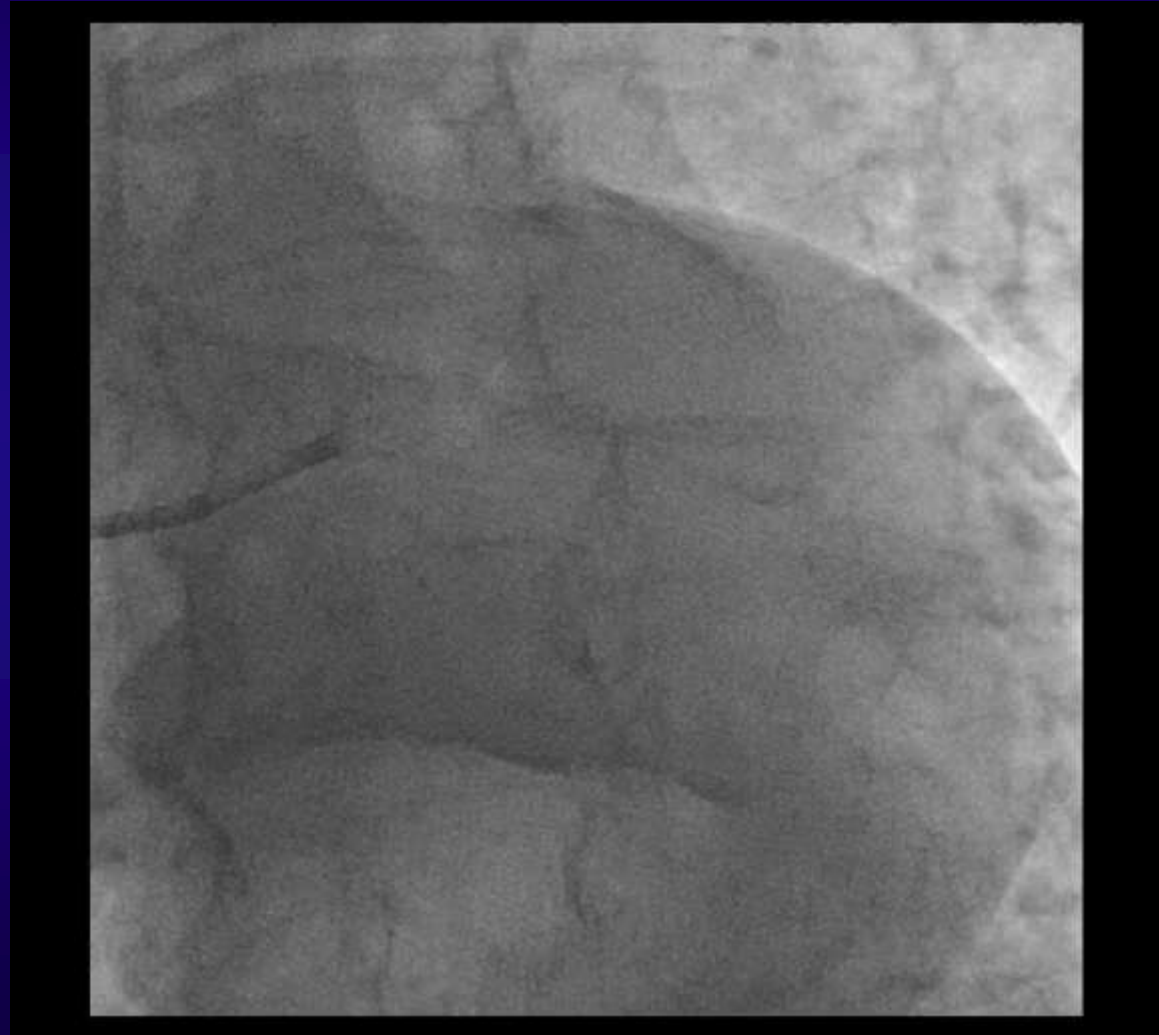
**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**Final result**



# Bailout situation by TRI

## Case

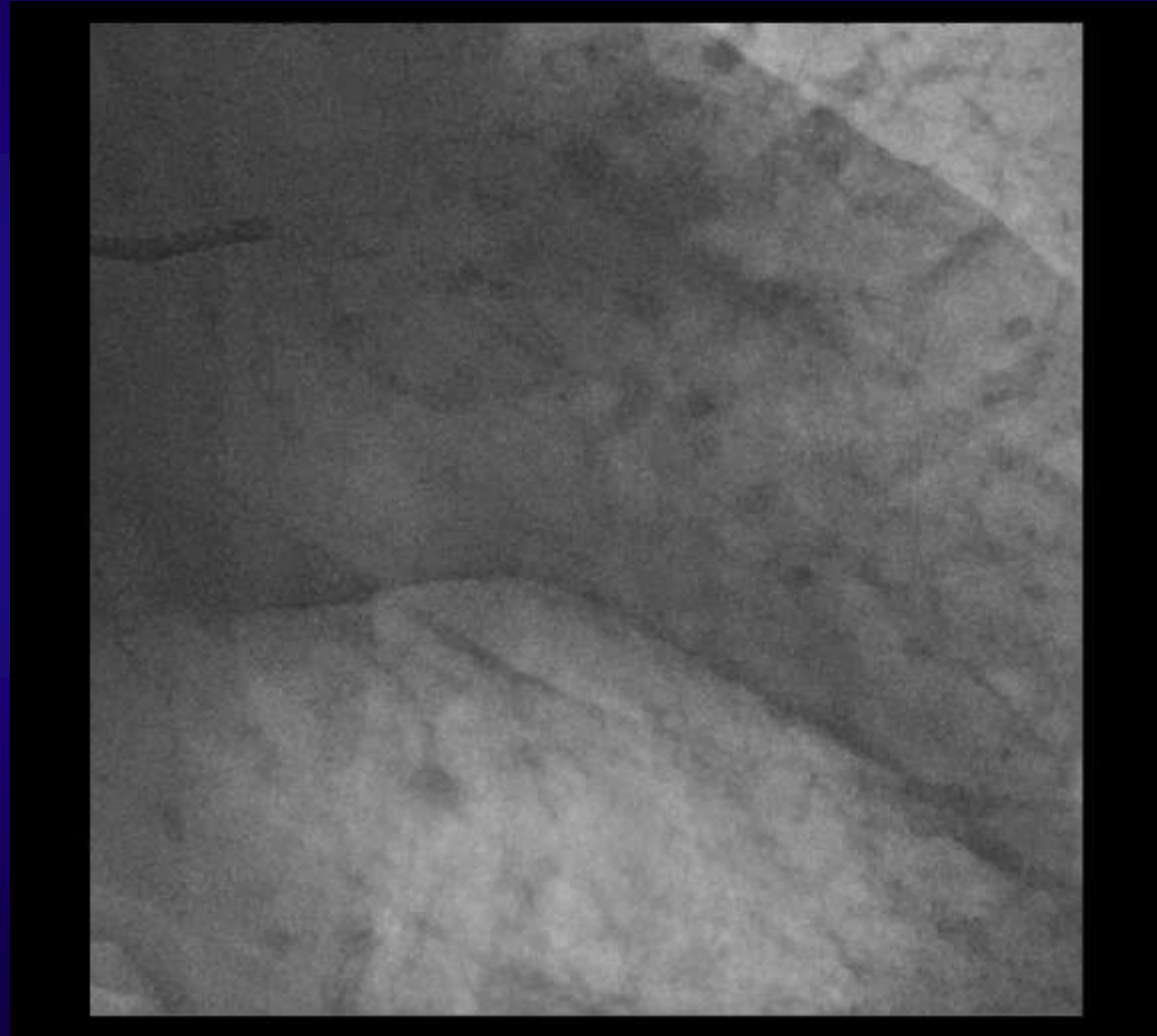
**AP, 80 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**Final result**

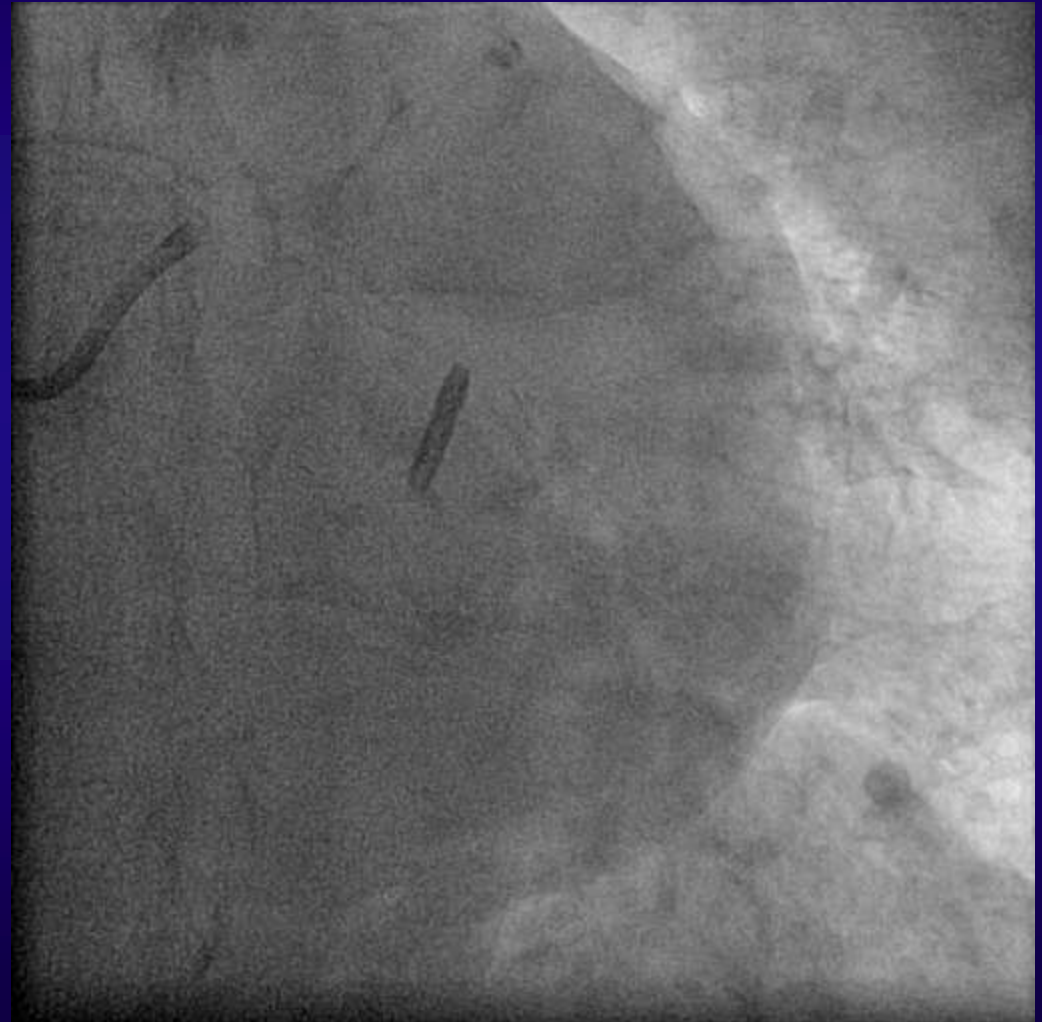


# ***With hemodynamic support system 6Fr.TRI Cases***

# IABP assisted 6Fr.TRI

## Case

*AP, DM, 77 y.o. Female*



# IABP assisted 6Fr.TRI

## Case

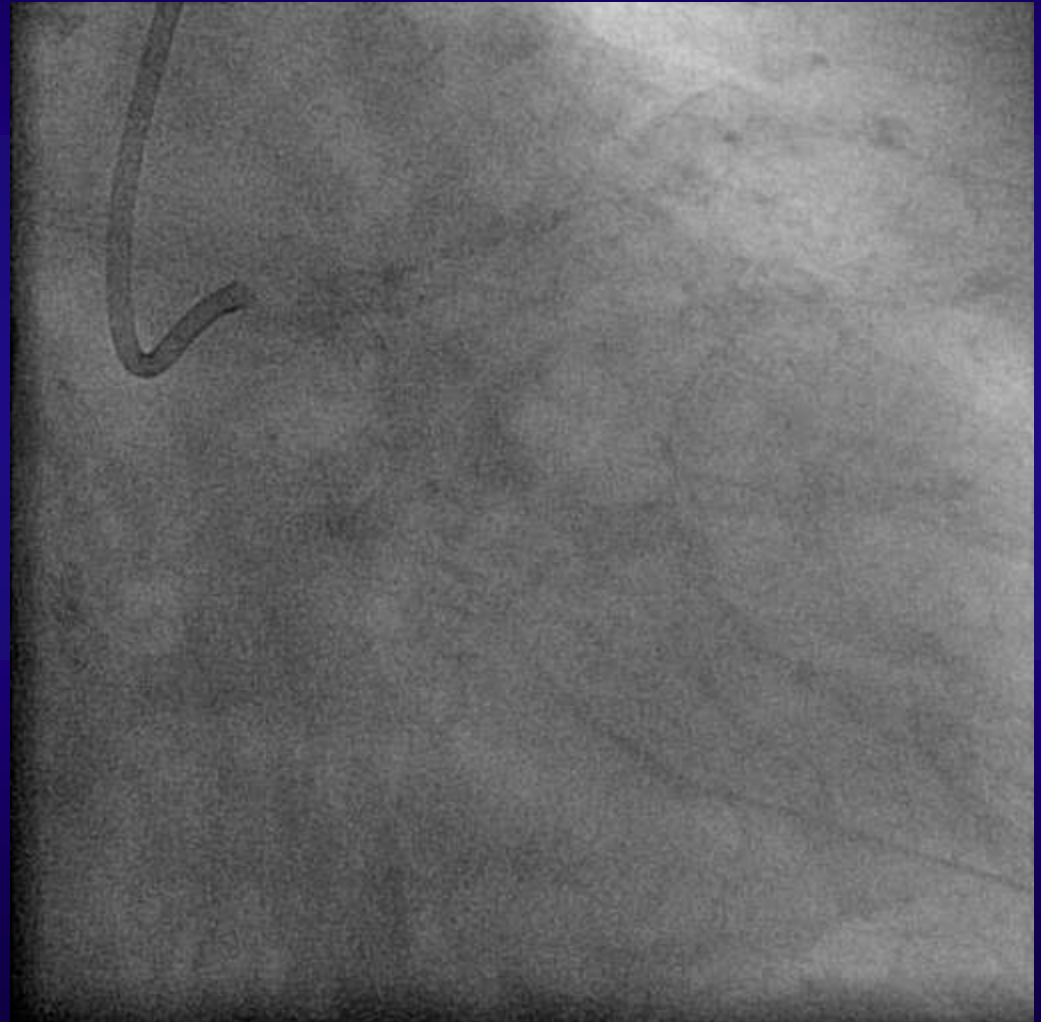
**AP, DM, 77 y.o. Female**

**Rt. radial approach**

**GC: 6Fr. AL1**

**(Mach 1, BSC)**

**Final result**



# Supported PCI using PCPS and IABP for the patient with STEMI complicated by cardiogenic shock

## Case

**AMI, 65 y.o. Male**

**Onset 2.5 hours**



# Supported PCI using PCPS and IABP for the patient with STEMI complicated by cardiogenic shock

## Case

**AMI, 65 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

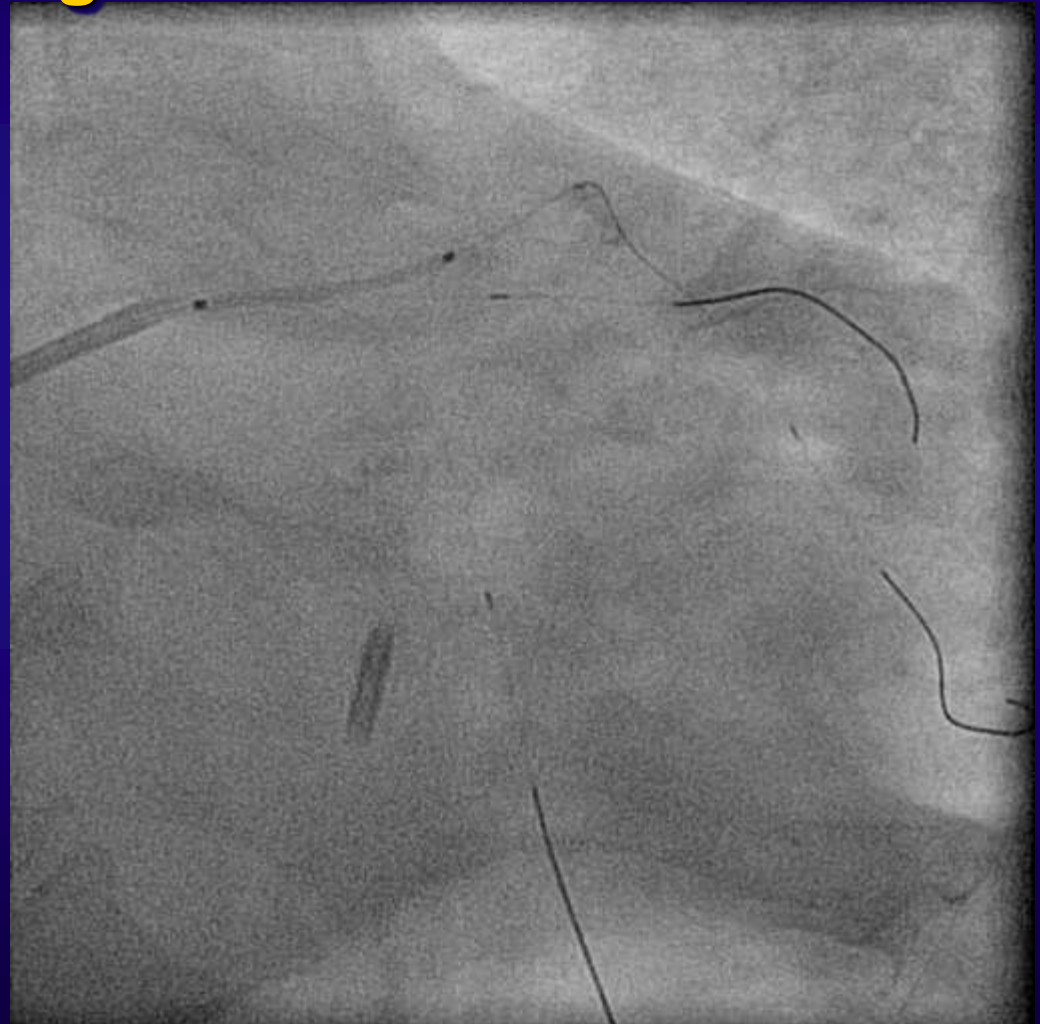
**(Mach 1, BSC)**

**GWs: BMW univ. II x3**

**Stent:**

**3.0/18mm DRIVER**

**(Medtronic)**



# Supported PCI using PCPS and IABP for the patient with STEMI complicated by cardiogenic shock

## Case

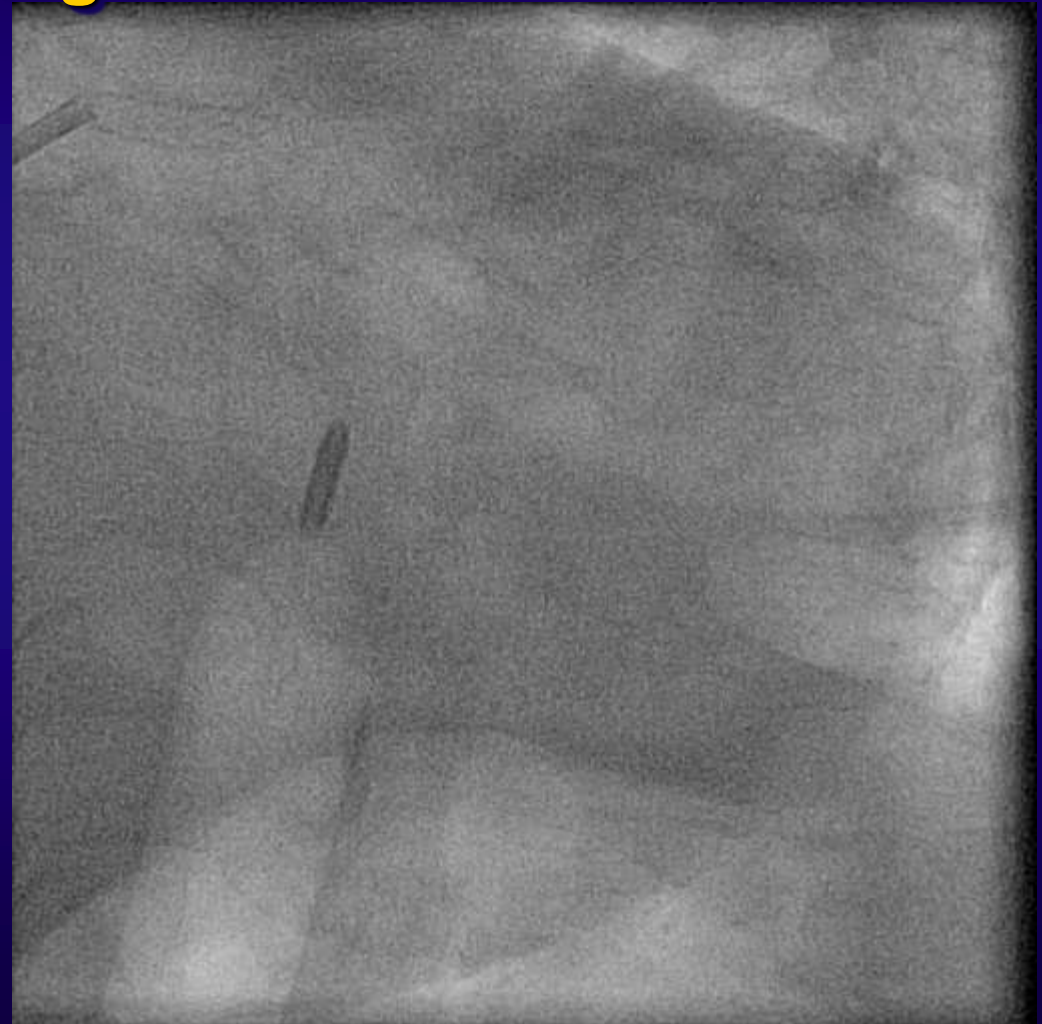
**AMI, 65 y.o. Male**

**Rt. radial approach**

**GC: 6Fr. VL3.5**

**(Mach 1, BSC)**

**Final result**





# Major Bleeding: Radial vs. Femoral

## A) Major Bleeding

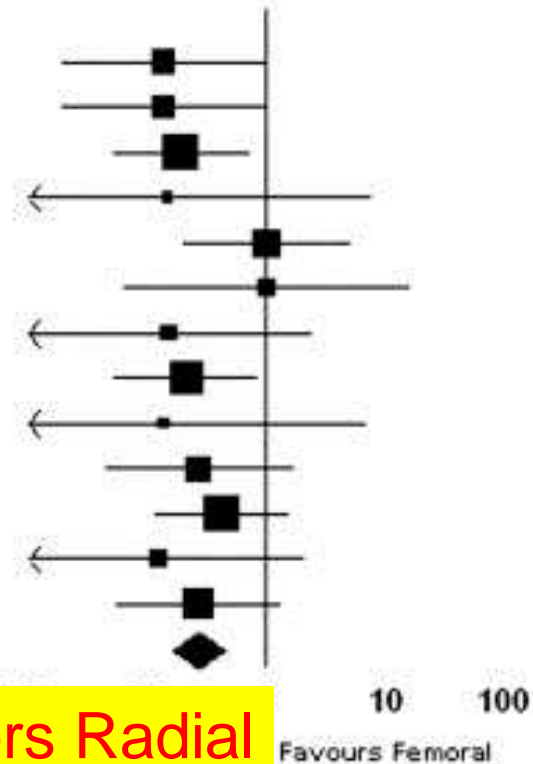
Study name

Radial Femoral

Peto odds ratio

Peto odds ratio and 95% CI

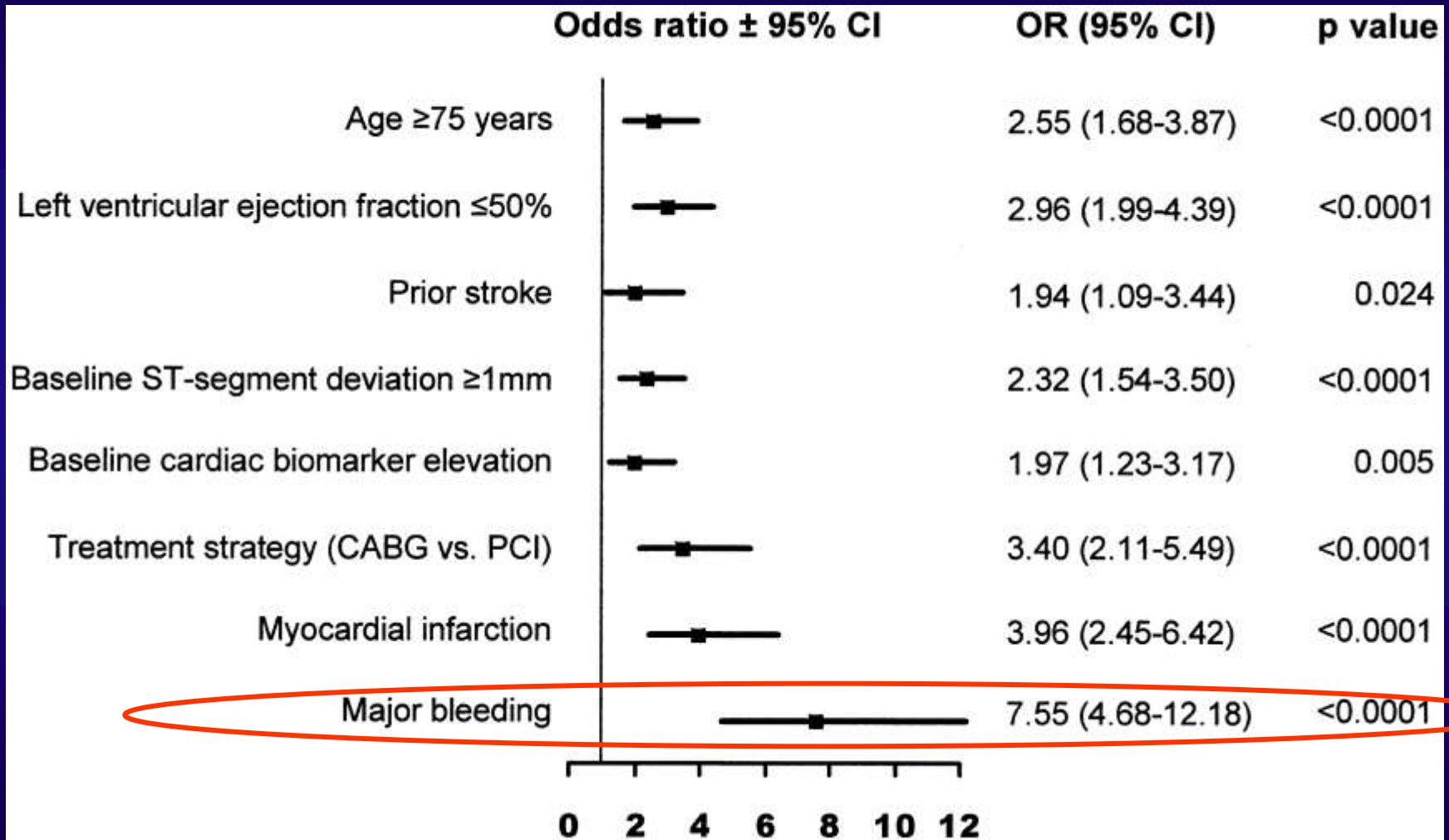
Study name	Radial	Femoral	Peto odds ratio
ACCESS	0 / 300	4 / 300	0.13
Achenbach	0 / 152	4 / 155	0.14
Bodi	3 / 666	7 / 332	0.19
BRAFE	0 / 50	1 / 55	0.15
FARMI	3 / 57	3 / 57	1.00
Gorge	1 / 214	1 / 216	1.01
Mann 1998	0 / 68	2 / 77	0.15
OCTOPLUS	1 / 192	7 / 185	0.21
OUTCLAS	0 / 322	1 / 322	0.14
RADIAL AMI	1 / 25	4 / 25	0.27
RADIAMI	3 / 50	7 / 50	0.41
TEMPURA	0 / 77	2 / 72	0.12
Vazquez-Rodriguez	1 / 217	5 / 222	0.27
	13 / 2390	48 / 2068	0.27



**OR 0.27 (95% CI 0.16, 0.45)  $P < .001$**

**Favors Radial**

# Major bleeding is an independent predictor of 30-day mortality



Manoukian SV, et al. *J Am Coll Cardiol.* 49 2007; 1362-1368

# Conclusions

- Operator learning curve is quite important in the treatment of LM lesion by TRI
- TRI using 7Fr. GC is one of the option for complex LM PCI
- Reserving the access site of hemodynamic supporting device is the advantage in TRI especially for critical LM PCI
- If procedural safety of TRI is similar to that of TFI, In-hospital and long term safety are superior in TRI in terms of less bleeding complications

# ***Is Transradial Safe for LM PCI?***

**Yes, no doubt**