

Method of OCT Examination

Kenichi Fujii, MD, PhD

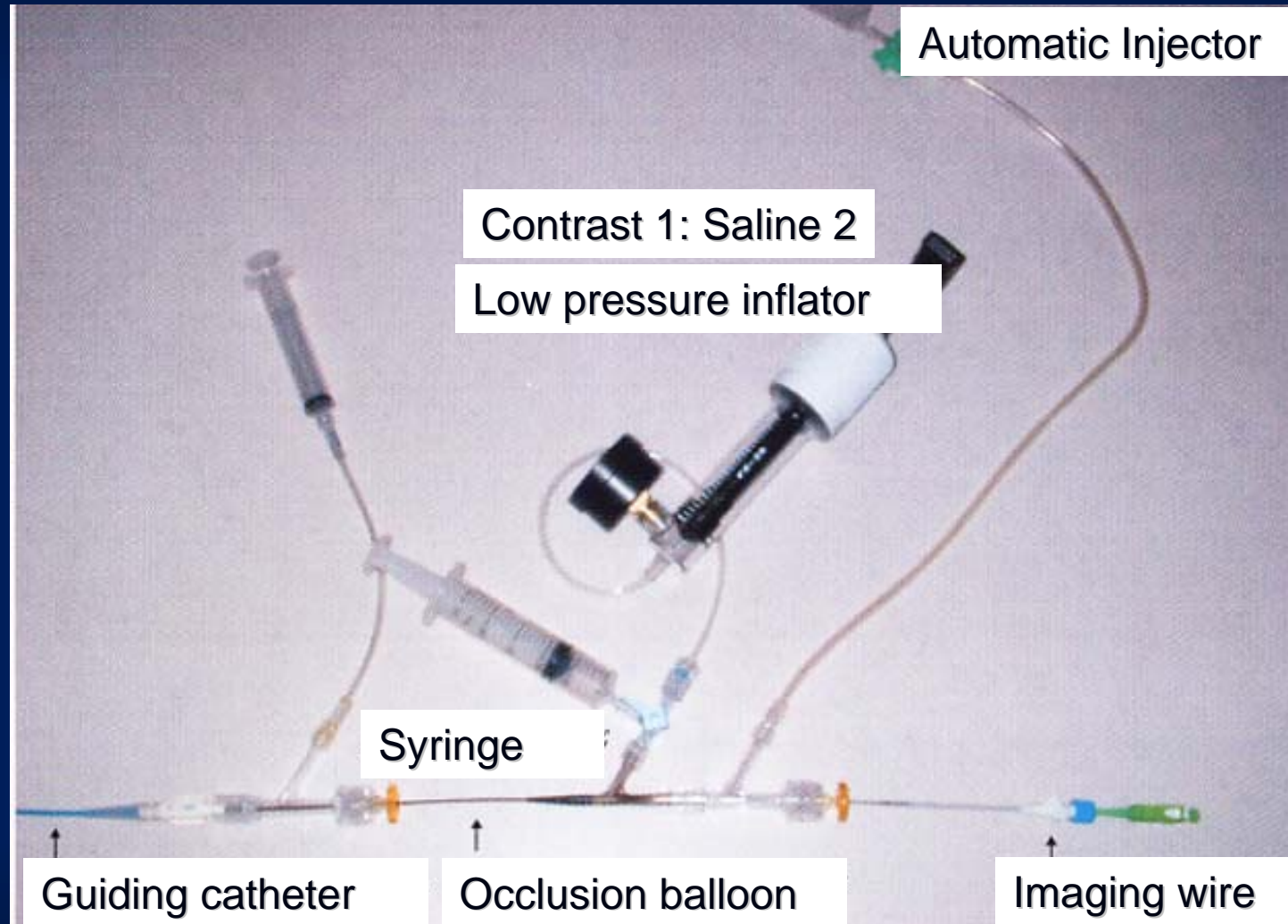
*Imaging & Physiology Summit 2009
20th November 2009, Seoul, Korea*



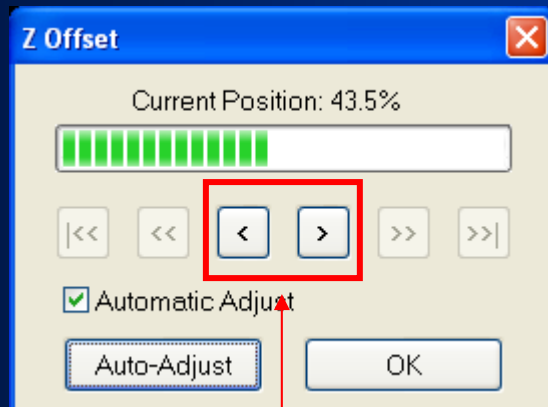
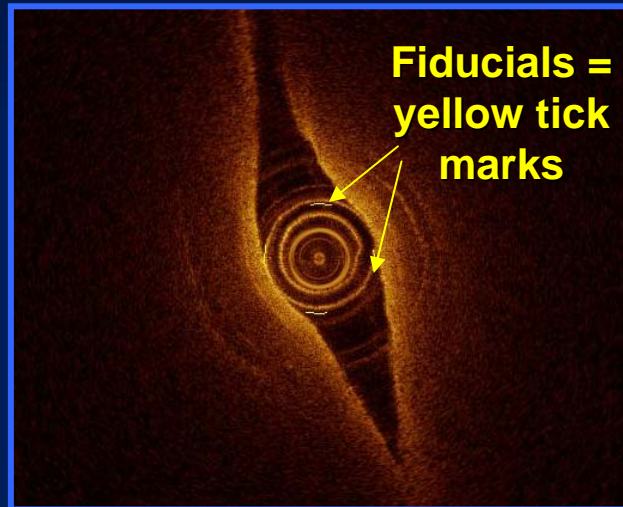
Hyogo College of Medicine



OCT System



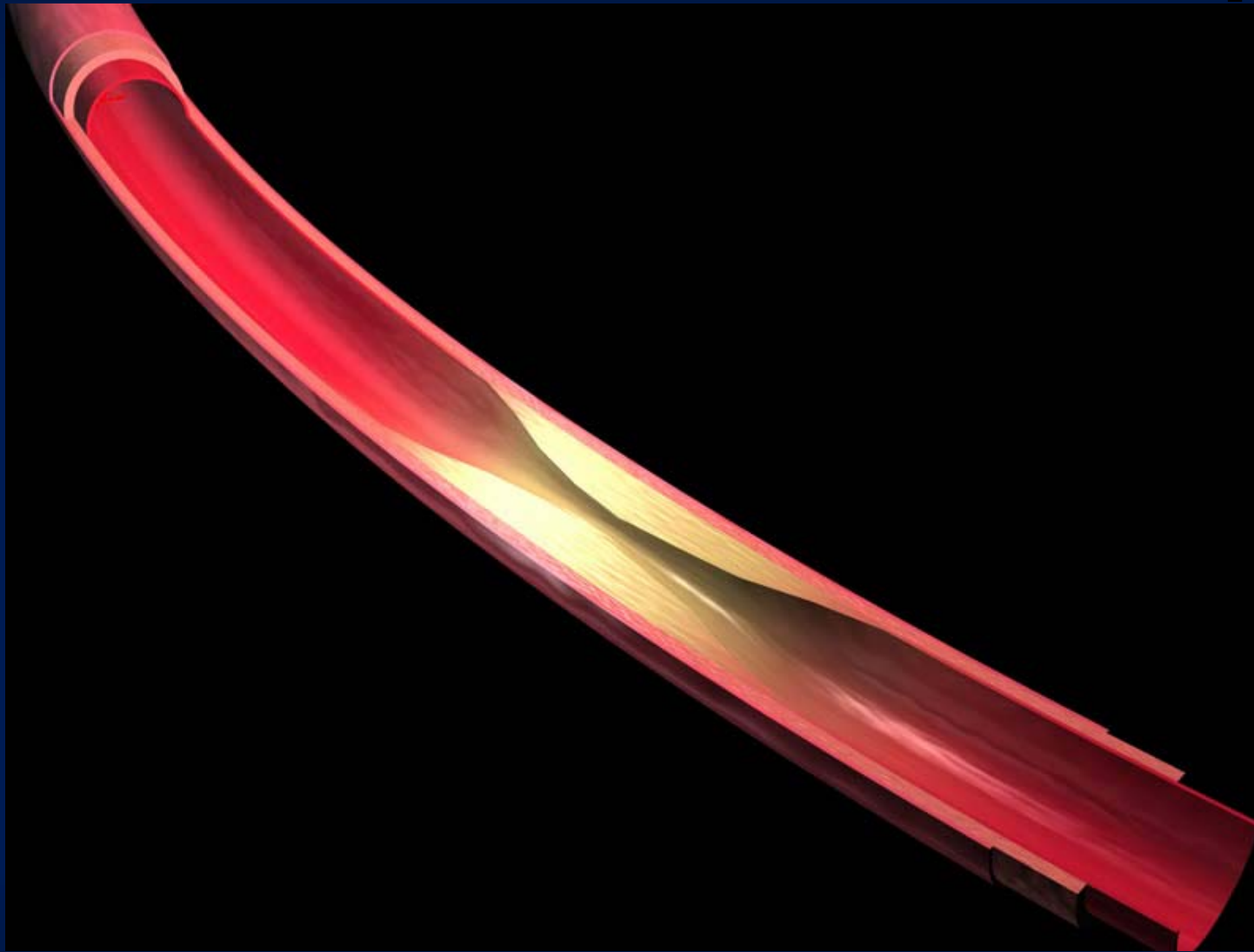
Adjusting Z-off



Use center arrows for adjustments

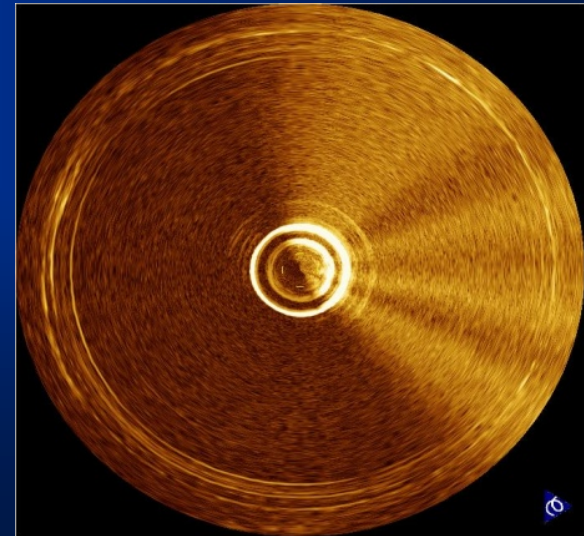
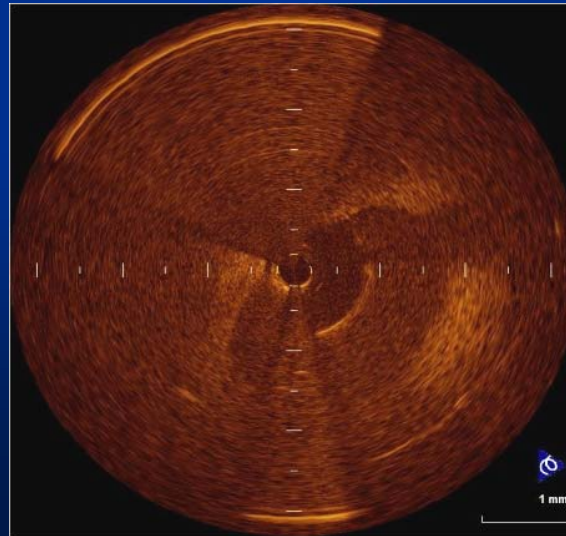
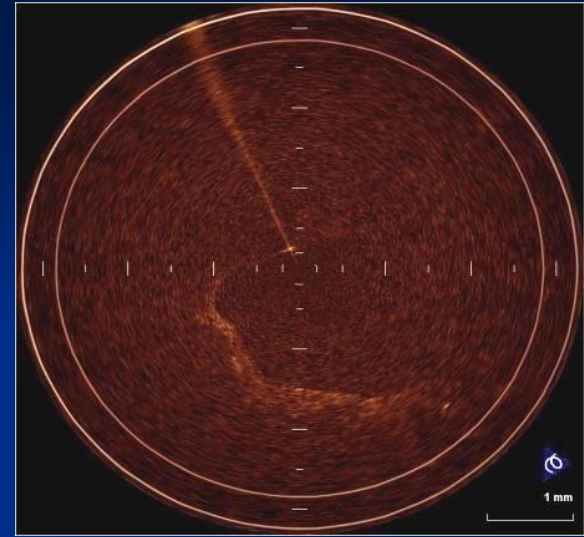
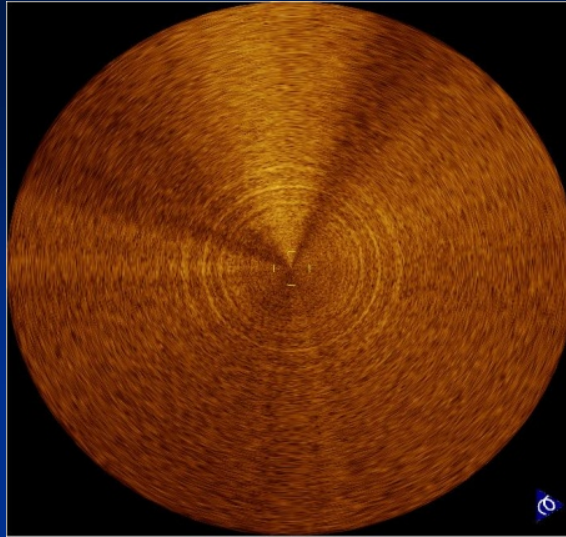
NOTE: Z-offset can be corrected post-pullback, but doing so before acquisition is recommended

Balloon Occlusion Technique



Catheter Handling Precaution

- ✓ Take care in handling the imaging wire to not break the fiberoptics
- ✓ Kinking and bending can cause damage



Balloon Kinking



Balloon Kinking



After the Advancement of IW

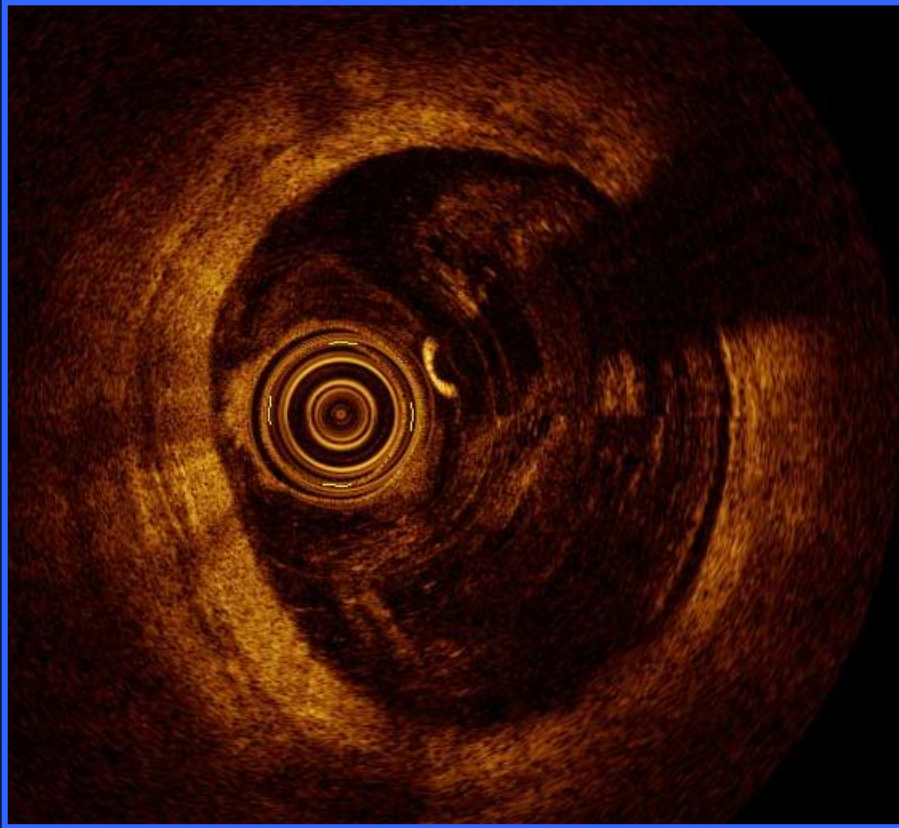
Blood have to be removed from the field!

1. Inflate the occlusion balloon using low pressure inflator.
2. Inject lactate linger (0.5 cc/sec).
3. Start pullback.

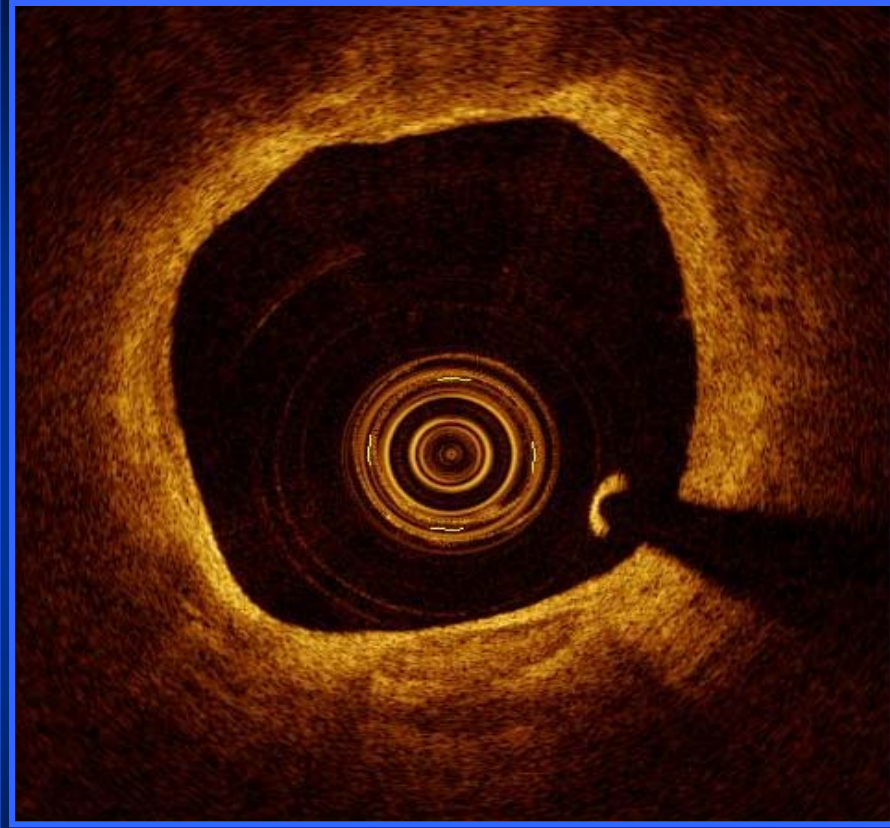
Flush Solution

Solution	Electrolytes (mEq/L)				
	Na ⁺	K ⁺	Ca ⁺	Cl ⁻	Others
Saline	154	—	—	154	—
Lactated Ringer's	130	4	3	109	Lactate ⁻ 28
Acetic Ringer's	130	4	3	109	CH ₃ COO ⁻ 28

Blood Removal

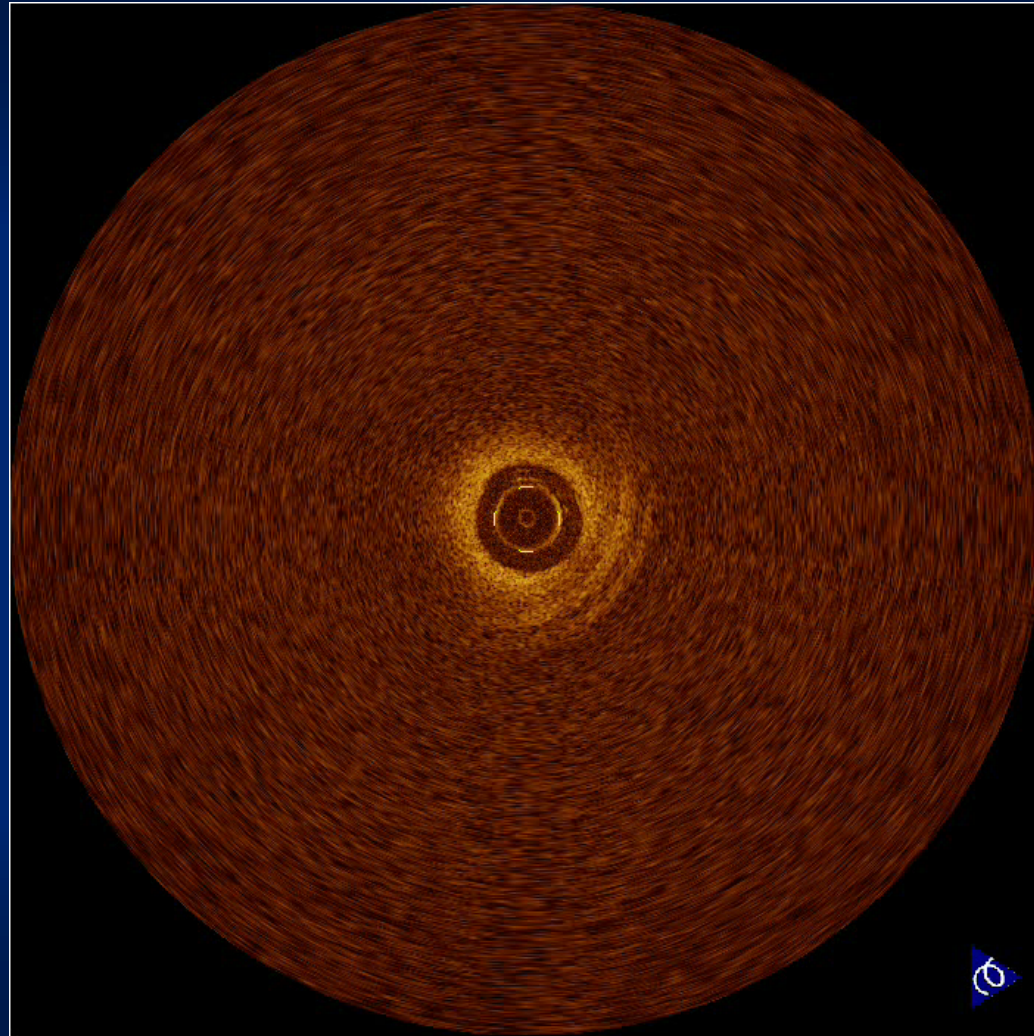


Marginal, Blood Swirls



Optimal Clearance

Blood Removal



Case Presentation

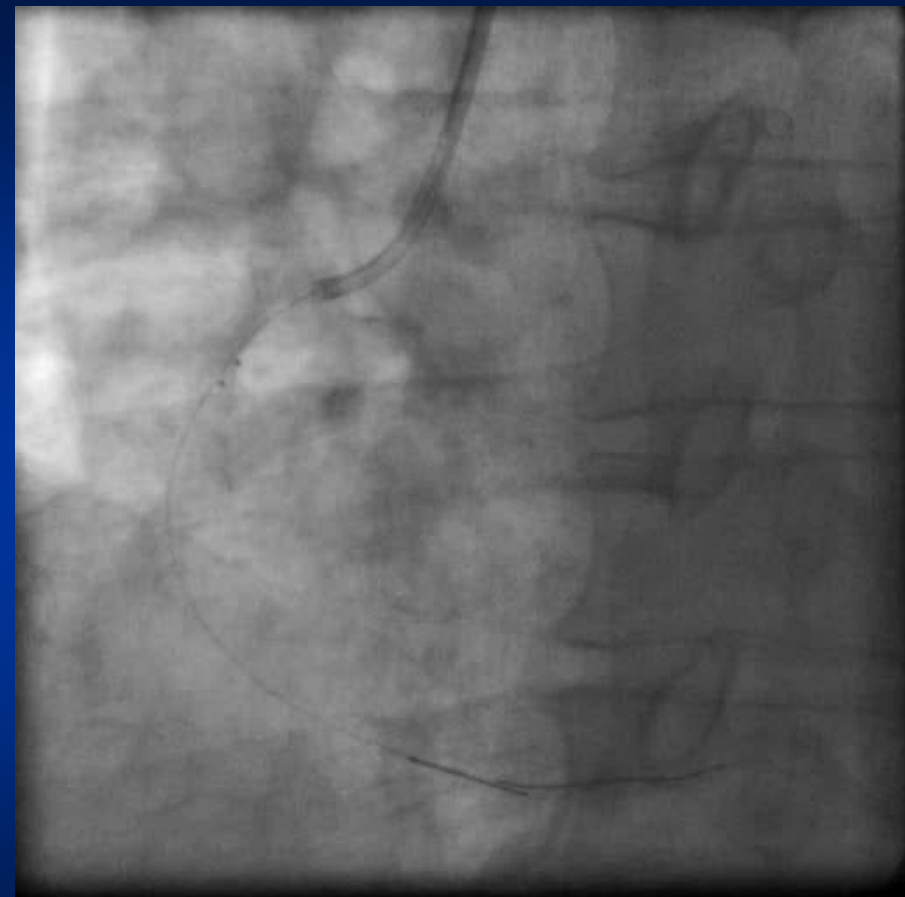


RCA (LAO view)

Case Presentation

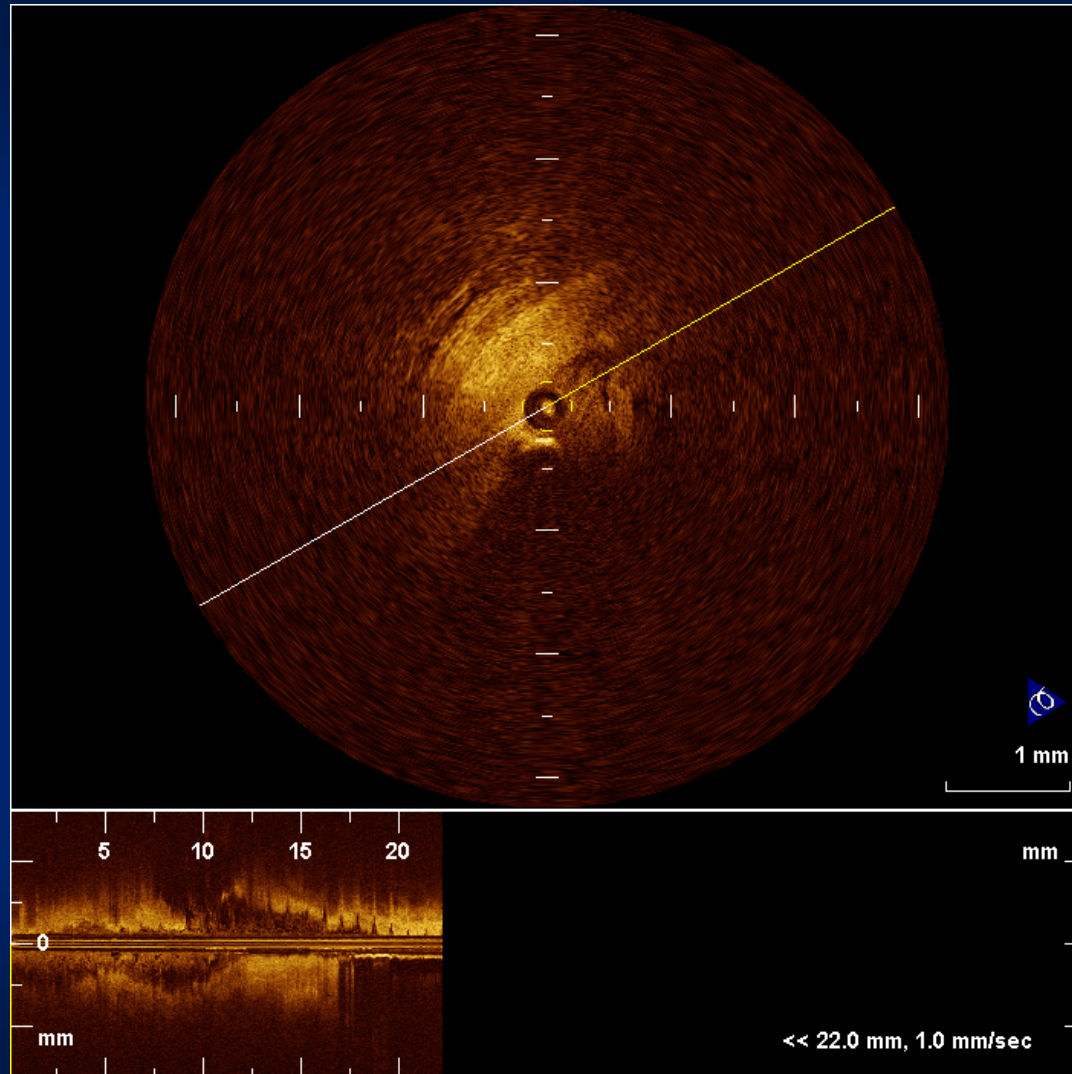


RCA (LAO view)



OCT with occlusion balloon

Case Presentation



Limitation of Balloon Occlusion Technique

- ✓ Proximal segment cannot be visible
(i.e. Left main, ostial RCA lesion)
- ✓ It takes long time to prepare the system
(i.e. occlusion balloon has to be advanced distally)
- ✓ Transient ST-segment elevation in most cases

Non-occlusion Image Acquisition Technique

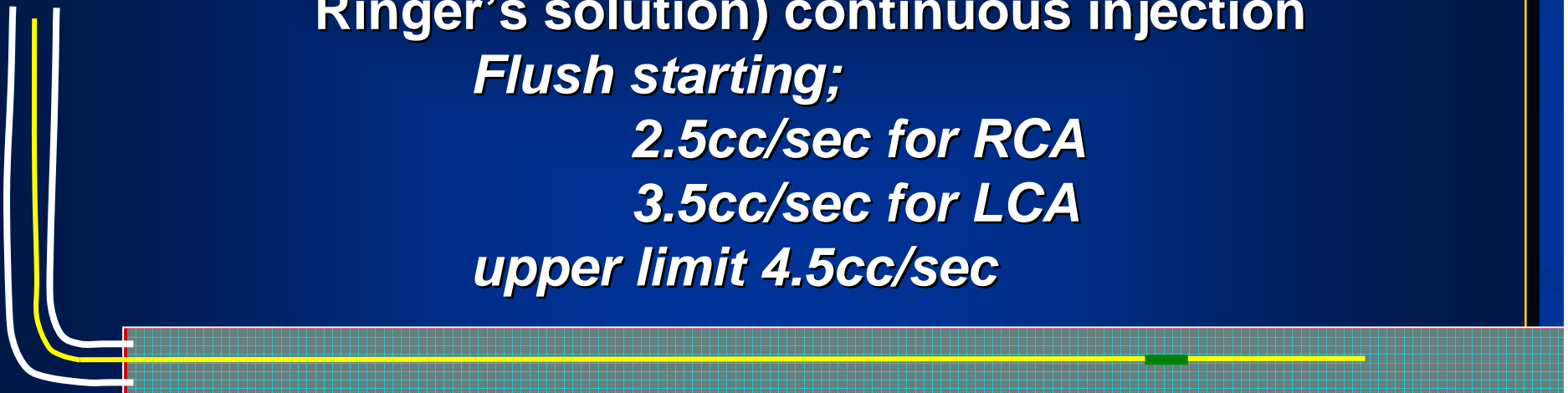
Low molecular dextran L (Dextran 4 and lactated Ringer's solution) continuous injection

Flush starting;

2.5cc/sec for RCA

3.5cc/sec for LCA

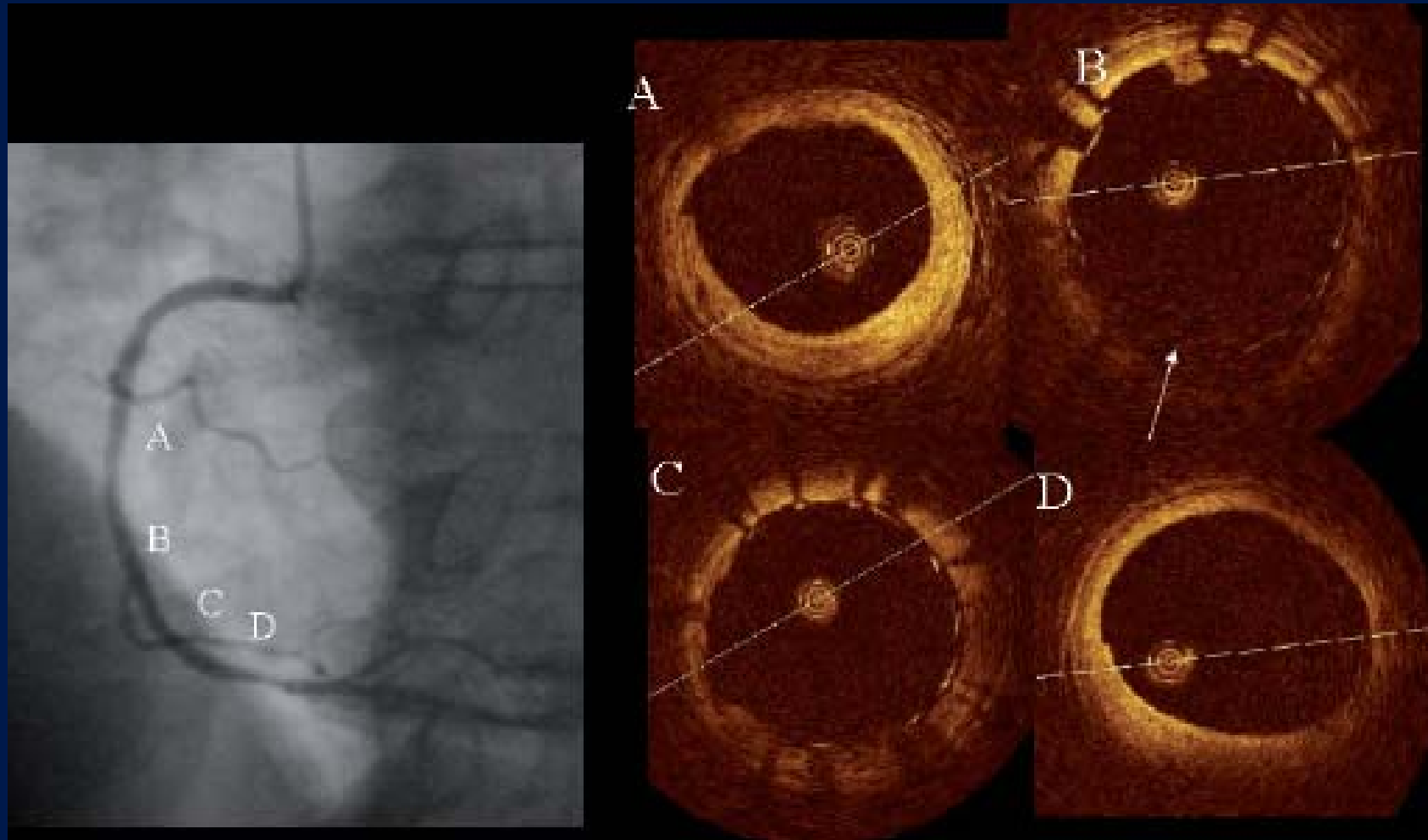
upper limit 4.5cc/sec



Pullback 1mm/sec

Kataiwa H, et al. Ciirc J. 2008;72:1536-37.

Flushing Technique



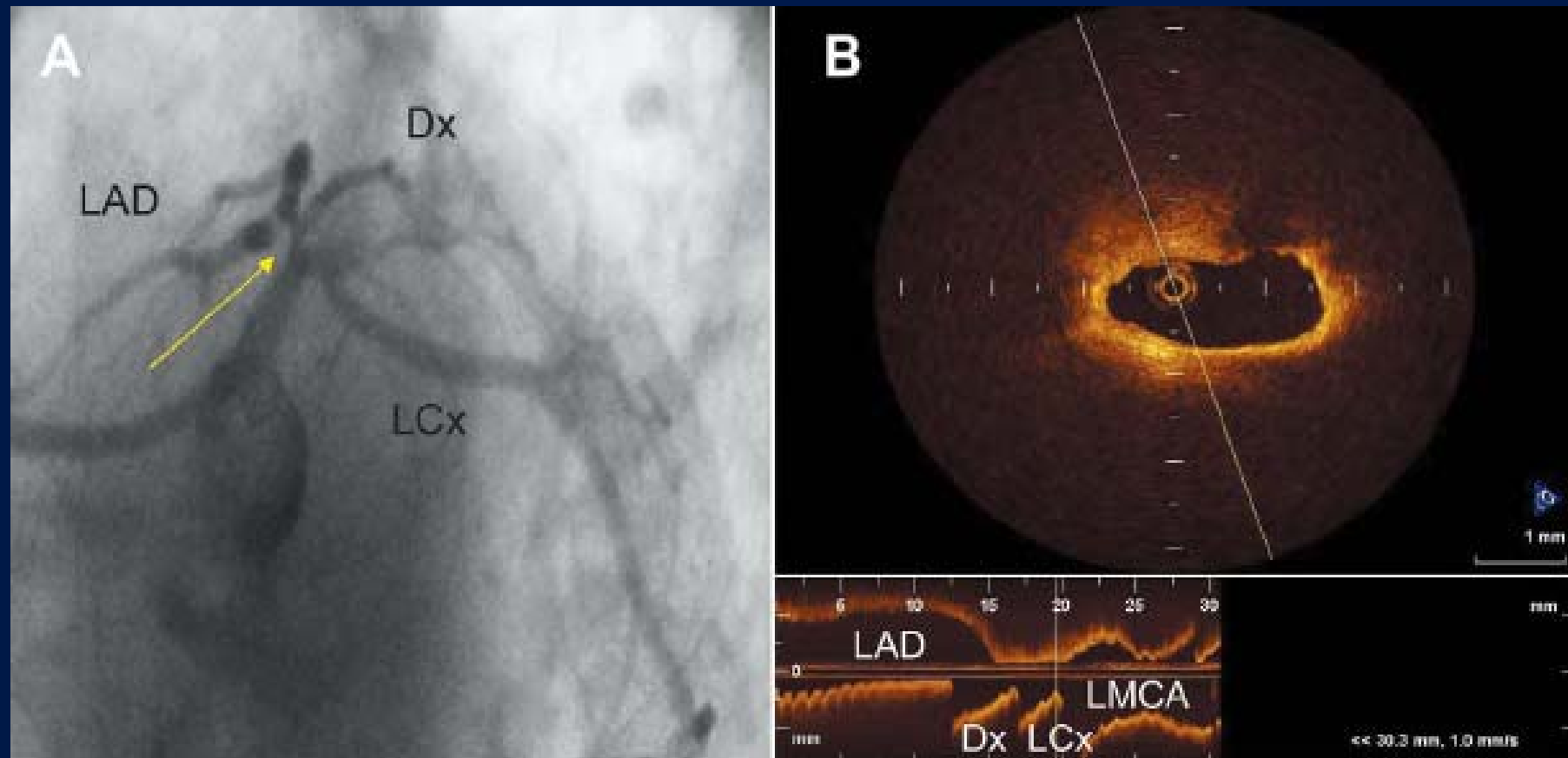
Prati F, et al. EuroInterv. 2007;3:365-70.

Flushing Technique

	<i>Flushing (39 lesions)</i>	<i>Balloon (45 lesions)</i>	<i>p value</i>
<i>Image quality</i>			
<i>Excellent</i>	22 (56%)	18 (40%)	0.52
<i>Good</i>	8 (21%)	12 (27%)	
<i>Fair</i>	5 (13%)	4 (9%)	
<i>Failure</i>	4 (10%)	11 (24%)	
<i>Visible length (mm)</i>	24.3±8.8	25.4±7.7	0.54
<i>Transient ST-segment elevation</i>	1 (5%)	20 (100%)	<0.01
<i>Transient prolonged QTc</i>	19 (95%)	4 (20%)	<0.01
<i>Maximum QTc (ms)</i>	484.5±49.9	431±31.2	0.02
<i>Preparation time (min)</i>	8.2±1.6	17.4±3.7	<0.01

Kataiwa H, et al. Ciirc J. 2008;72:1536-37.

Flushing Technique (ostial location)

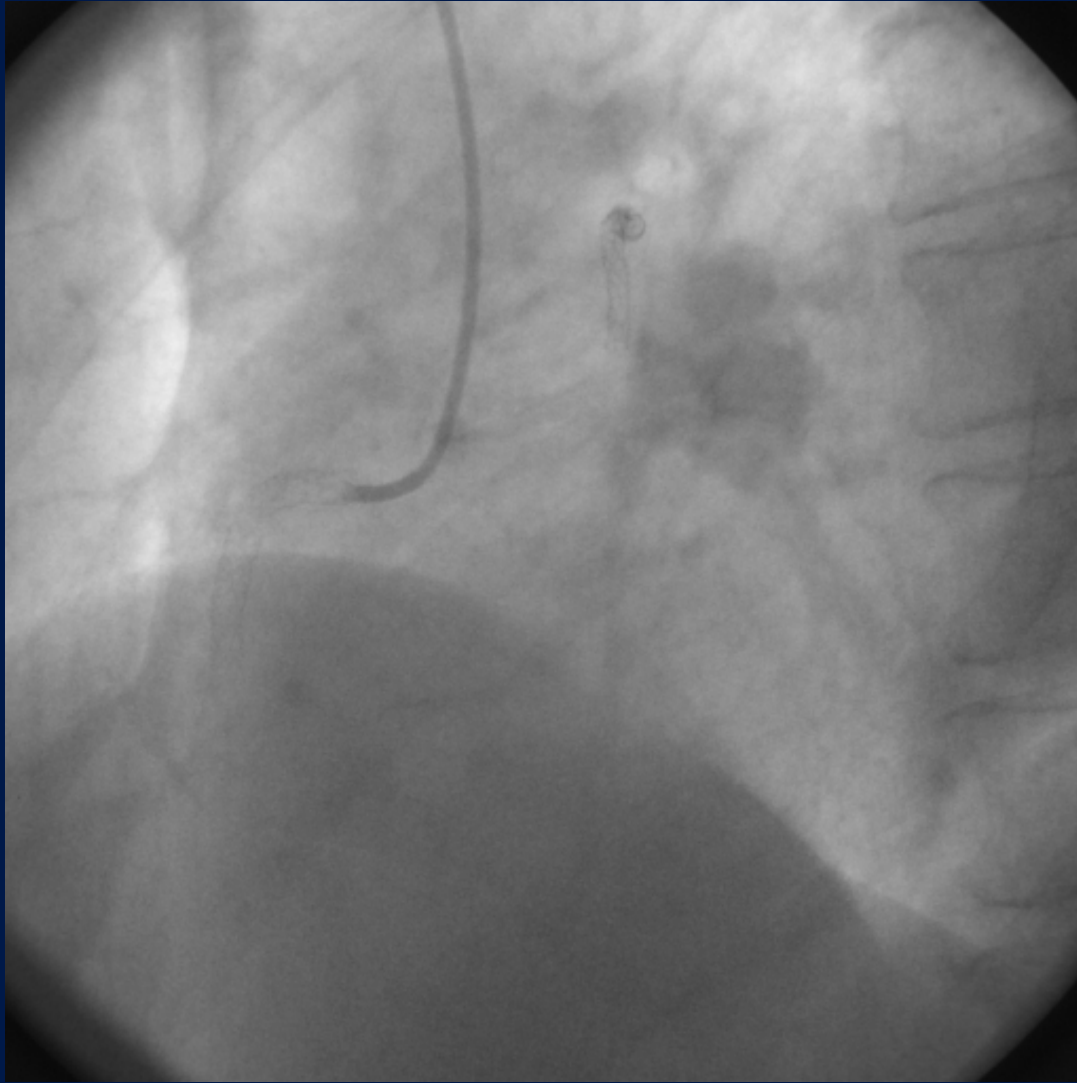


Kataiwa H, et al. Ciirc J. 2008;72:1536-37.

Limitation of Flushing Technique

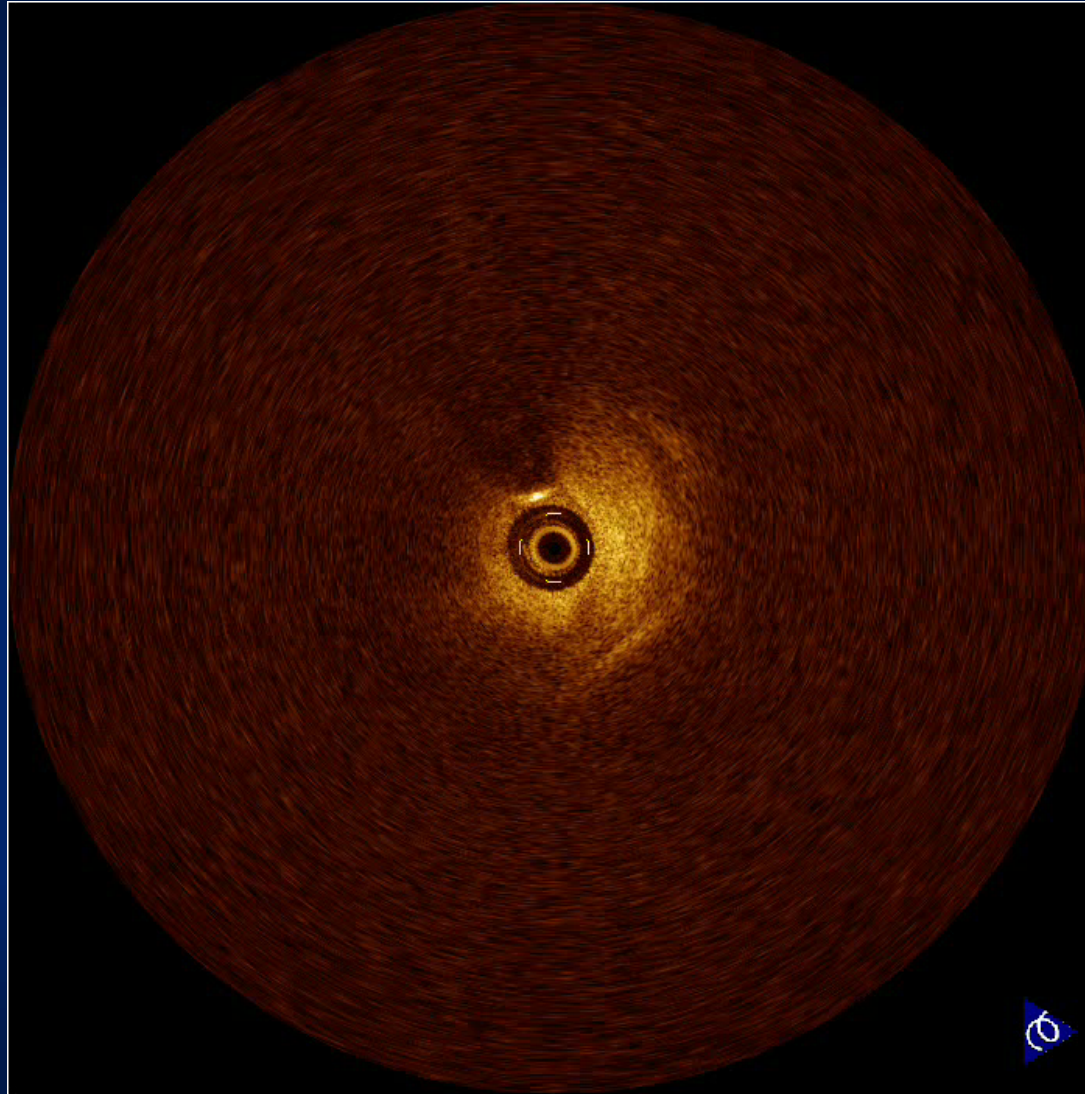
- ✓ Too much amount of solution was injected into the coronary artery
(to visualize 30mm, 120-150ml solution injected)
- ✓ Transient prolonged QT interval
(long continuous injection of solution)
- ✓ Real ostial lesion cannot be visible
(i.e. ostial LM, ostial RCA)

Non-occlusion Manual Flushing

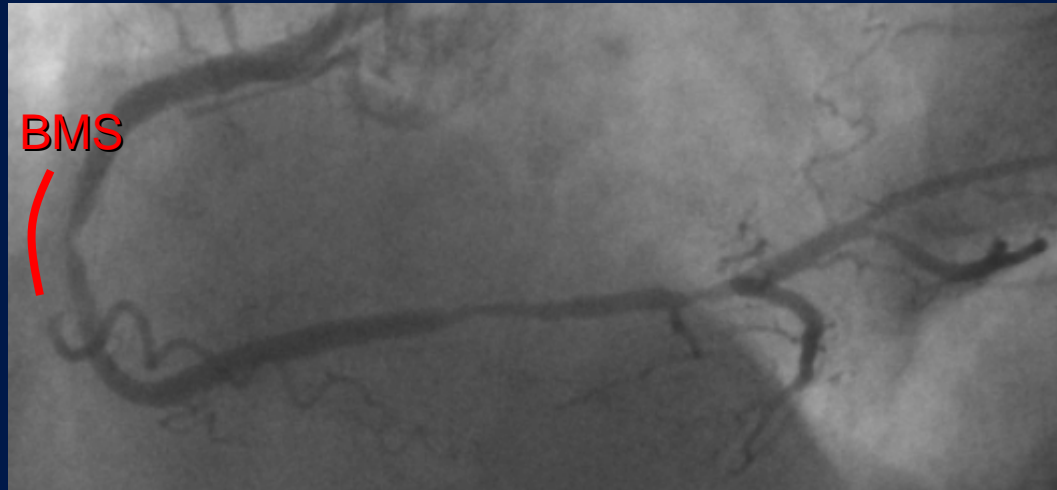


- ✓ Transradial approach
- ✓ Deep seating
- ✓ lactated Ringer's :
contrast media = 8:2
- ✓ Manual injection
using 50ml syringe

Non-occlusion Manual Flushing



Non-occlusion Manual Flushing



Signal poor region with overlying signal rich band mimicking TCFA was clearly observed with the Wakayama method.



distal ←

My Opinion

1. Do not push the imaging wire too much!
2. Try the balloon occlusion technique for your first 10 cases!
3. Watch patient's blood pressure and ECG carefully!

Thank you for your kind attention!