3rd Complex PCI
Make it Simple!

Seoul, Korea: 29-30 November 2018

Live Case Demonstration 3

Top Lessons I Learned in My Cath Lab Experience

Antonio Colombo

EMO GVM Cento Cuore Columbus Milan, Italy

No conflicts to disclose

Radial or Femoral

Have very clear the advantages and limitations of each approach and the specific skills you have

Results of randomized studies are important nevertheless specific settings are more relevant

Consider closure devices when femoral

Never compromise for optimal Guiding catheter

ALWAYS look for the best guiding catheter there is no substitute for optimal guide support

In some situations place an additional high support wire (Gran Slam; Sion Support) in another coronary vessel to gain better support

Guideliner or other selective catheters are important but they are not a substitute for appropriate guide catheter

Be Ready to Blame Yourself:
Before the procedure the problem was not present

IN CASE OF ADVERSE EVENTS

Hypotension	•Occlusion •Bleed •Anaphylaxis •Drug
Arrhythmia	Wire or Catheter Placement
Chest Pain	•Occlusion •No Reflow

Access Must Be Perfect

- If There Is Bleeding, Pain, Hematoma Resolve It Before Starting Intervention
- If Not, the Case Will Be a Nightmare Either Now or Later

Listen to the Patient!

- If Things Look Great,
  and the Patient Feels Bad,
  Look Again Harder!

True Bifurcation

(significant stenosis on the main and side branches)

No → **Provisional SB stenting**

Yes → **Is SB suitable for stenting?**

Approach is dictated by the Side Branch!

No → **Provisional SB stenting**

Yes → **Elective implantation of two stents (MB and SB)**

Provisional: *Side Branch without or with short ostial disease, Side Branch smaller than 2.5 mm, Side Branch with small territory of distribution*

2 stents: *Side Branch 2.5 mm or larger, the territory of distribution not small, the disease is not focal at the ostium extending for 5-10 mm. When implanting 2 stents use minicrush, DK crush or culotte*

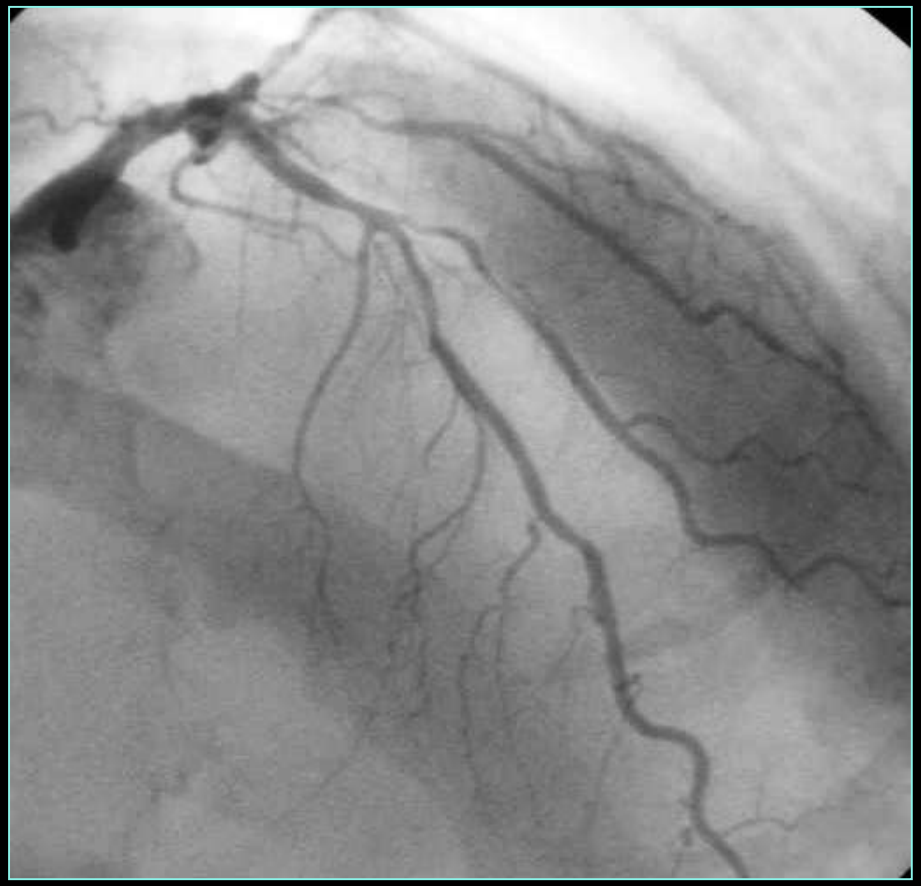
Crossover *from Provisional to 2 stents: when the result following kissing is poor and the Side Branch is suitable for stenting. Use TAP or culotte*

SB diameter and territory

- **Small with diffuse disease → KIO**

- **Large SB with large territory → complex bifurcation likely requiring 2-stents**

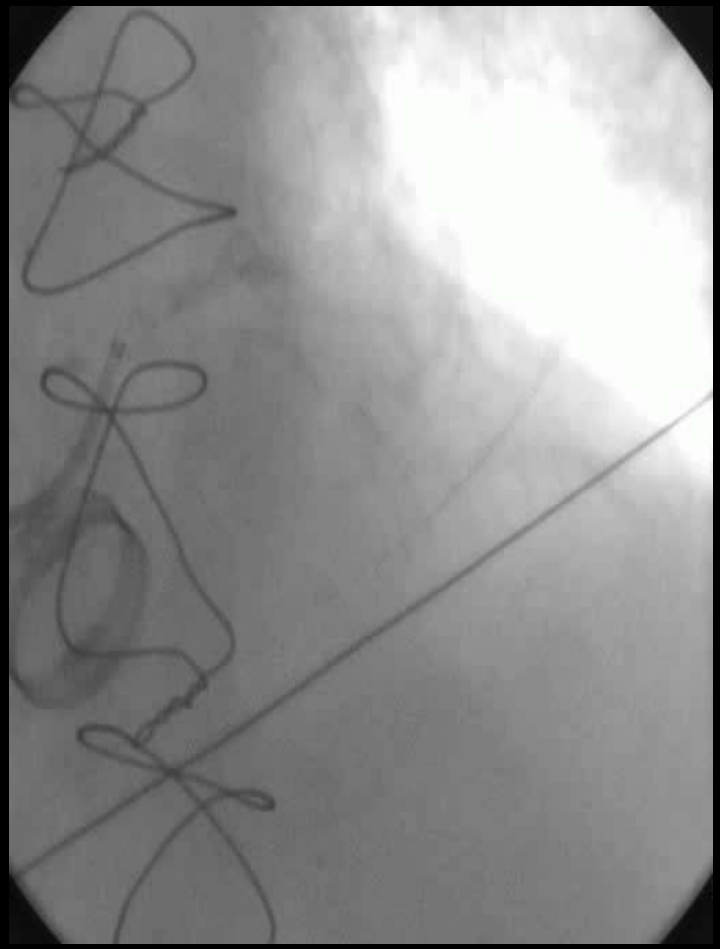
Extent of SB disease



- Focal ostial disease → Provisional

Diffuse disease → 2 stents

When do you perform minicrush with 2 stents simultaneously?



In Emergency conditions such as STEMI with cardiogenic shock

The Benefits of Provisional Stenting Have Been Vastly Overrated!

- Outcomes with complex bifurcations are worse no matter which technique you apply
- Up to 30% of bifurcations are complex
- RCTs are not representative of complex bifurcation lesions
- 2-stent strategy is dependent on operator and technique used; IVUS guidance is important
- Cross-over from PS to 2-stent likely to be higher in complex lesions

Dissections

Dissections are a complication if caused by the guide catheter

Dissections induced by lesion dilatation are part of the dilatation procedure

Learn to distinguish a benign from a malignant dissection

Be ready to leave some dissections without stenting

Benign versus malignant dissection

Benign dissection: no angiographic reduction of the lumen, contrast clears from the lesion very fast, IVUS shows a large residual lumen despite the presence of a dissection, residual pressure gradient less than 20 mmHg.

If you suspect to be subintimal:
YOU ARE SUBINTIMAL!

If you think you may need hemodynamic support:
YOU NEED IT!

If you think you need rotablation:
YOU NEED IT!

Balloon inflations

Learn when to use semicompliant versus compliant balloons

Avoid short inflations, inflate balloons and stents for at least 30 sec

Check for full balloon expansion in multiple projections and be ready to use additional devices if you are not happy about balloon expansion

Stent underexpansion despite high pressure inflation

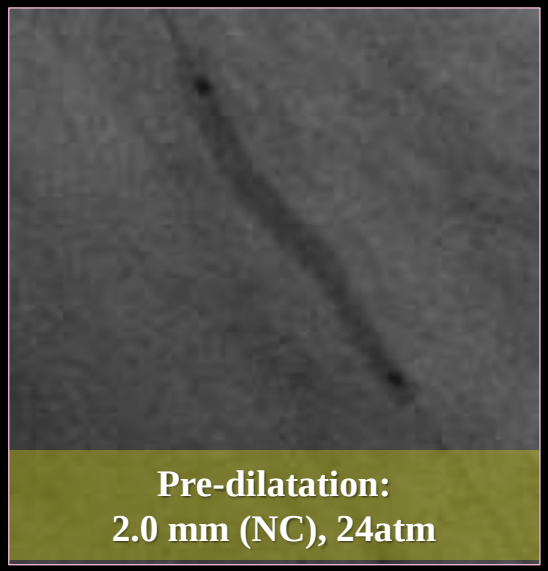
Rotablator

High pressure cutting balloon

Laser (ELCA) with contrast injection

Lesion preparation: High-pressure NC balloon

Lesion preparation with NC balloon

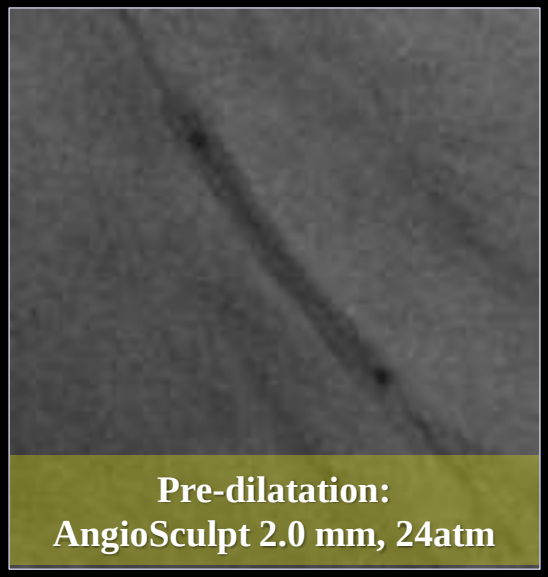


Pre-dilatation:
2.0 mm (NC), 24atm

After NC balloon ➡ Suboptimal expansion

Lesion preparation: High-pressure AngioSculpt

Lesion preparation with AngioSculpt

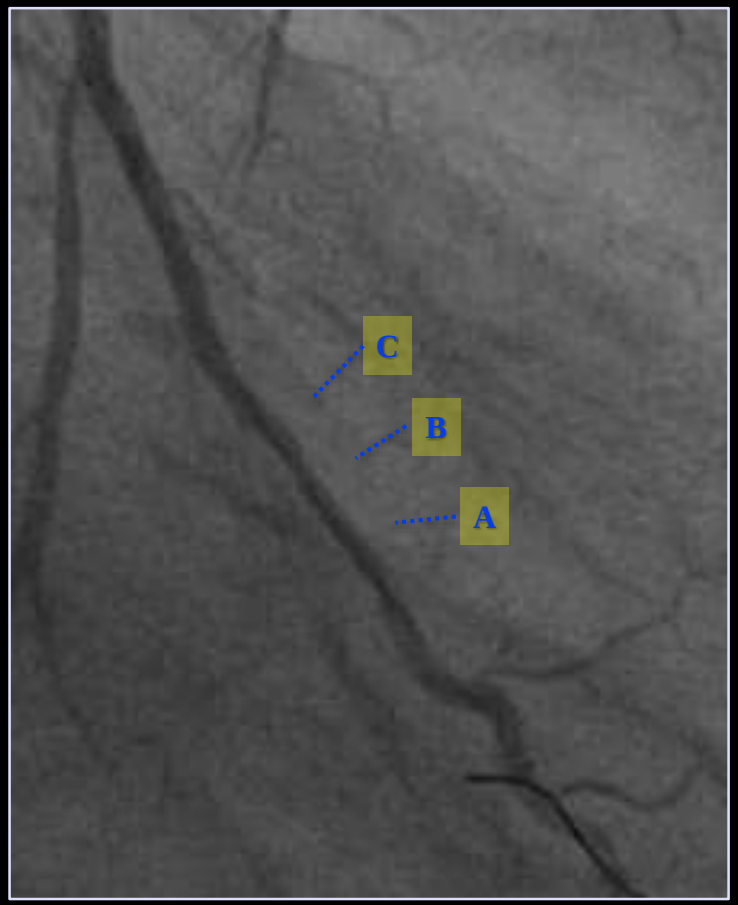


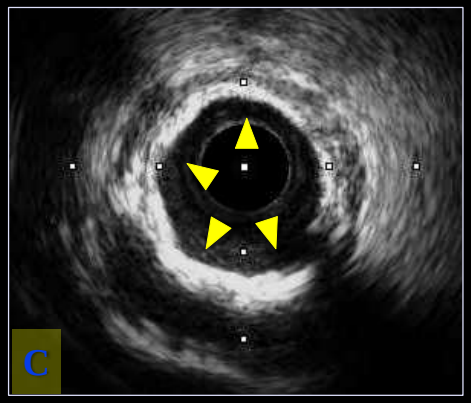
Pre-dilatation:
AngioSculpt 2.0 mm, 24atm

After AngioSculpt ➡ Suboptimal expansion

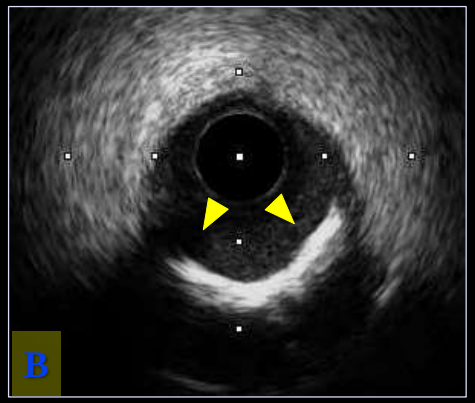
Lesion evaluation with IVUS

(After high-pressure NC balloon and AngioSculpt)

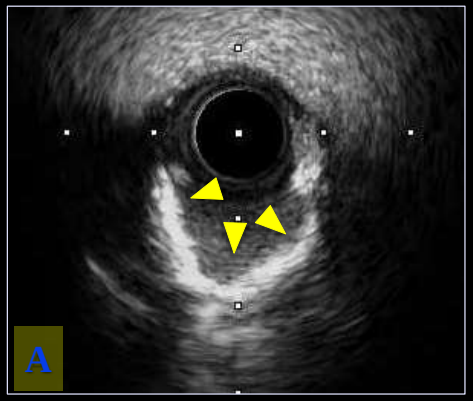




Severely calcified plaque (>270°)



Severely calcified plaque (≒180°)



Severely calcified plaque (>180°)

Lesion preparation: High-pressure cutting balloon

Lesion preparation with cutting balloon

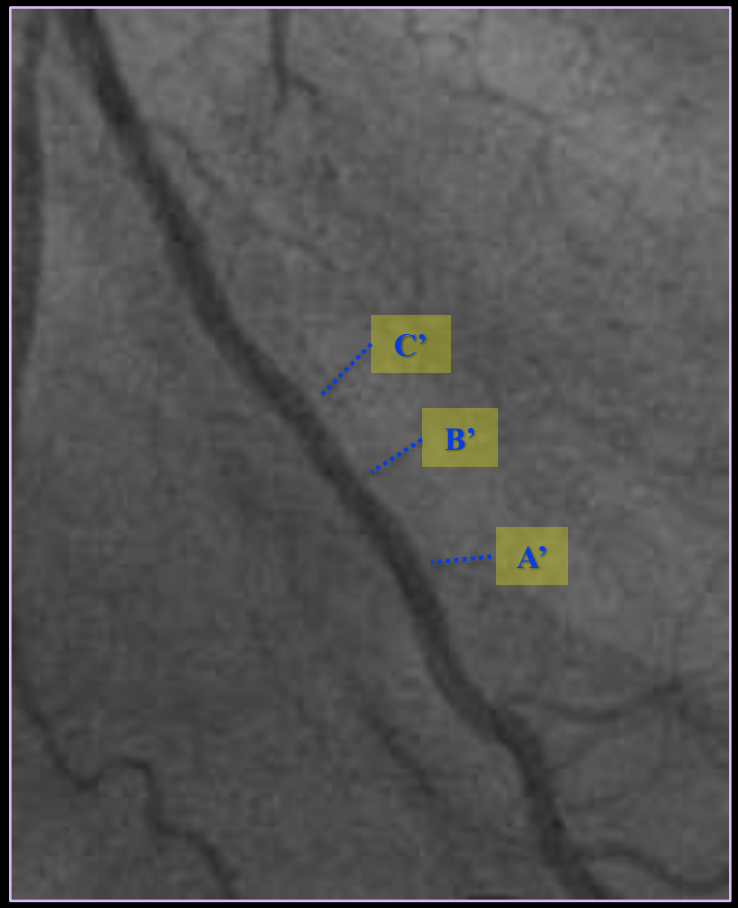
Cutting balloon 2.0 mm (NC), 20atm

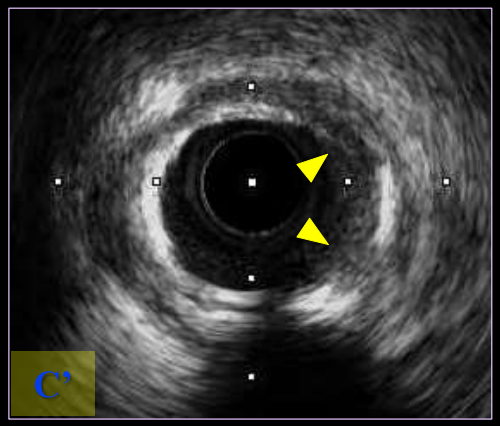
Cutting balloon 2.0 mm (NC), 26atm

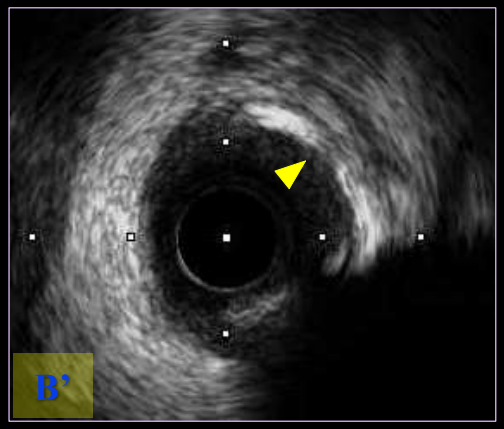
After cutting balloon ➡ Optimal expansion

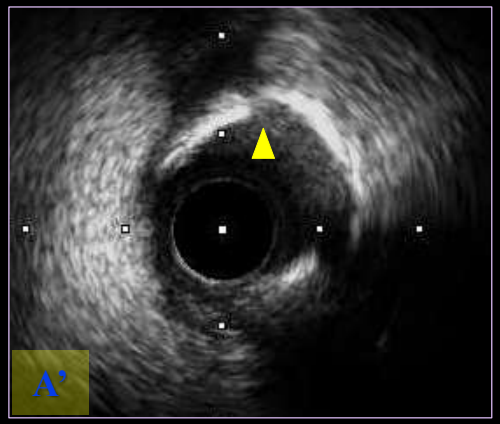
Lesion evaluation with IVUS

(After high-pressure cutting balloon)









Multiple cracks on the calcified lesions

PCI with DCB after optimal lesion preparation

After optimal lesion preparation
with cutting balloon

DCB 2.25/30 mm (120 sec inflation)

Based on the optimal lesion preparation results
achieved and favorable IVUS findings,
the lesion was treated with DCB

PCI for severely calcified lesions in OM branch

After DCB: Excellent angiographic results

Post PCI FFR baseline: 0.96 ➡ contrast: **0.90**

Comparison of efficacy of each device

High-pressure NC balloon (24atm)

High-pressure AngioSculpt (24atm)

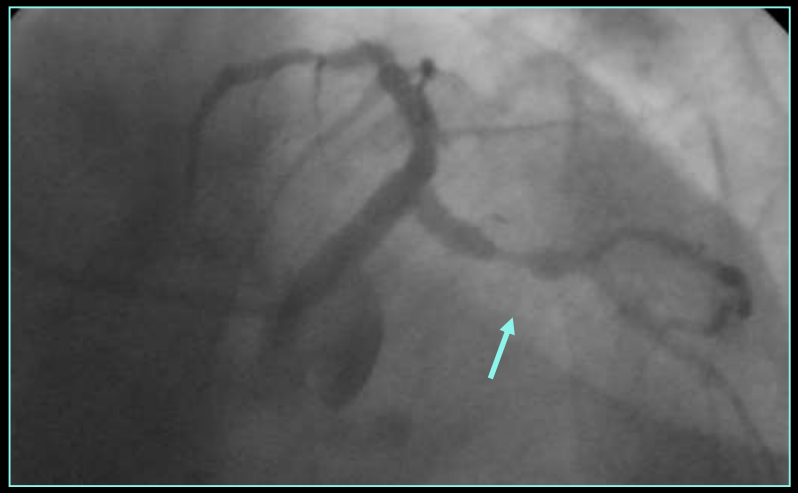
High-pressure cutting balloon (26atm)

After NC balloon

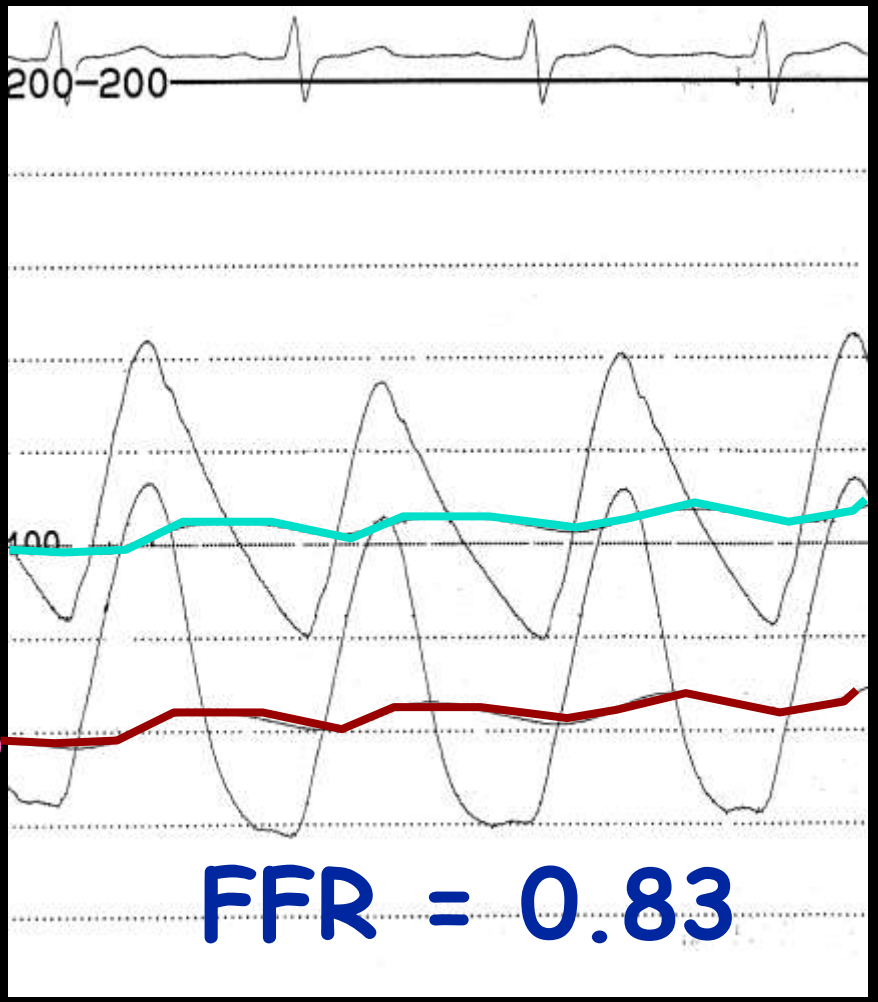
After AngioSculpt

After cutting balloon

When FFR may not be the gold standard



Distal disease prevents maximal hyperemia



FFR and iFR etc. are NUMBERS: nothing more

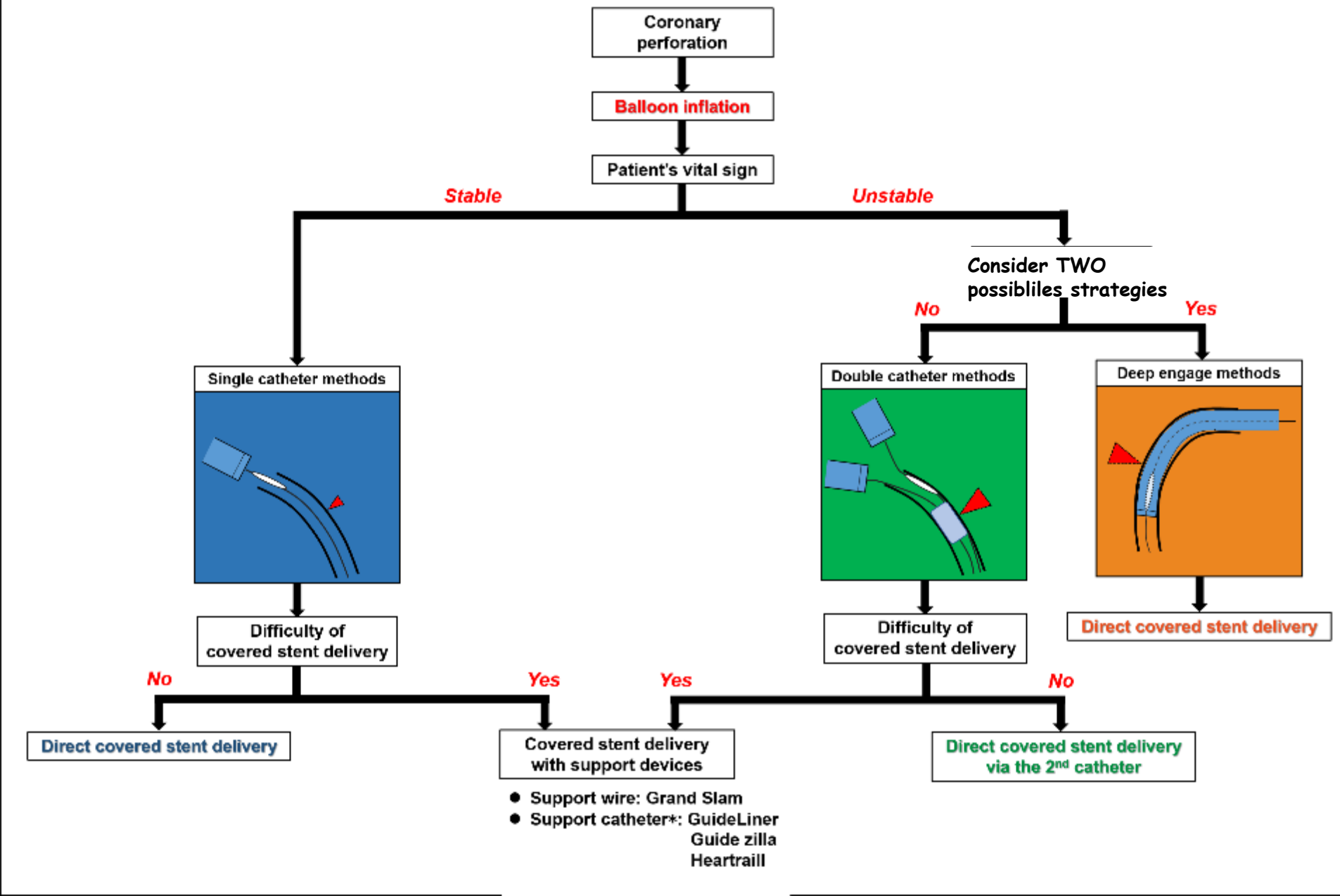
Remember that these indices are continuous and not dichotomous ones (Pregnancy).

I prefer FFR 0.91 to 0.81

Anatomical and clinical contexts are essential

Coronary Perforations

Management for Coronary Perforation



Emergency kit for perforations

Covered stents

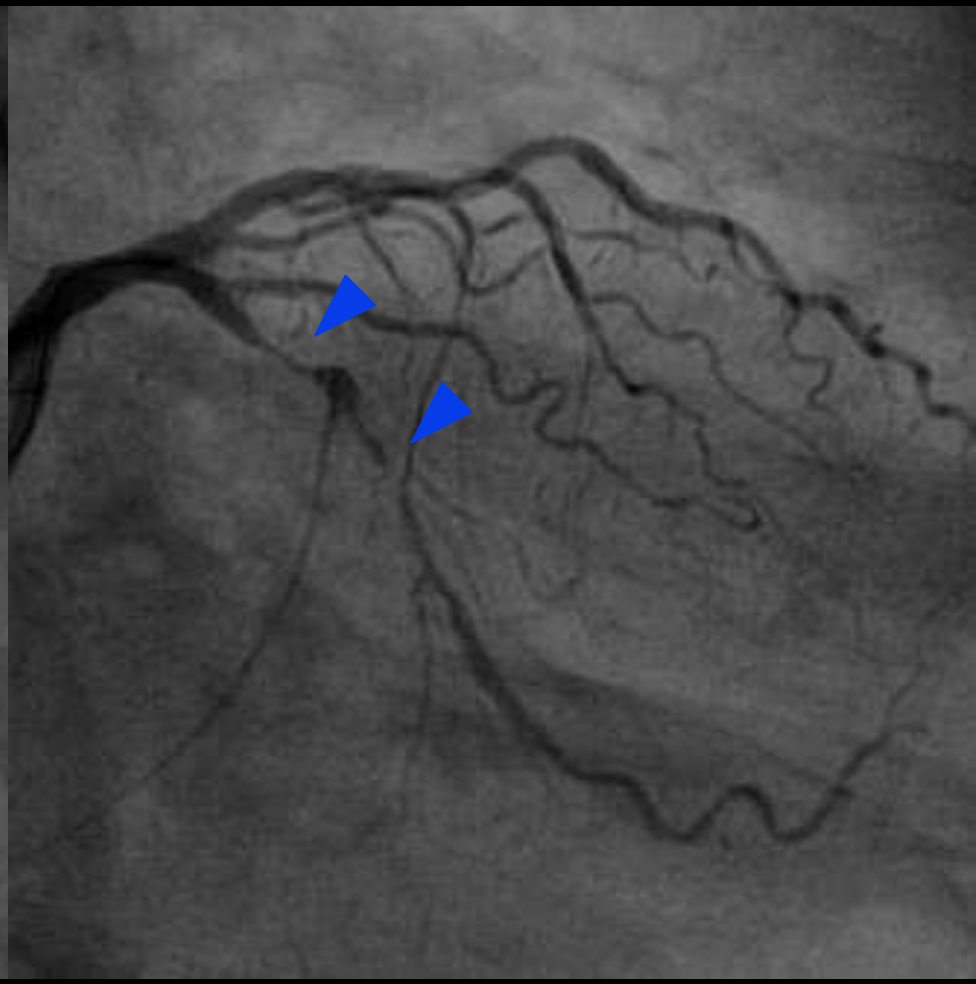
Coils and delivery catheters

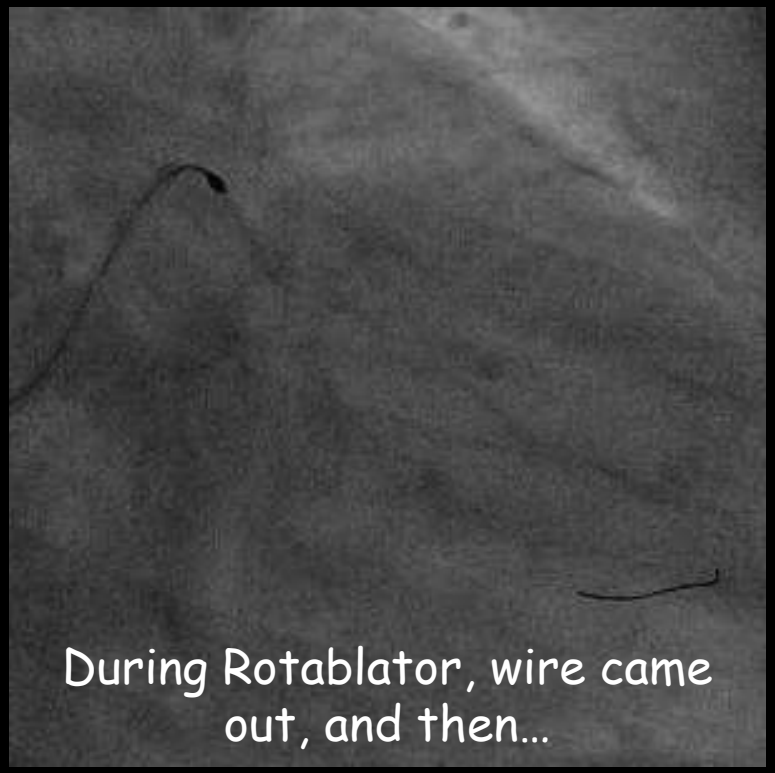
Microspheres (Embozene CeloNova) and learn the diameter of the delivery catheter for a specific particle (usually 100 microns for 0.014 compatible)

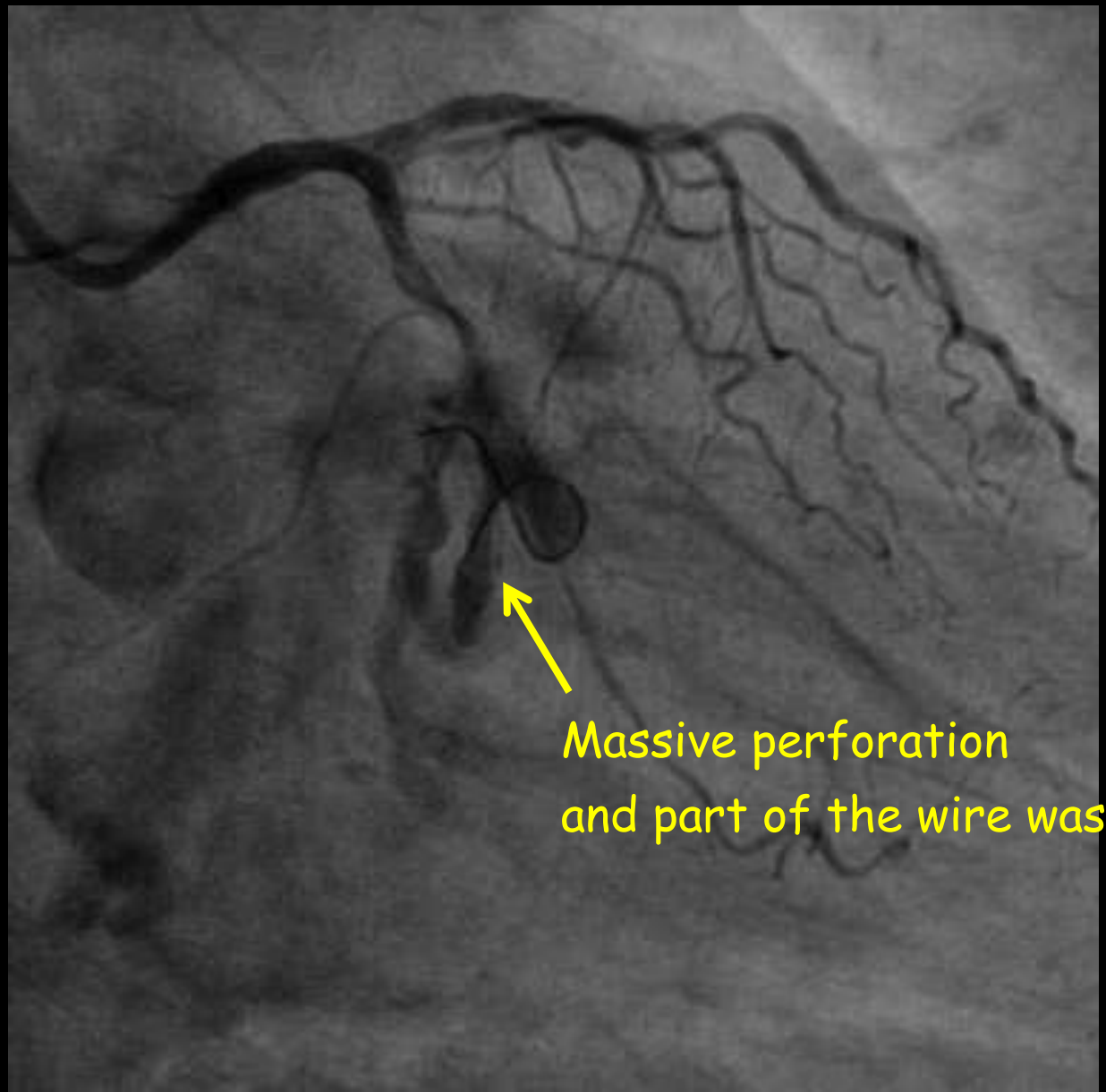
Rescue from massive perforation:

Sometimes a drastic solution needs to be taken

Baseline angiogram




During Rotablator, wire came
out, and then…


Massive perforation
and part of the wire was outside of the vessel

- Balloon inflation at proximal part
- Wire did not advance to the distal

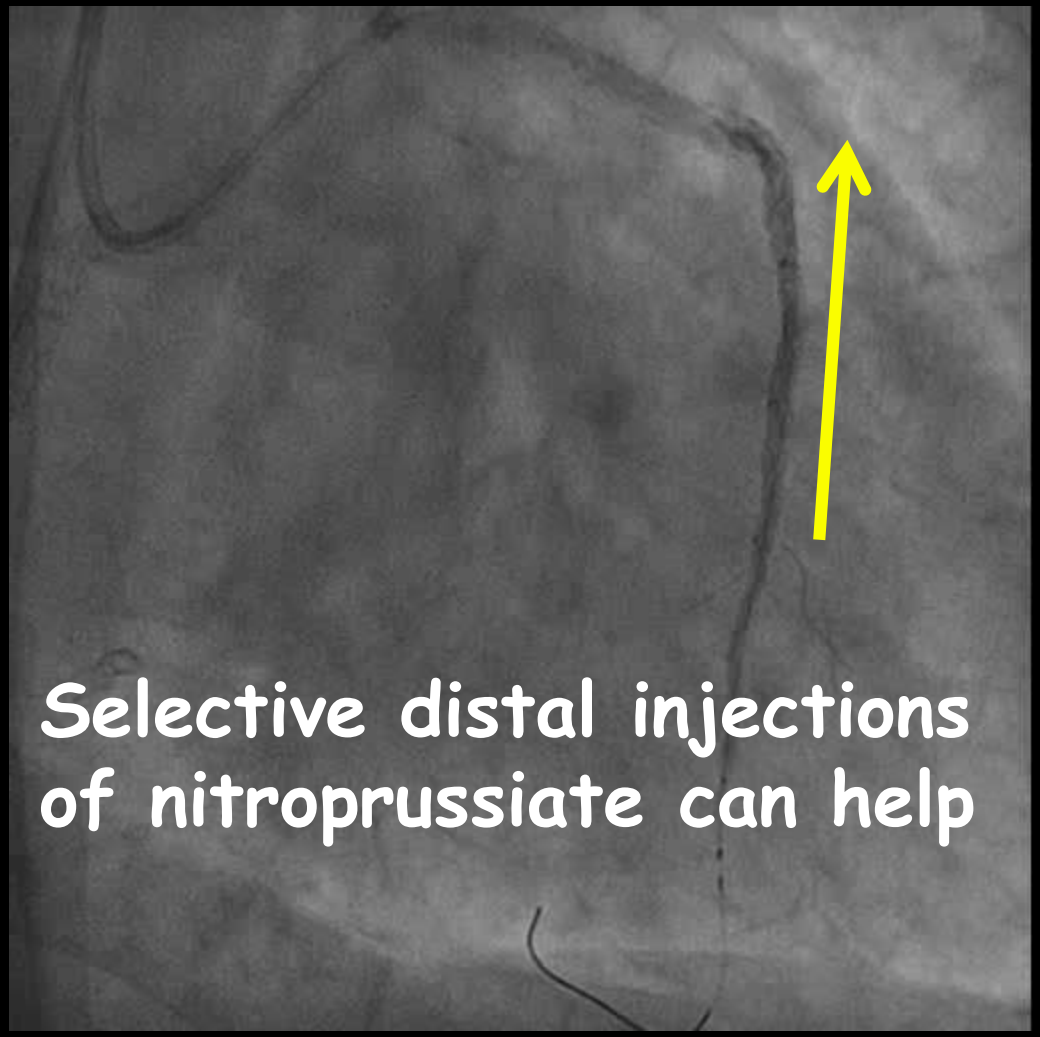
After several minutes Balloon inflation….

Distal embolization and slow flow versus dissection

The worst is to place an additional stent when slow flow is the problem

Slow flow may occur after stent placement or postdilatation

Selective distal contrast injection with contrast returning proximally is typical



Remember

You will never practice Interventional Cardiology without experiencing complications

Learn to solve complications and
be prepared for old and new ones

Be careful: avoid to resolve a complication by creating a second one

After a long interval without complications:

Be Ready! One Will Come!