

Primary PCI: Unforgotten Event

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Governor of ACC chapter in Egypt

ACC/AHA PRACTICE GUIDELINES—FULL TEXT

ACC/AHA Guidelines for the Management of Patients With ST-Elevation Myocardial Infarction

A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Revise the 1999 Guidelines for the Management of Patients With Acute Myocardial Infarction)

Developed in Collaboration With the Canadian Cardiovascular Society

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STEMI FOCUSED UPDATE

2007 Focused Update of the ACC/AHA 2004 Guidelines for the Management of Patients With ST-Elevation Myocardial Infarction

A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines

Developed in Collaboration With the Canadian Cardiovascular Society

Endorsed by the American Academy of Family Physicians

2007 Writing Group to Review New Evidence and Update the ACC/AHA 2004 Guidelines for the Management of Patients With ST-Elevation Myocardial Infarction, Writing on Behalf of the 2004 Writing Committee

FOCUSED UPDATE

2009 Focused Updates: ACC/AHA Guidelines for the Management of Patients With ST-Elevation Myocardial Infarction (Updating the 2004 Guideline and 2007 Focused Update) and ACC/AHA/SCAI Guidelines on Percutaneous Coronary Intervention (Updating the 2005 Guideline and 2007 Focused Update)

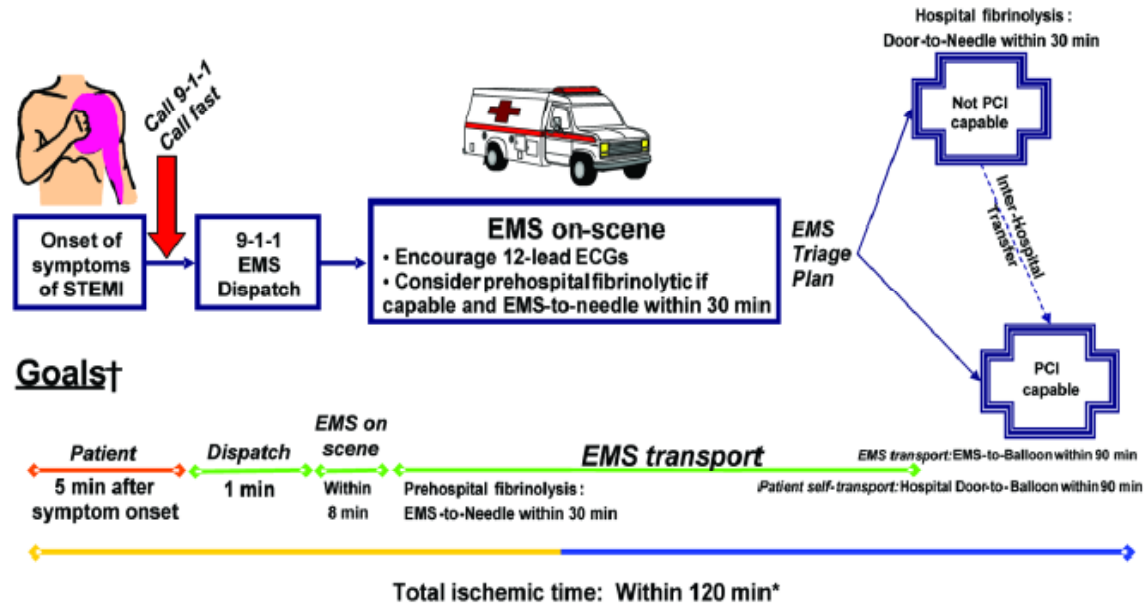
A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines

PRACTICE GUIDELINE

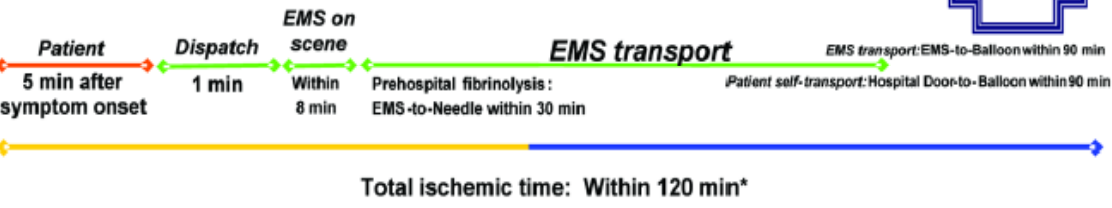
2011 ACCF/AHA/SCAI Guideline for Percutaneous Coronary Intervention

A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions

Panel A

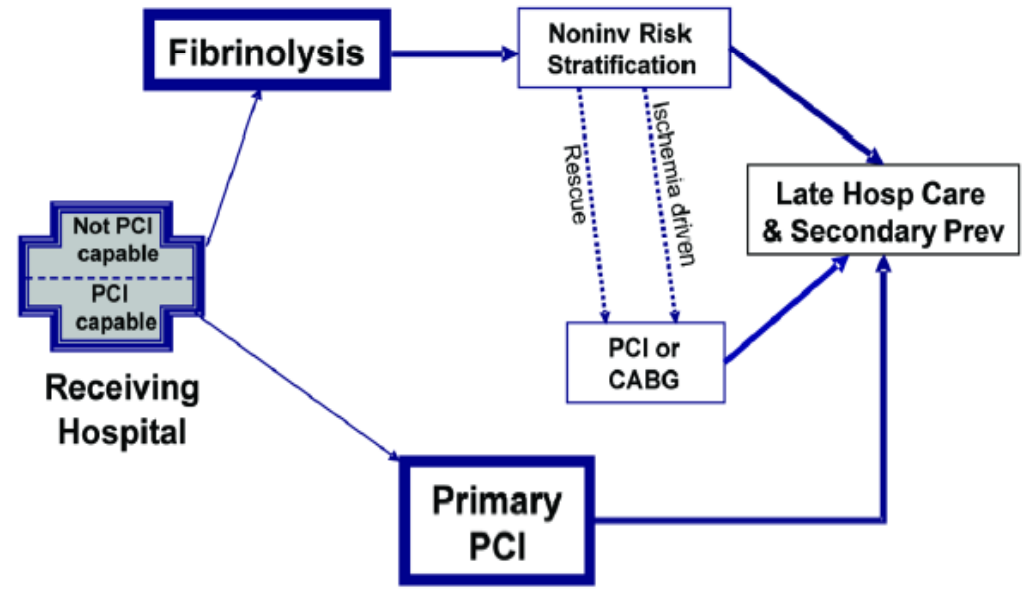


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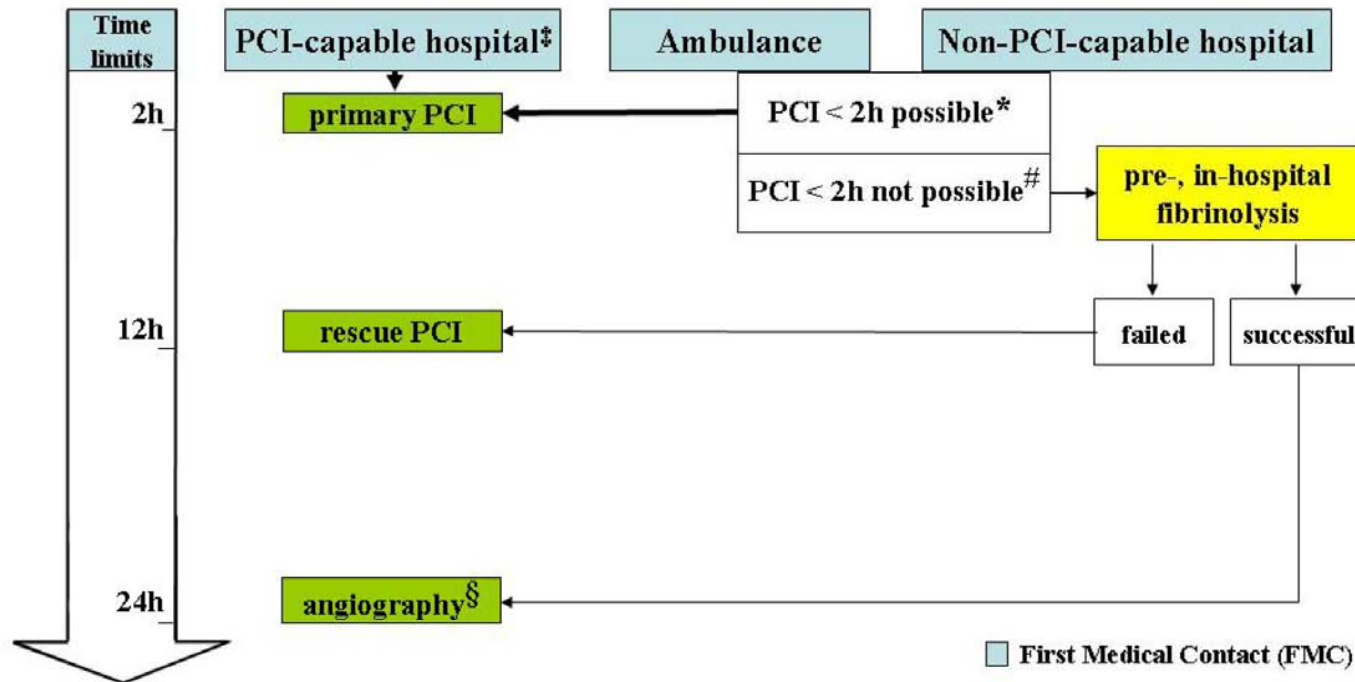


*Golden Hour = First 60 minutes

Panel B



Reperfusion Strategies



* Time FMC to first balloon inflation must be shorter than 90 min in patients presenting early (< 2 h after symptom onset), with large amount of viable myocardium and low risk of bleeding.

[#] If PCI is not possible < 2 h of FMC, start fibrinolytic therapy as soon as possible.

[§] Not earlier than 3 h after start fibrinolysis

[‡] 24/7 service

PCI in Specific Clinical Situations: STEMI– Primary PCI of the Infarct Artery



Primary PCI should be performed in patients within 12 hours of onset of STEMI.



Primary PCI should be performed in patients with STEMI presenting to a hospital with PCI capability within 90 minutes of first medical contact as a systems goal.



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Angiography and Interventions

PCI in Specific Clinical Situations: STEMI–Primary PCI of the Infarct Artery (cont.)



Primary PCI should be performed in patients with STEMI presenting to a hospital without PCI capability within 120 minutes of first medical contact as a systems goal.



Primary PCI should be performed in patients with STEMI who develop severe heart failure or cardiogenic shock and are suitable candidates for revascularization as soon as possible, irrespective of time delay.



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PCI in Specific Clinical Situations: STEMI– Primary PCI of the Infarct Artery (cont.)



Primary PCI should be performed as soon as possible in patients with STEMI and contraindications to fibrinolytic therapy with ischemic symptoms for <12 hours.



Primary PCI is reasonable in patients with STEMI if there is clinical and/or electrocardiographic evidence of ongoing ischemia between 12 and 24 hours after symptom onset.



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APPROPRIATE USE CRITERIA

ACCF/SCAI/STS/AATS/AHA/ASNC/HFSA/SCCT 2012 Appropriate Use Criteria for Coronary Revascularization Focused Update

A Report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force, Society for Cardiovascular Angiography and Interventions, Society of Thoracic Surgeons, American Association for Thoracic Surgery, American Heart Association, American Society of Nuclear Cardiology, and the Society of Cardiovascular Computed Tomography

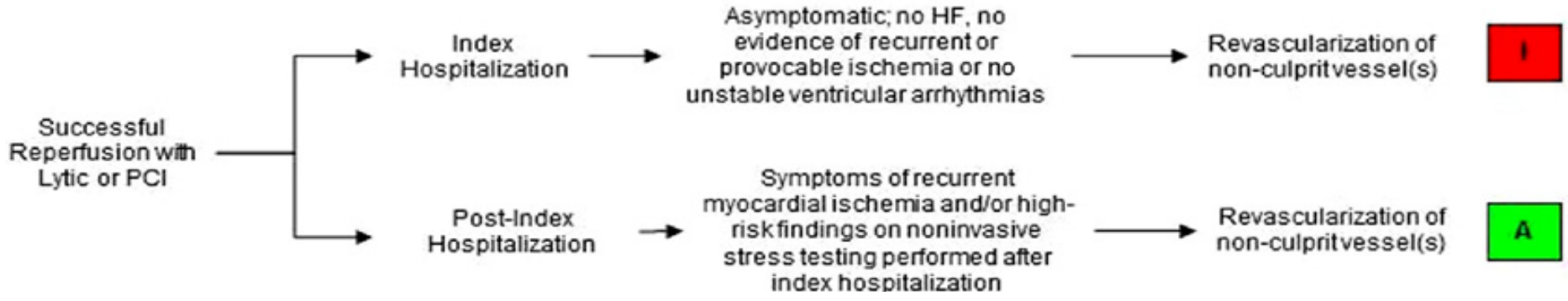
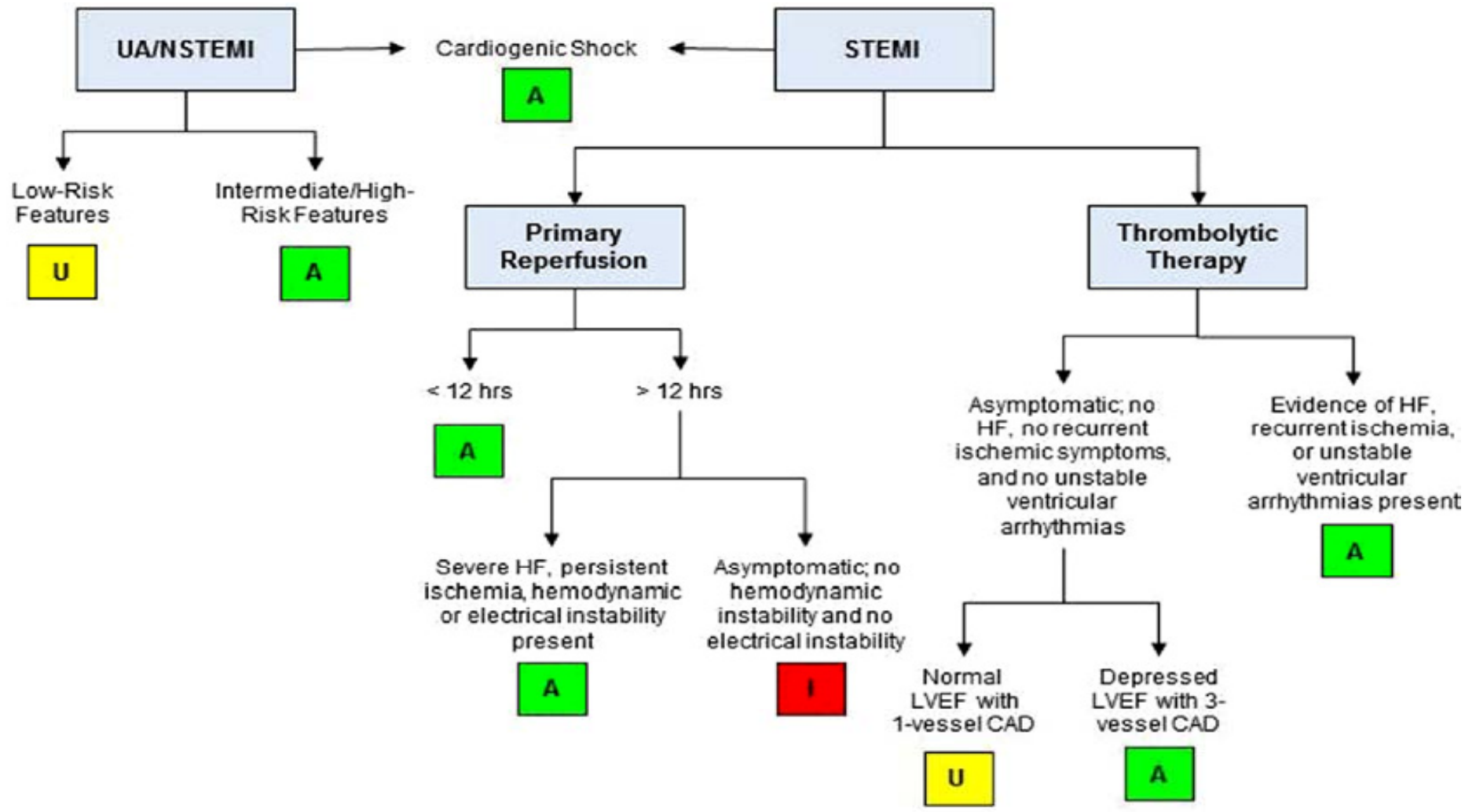
Endorsed by the American Society of Echocardiography and the Heart Rhythm Society



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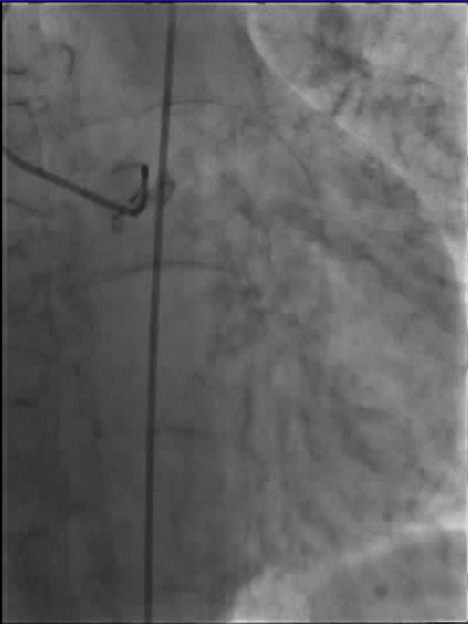
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Clinical History

- **Male 73 years with acute STEMI 8hr after chest pain.**
- **Clinically: BP 130/80mmHg, No rales, No gallop**
- **ECG: Recent anterior STEMI**
- **Echo: EF 45%, anterior hypokinesis.**
- **For coronary angio & PPCI.**

Coronary angiography: Total LAD occlusion

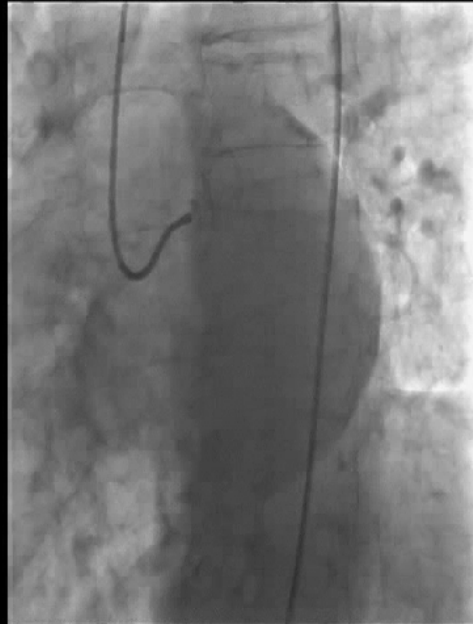


LT CORONARY



RT CORONARY

CORONARY ANGIOGRAPHY: TOTAL LAD OCCLUSION WITH BIG THROMBUS



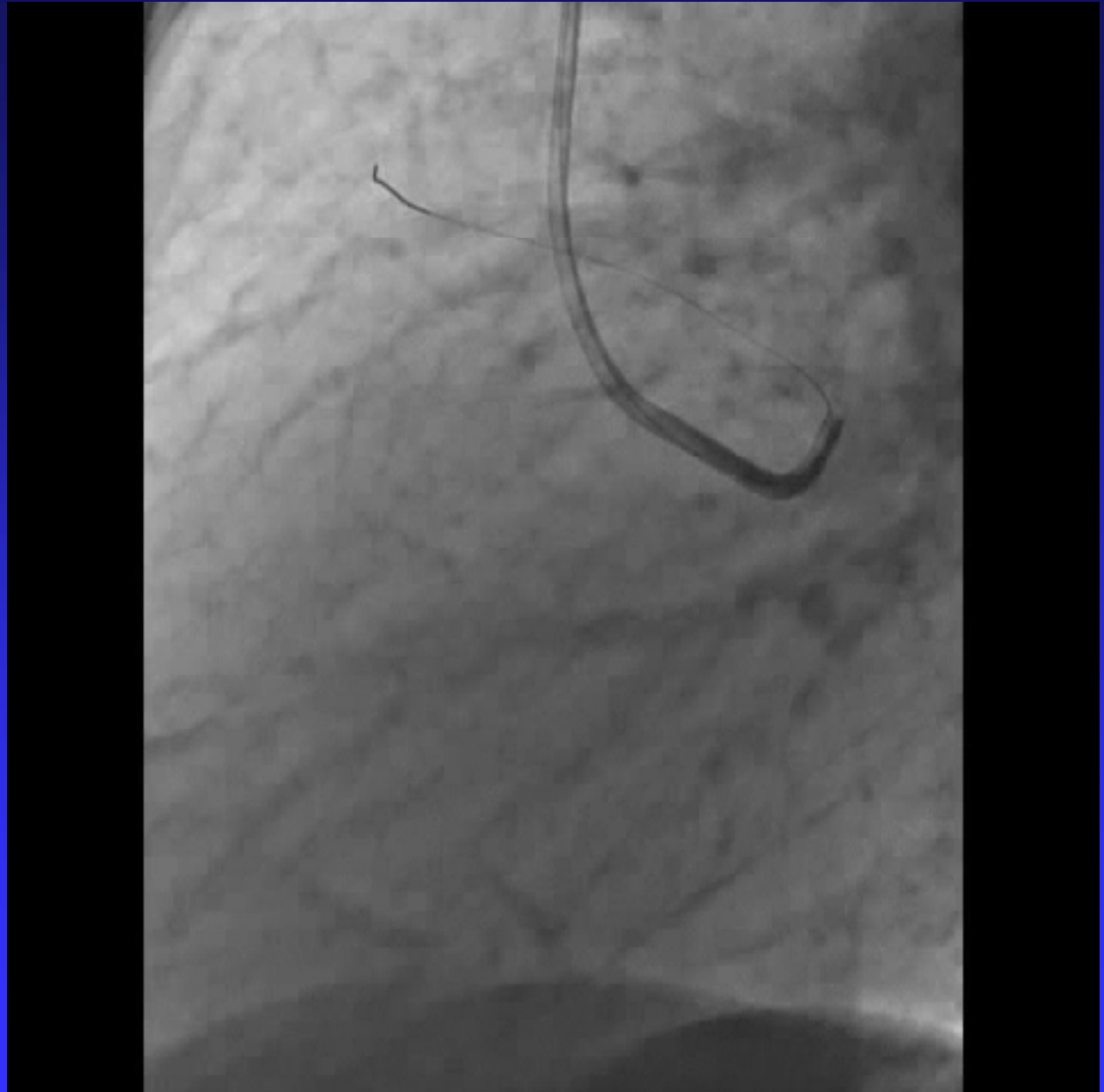
**Gc Guiding
cath LT
amplatz failed**



LT JUDKINS CATH L5



**Pt2
moderate
wire
0.014 inch**



**Trial to
direct the
wire into
the proper
LAD track**



Thrombectomy



Aspiration thrombectomy is reasonable for patients undergoing primary PCI.

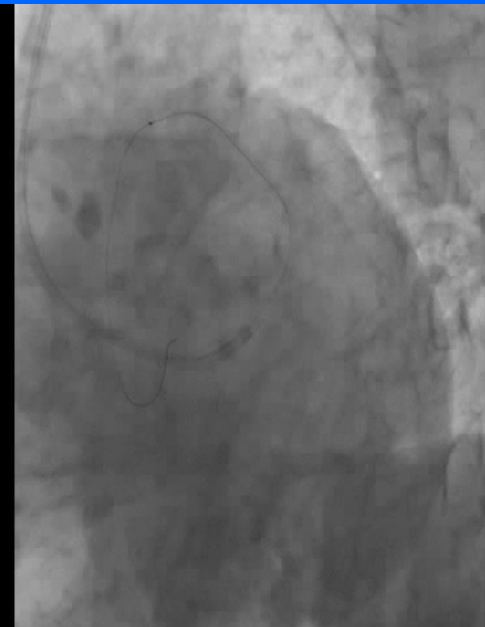
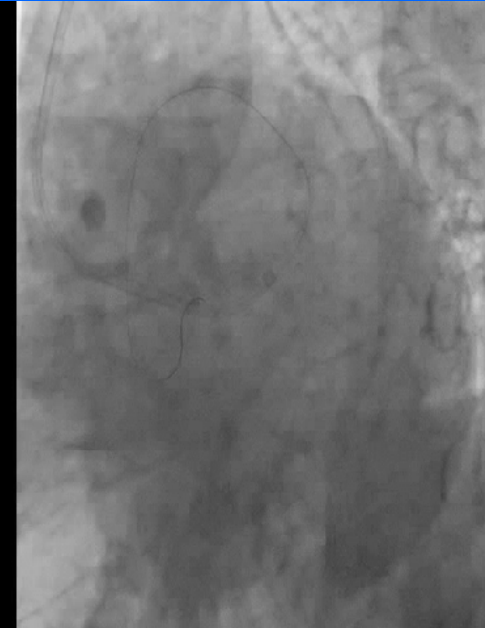
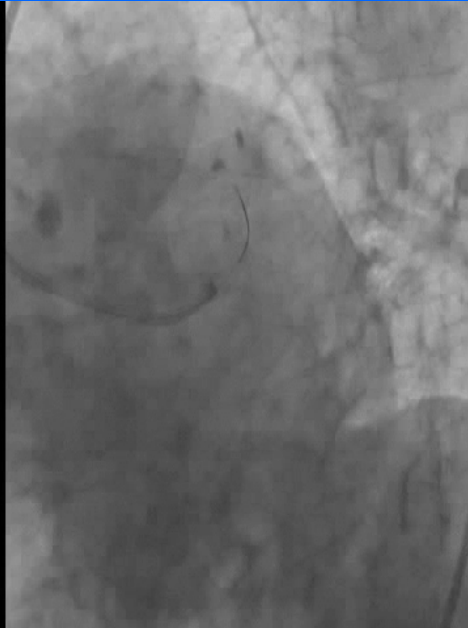


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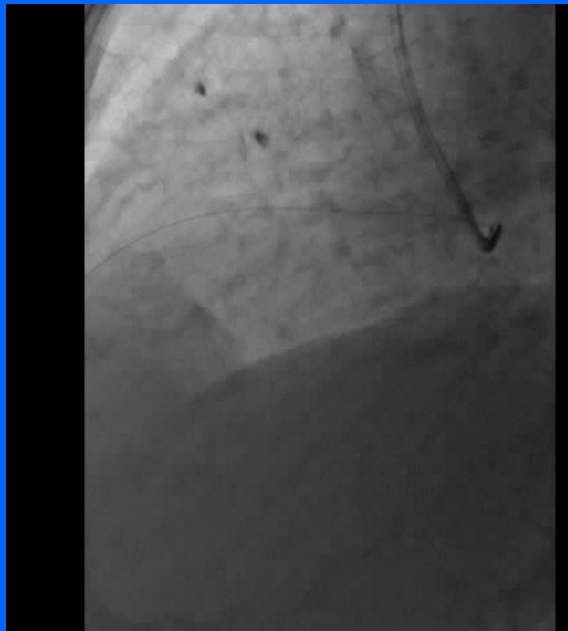
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**Aspiration
thrombectomy
Via export cath
6F**



**After
successive
thrombus
removal**

What is this?



**After
successive
thrombus
removal**

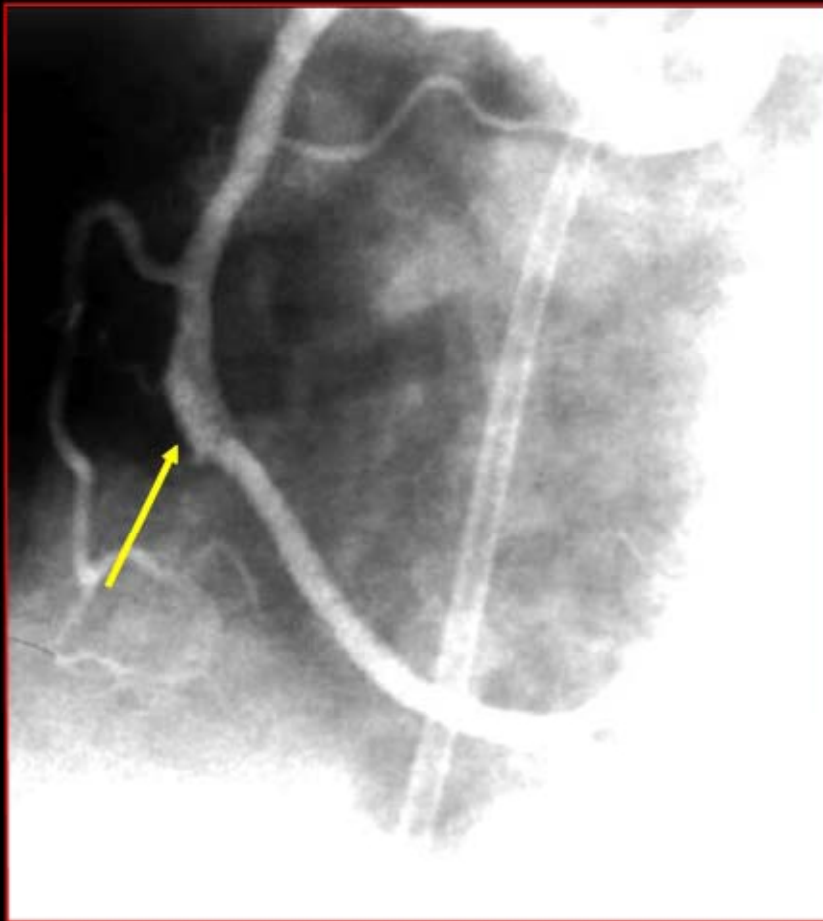
What is this?



Coronary Perforation Classification Scheme (Ellis)

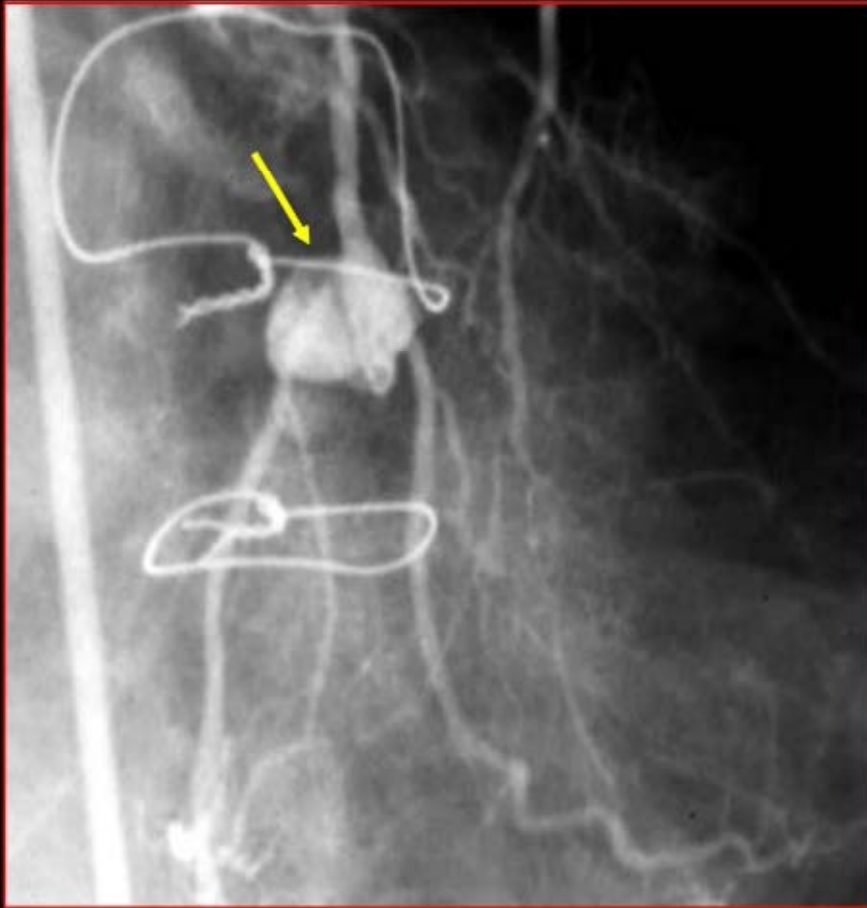
Class	Description	Tamponade
I	Focal, ulcerated crater ("deep cut")	5-10%
II	Contained perforation with Pericardial or myocardial staining	10-20%
III	Extravasation through a perforation (1 mm) or cavity	50-70%

Class I Coronary Perforation



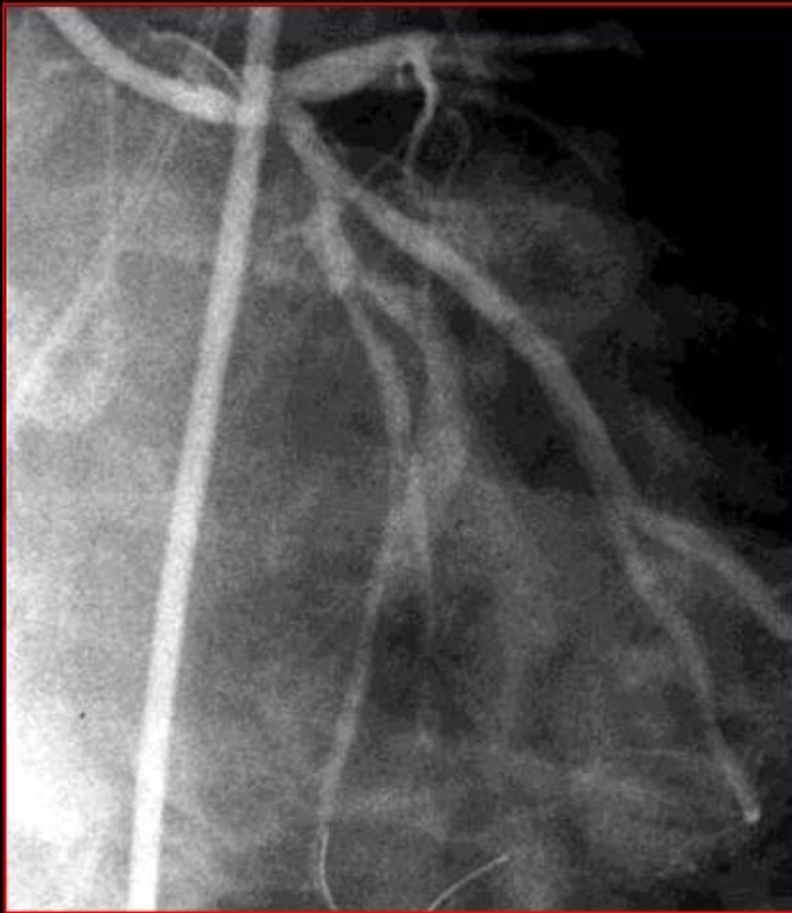
- Adventitial contrast staining
- Prognosis generally good

Class II Coronary Perforation



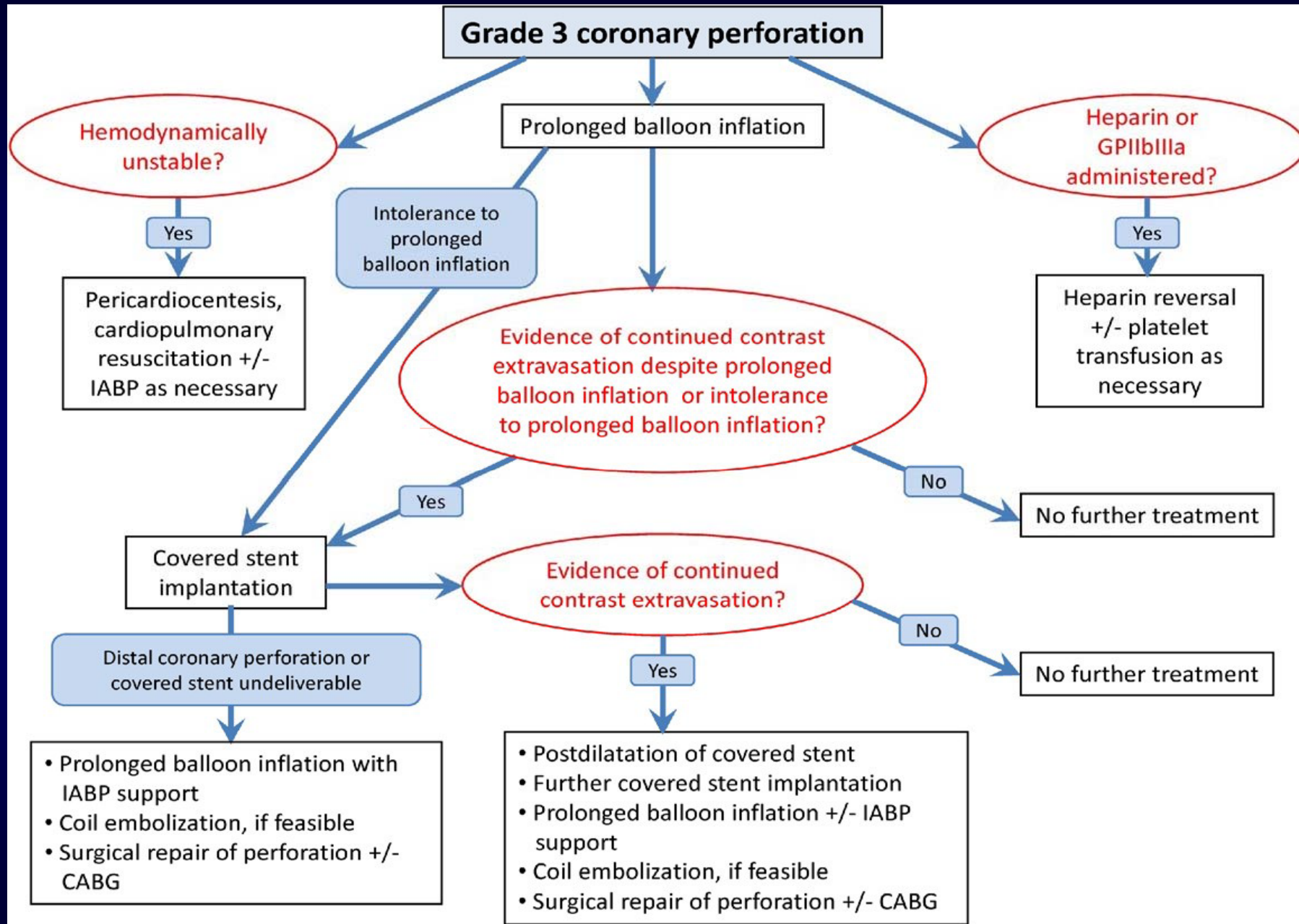
- Contained perforation

Class III Coronary Perforation



- Free-flowing
- May progress *rapidly* to tamponade

WHAT TO DO?



Grade 3 coronary perforation

Hemodynamically unstable?

Yes

Pericardiocentesis, cardiopulmonary resuscitation +/- IABP as necessary

Prolonged balloon inflation

Intolerance to prolonged balloon inflation

Evidence of continued contrast extravasation despite prolonged balloon inflation or intolerance to prolonged balloon inflation?

Yes

No

No further treatment

Heparin or GPIIb/IIIa administered?

Yes

Heparin reversal +/- platelet transfusion as necessary

Covered stent implantation

Evidence of continued contrast extravasation?

Yes

No

No further treatment

Distal coronary perforation or covered stent undeliverable

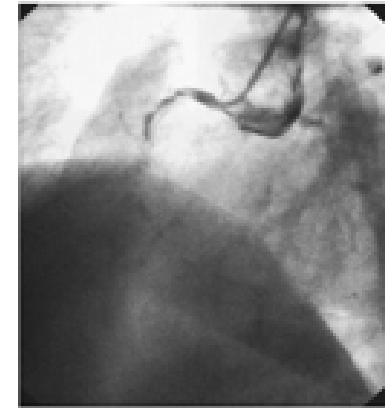
- Prolonged balloon inflation with IABP support
- Coil embolization, if feasible
- Surgical repair of perforation +/- CABG

- Postdilatation of covered stent
- Further covered stent implantation
- Prolonged balloon inflation +/- IABP support
- Coil embolization, if feasible
- Surgical repair of perforation +/- CABG

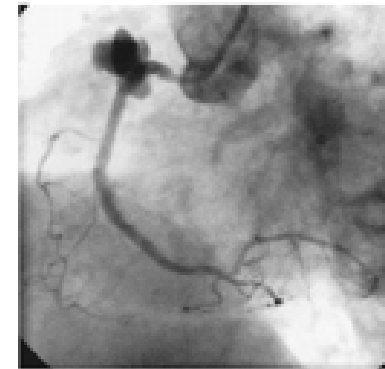
The covered stent ...

Polytetrafluoroethylene

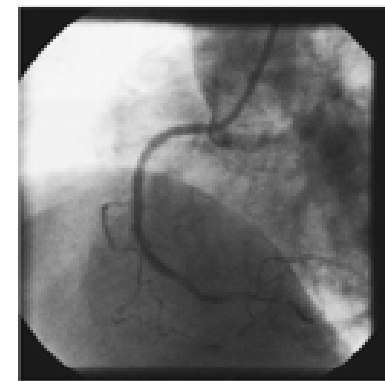
Effective



A



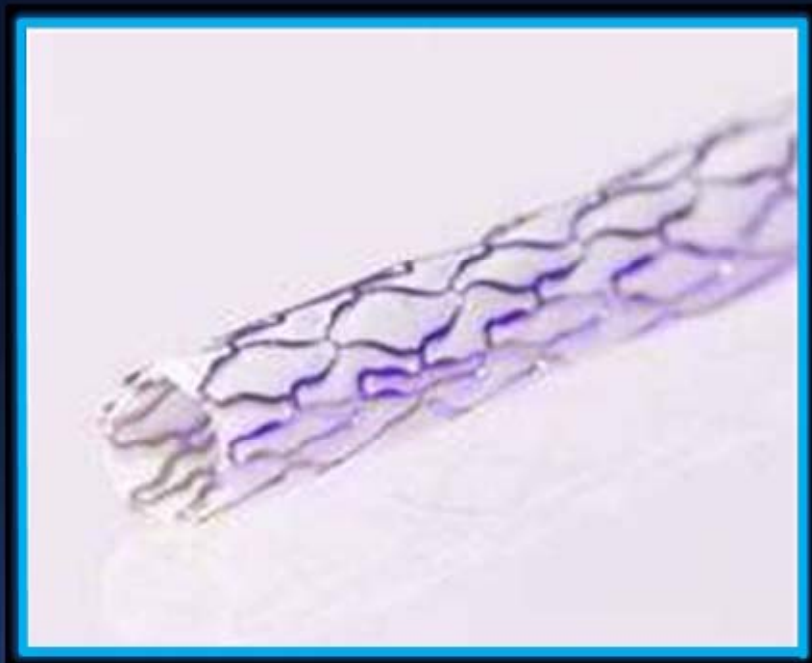
B



C



Types of Covered Stents used for Coronary Perforations

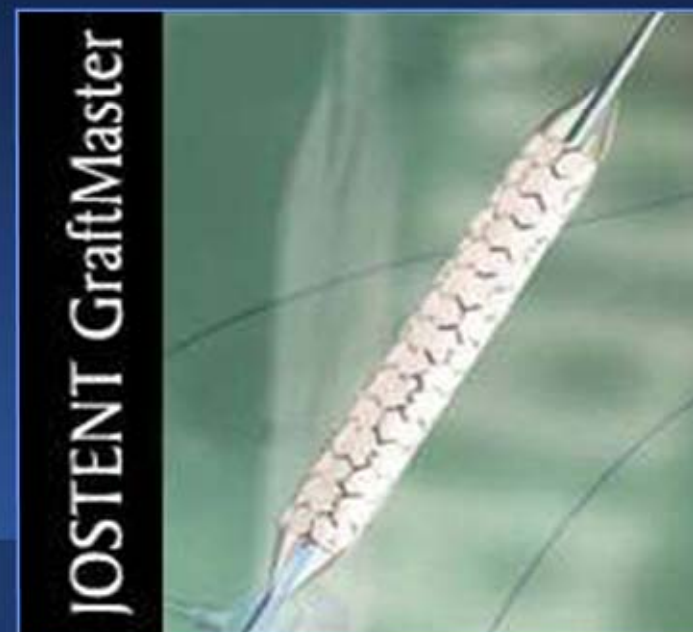


InSitu Direct-Stent® Stent-Graft

(InSitu Technologies Inc.)



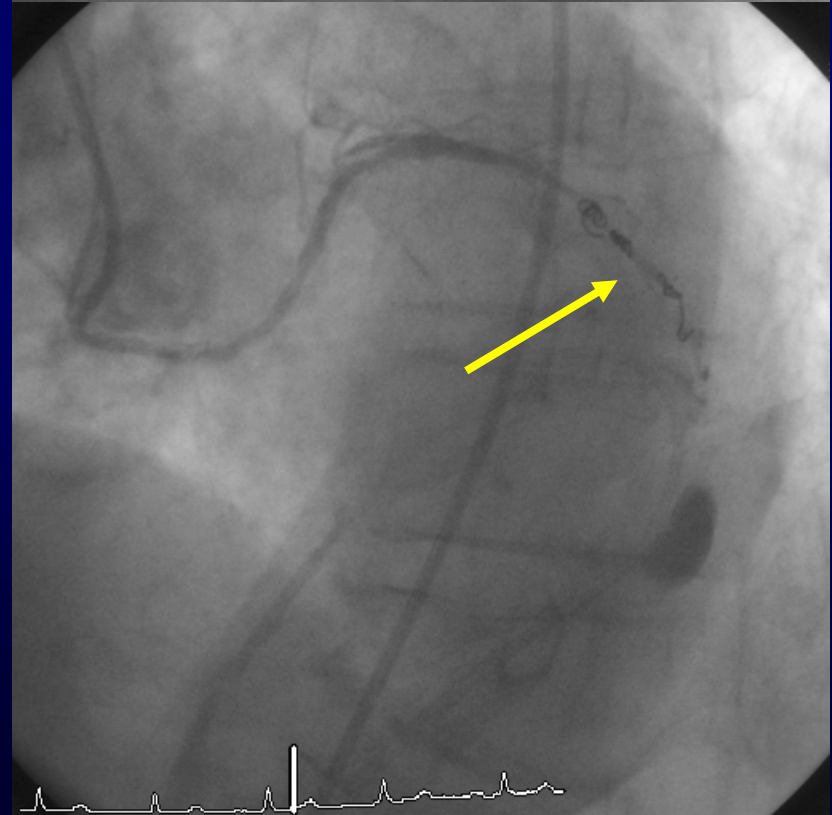
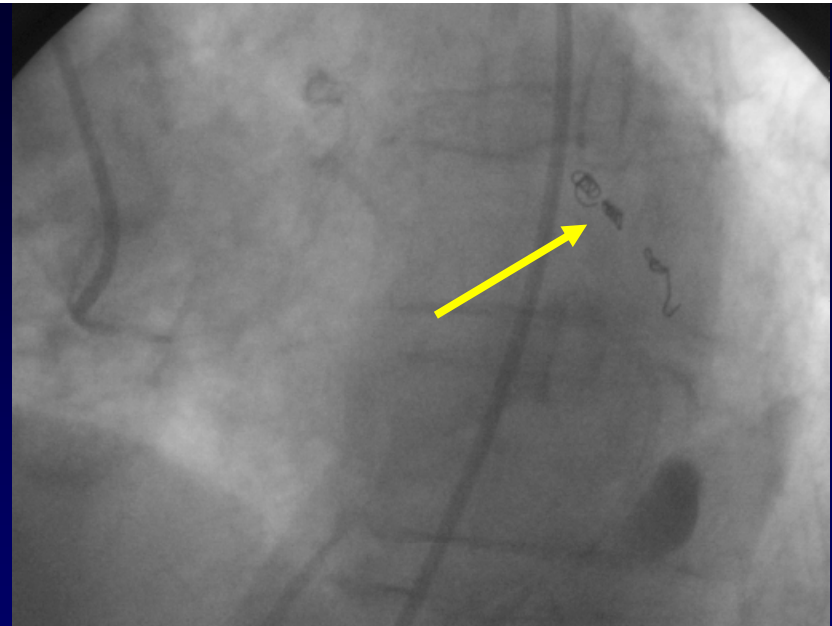
Over and Under®
Pericardium Covered
Stent (PCS)
(ITGI Medical)



JOSTENT GraftMaster®
(Abbot Vascular)

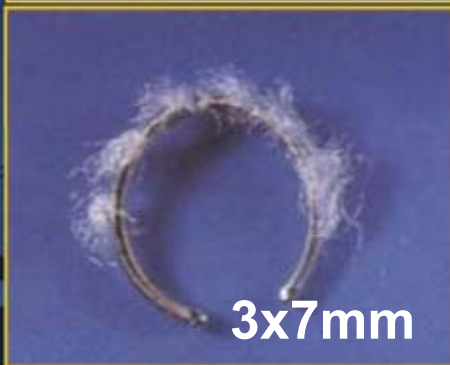
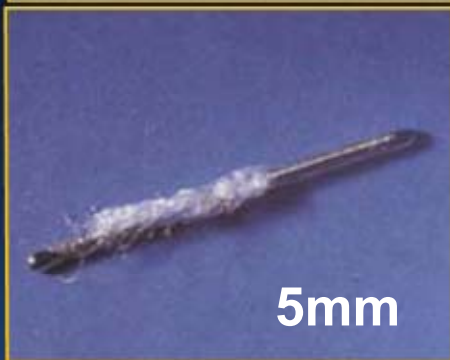
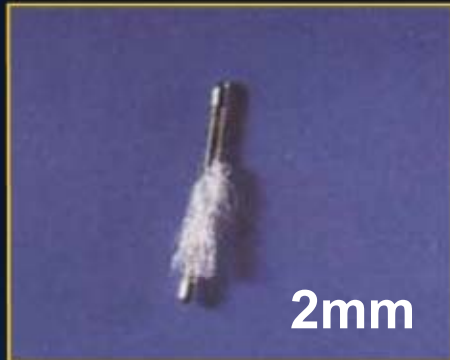
For distal perforations

- Coil embolisation
- Adipose tissue
- Bio-glue
- polyvinyl alcohol



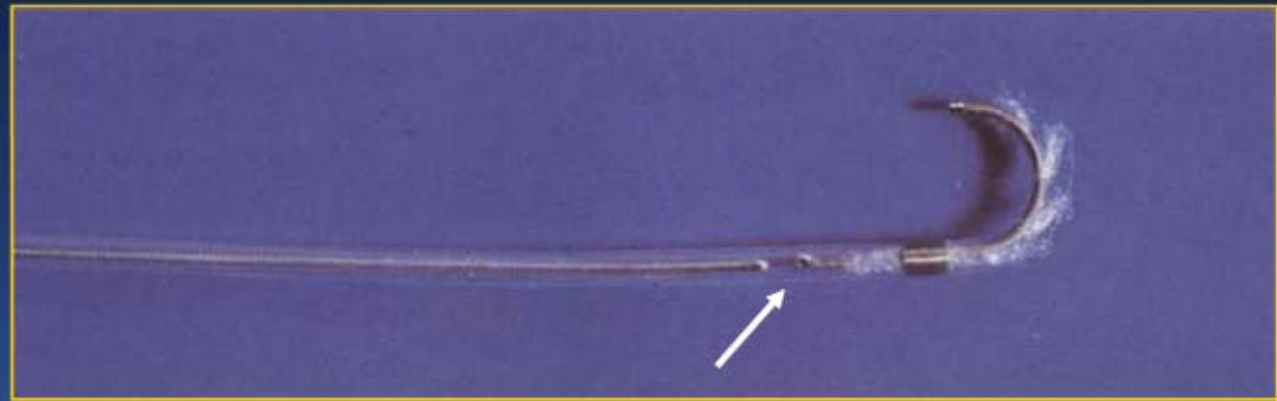
Solutions for Coronary Ruptures

Target Therapeutics: The Tracker-10 coils:
the only needed device



platinum polyester fiber coils
compatible with PTCA over the wire balloons or
devices with 0.014 ID

Coil Pusher: any PTCA guidewire 0.014 inch.



PTCA guide wire as Coil Pusher for delivery

When to resort to surgery???



When to resort to surgery???

If a large perforation is causing serious ischemia or you can not re-cross the wire, or if bleeding continues despite the above mentioned strategies, emergency surgery is the only option.

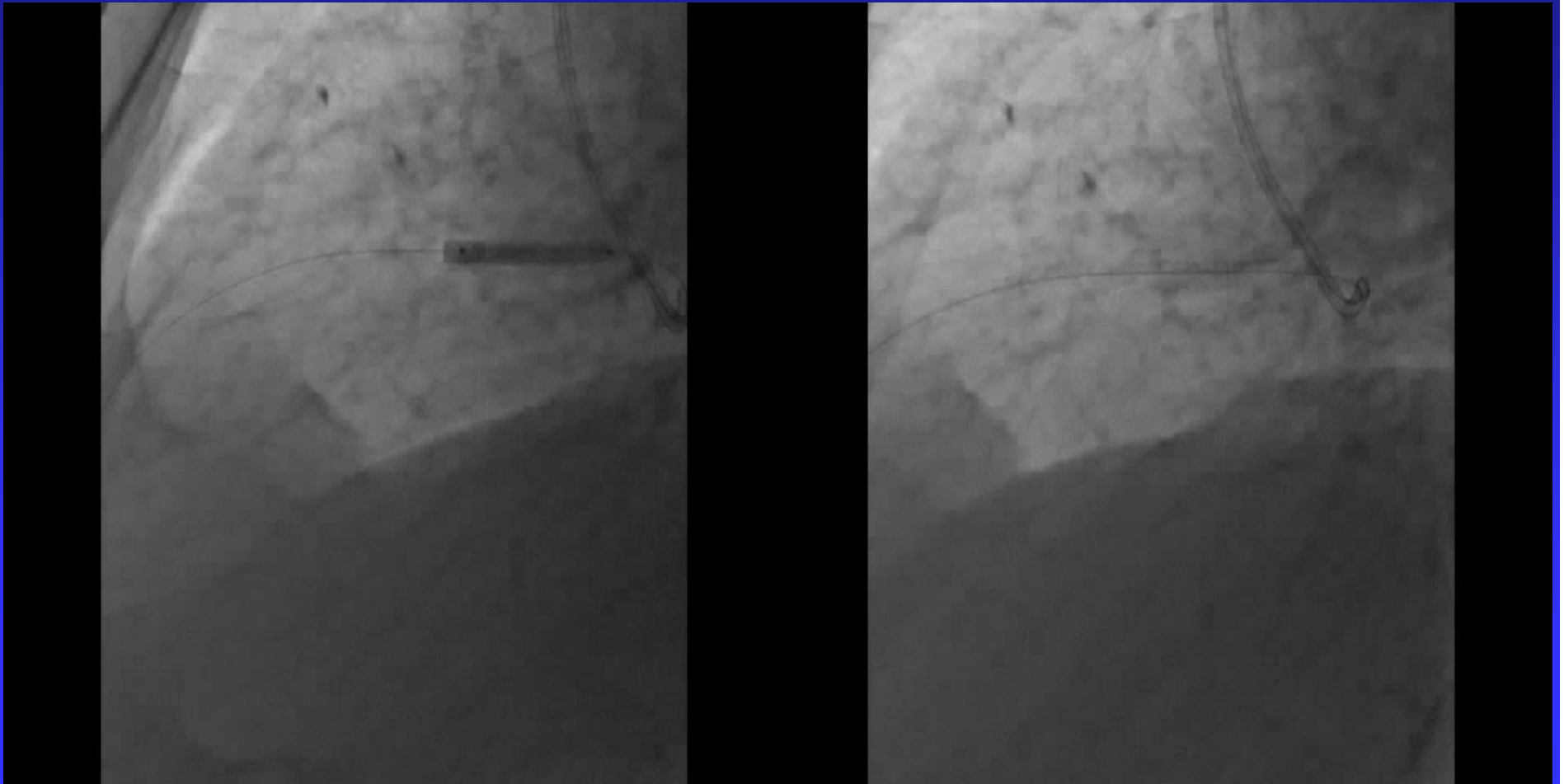
Perforations: TIPS

- Watch Heart Borders
- On Line Echo
- Pan Over Whole Heart and Branches in Several Views
- Use UFH
- No DTI, IIB/IIIA, LMWH

Perforations: TIPS

- Reverse Heparin Freely
- Remember the Contralateral Vessel Can Supply the Perf as well
- Have Coils/Microspheres/Jomed Stents and Centesis Tray at Hand
 - Never Advance a Device Unless You Know Wire is in the vessel

**Covered stent 3.5Mm/23mm
at the site of bifurcation**



Residual thrombus inside the stent



WHAT TO DO?

Export cath again



Final angiogram

BEFORE

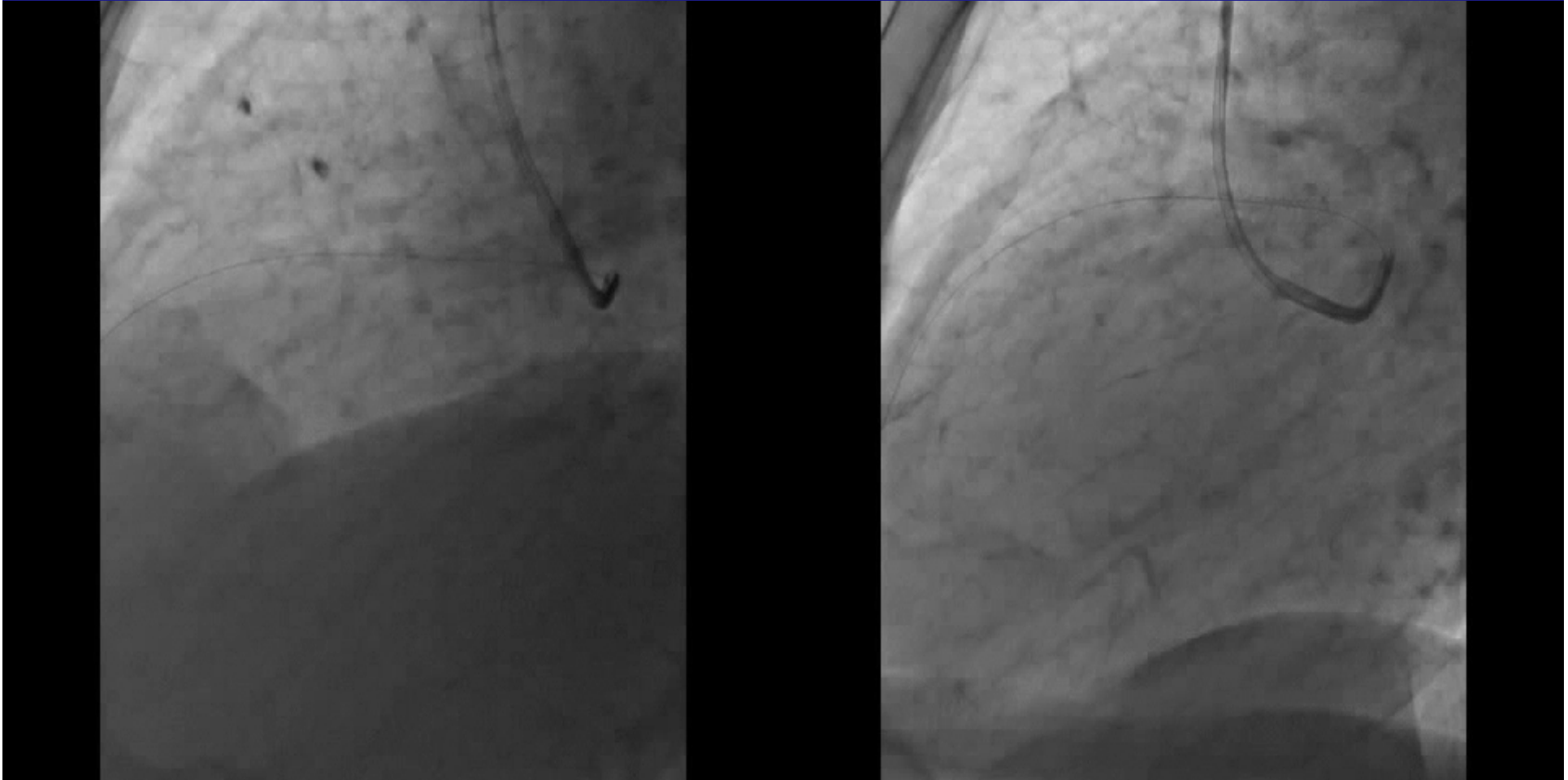
AFTER



Final angiogram

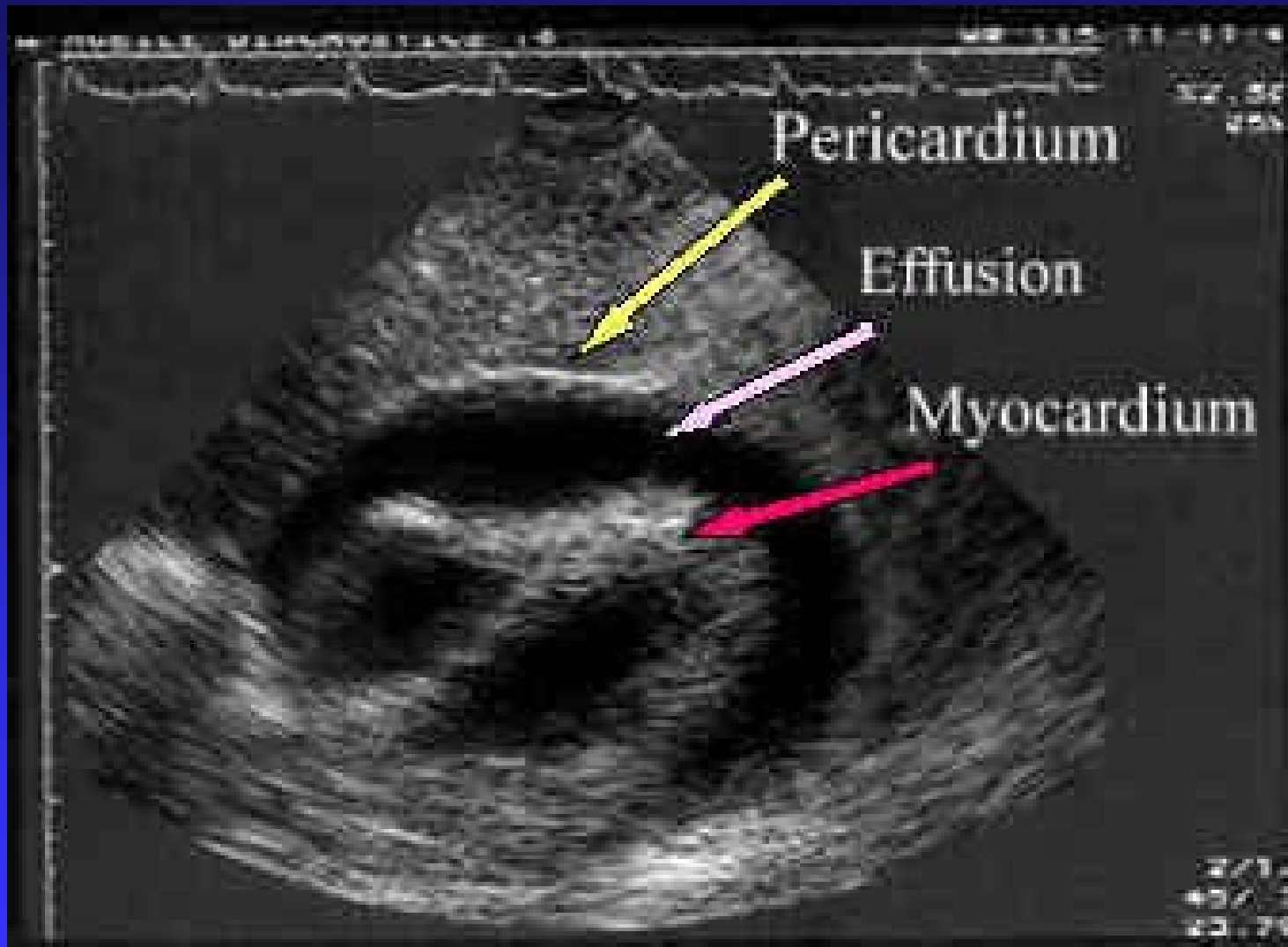
BEFORE

AFTER



**What is the bad
news?**

Tamponade is bad news



Post PCI

- Pericardiocentesis on bed and then in the cath lab/
- BP regained 130/80 and Echo improved (10hrs after), he had abdominal distension.
- Abdominal /US revealed intraperitoneal hematoma.
- General surgeon was consulted → conservative approach
- CT abdomen was done next day.



- **Intraperitoneal hematoma**
 - **Cause?**
 - **Needle for pericardiocentesis (first one in bed) could be in Rt ventricle.**
 - **Management**
 - **Conservative or surgical approach**

- **Hb: 7gm IL, HTC ↑**
- **General surgeon was consulted.
Conservative approach was advised again.**
- **Patient improved with blood transfusion .**
- **He was discharged after 5 days.**

Final thoughts

- **Be ready for complications.**
- **There is no simple PCI**
- **Be aware of the direction of hydrophilic wire**
- **Covered stents should be available in any cath lab**
- **Team approach concept should be spread in all cath labs**
- **God helps you when you do your best.**