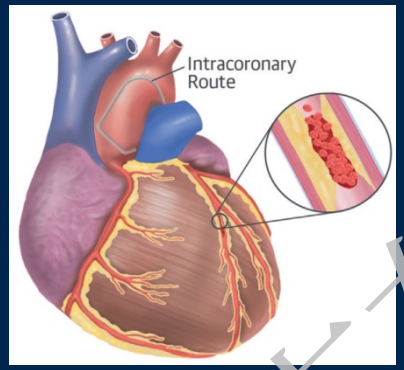
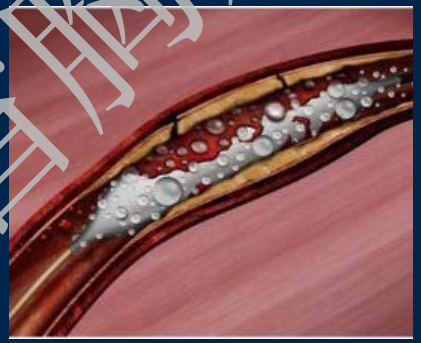
抽吸导管的应用：Why？When？How？

颜红兵, MD,PhD,FACC,FESC
国家心血管病中心 中国医学科学院阜外医院

广东省胸痛中心协会

抽吸导管的应用

- Why?

Proximal	Intralesional	Distal
		
Guiding Catheter: • inexpensive • less selective • systemic effects	ClearWay Catheter: • additional costs • controlled and targeted drug delivery	Microcatheters: • thrombectomy devices • high availability • Infusion in microcirculatory bed

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抽吸导管：指南建议

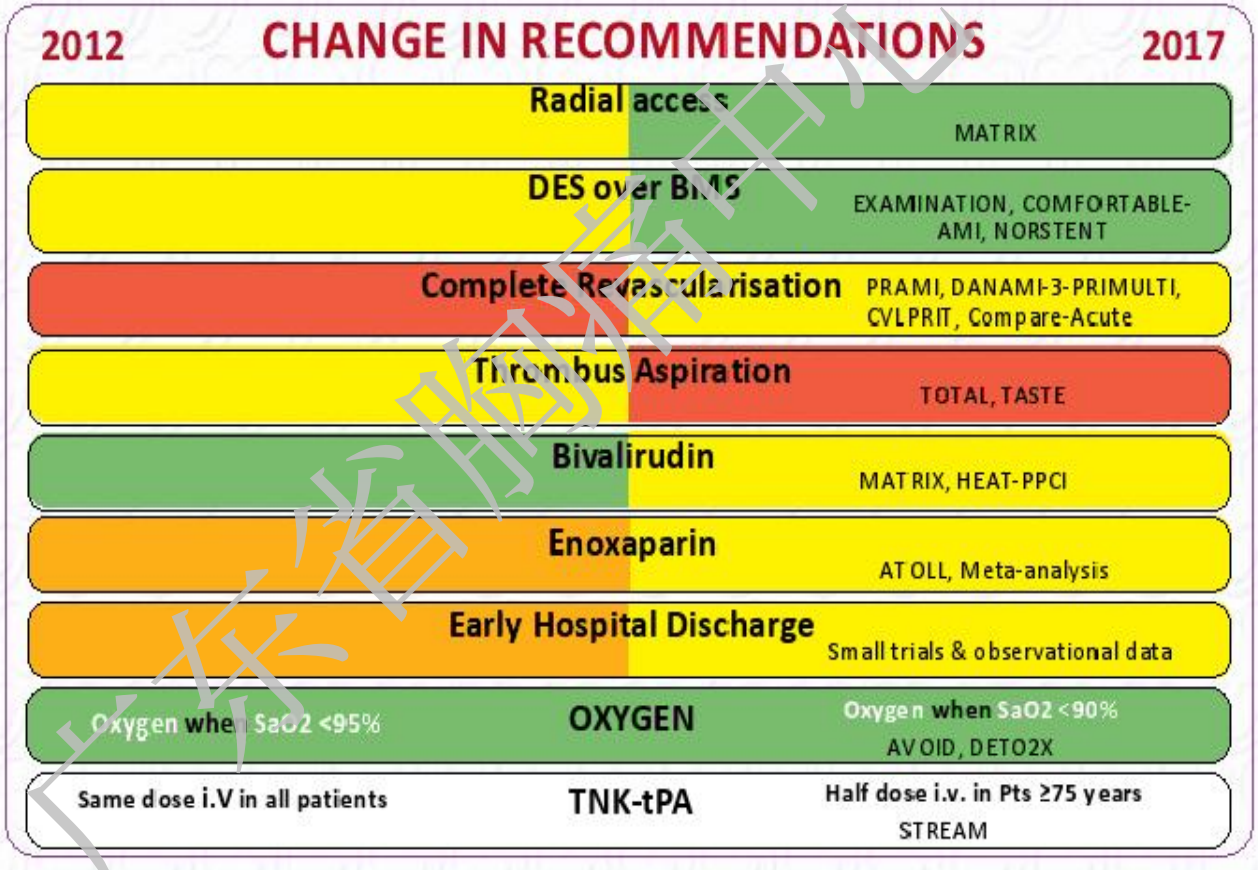
Title	Citation		Class	LOE
2012 ESC Guidelines ST-segment elevation myocardial infarction .	European Heart Journal 2012 Oct;33(20):2569-619	Routine aspiration should be considered	IIa	B
2014 ESC/EACTS guidelines on myocardial revascularization	Eur Heart J. 2014 Oct 1;35(37):2541-619	May be considered in selected patients	IIb	A
2015 ACC/AHA focused update PPCI	JACC	Routine thrombectomy not useful	III	A
2015 ACC/AHA focused update PPCI	JACC	Selective and bailout Thrombectomy not well established	IIb	C
2017 ESC Guidelines ST-segment elevation myocardial infarction	European Heart Journal 2017	Routine use of thrombus aspiration is not recommended.	III	A

广东省胸痛中心提供

单纯抽吸就能降低死亡率吗？

What is new in 2017 Guidelines on AMI-STEMI

ESC European Society of Cardiology



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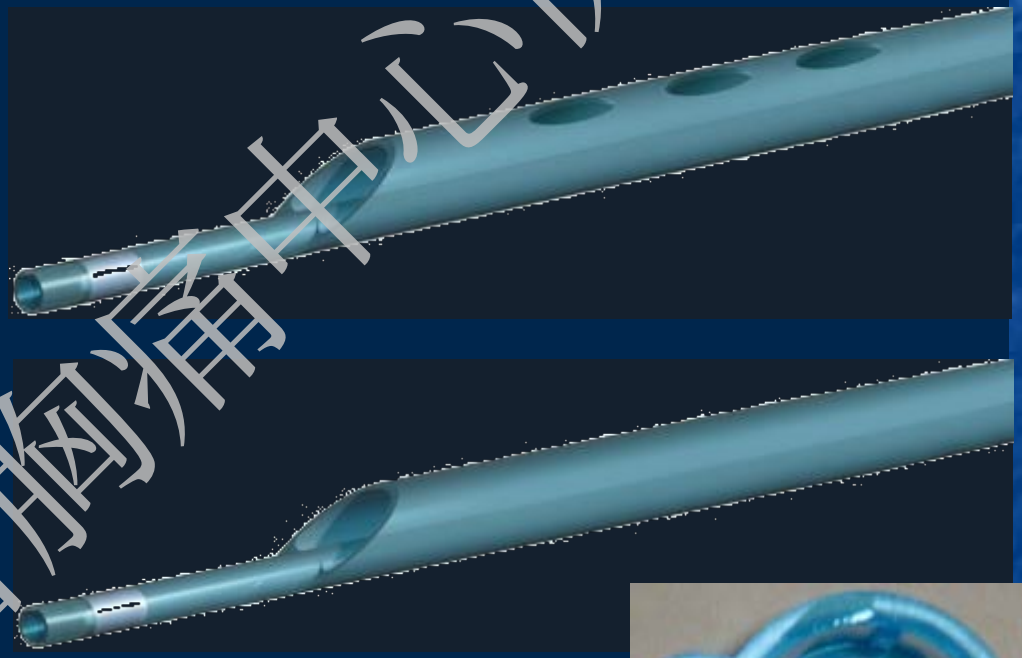
www.escardio.org/guidelines 2017 ESC Guidelines for the Management of AMI-STEMI (European Heart Journal 2017 - doi:10.1093/eurheartj/ehx095)

“3T”研究说明了什么？

- TAPAS（2008）
- TASTE（2013）
- TOTAL（2015）



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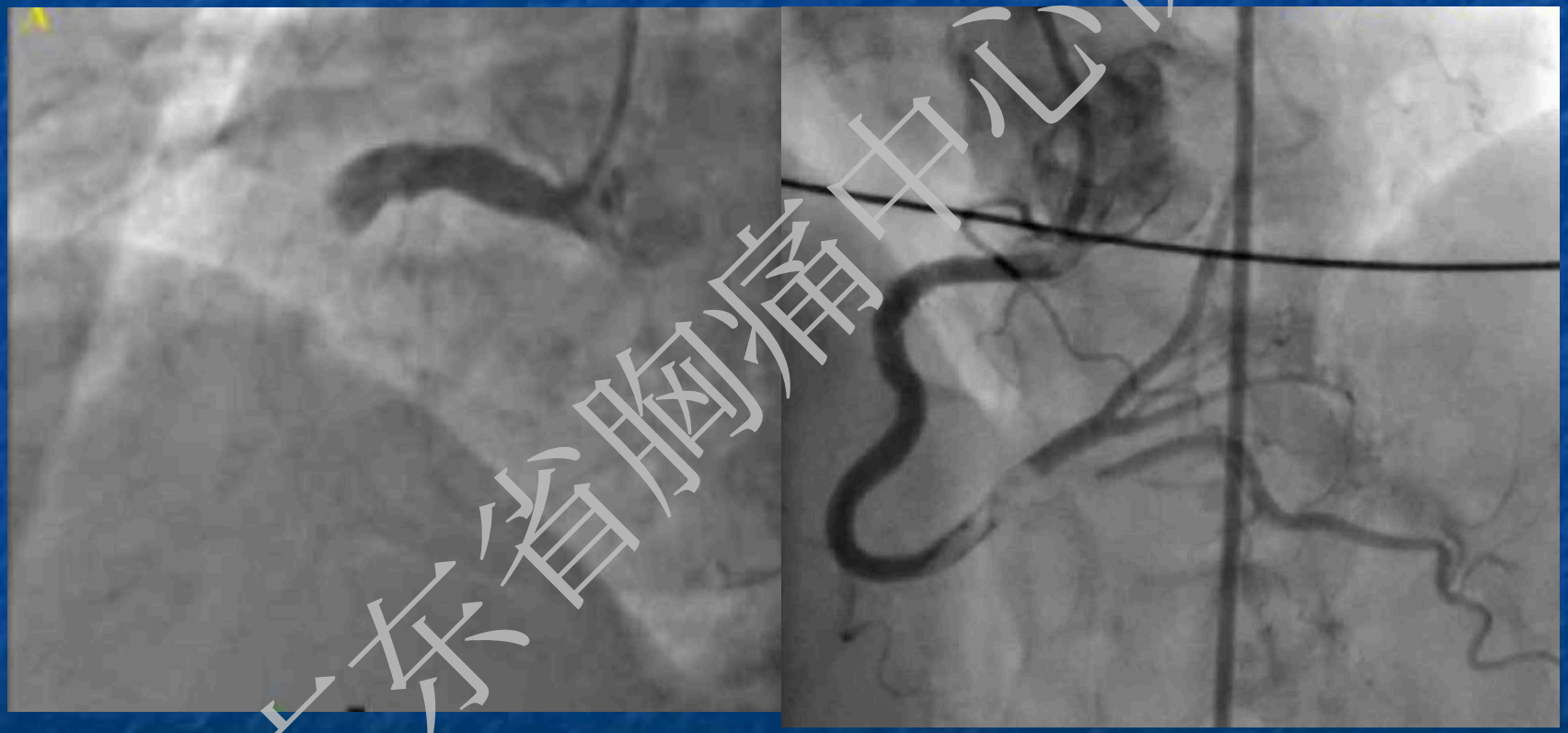
指南与实践



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面临的主要挑战

- Shorten time to reperfusion
- Reduce access site related complications
- Choosing the correct stent
- High thrombotic burden
- No reflow phenomenon
- Reperfusion injury
- STEMI with multivessel disease
- STEMI with cardiogenic shock
- Long-term DAPT management

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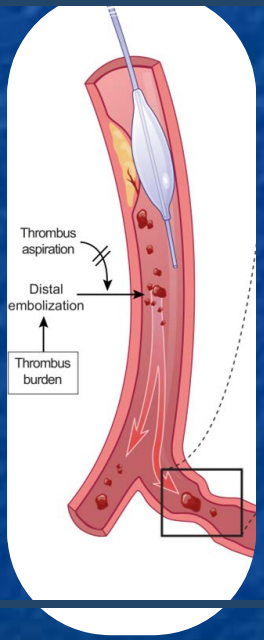
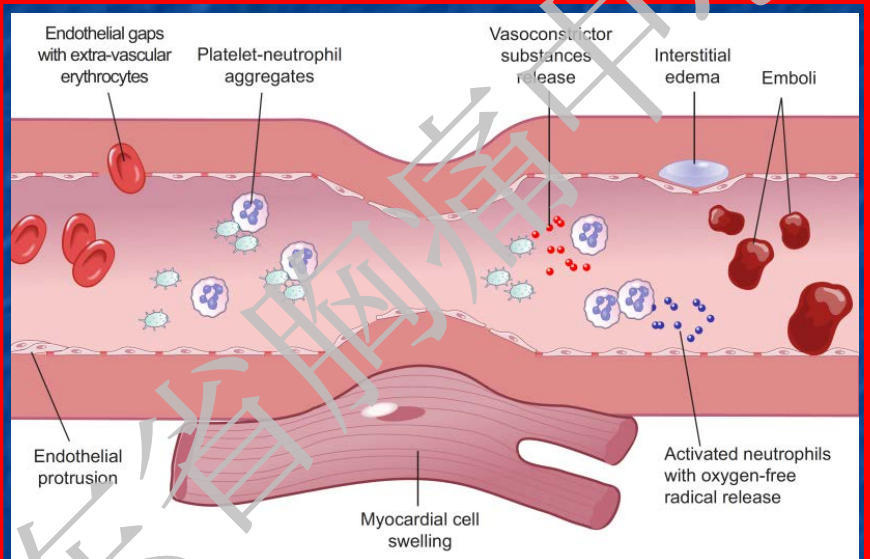
无复流发生机制

1. Distal embolization



2. Ischemia-related injury
3. Reperfusion-related injury



4. Individual susceptibility

- Genetic variability
- Diabetes
- Acute Hyperglycemia
- Dislipidemia
- Lack of preconditioning

adpted from Niccoli et al. J Am Coll Cardiol 2009;54:281-92

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ACS患者的特征

- **高炎症状态**
- **高致血栓状态**和血栓成分的复杂性
- 合并多支病变率高（60.9%）
- 合并性疾病率高（糖尿病、肾功能不全和房颤等）

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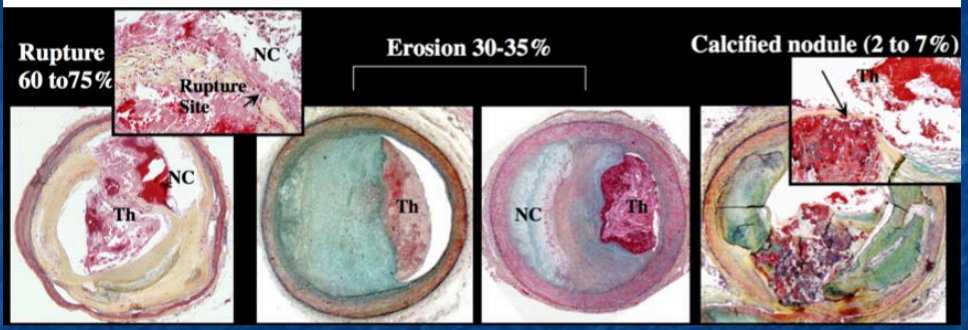
Arterioscler Thromb Vasc Biol. 2000;20:1262-1275

Lessons From Sudden Coronary Death

A Comprehensive Morphological Classification Scheme for Atherosclerotic Lesions

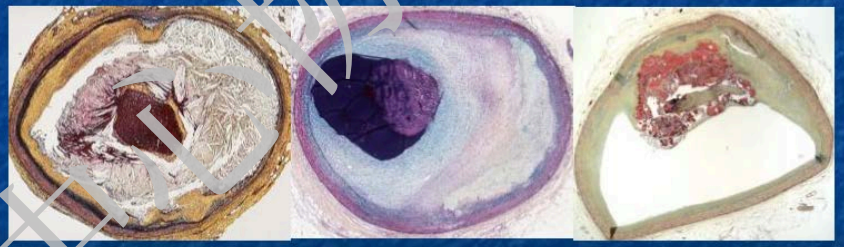
Renu Virmani, Frank D. Kolodgie, Allen P. Burke, Andrew Farb, Stephen M. Schwartz



这3种类型对临床影响一样吗？

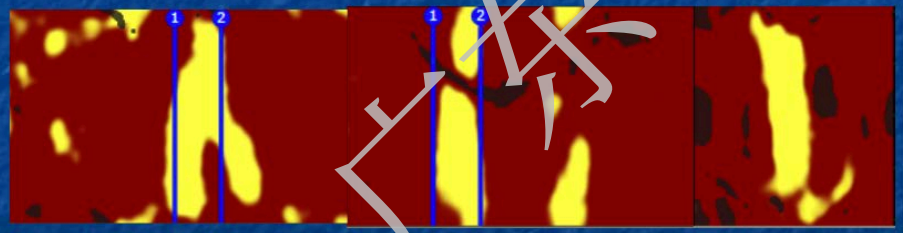
■ **要点1：**

斑块病理类型不同对临床的影响可能不同，似乎斑块破裂的风险更高



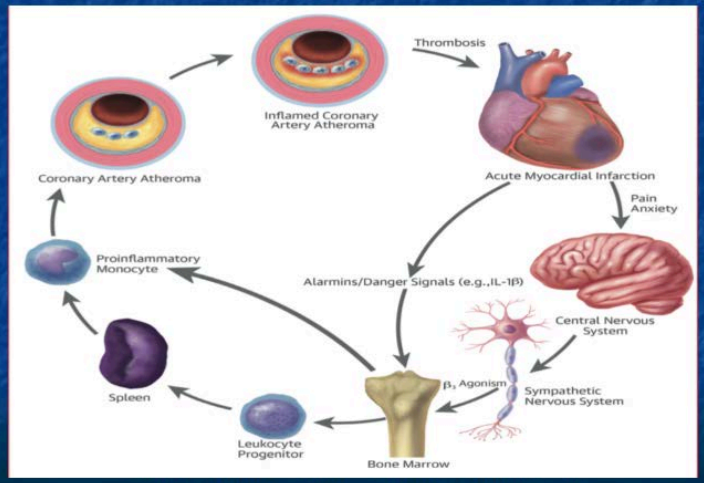
■ **要点2：**

同样的斑块类型风险不一样，还取决于斑块下的化学结构！



■ **要点3：**

同样斑块下结构风险不一样，还取决于炎症水平

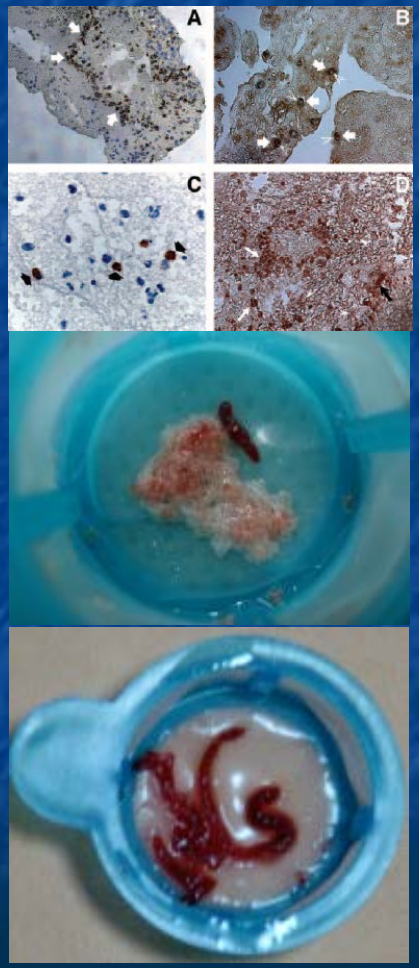


Libby, P. et al. J Am Coll Cardiol. 2016; 67(9):1091–103.

广东省胸痛中心联合

抽吸物的组成

- 血小板、新鲜血栓、机化的组织斑块
- 动脉粥样硬化斑块组成
- 胆固醇结晶、泡沫细胞、坏死的核心
- 血管活性物质
- 5羟色胺、ADP、血栓素A2
- 炎性介质



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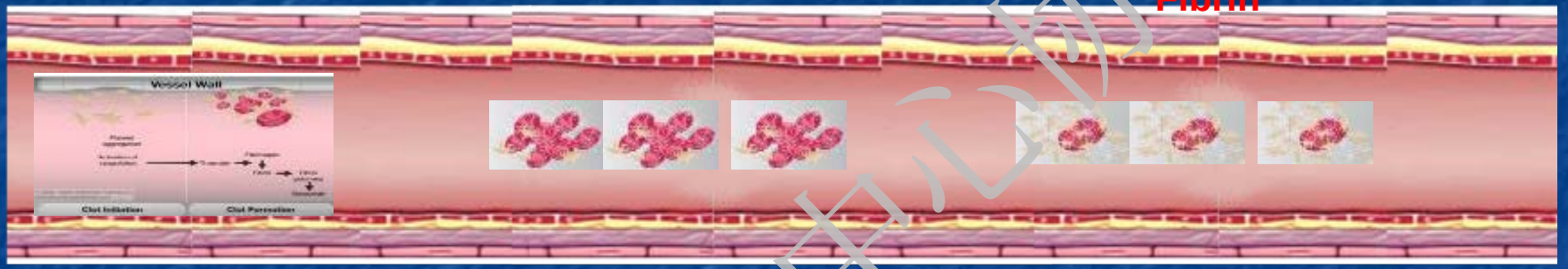
“血栓”的动态性质

Culprit Vessel

Fresh, Friable Platelet rich Thrombus

Dense Organized Thrombus with RBC, Fibrin



1 2 3 4 5 6

DURATION OF CHEST PAIN (Hrs)

- Aspirin
- Ticagrelor
- Clopidogrel
- Bivalirudin
- Abciximab

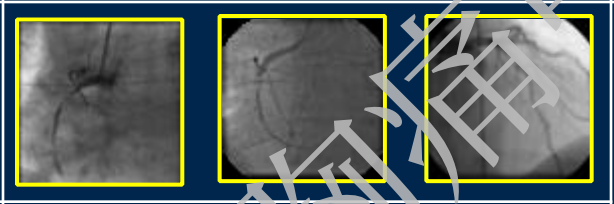
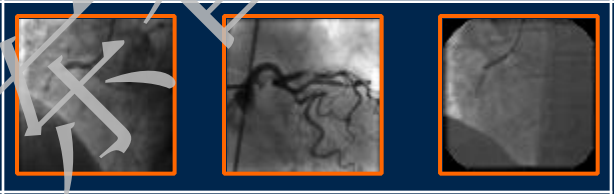
- Thrombo – Aspiration
- Angiojet (Large Vessel)
- Stenting

- Angiojet
- Clearway
- Laser
- Staged procedure with prolonged anti-coagulation

AMI presentation in developing countries

广东省胸痛中心办公

STEMI患者血栓分层处理策略

分级	血栓定义	血管造影举例	Mehta分类	技术要点	
				Aspiration Catheter	Angio Jet
0	No cine angiographic characteristics of thrombus present		Direct Stent+/- Pre dilatation	•Most effective with fresh clot; organized thrombus is more resistant to debulking. •Have different profiles, different push- ability, tractability and aspiration rates. •All are 6F-compatable It is useful to stock and be familiar with the use of at least one. •Flush catheter lumen well before use as it facilitates better tracking over the wire. •Avoid kinking the catheter – advance slowly over the initial, softer portion of the catheter. •Monitor distal tip of the guide wire as the aspiration catheter is advanced – it is not uncommon for the guide wire to advance during this maneuver •Advance the aspiration catheter through the entire length of occlusive disease.	•Can be used from the radial route. Although LAD and some LCX may not need a TPM, I place TPM’s in all Angiojet procedures. •Often, multiple passes will be required. Try to pause after every 2-3 pases to enable hemodynamics to be restored, to optimize guide wire and guiding catheter support and to evaluate the results. •Often, just the first passage will restore adequate flow •Resistant and stubborn thrombus will require more distal advancement that must be done more carefully. •Avoid advancing in severe tortuousity and in vessels<2mm •Since the Angiojet is used for large thrombus burden and high thrombus grade, consider Abciximab as adjunctive therapy
1	Possible thrombus present. Angiography demonstrates reduced contrast density, haziness, irregular lesion contour or a smooth convex "meniscus" at the site of total occlusion suggestive but not diagnostic of thrombus				
2	Thrombus present-small size: Definite thrombus with greatest dimensions less than or equal to ½ vessel diameter		 Aspiration thrombectomy		
3	Thrombus present- moderate size: Definite thrombus but with greatest linear dimension greater than ½ but less than 2 vessel diameters				
4	Thrombus present- large size: As in Grade 3 but with the largest dimension greater than or equal to 2 vessel diameters		 Angio Jet		
5	Total occlusion				

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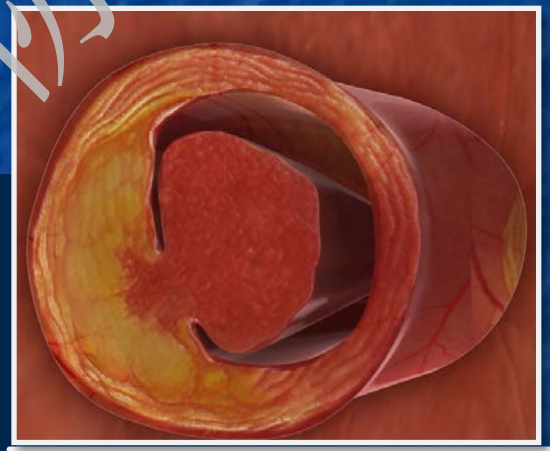
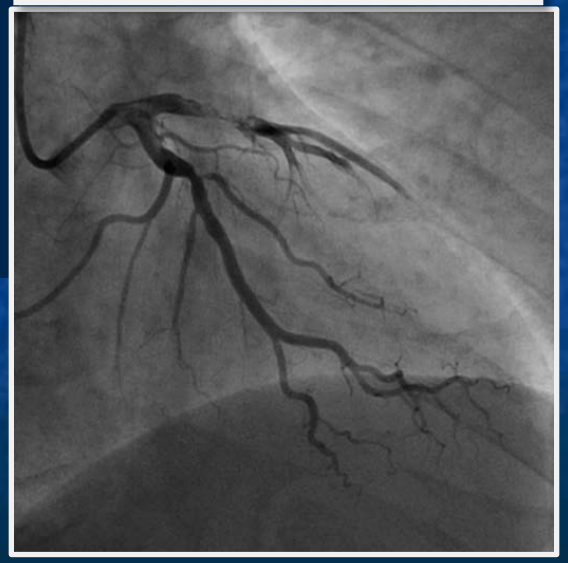
为何使用抽吸导管？

- Restore flow in the culprit artery.
- Optimize myocardial perfusion.





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抽吸导管只是一个平台

- 可以抽吸
- 可以超选择给药
- 可以超选择造影

- 各种性质的血栓
- 斑块物质
- 降低局部炎性介质

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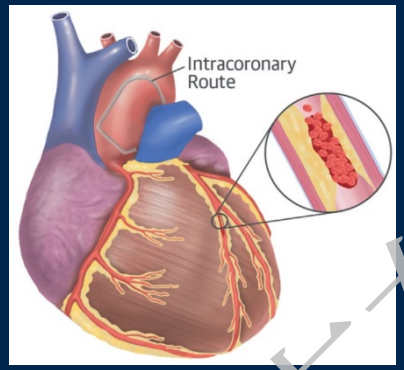
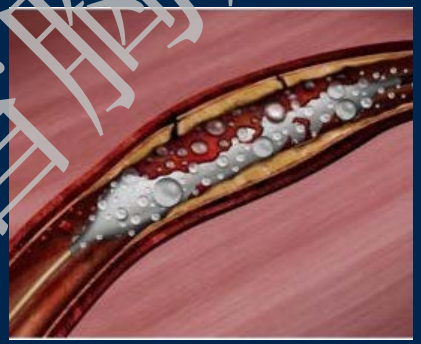
抽吸导管的应用

- When?

Proximal	Intralesional	Distal
		
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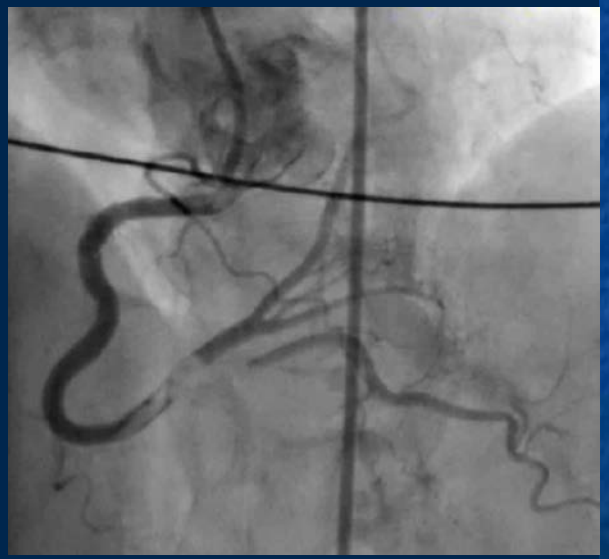
你的目的？

- 抽吸？
- 超选择给药？
- 超选择造影？



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抽吸导管的应用

- How?

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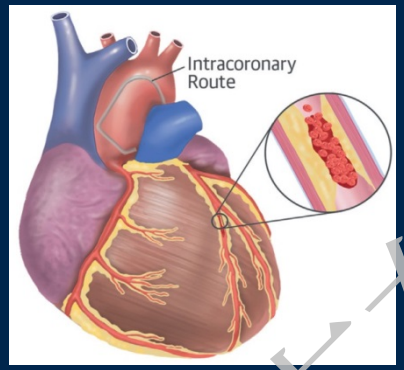	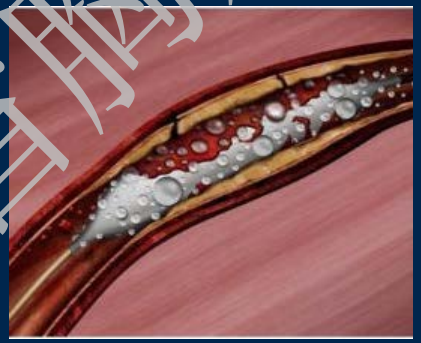	
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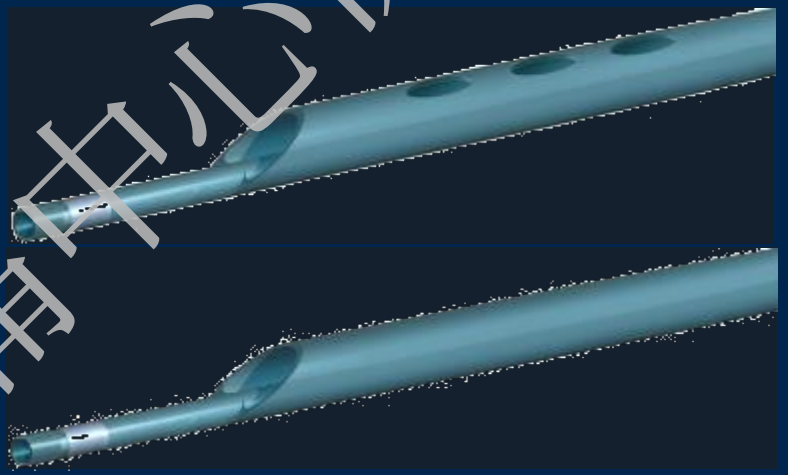
抽吸导管的应用

- 抽吸导管具有3大功能：
  - 抽吸
  - 输送
  - 支撑
- 抽吸导管只是提供了一个平台
- 终点是要改善血流与灌注
- 应当强调综合处理



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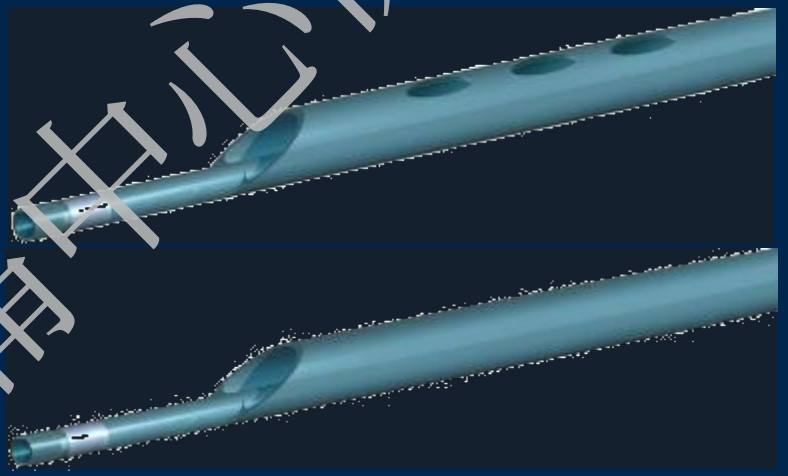
抽吸导管的应用

- 请提问题



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抽吸导管的应用

- 不忘初心

  改善血流与灌注

- 牢记使命

  各种性质的血栓

  斑块物质

  降低局部炎性介质

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