



SCA ST+

Stenting différé

vs

Stenting immédiat

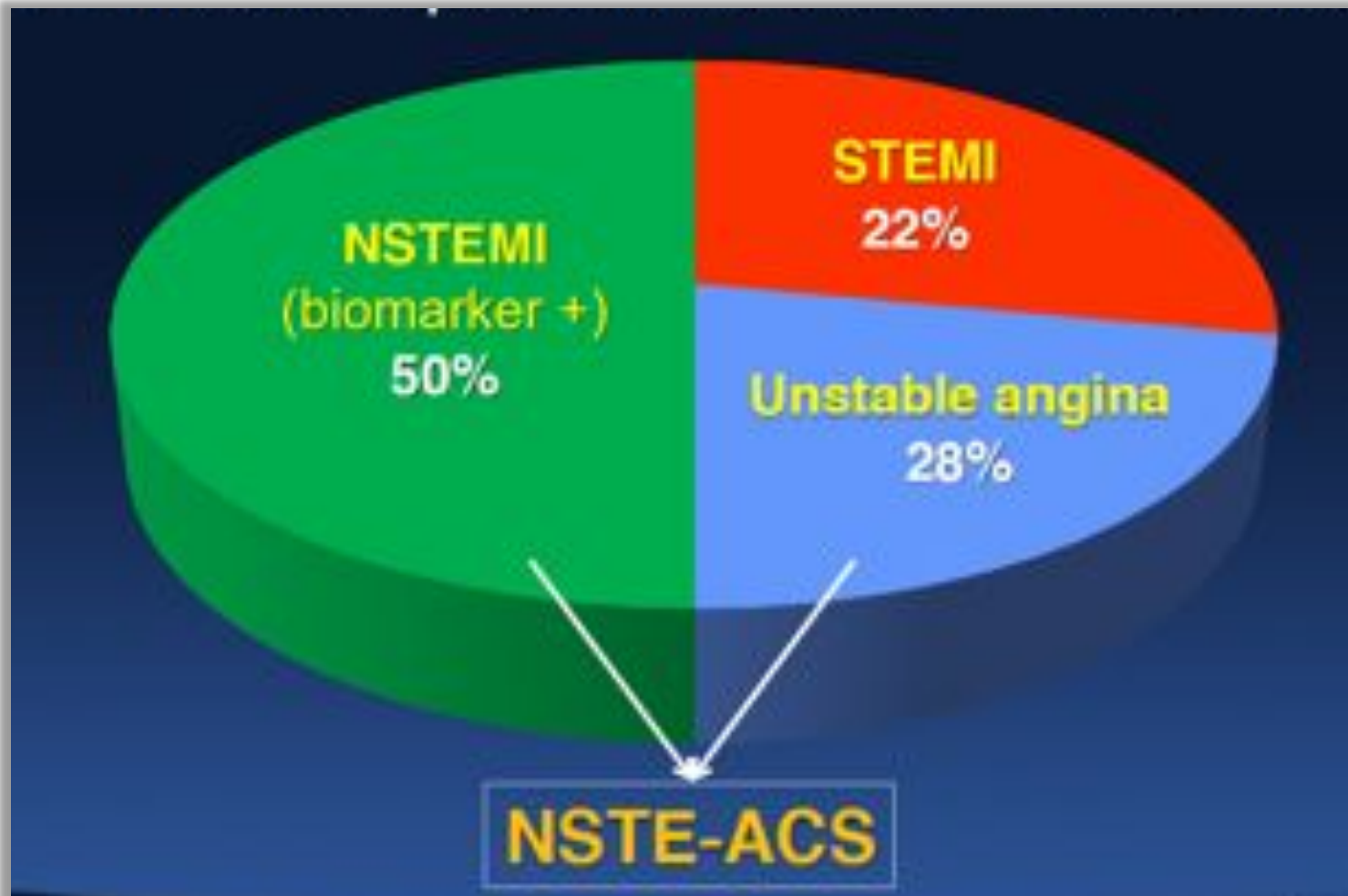
Géraud Souteyrand★, Pascal Motreff
APPAC 2014

★Conflits d'intérêt
- consultant St-Jude Médical
- consultant Terumo



Stratégies de Revascularisation

- Données américaines 1,41 millions SCA en 2010





Stratégies de Revascularisation

- **Recommandations *ESC 2012***

Procedural aspects of primary PCI

Stenting is recommended (over balloon angioplasty alone) for primary PCI.

I

A

Pas de place pour stenting différé

Primary PCI should be limited to the culprit vessel with the exception of cardiogenic shock and persistent ischaemia after PCI of the supposed culprit lesion.

IIa

B

Stenting limité à la lésion coupable

MERCI





Stratégies de Revascularisation

No Reflow

Données américaines 2004-2008 : 291 380 patients
No reflow 6533 (2.3%)

Evolution hospitalière

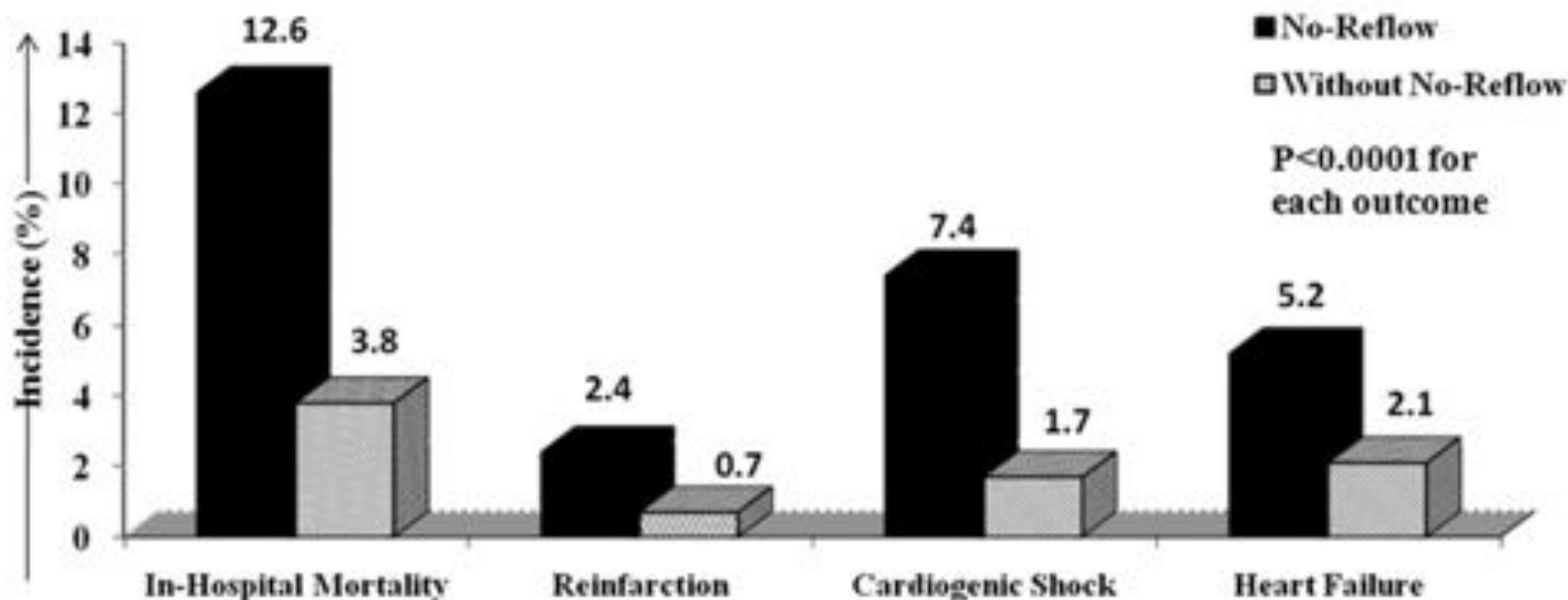
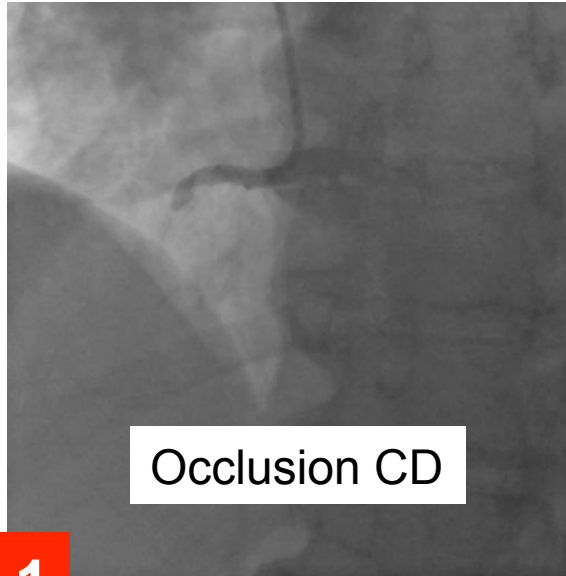


Figure 1. In-hospital clinical outcomes after development of no-reflow after PCI for AML.

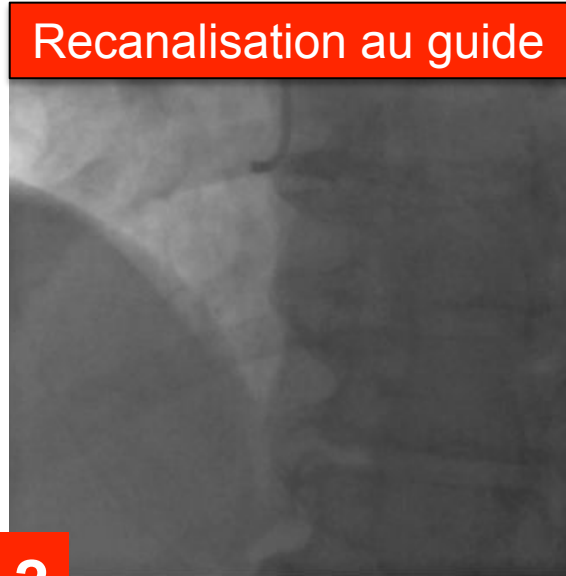
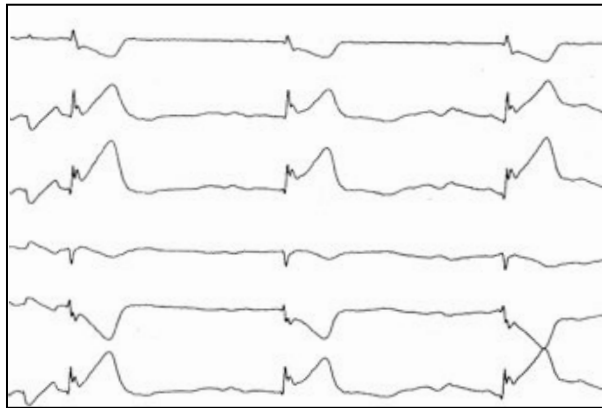


Stratégies de Revascularisation

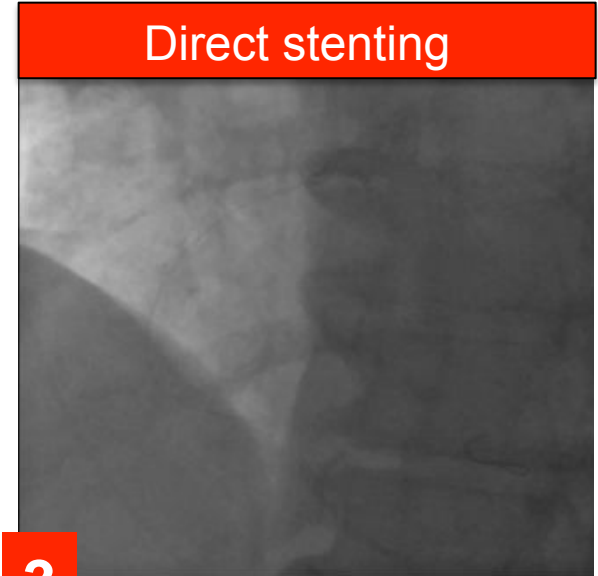
No-Reflow



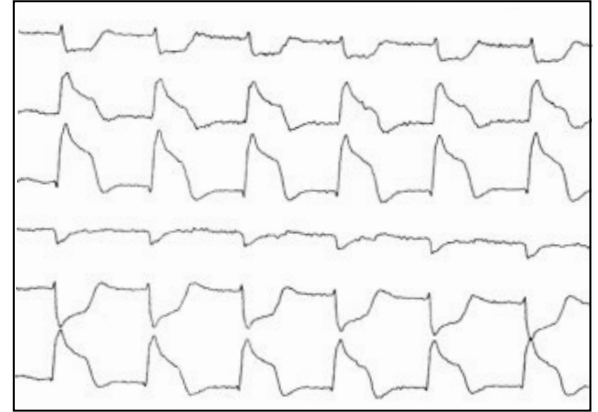
1



2



3





Stratégies de Revascularisation

No Reflow

Données américaines 2004-2008 : 291 380 patients
No reflow 6533 (2.3%)

Facteurs de risque de no reflow en multivarié

	OR
Cardiogenic shock	1.83
Lesion length (per 10%)	1.17
Age (per 10 years)	1.14
American Society of Interventional Cardiology (ASCI) lesion type	1.47
ST-segment elevation myocardial infarction	1.39
Culprit lesion type	1.78
Preprocedural TIMI flow	
0 (vs 3)	2.12
1 or 2 (vs 3)	1.84
Bifurcation lesion	1.29
Interval from symptom onset to presentation	1.18
Previous percutaneous coronary intervention	0.82
Signs of heart failure at presentation	1.17

Facteurs favorisants

- Lésions complexes
- Lésions longues
- Flux TIMI 0 (thrombus)



Stratégies de Revascularisation

Angioplastie primaire :

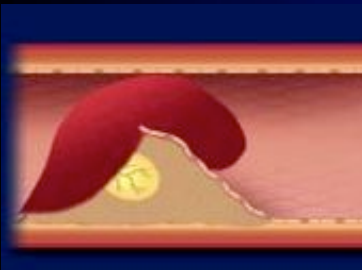
Succès stenting > 95%

TIMI < 3 : 5-10% mais...

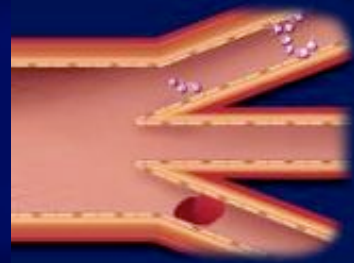
TIMI 3 : 30% no-reflow en IRM

Succès stenting $\neq$ Sauvetage myocardique

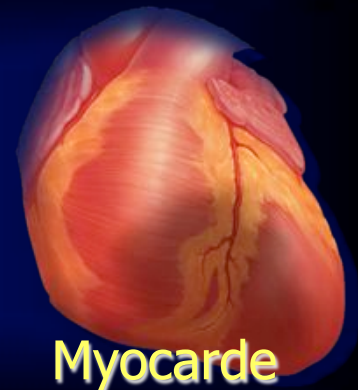
No reflow : défaut de perfusion myocardique en l'absence d'obstruction angiographique des coronaires épiscopardiques



Coronaire



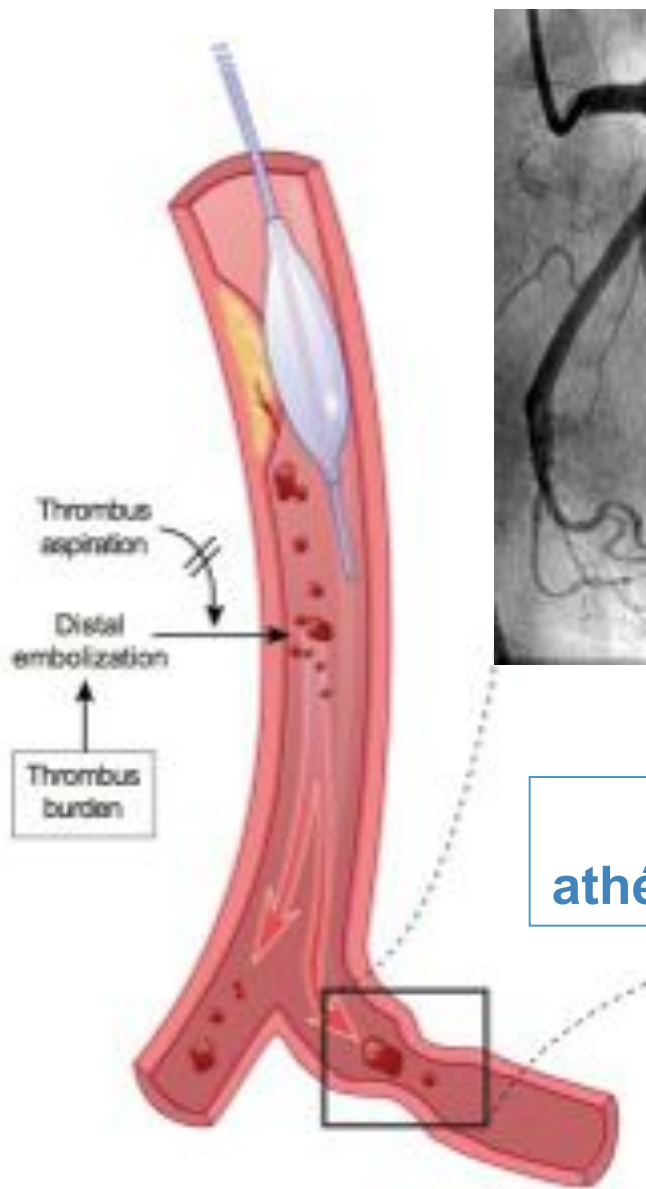
Microcirculation



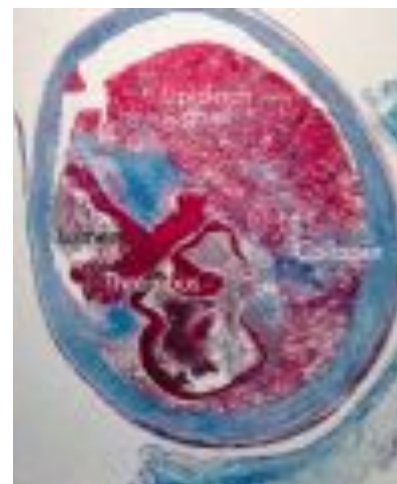
Myocarde



Stratégies de Revascularisation



Matériel
athéro-thrombotique

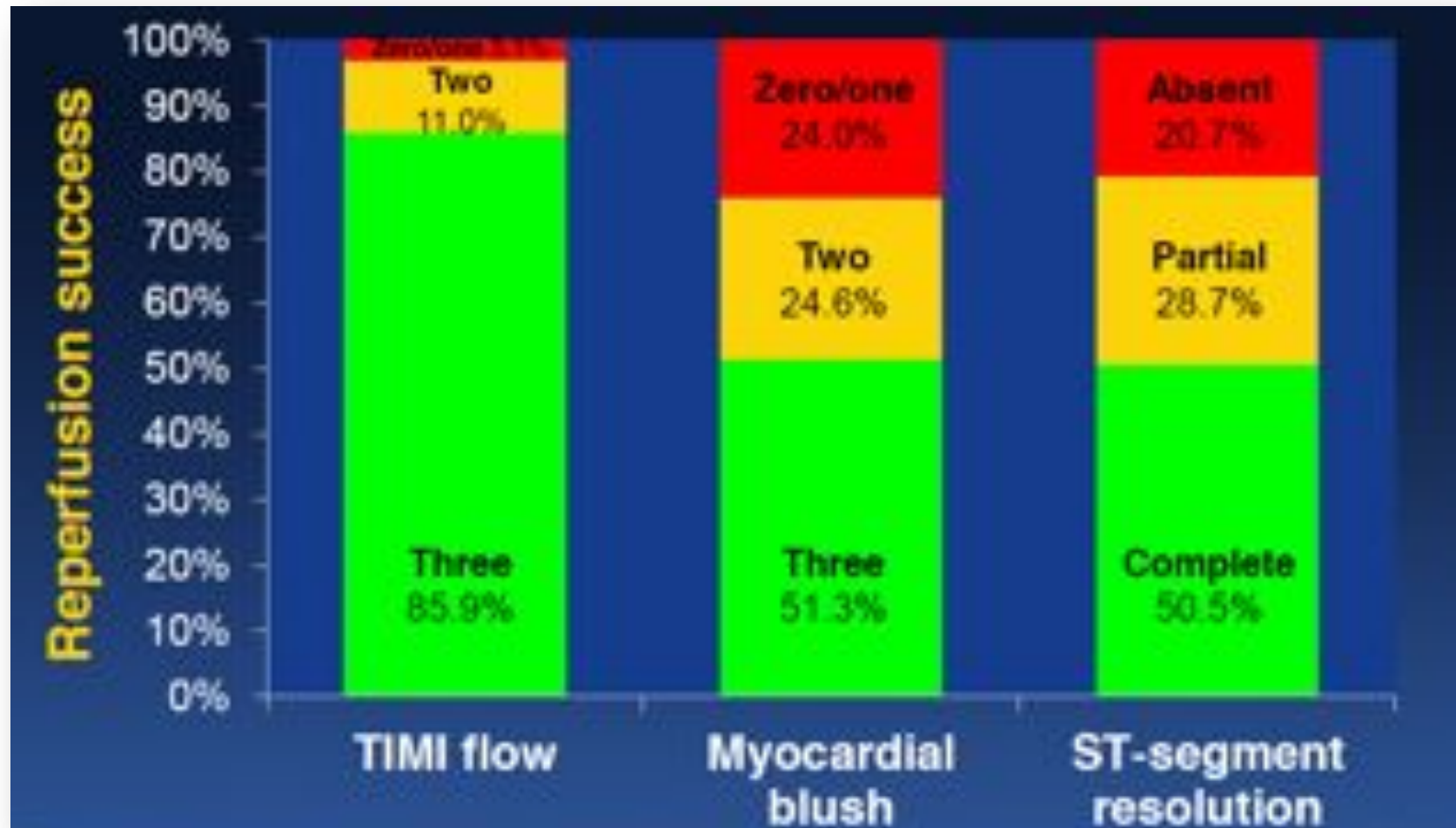


Falk E, Heart 2003;89:983–985



Stratégies de Revascularisation

- Echec de reperfusion : ETUDE Horizons-AMI





Stratégies de Revascularisation

Stenting différé dans le SCA ST+

Etudes comparant les stratégies de Stenting différé vs Stenting immédiat en phase aiguë d'Infarctus du Myocarde

Authors	n	Random.	Delay (d)
<i>Cafri (2004)</i>	106	No	≈5
<i>Isaaz (2006)</i>	74	No	≈6
<i>Meneveau (2009)</i>	78	No	≈1
<i>Tang (2011)</i>	87	No	≈7
<i>Ke (2012)</i>	103	No	≈7
<i>Riezebos (2009)</i>	142	Yes	1-2
<i>Berry (2013)</i>	101	Yes	<16h
<i>Belle (2013)</i>	160	Yes	1-2

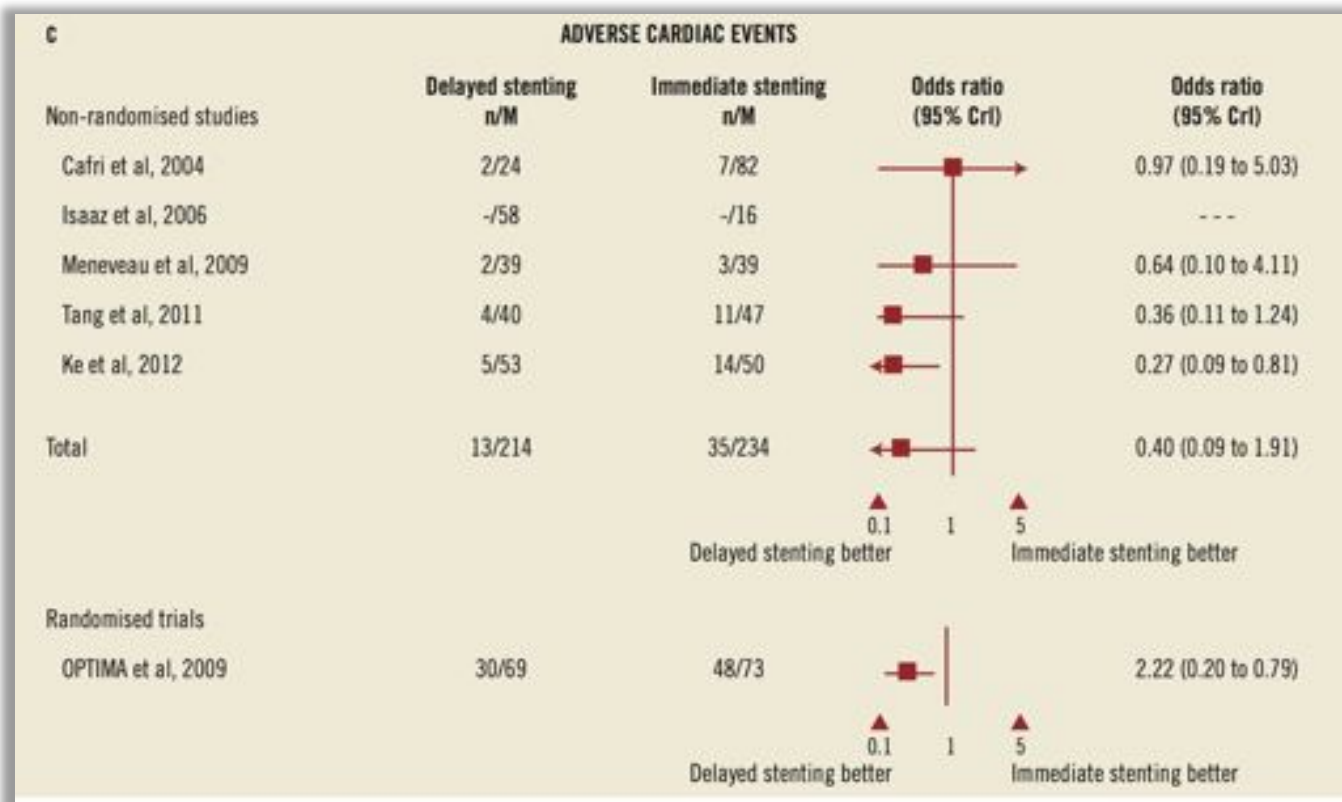
- Le stenting différé est sûr et réalisable dans le SCA ST+
- Meilleure reperfusion ?
- Meilleure récupération VG ?
- Moins d'événements cliniques à moyen et long terme ?

Isaaz K., Coron Artery Dis 2006
Freixa X., Eurointervention 2013



Stratégies de Revascularisation

Stenting différé dans le SCA ST+



Méta-analyse
Moins MACE groupe
stenting différé
Moins low flow



Stratégies de Revascularisation

Etude MIMI

Etude Française, 160 STEMI, Stenting immédiat vs différé

Minimalist Immediate Mechanical Intervention

Angioplastie primaire (STEMI <12 h):
TIMI 0/1 → Thrombo-aspiration → TIMI 3 et
indication de stenting

Aspirine
Thiénopyridine
HNF/HBPM
Anti GPIIb-IIIa

Randomisation
(n=140)

Stenting immédiat

Stenting différé 24-48h

Critère principal : Masse myocardique nécrosée en IRM

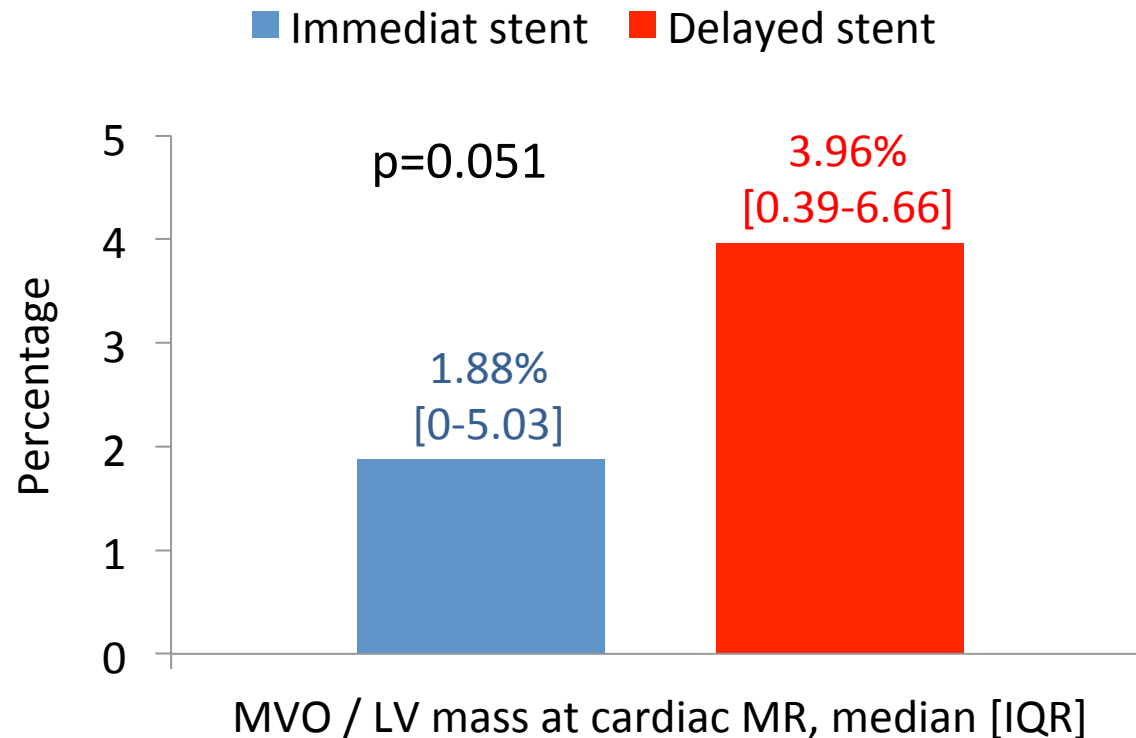


Stratégies de Revascularisation

Etude MIMI

Etude Française, 160 STEMI, Stenting immédiat vs différé

Masse myocardique nécrosée en IRM





Stratégies de Revascularisation

Etude MIMI

Pas de bénéfice d'une stratégie différée systématique mais...

Alternative possible

- Dans groupe MIMI : 0 décès, ré-infarctus ou AVC
- Contrôle trop précoce ? (24-48h)
- TIMI 3 et résolution du sus-ST = prérequis au MIMI
- Exclusion large thrombus

Thrombus burden before stent	MIMI study (n=140)	Rotterdam registry* (n=798)
0	5%	8%
1	29%	19%
2	27%	26%
3	19%	18%
4	17%	27%

*Belle L, ESC Amsterdam 2013
Sianos JACC 2007*



Stratégies de Revascularisation

Etude DEFER STEMI

Etude Ecossaise, 101 STEMI, Stenting immédiat vs différé

52 patients différés- 49 stenting immédiats

Critères inclusions : patients à haut risque de no-reflow

- âge > 65 ans et douleur > 6h
- Flux TIMI 0/1 sur lésion > 24mm, petit calibre < 2.5mm
- Grosse charge thrombotique

2^{ème} procédure à h9 en moyenne (entre 4 et 16h)

3 patients non stentés

Pas de décès ou evts hémorragiques

IRM à J2 et 6 mois



Stratégies de Revascularisation

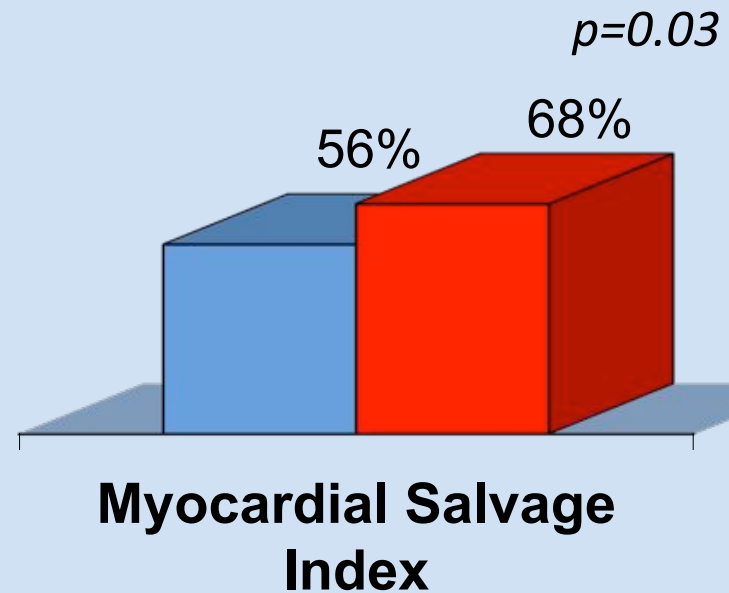
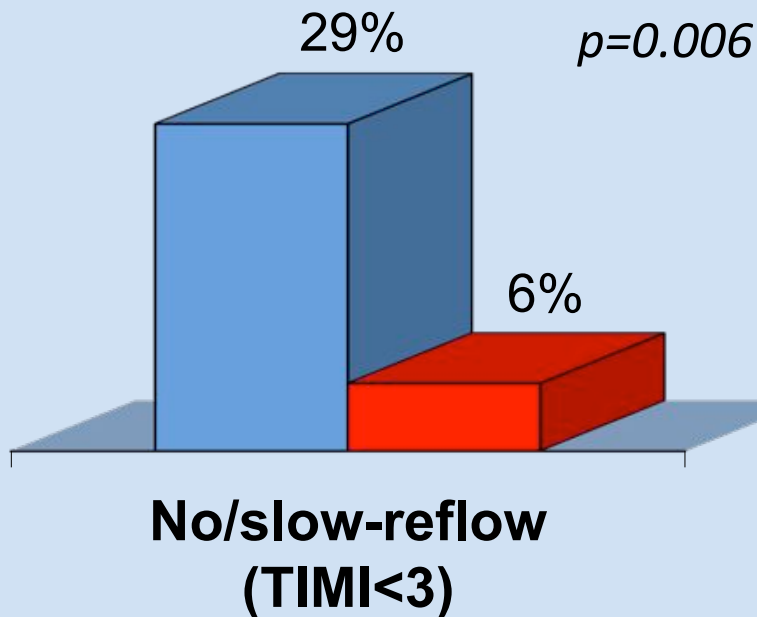
Etude DEFER STEMI

Etude Ecossaise, 101 STEMI, Stenting immédiat vs différé



University
of Glasgow

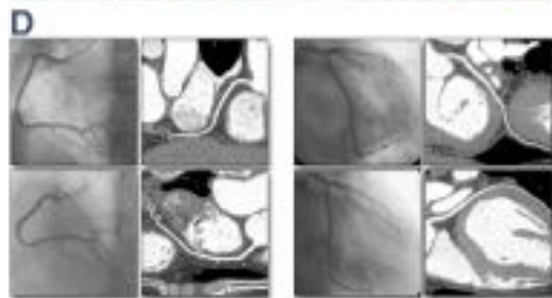
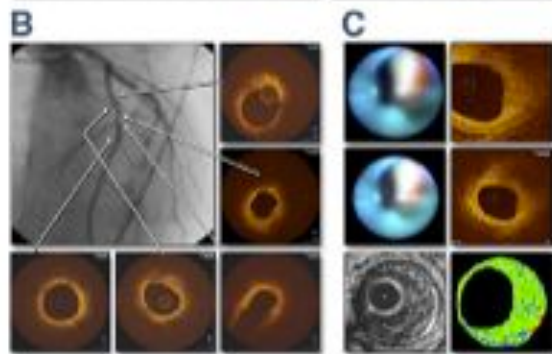
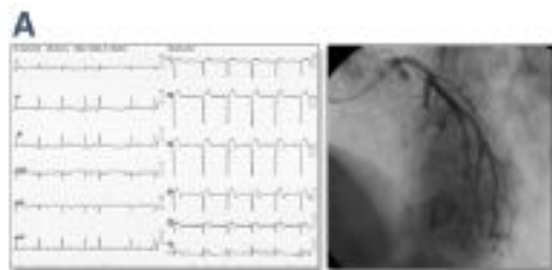
Immediate stenting
Deferred stenting





Stratégies de Revascularisation

Stratégie de Stenting différé et conditionné



OCT-Based Diagnosis and Management of STEMI Associated With Intact Fibrous Cap

Francesco Prati, MD, PhD,*† Shiro Uemura, MD, PhD,‡ Geraud Souteyrand, MD, PhD,§
Renu Virmani, MD,|| Pascal Motreff, MD, PhD,§ Luca Di Vito, MD, PhD,*†
Giuseppe Biondi-Zoccai, MD, PhD,†¶ Jonathan Halperin, MD,#
Valentin Fuster, MD, PhD,## Yukio Ozaki, MD, PhD,†† Jagat Narula, MD, PhD#

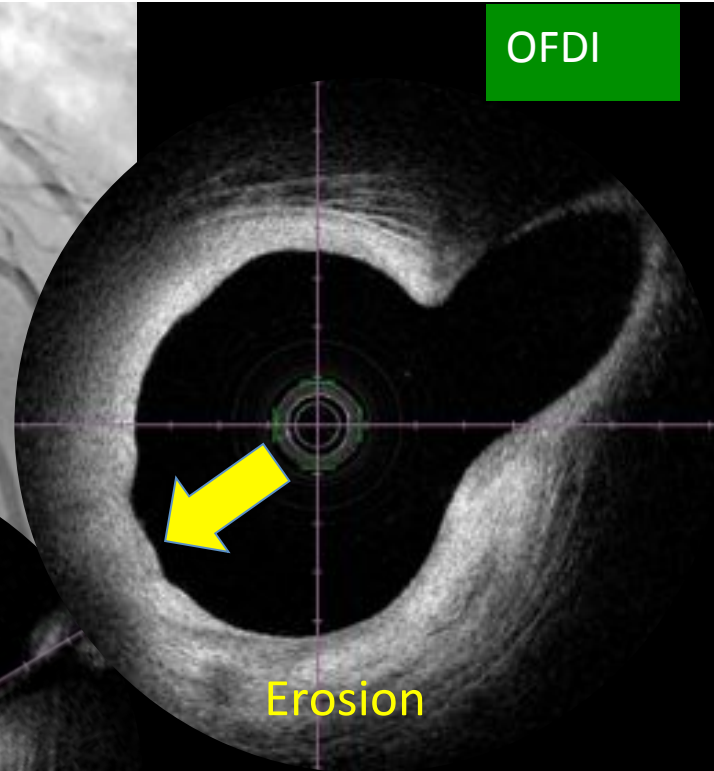
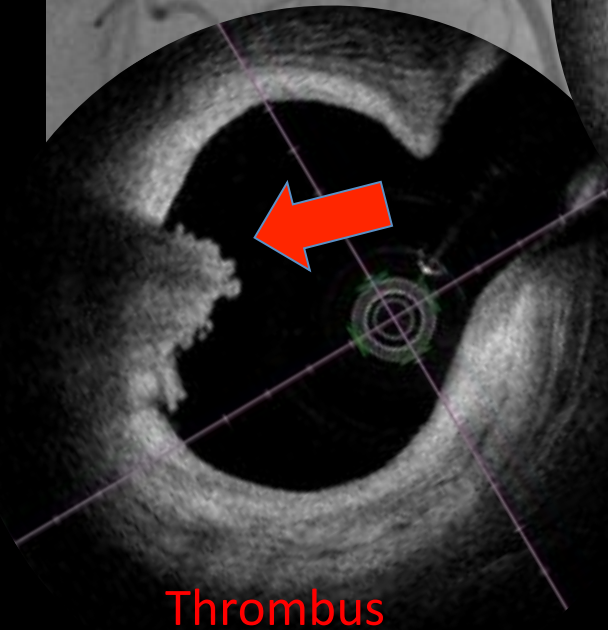
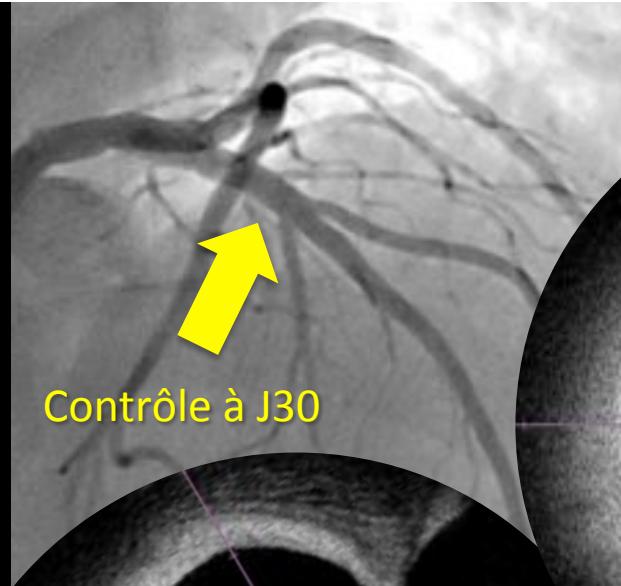
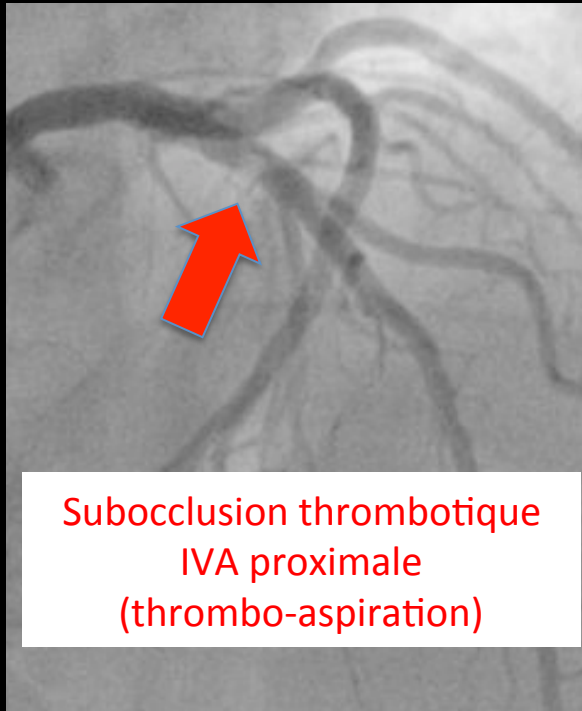
*Rome, Italy; Nara, Toyooka, Japan; Clermont-Ferrand, France; New York, New York;
Gaithersburg, Maryland; and Madrid, Spain*

31 pts, SCA sans rupture de plaque
Evolution favorable à 2 ans
avec (60%) ou sans stent (40%)



Stratégies de Revascularisation

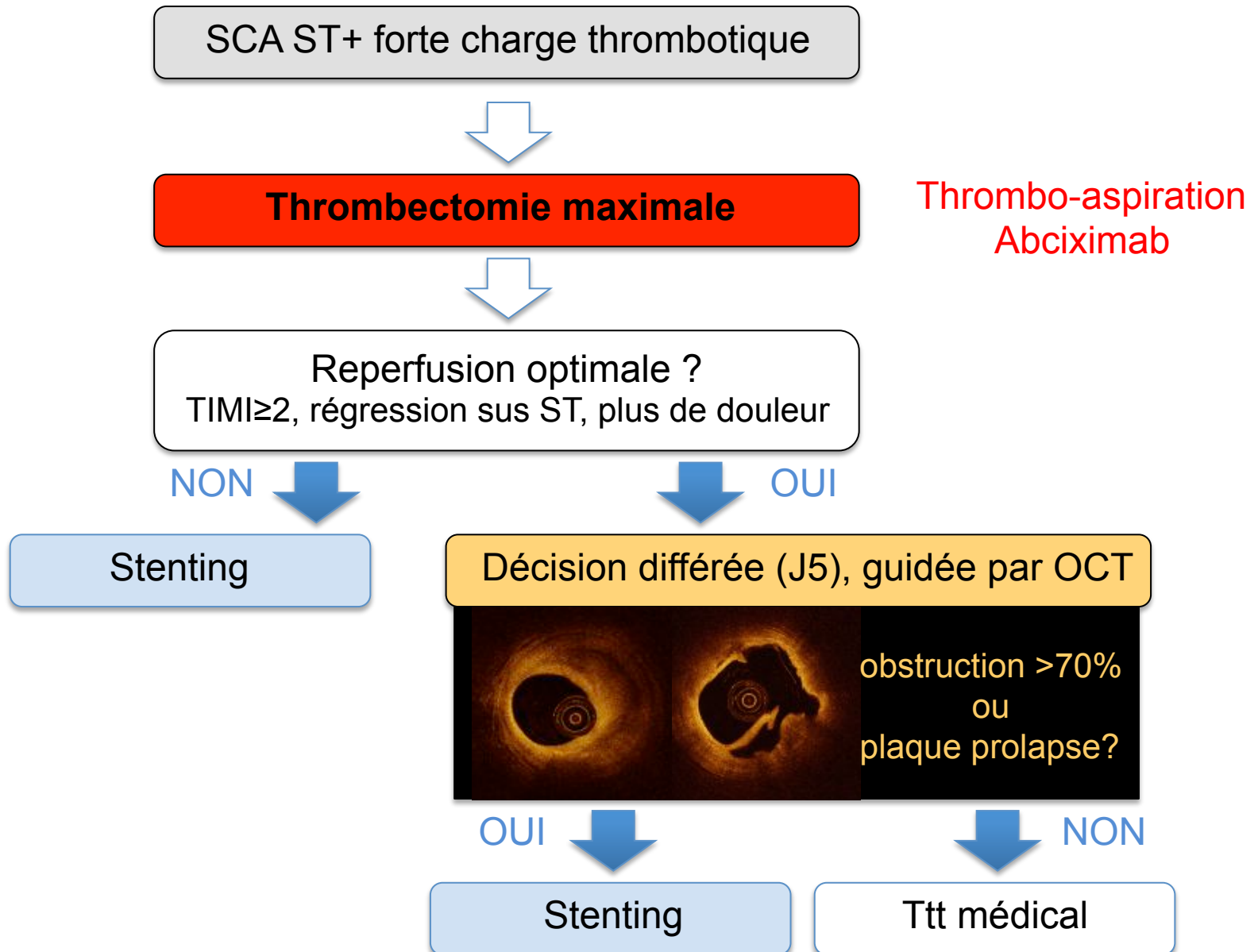
Mr B. 47 ans





Etude Pilote (CHU Clermont-Fd, CC Marie Lannelongue)

Prise en charge **SCA ST+ à forte charge thrombotique** guidée par OCT



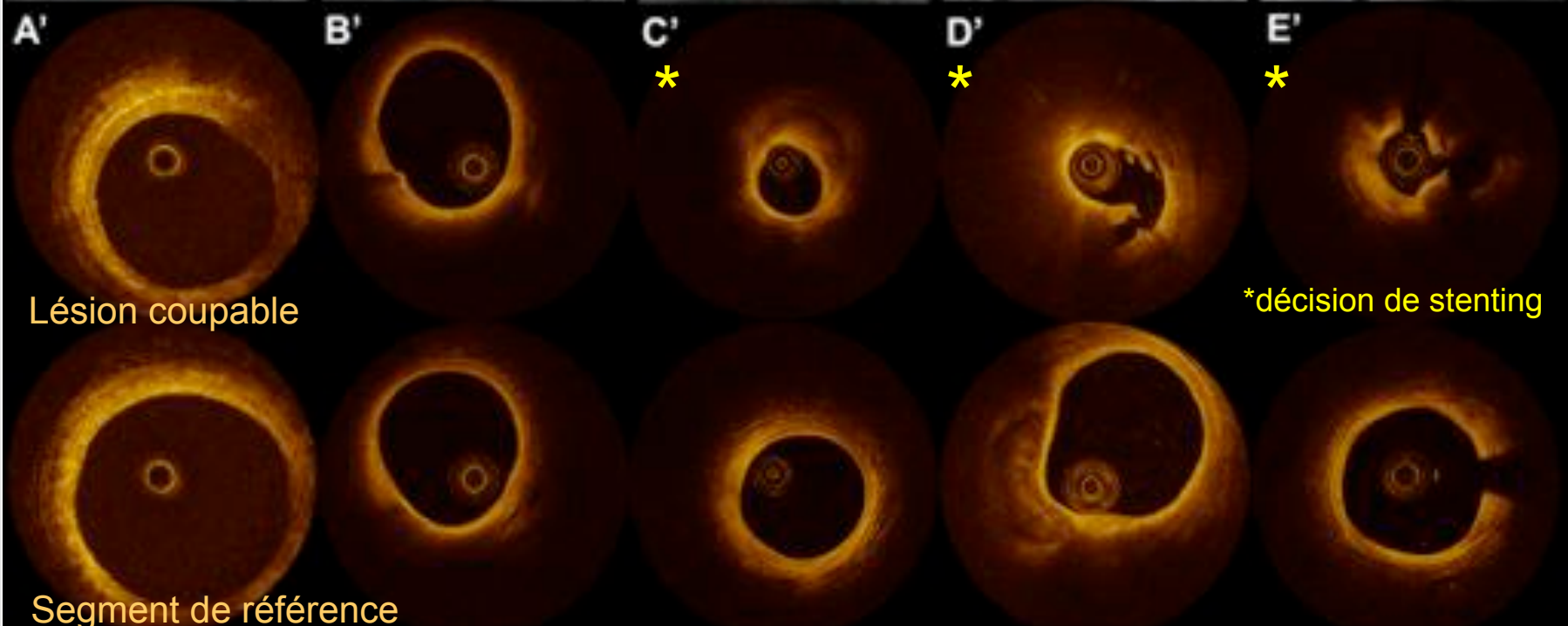


Stratégies de Revascularisation

Phase aigüe



Contrôle





Stratégies de Revascularisation

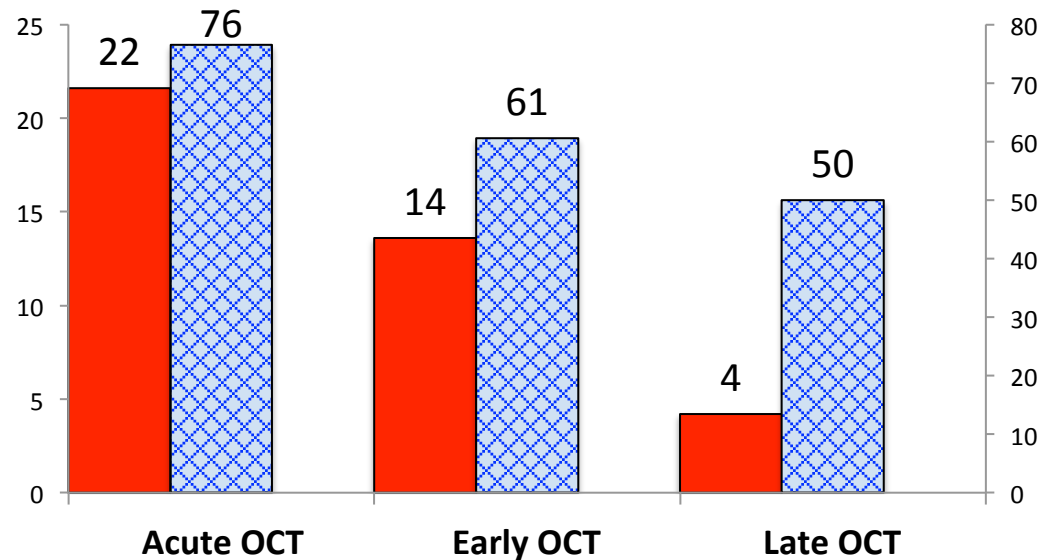
Résultats :

101 pts- contrôle J0-J30- 66% rupture plaque
Réduction progressive du score thrombotique
et du taux de stenting sous traitement médical

Score Thrombotique

Somme des scores sur chaque coupe millimétrique (0-1-2-3-4 = nb de quadrants)

% de stenting



- **Stenting au final : 62%**

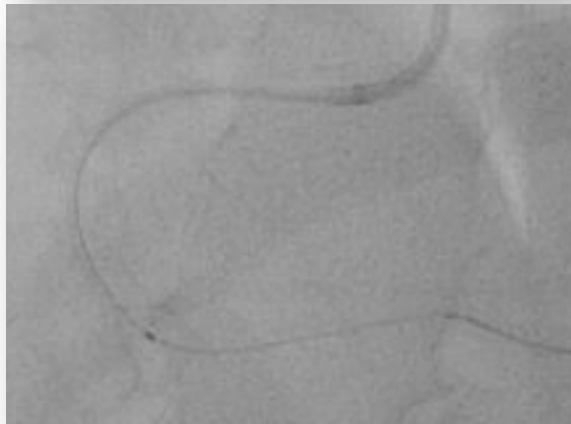
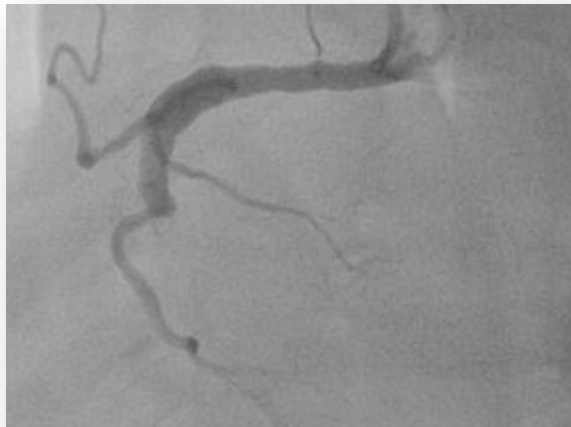
- 97% TIMI 3 flow après stenting différé
- Pas récidence ischémique avant contrôle++



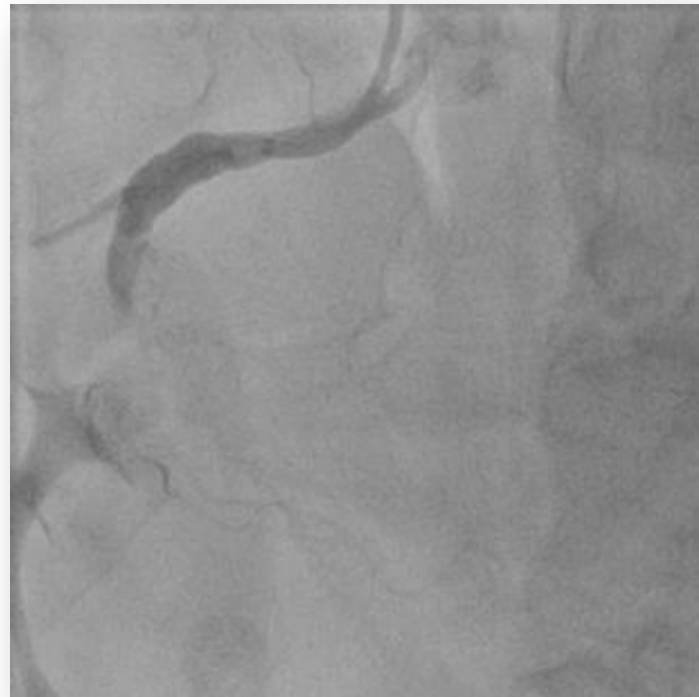
Stratégies de Revascularisation

Charge thrombotique ++

Mr C. 69 ans, SCA ST+ inférieur, Coro à H2



Thrombo-aspiration, anti GPIIb-IIIa
Résolution douleur, régression Sus-ST

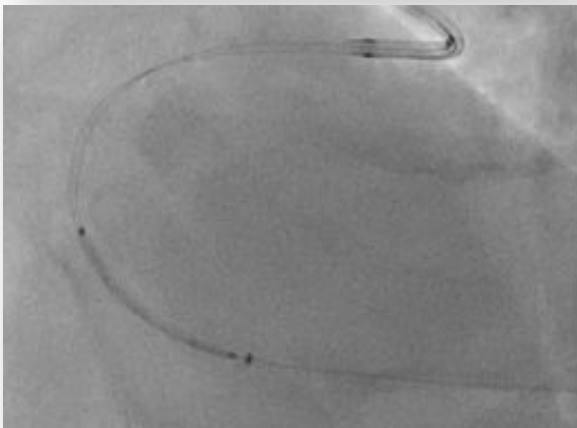
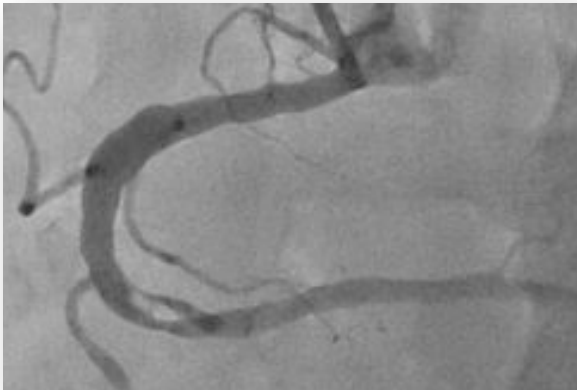




Stratégies de Revascularisation

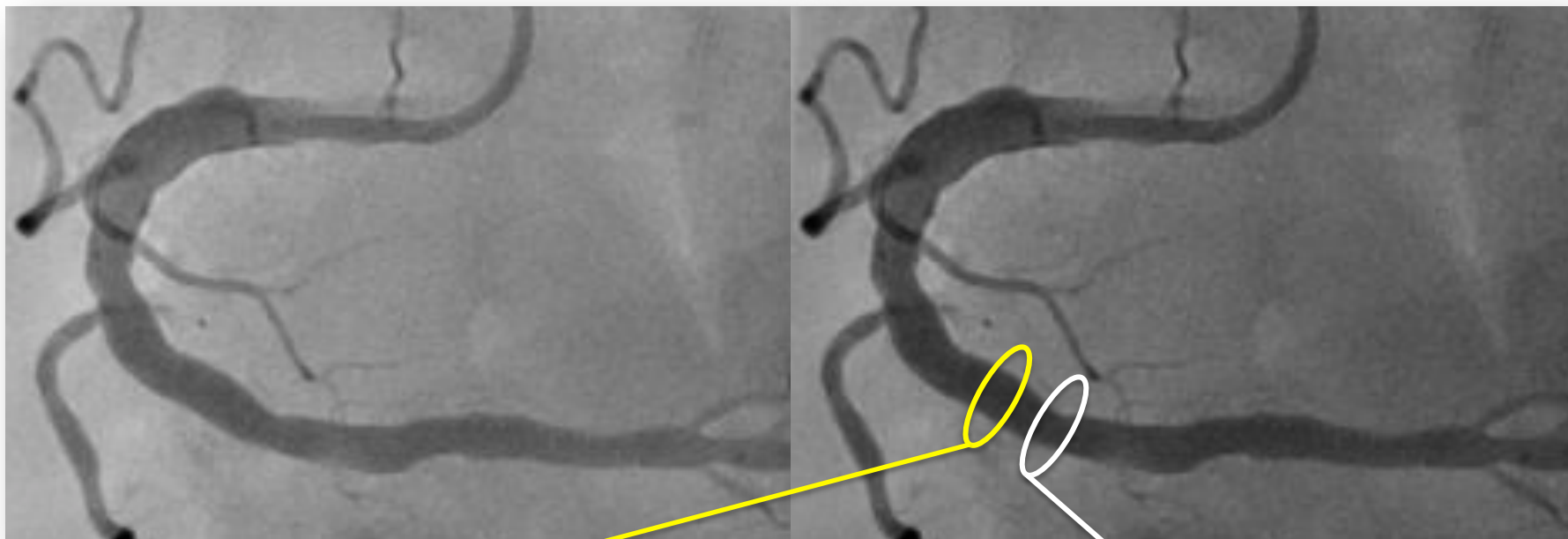
Charge thrombotique ++

Mr C. 69 ans, Contrôle Coro à J5



Stenting différé
Stentys 3.5/4.5 x 27mm

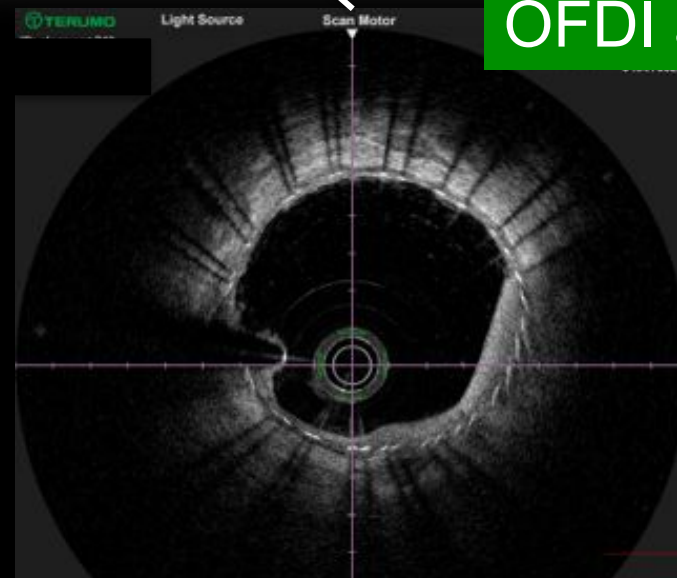




OFDI à J30



$\text{Ø} = 5.2\text{mm}$, Area = 23mm^2

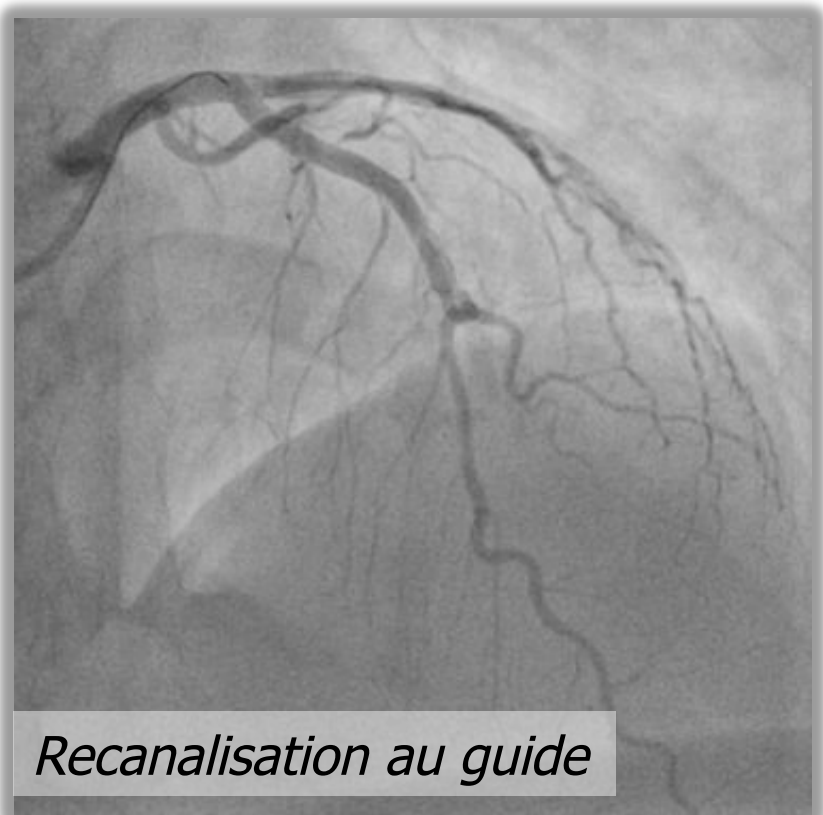


$\text{Ø} = 3.6\text{mm}$, Area = 11mm^2



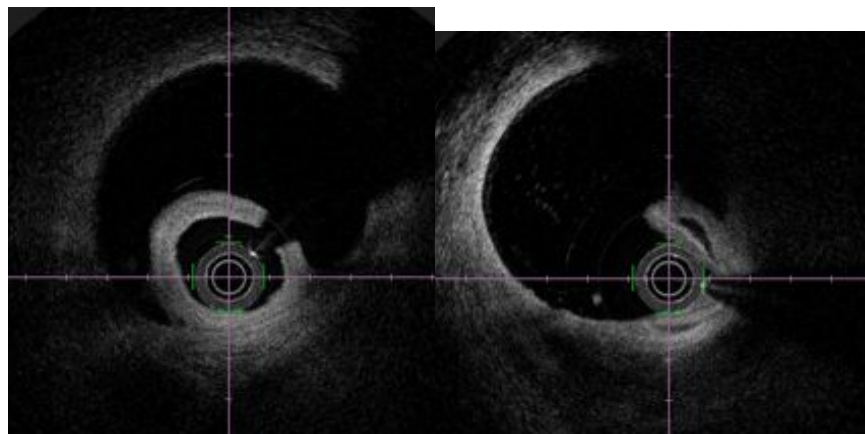
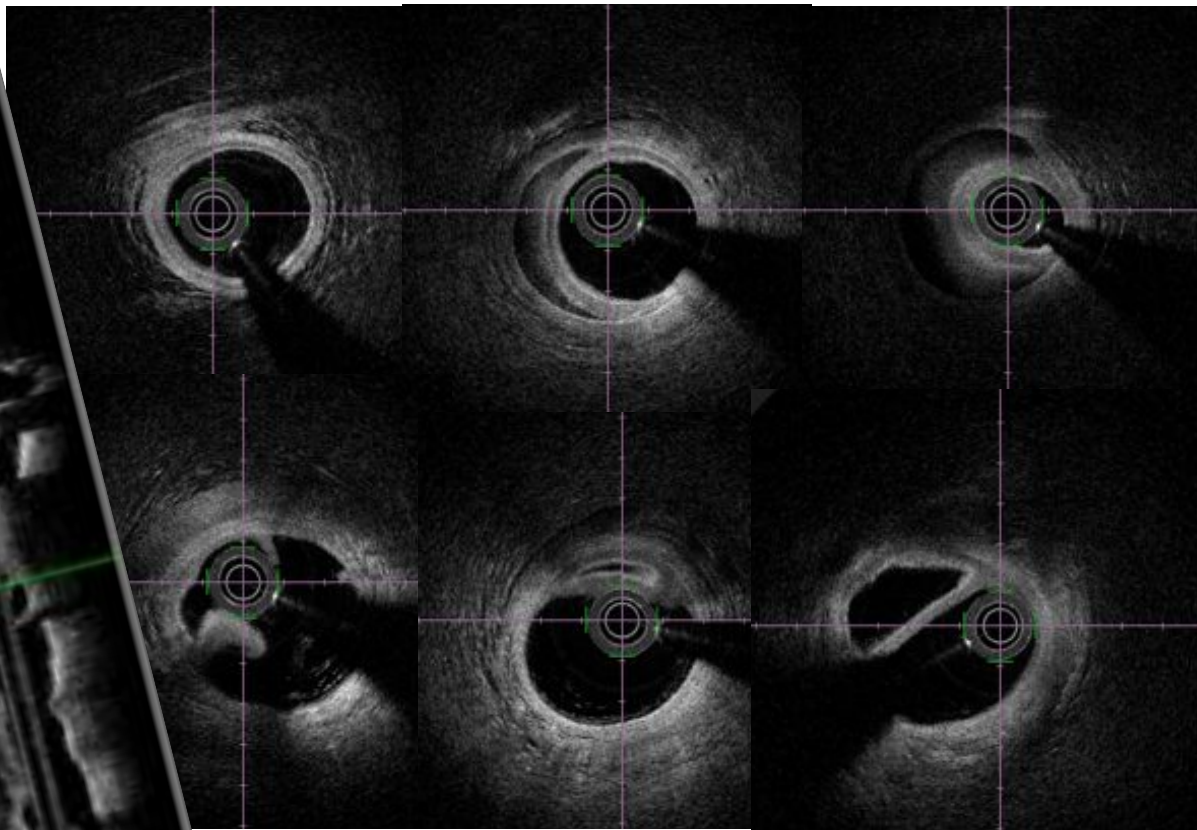
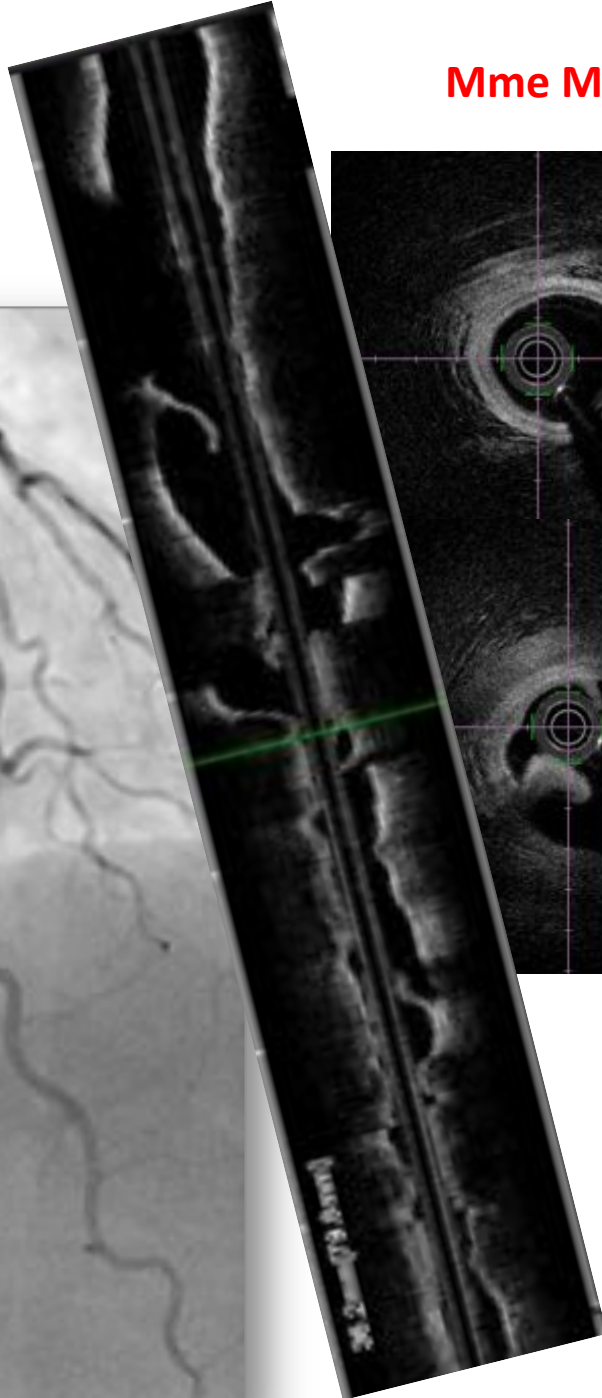
SCAD - Prise en charge

Mme M. 54 ans, SCA ST+





Mme M. 54 ans, SCA ST+, contrôle à J3





Stratégies de Revascularisation

Stratégie de Stenting différé et conditionné

Put Off Till Tomorrow What You Can Do Today

Avantages

Procédures difficiles en 2 temps
Diminution charge thrombotique
Diminuer risque no-reflow

Inconvénients

2 procédures
Risque hémorragique
Durée de séjour

Questions

Délai optimal
Quels patients



Stratégies de Revascularisation

Que fait-on à Clermont-Ferrand

Stenting immédiat

Sauf en cas reperfusion :

- patients avec très grosse charge thrombotique**
- procédures très complexes**

Anti GP IIb/IIIa 12 à 24h
Double antiagrégation plaquettaire
Anticoagulation jusqu'au contrôle



Stratégies de Revascularisation

MERCI





Stratégies de Revascularisation

Charge thrombotique ++

Mr L. 39 ans, Tabac ++, SCA ST+ inférieur



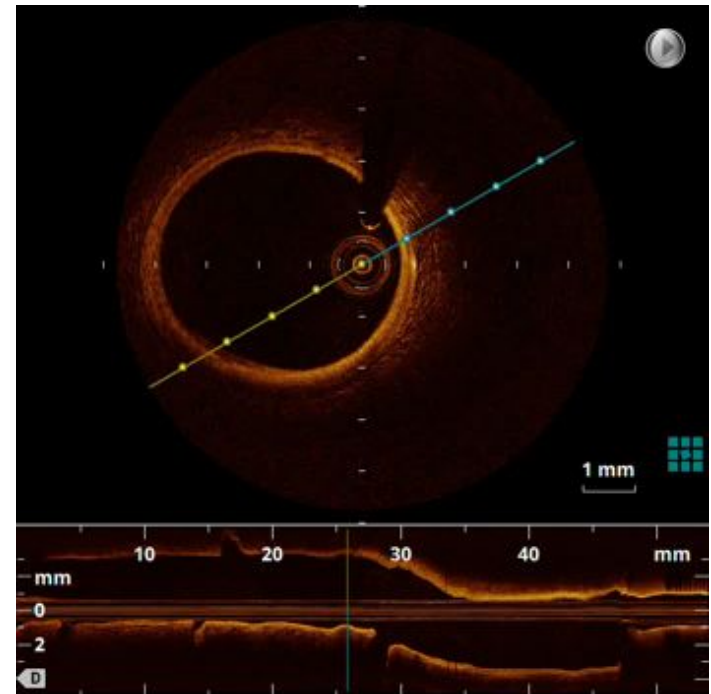
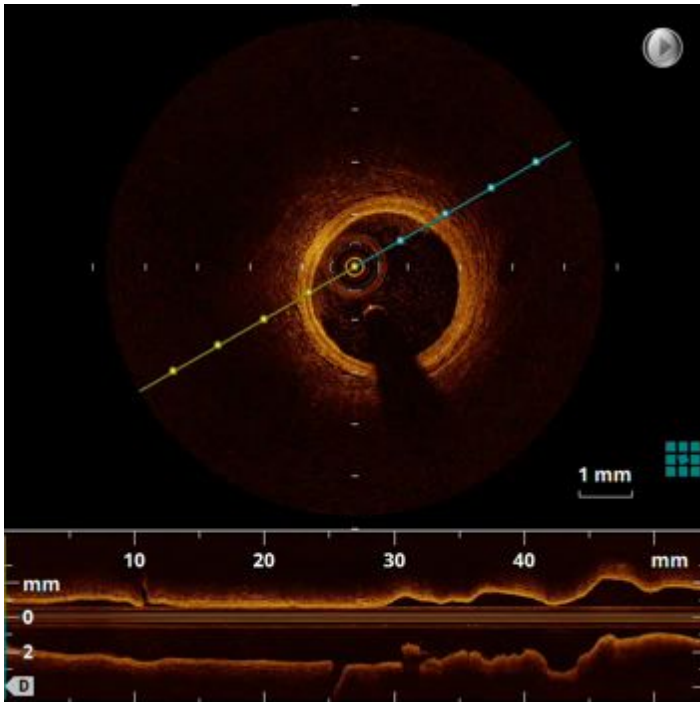
**Flux TIMI 3 sous traitement médical
Contrôle J5**



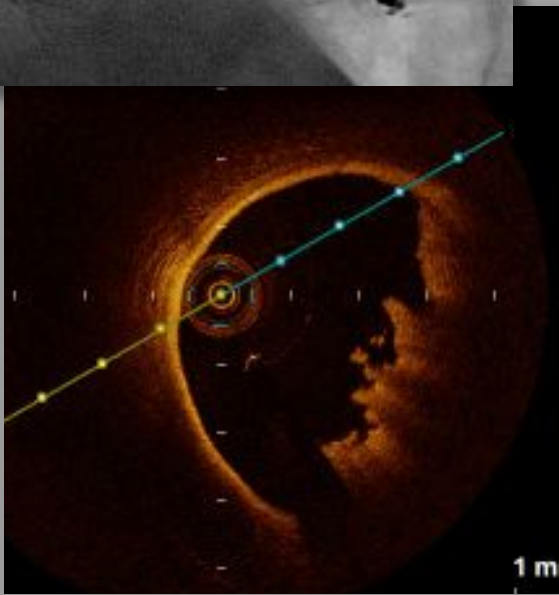
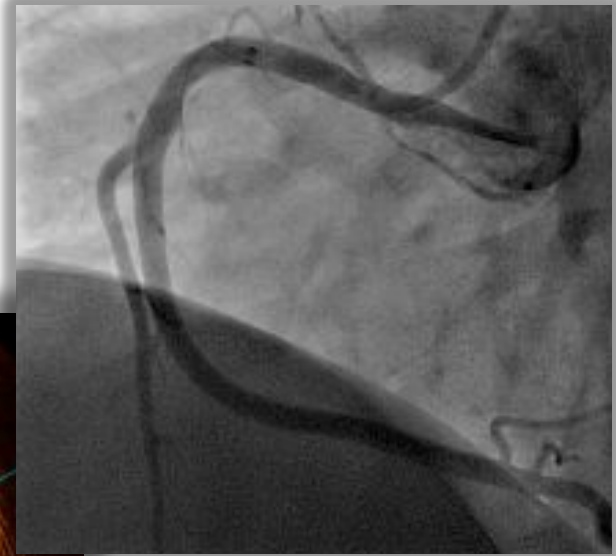
Stratégies de Revascularisation

Charge thrombotique ++

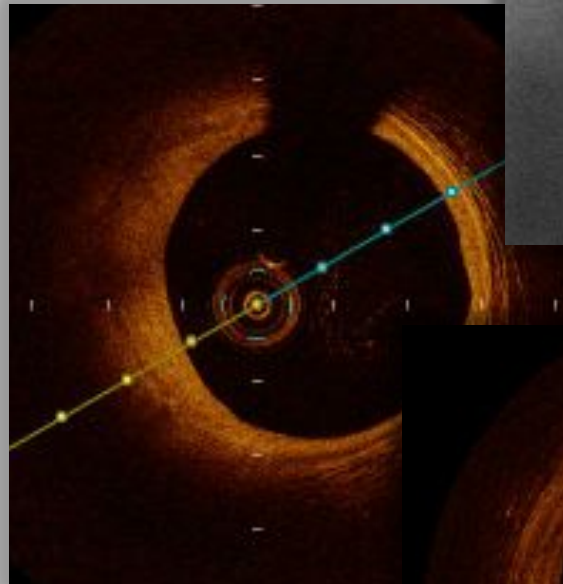
Mr L. 39 ans, Tabac ++, SCA ST+ inférieur



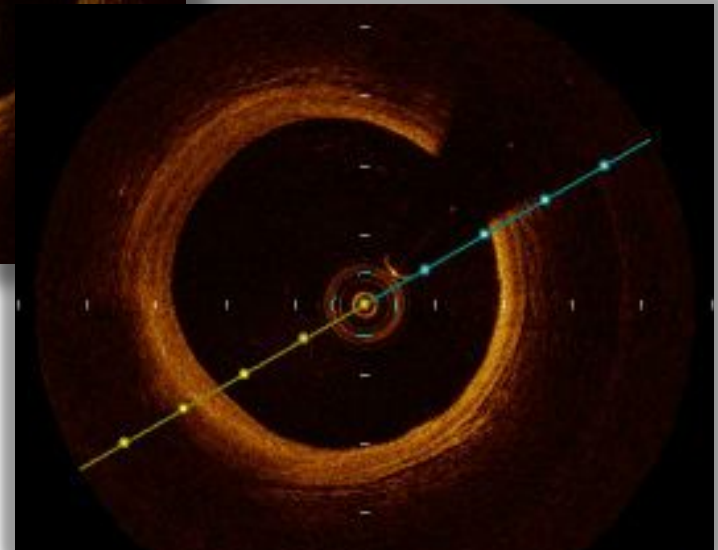
Stratégies de Revascularisation



J5



J 30



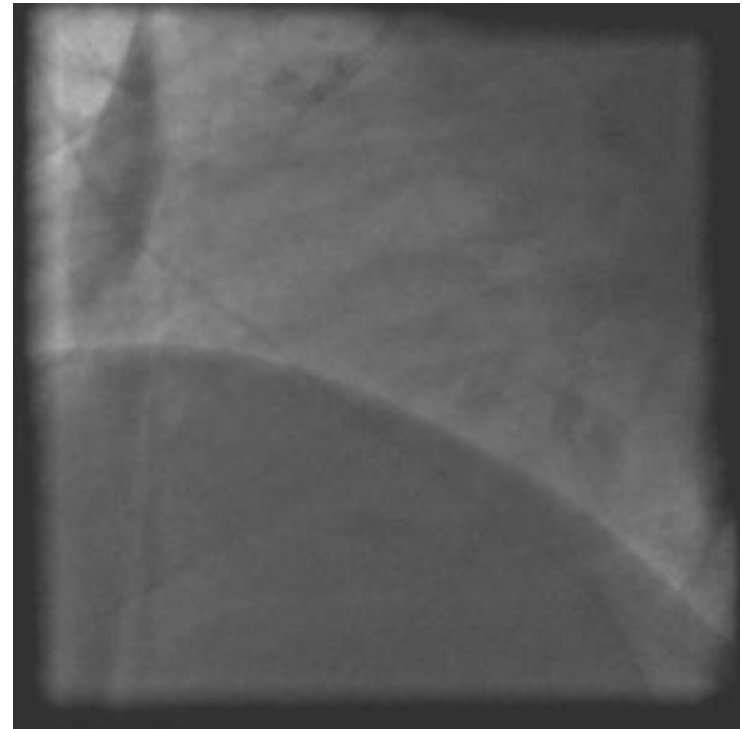
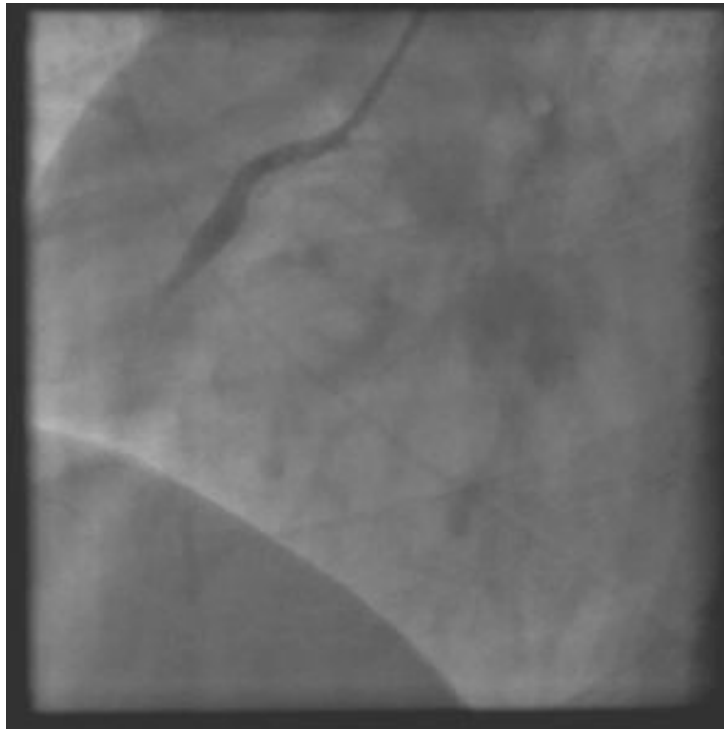


Stratégies de Revascularisation

Mr S. 44 ans

SCA ST+, angioplastie primaire, DES x3

3.5x16mm CD1, 2.75x38mm CD2 et 2.75x24mm CD3. Evolution simple

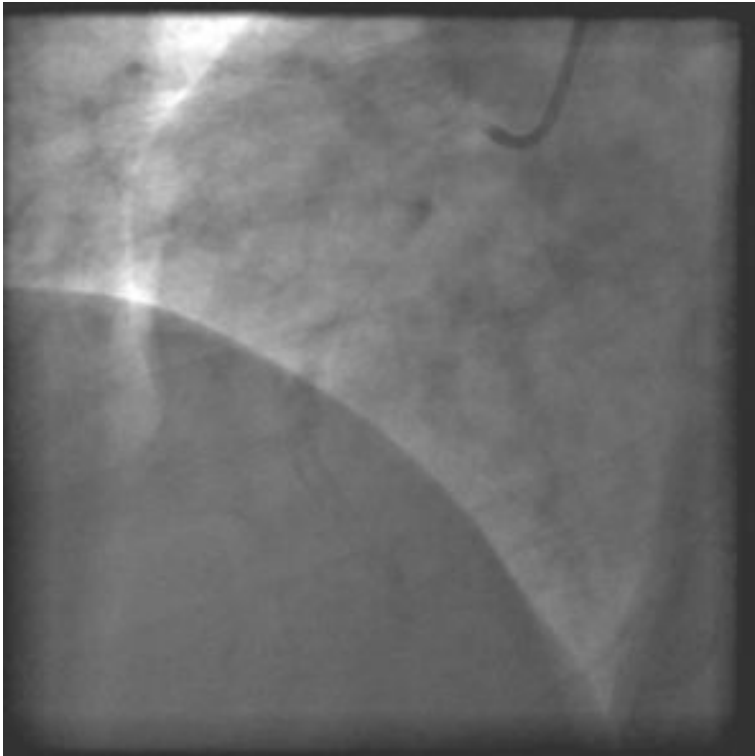




Stratégies de Revascularisation

Mr S. 44 ans

3 ans plus tard... SCA ST+ thrombose extensive CD
Thromboaspiration+ anti GpIIb/IIIa puis OCT à J5

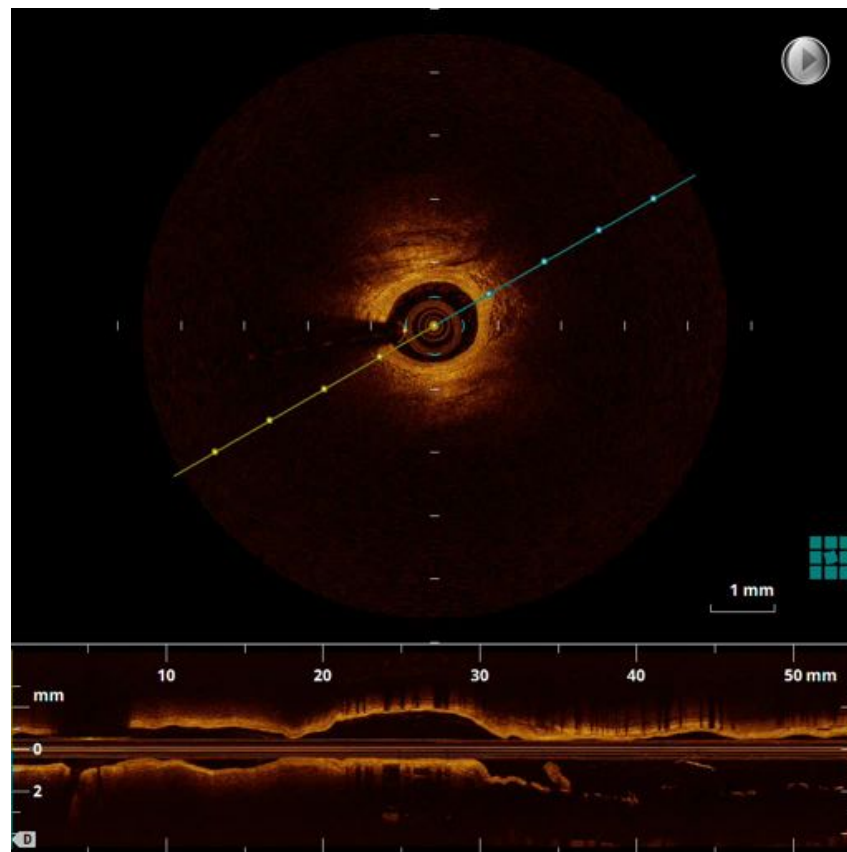
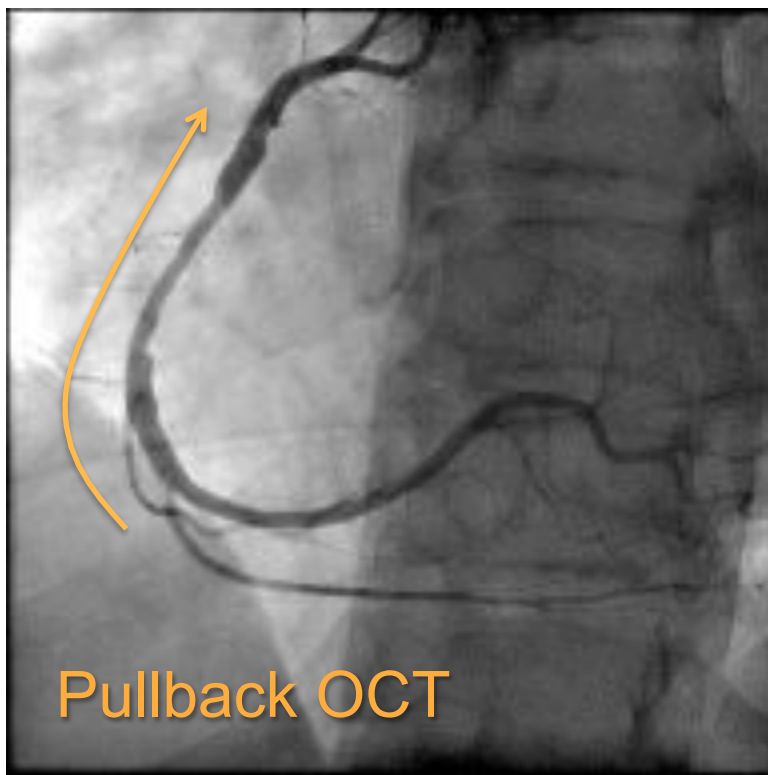




Stratégies de Revascularisation

Mr S. 44 ans

Contrôle à J5

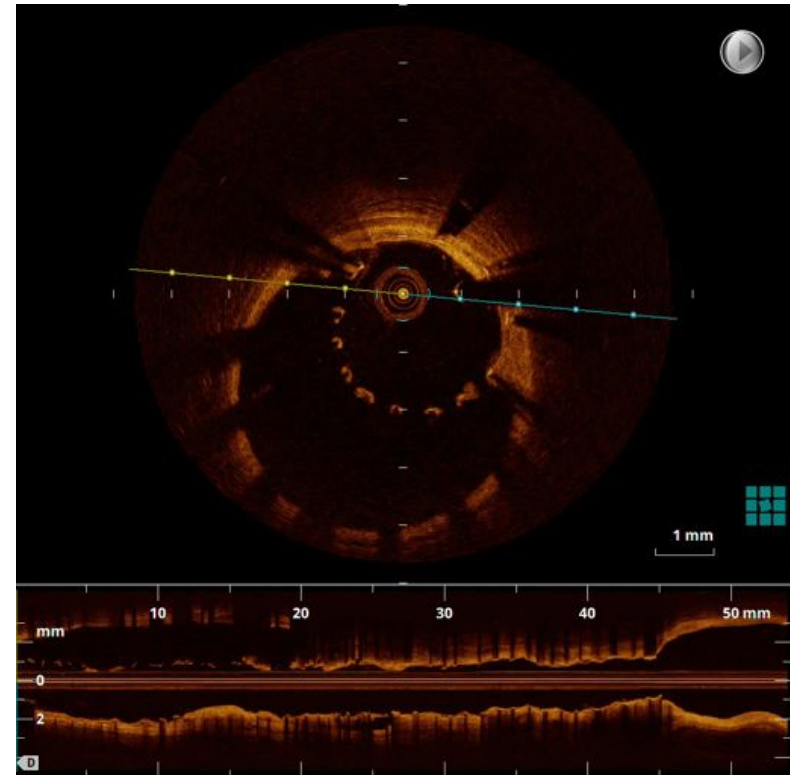
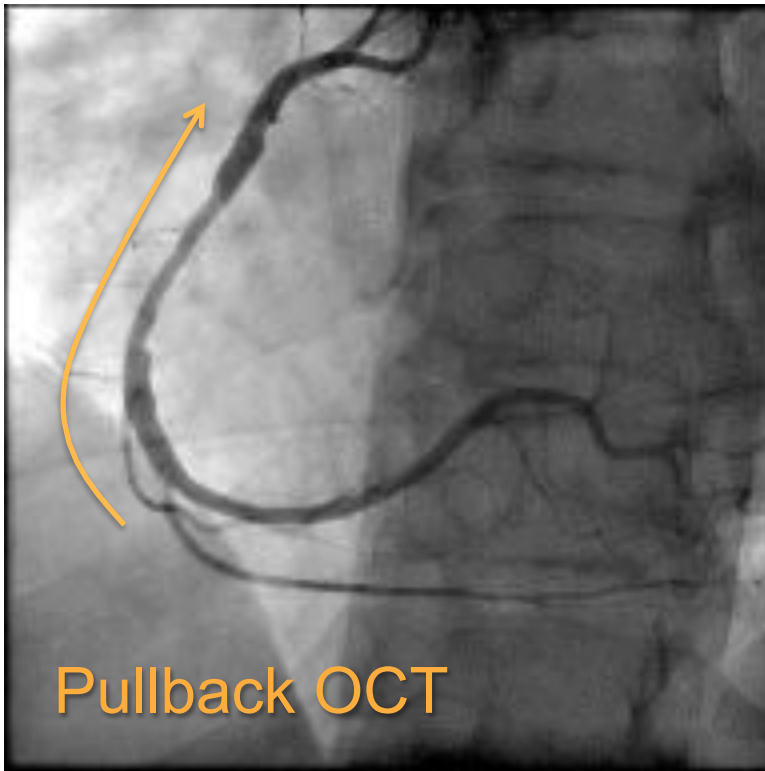




Stratégies de Revascularisation

Mr S. 44 ans

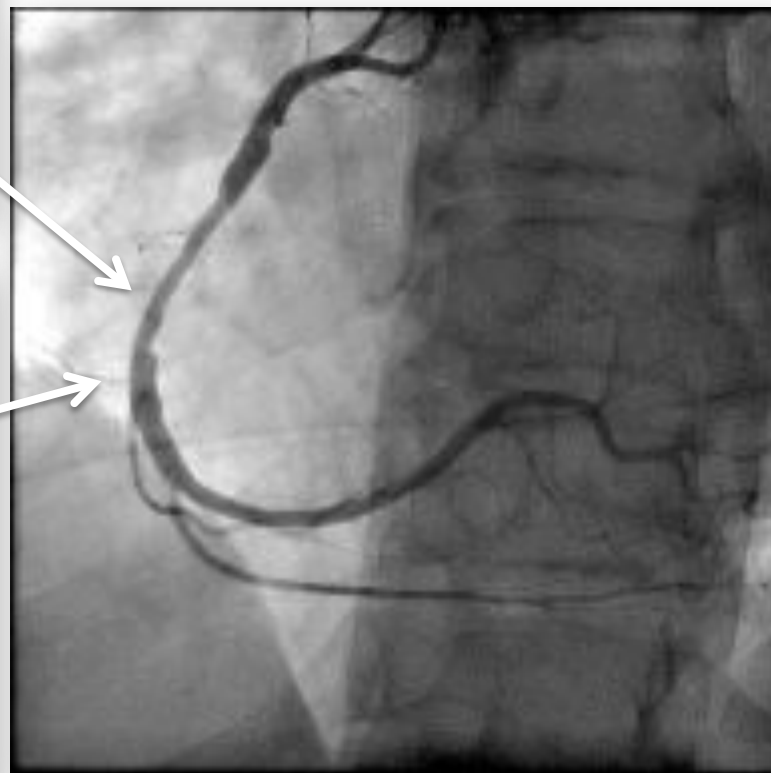
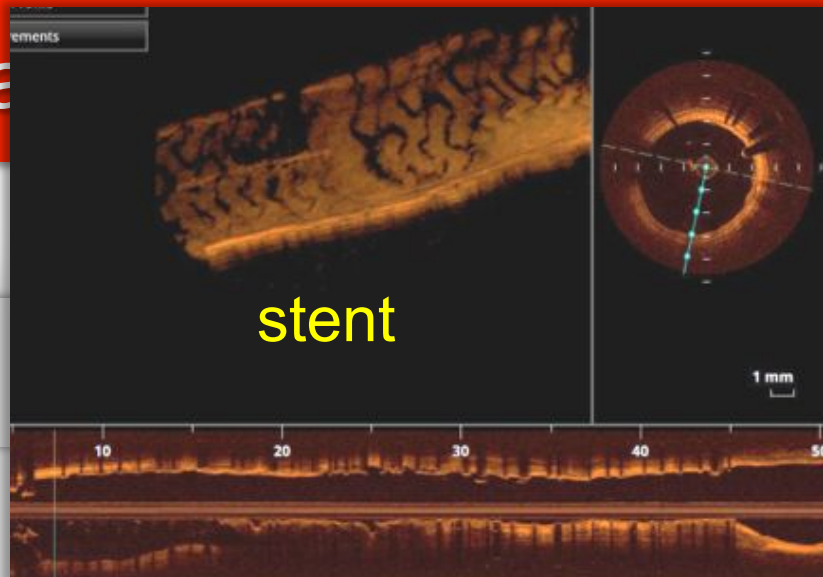
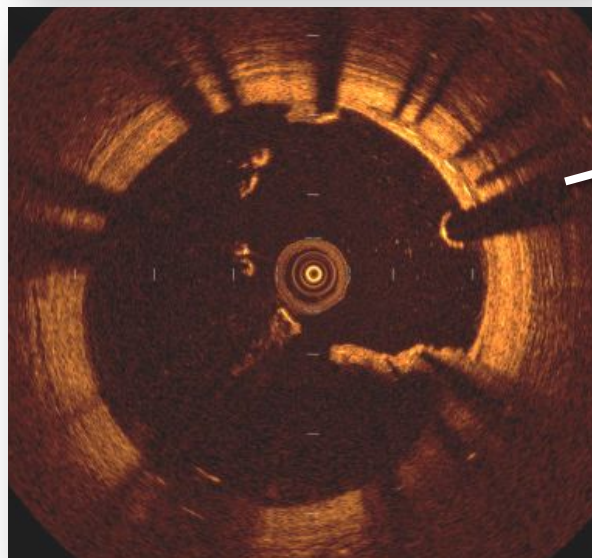
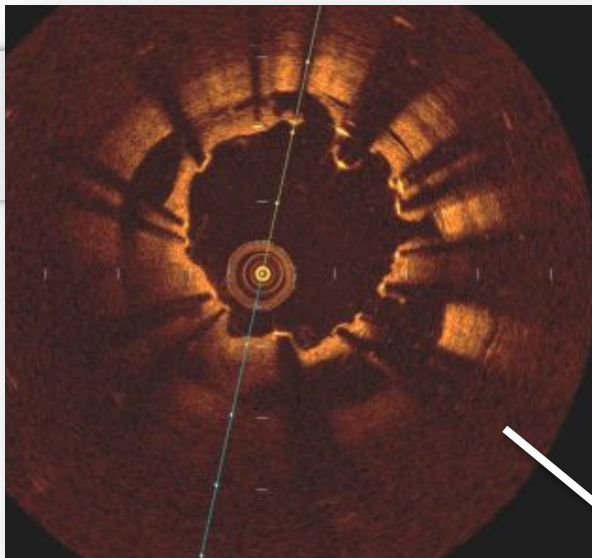
Contrôle à J5





Stratégies de Revascularisation

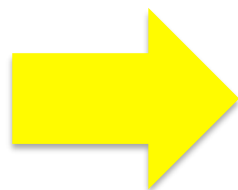
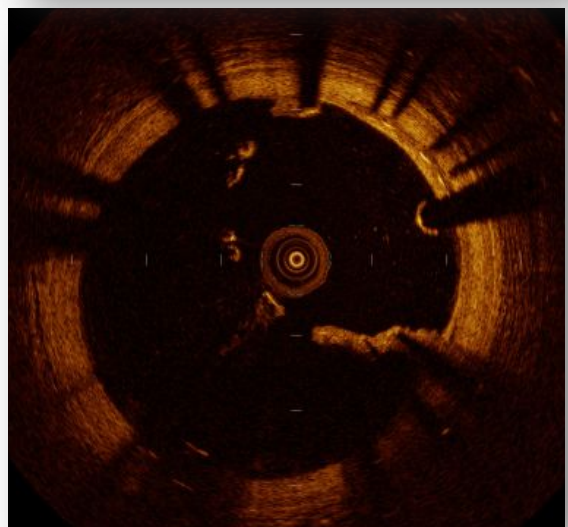
Mr S. 44 ans
Contrôle à J5



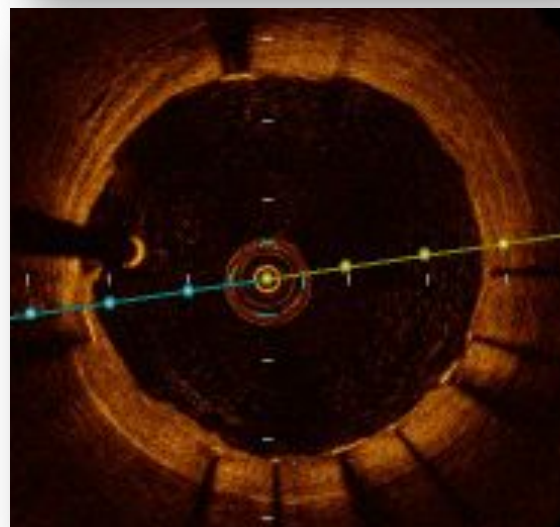


Stratégies de Revascularisation

Mr S. 44 ans

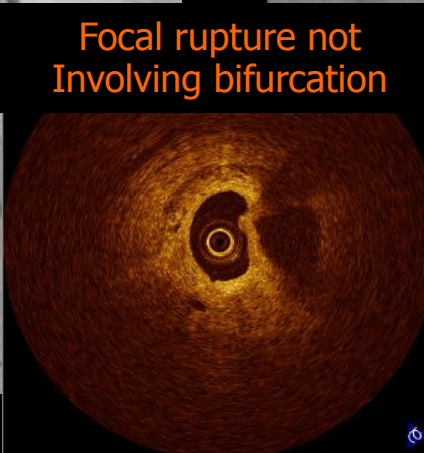
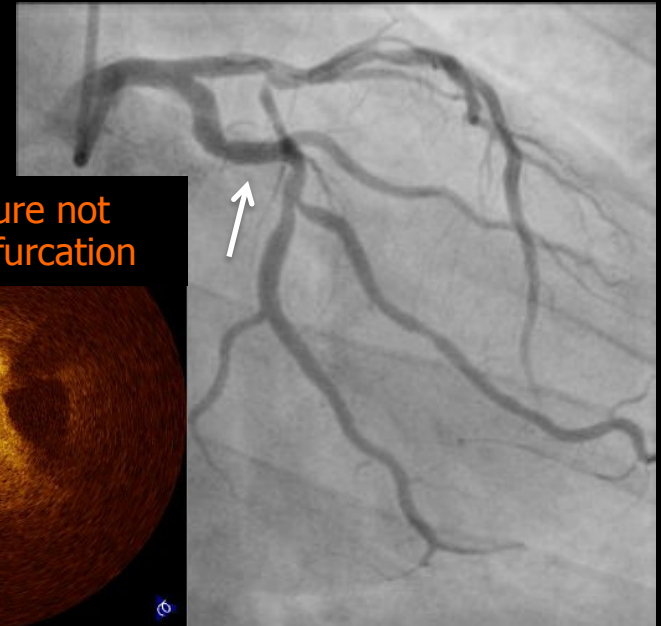
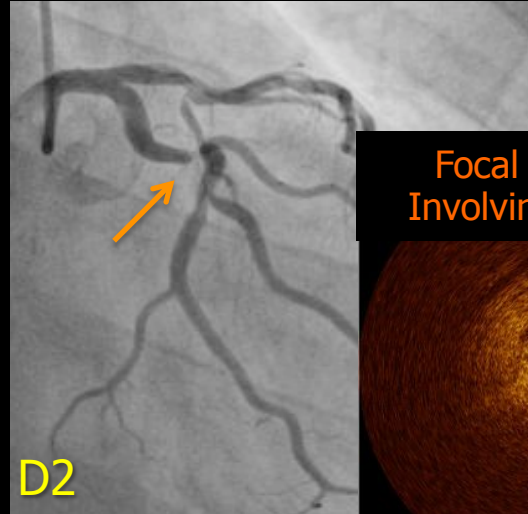
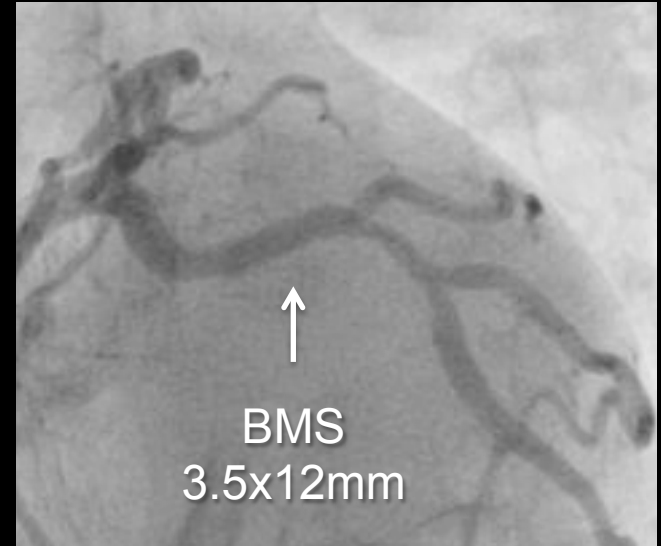


Post-Dilatation
NCB 5.0mm

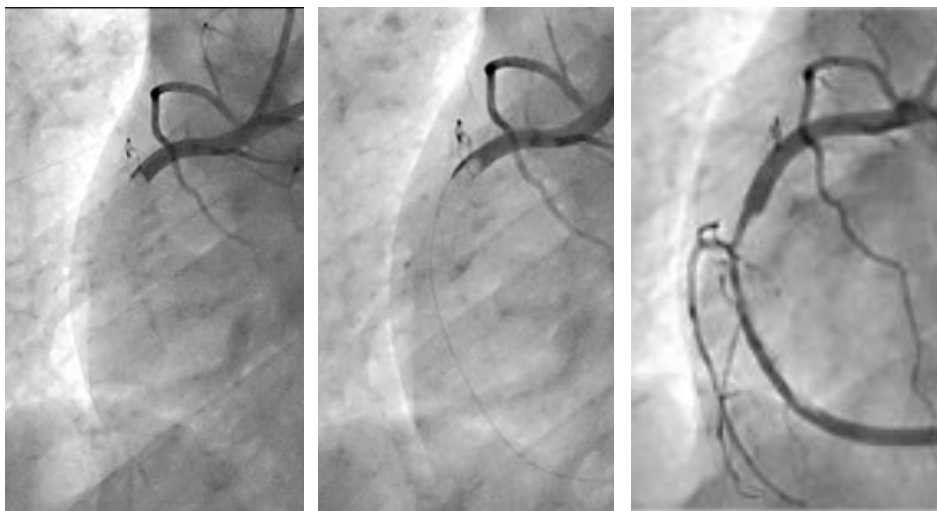


Usefulness of OCT in Interventional Cardiology

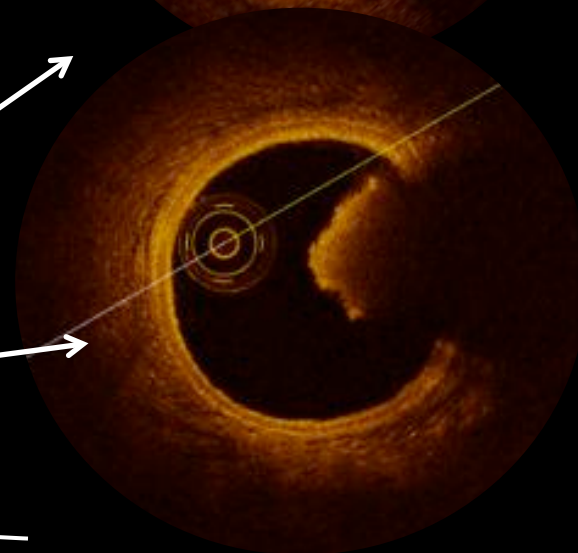
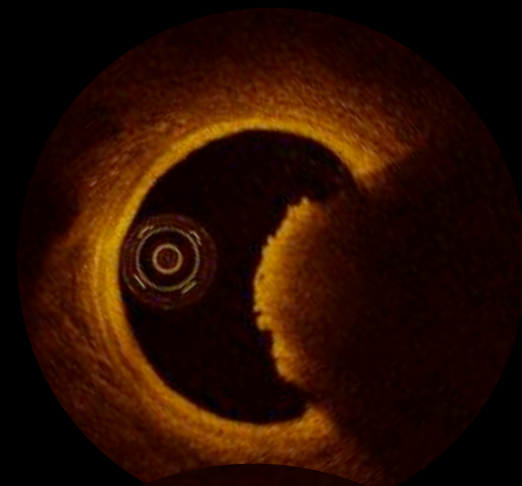
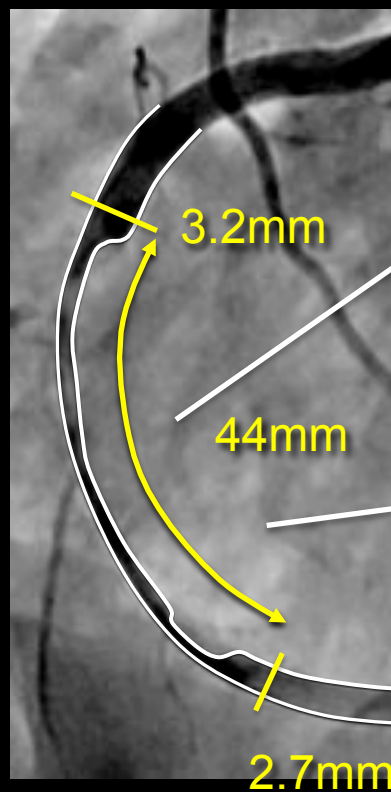
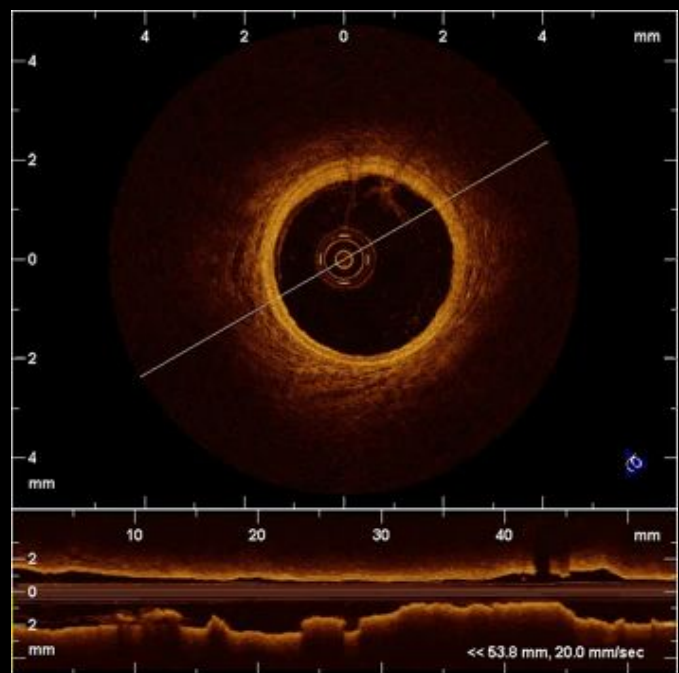
Mr I., 41 years-old, STEMI



Thrombus-aspiration, follow-up @ D2



OCT à J2
thrombo-aspiration en aigu
(export® 6F x 2 passages)

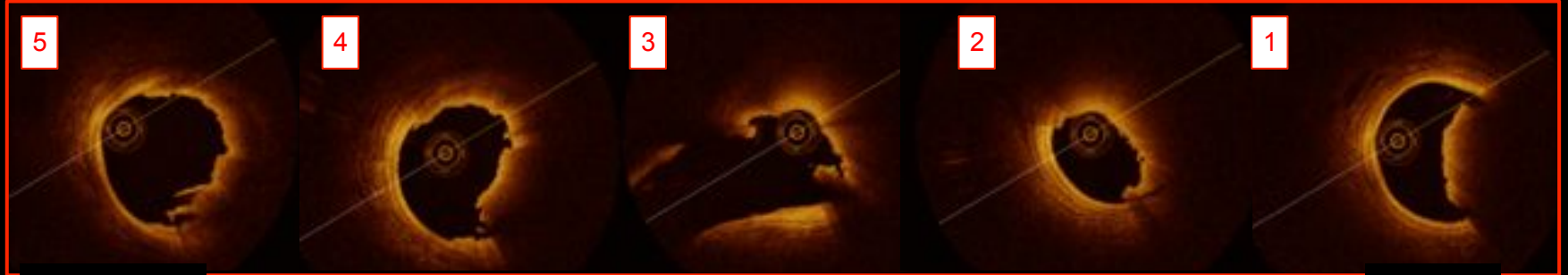
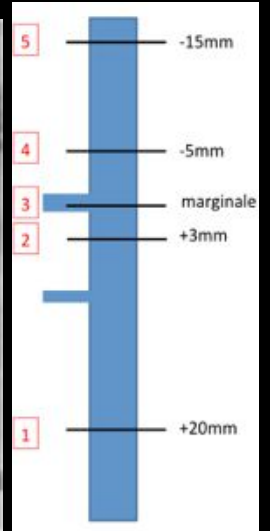
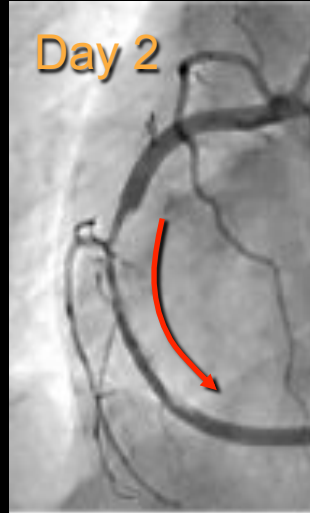




OCT en Cardiologie Interventionnelle



Optimal thrombectomy



proximal

distal

