5 6 7 JUIN 2019

APPAC
Ensemble, imaginons la cardiologie de demain

# *La dissection coronaire spontanée*

*Nicolas Combaret – Pascal Motreff*
*Biarritz – 6 Juin 2019*

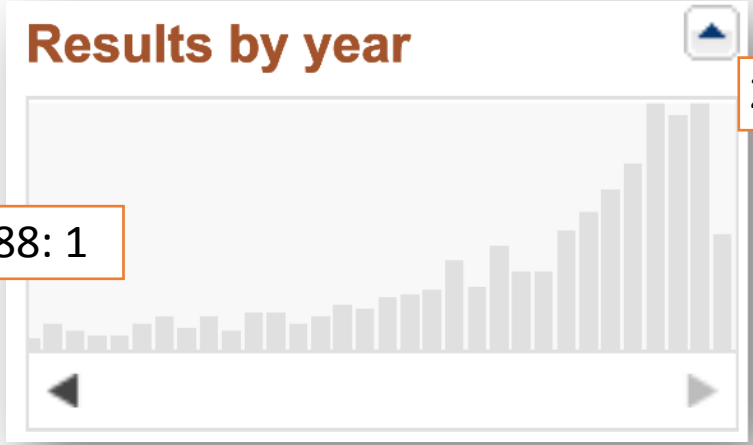
GACI
Société Française de Cardiologie

Pas de conflit d’intêret à déclarer

# Dissection coronaire spontanée



## *PATHOLOGIE MAL CONNUE ?*




*Pubmed 2019*

**Contemporary Review on Spontaneous Coronary Artery Dissection**

*Saw J., J Am Coll Cardiol 2016*

**Spontaneous Coronary Artery Dissection**
Clinical Outcomes and Risk of Recurrence

*Saw J., J Am Coll Cardiol 2017*

**European Society of Cardiology, acute cardiovascular care association, SCAD study group: a position paper on spontaneous coronary artery dissection**
ESC-ACCA Position Paper on spontaneous coronary artery dissection

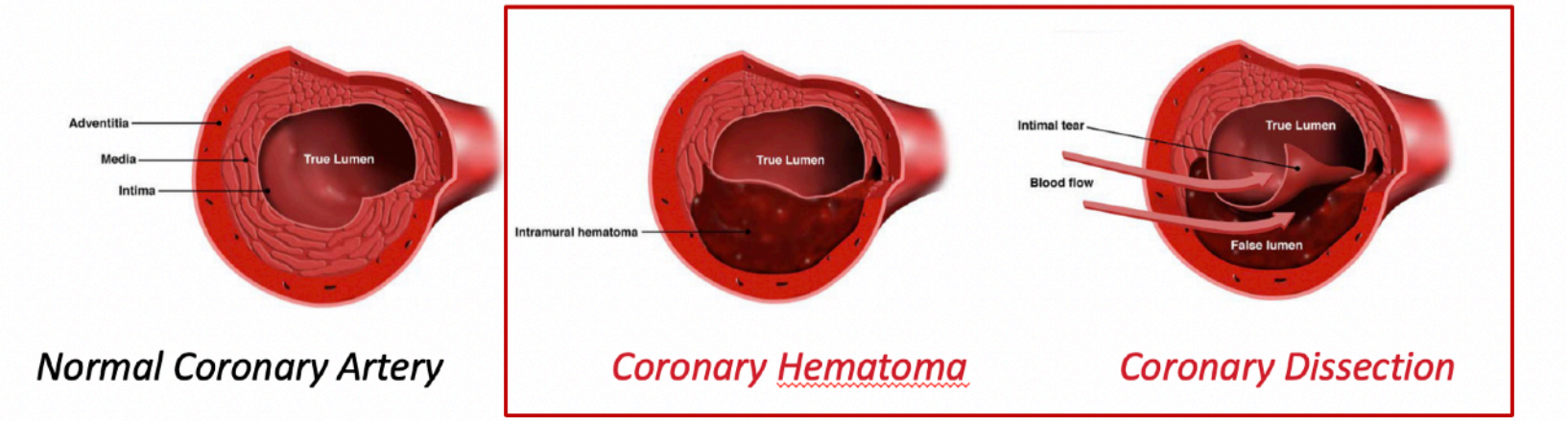
*Adlam D, Eur Heart J 2018*

**Spontaneous Coronary Artery Dissection: Current State of the Science**
A Scientific Statement From the American Heart Association

*Hayes SN, Circulation 2018*

# SCAD = 25-30 % des SCA non athéromateux






- **SCA illégitime**: jeune patiente sans aucun FRCV
- Diagnostic difficile et sous estimé
- Pronostic sévère et traitement parfois challenging
- **Physiopathologie reste mal connue**

# Registre clermontois : quelle prévalence ?



Prevalence of SCAD

**Woman <60 years-old «illegitimate ACS»**

Angiography for STEMI or NSTEMI 1%

↓

Female 3,5%

↓

Under age 60 11%

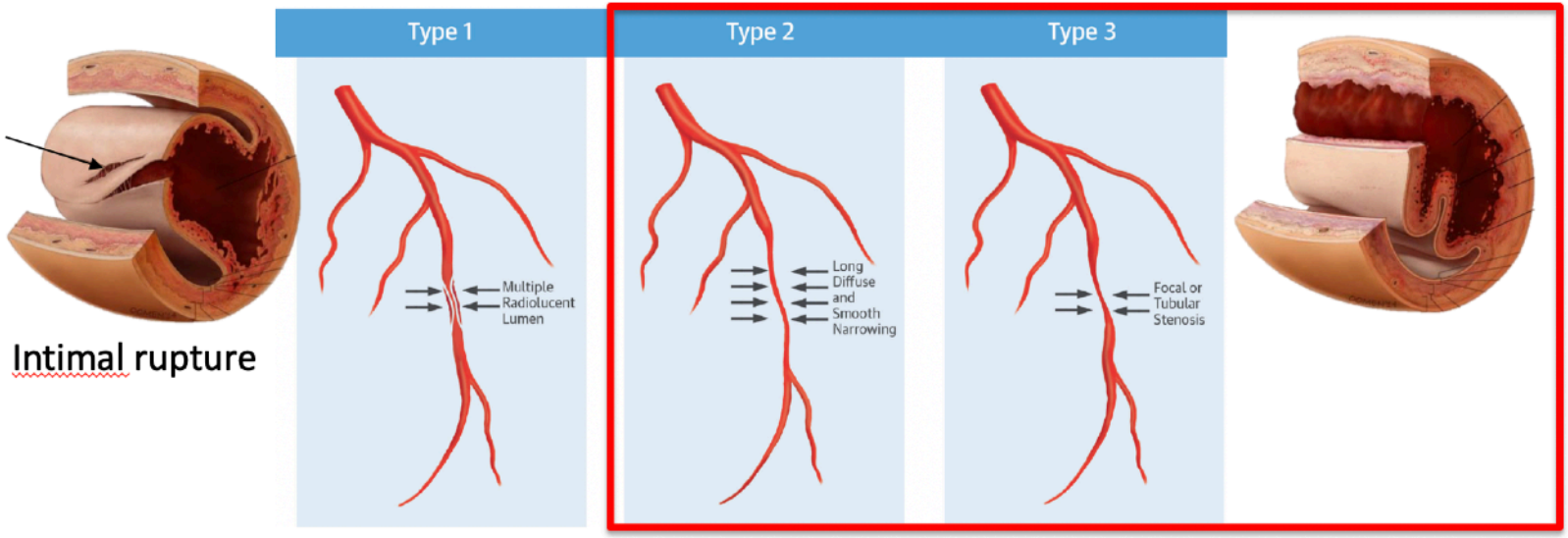
↓

Under age 60 & CVRF ≤ 2 ≈ 30%

# *Diagnostic difficile et sous estimé*



- **Profil clinique atypique**: femme, âge jeune, pas de FRCV
- **Signes angiographiques atypiques**




*Saw J , J Am Coll Cardiol 2017*
*Vijayaraghavan R , Circulation 2014*

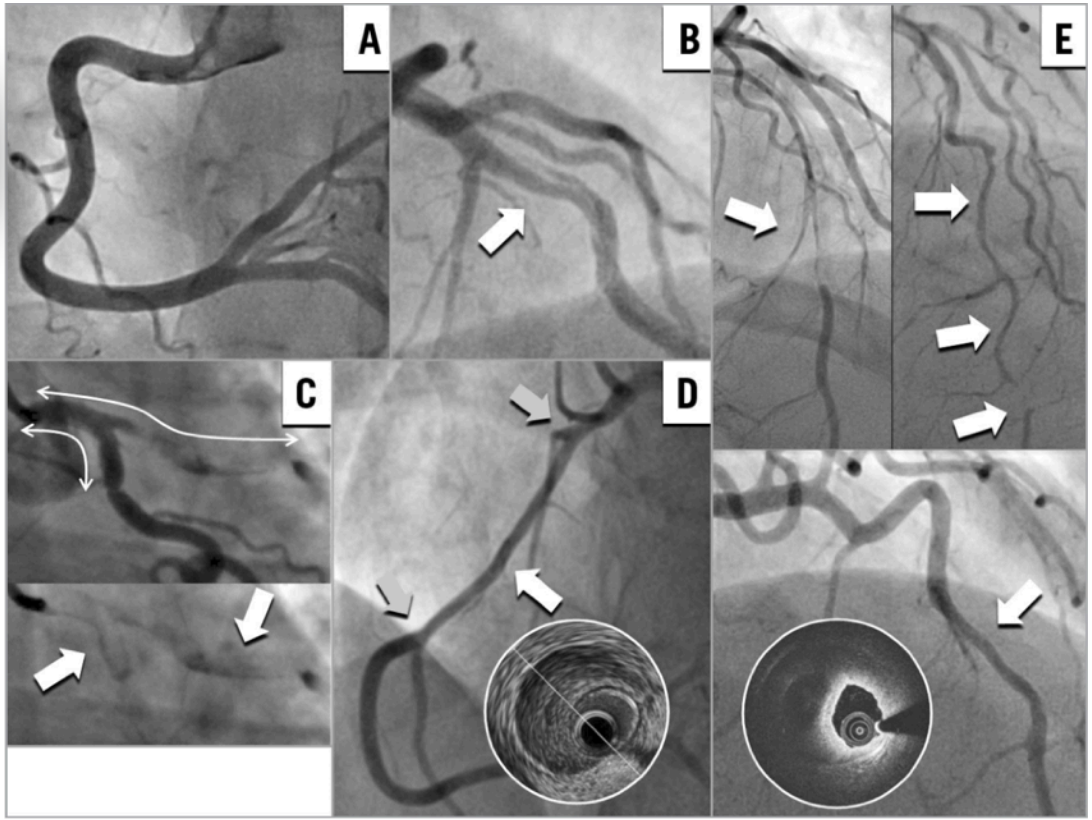
# Signes angiographiques



How and when to suspect spontaneous coronary artery dissection: novel insights from a single-centre series on prevalence and angiographic appearance

## 5 signes angiographiques

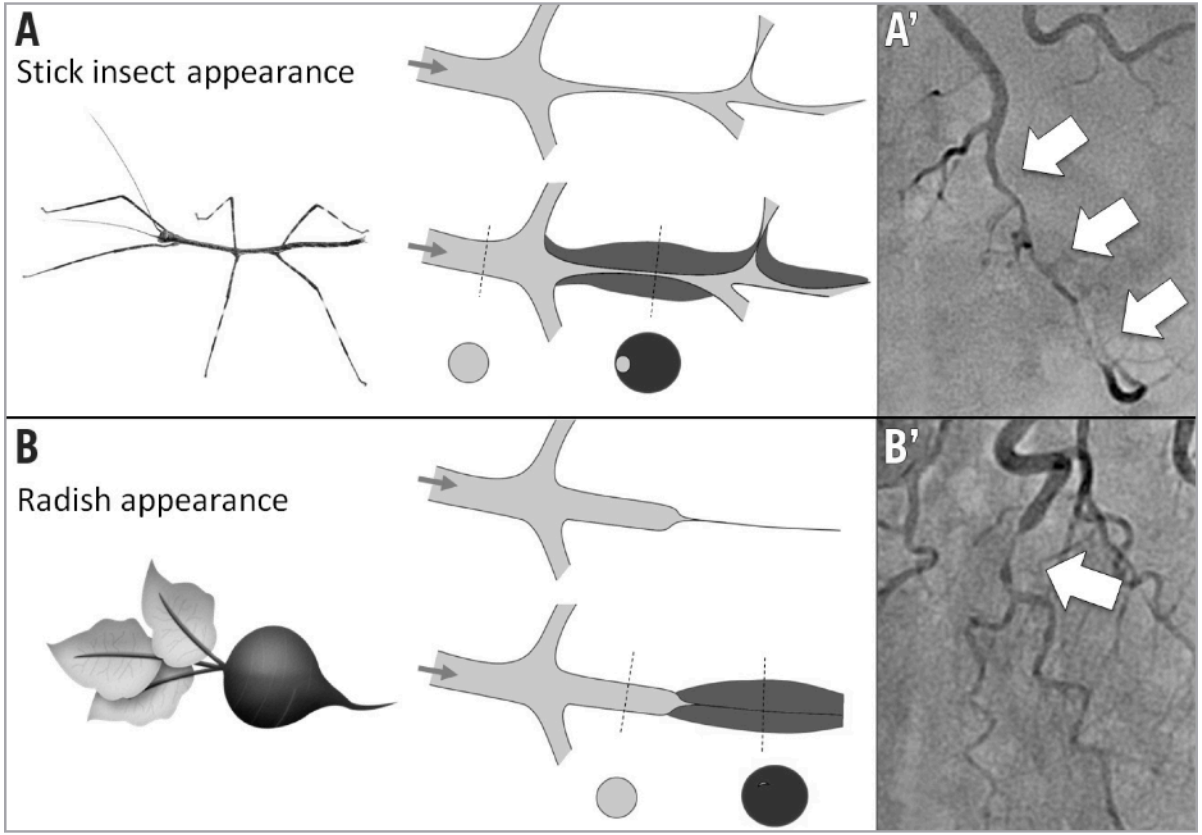
A. Absence d'athérome
B. Flap intimal
C. Tatouage du contraste
D. Début et/ou fin sur collatérales
E. Réduction longue et lisse du calibre




*Motreff P, Eurointervention 2017*

# Signes angiographiques





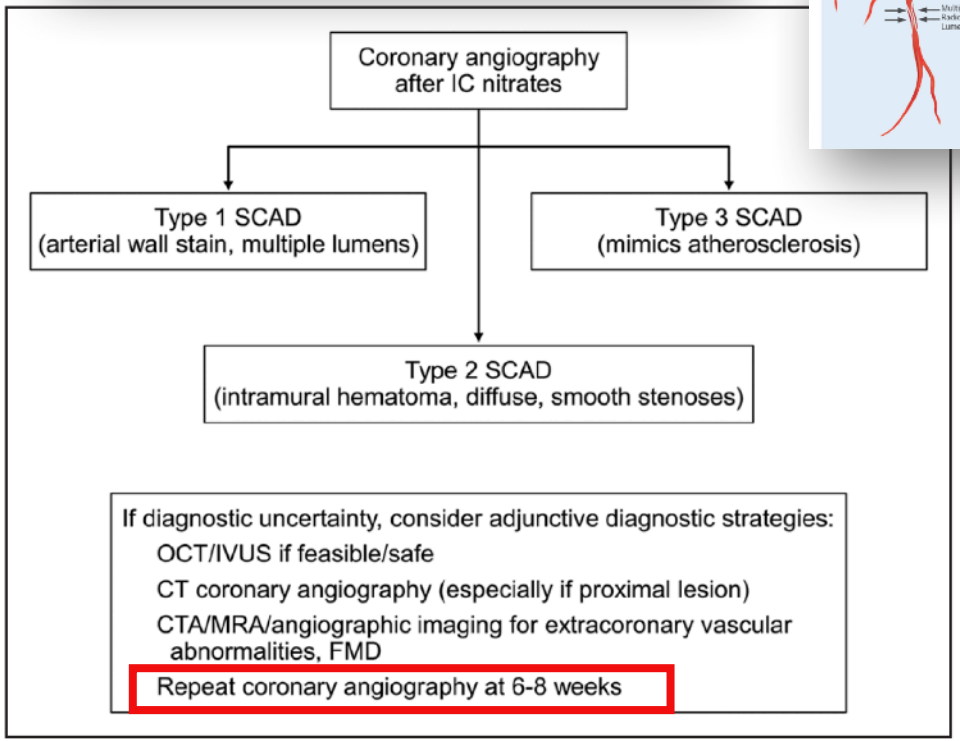

*Motreff P, Eurointervention 2017*

# Signes angiographiques



**Spontaneous Coronary Artery Dissection: Current State of the Science**

A Scientific Statement From the American Heart Association



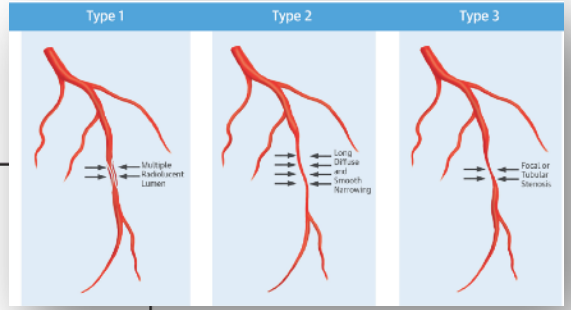




**Figure 7. Algorithm for diagnosis of spontaneous coronary artery dissection (SCAD) in the setting of acute coronary syndrome.**
CT indicates computed tomography; CTA, computed tomography angiography; FMD, fibromuscular dysplasia; IC, intracoronary; IVUS, intravascular ultrasonography; MRA, magnetic resonance angiography; and OCT, optical coherence tomography.

*Hayes SN, Circulation 2018*

# Signes angiographiques



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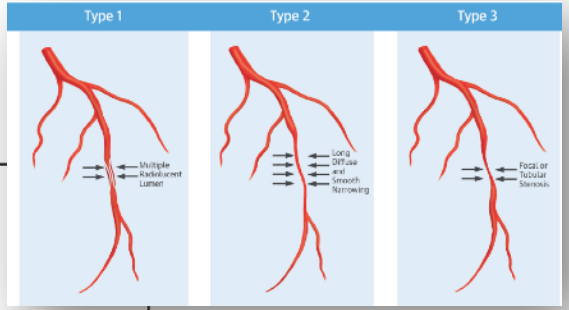
A Scientific Statement From the American Heart Association



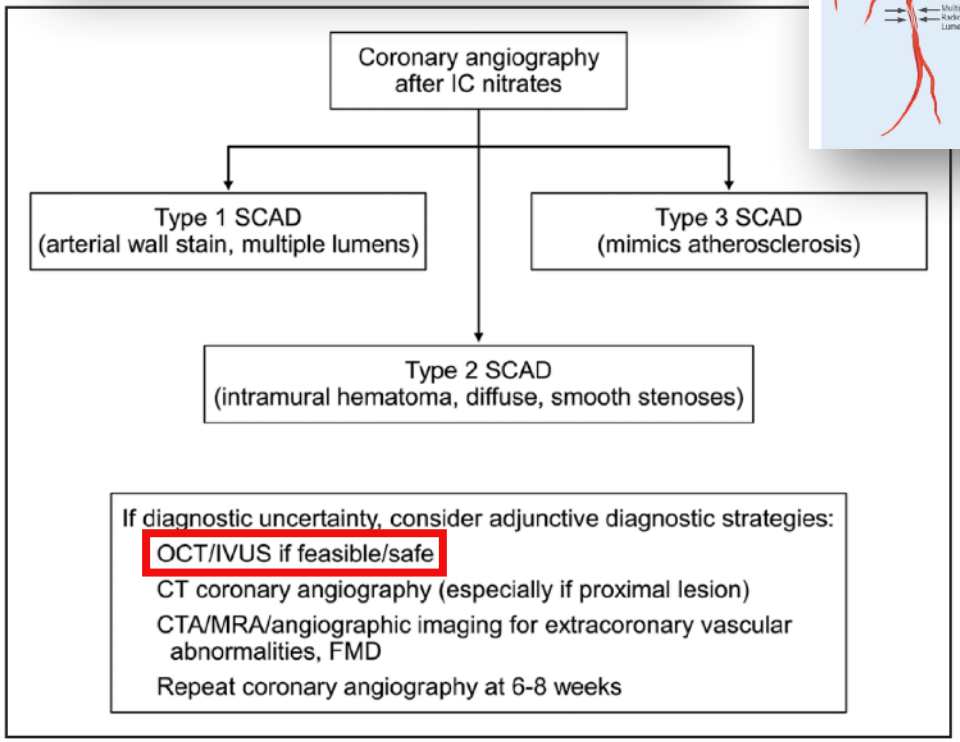




**Figure 7. Algorithm for diagnosis of spontaneous coronary artery dissection (SCAD) in the setting of acute coronary syndrome.**
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*Hayes SN, Circulation 2018*

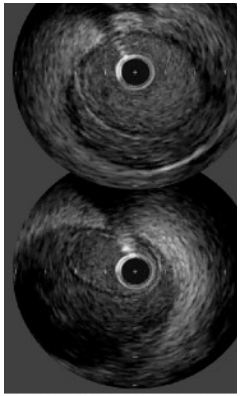
# *L'aide de l'imagerie endocoronaire pour le diagnostic*

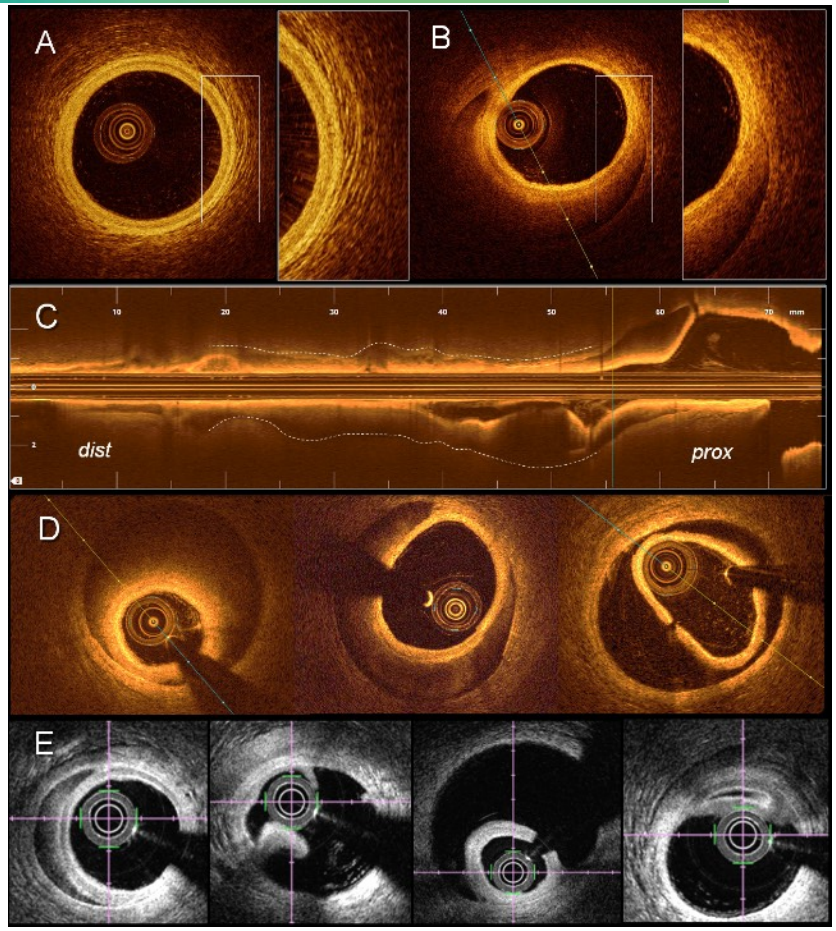


## Imagerie OCT

Abbott TERUMO

## Imagerie IVUS

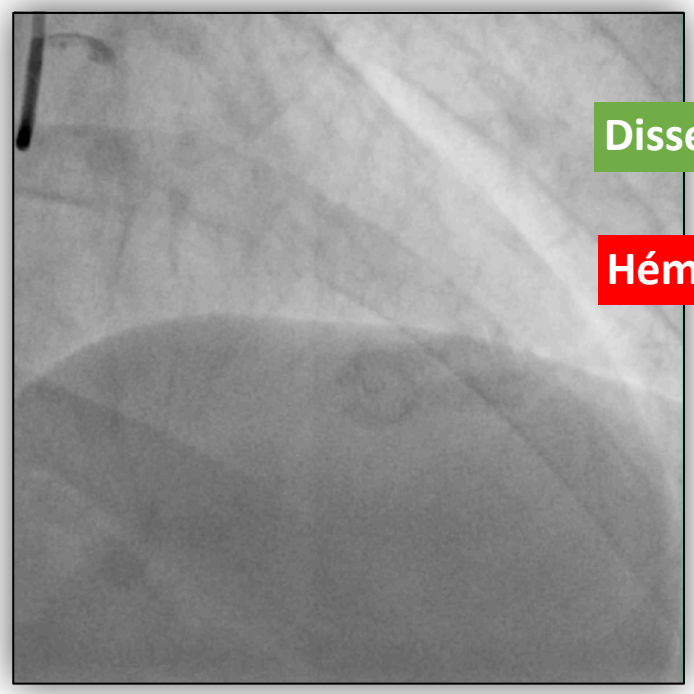


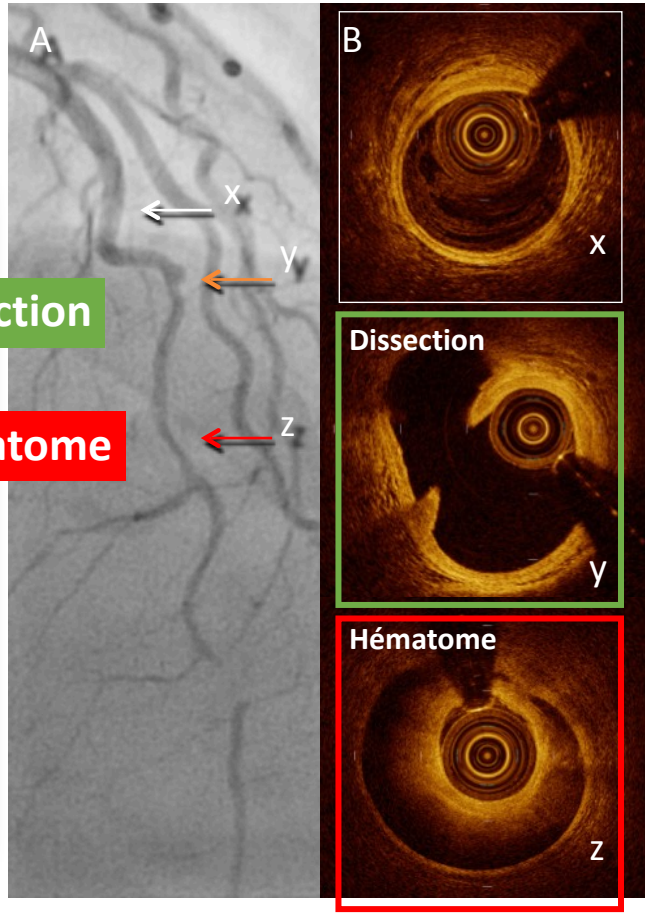


# *L'aide de l'imagerie endocoronaire pour le diagnostic*



**Mme D. 43 ans**, SCA ST+
aucun FRCV



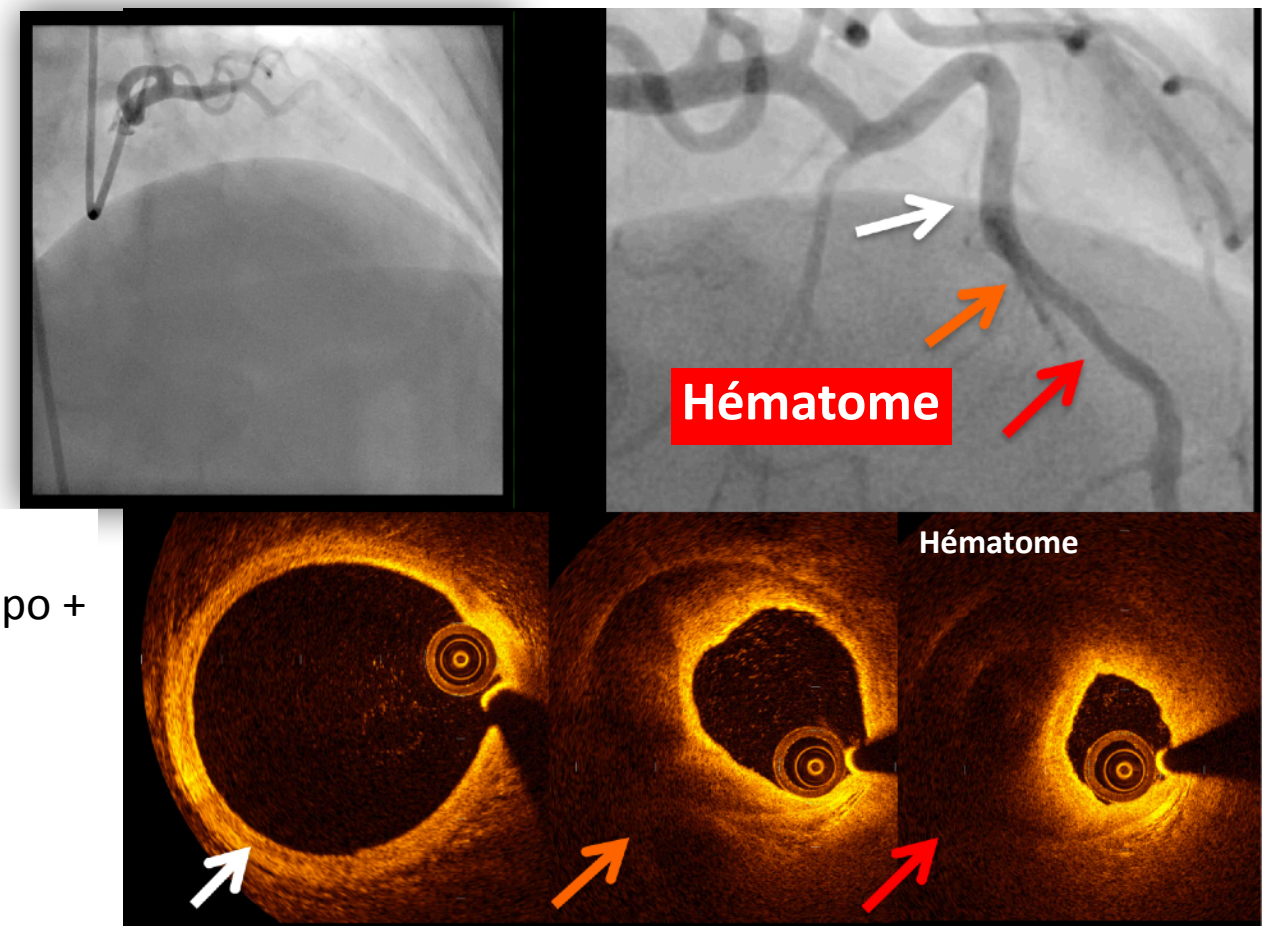



**Dissection**

**Hématome**

# *L'aide de l'imagerie endocoronaire pour le diagnostic*



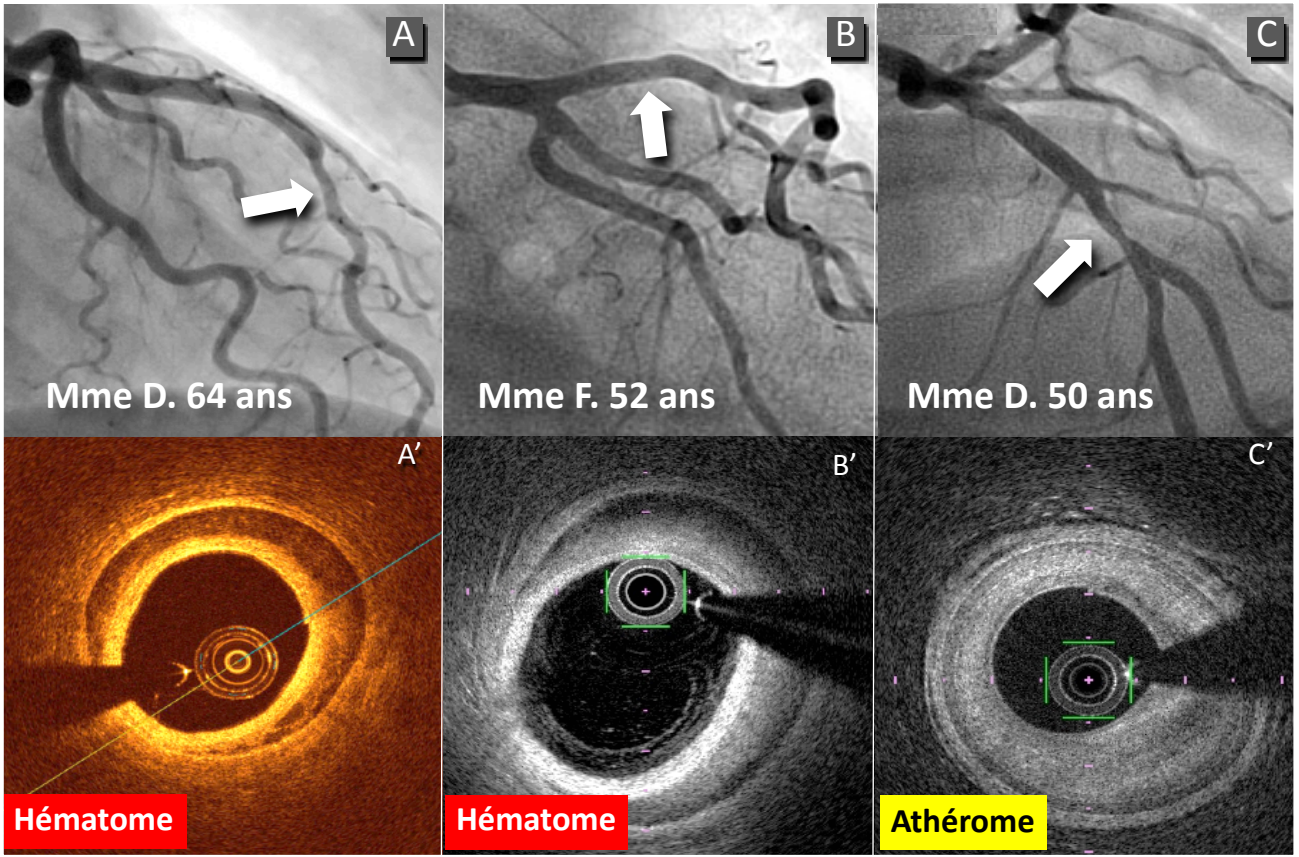



**Mme D. 64 ans**

SCA non ST+ Tropo +

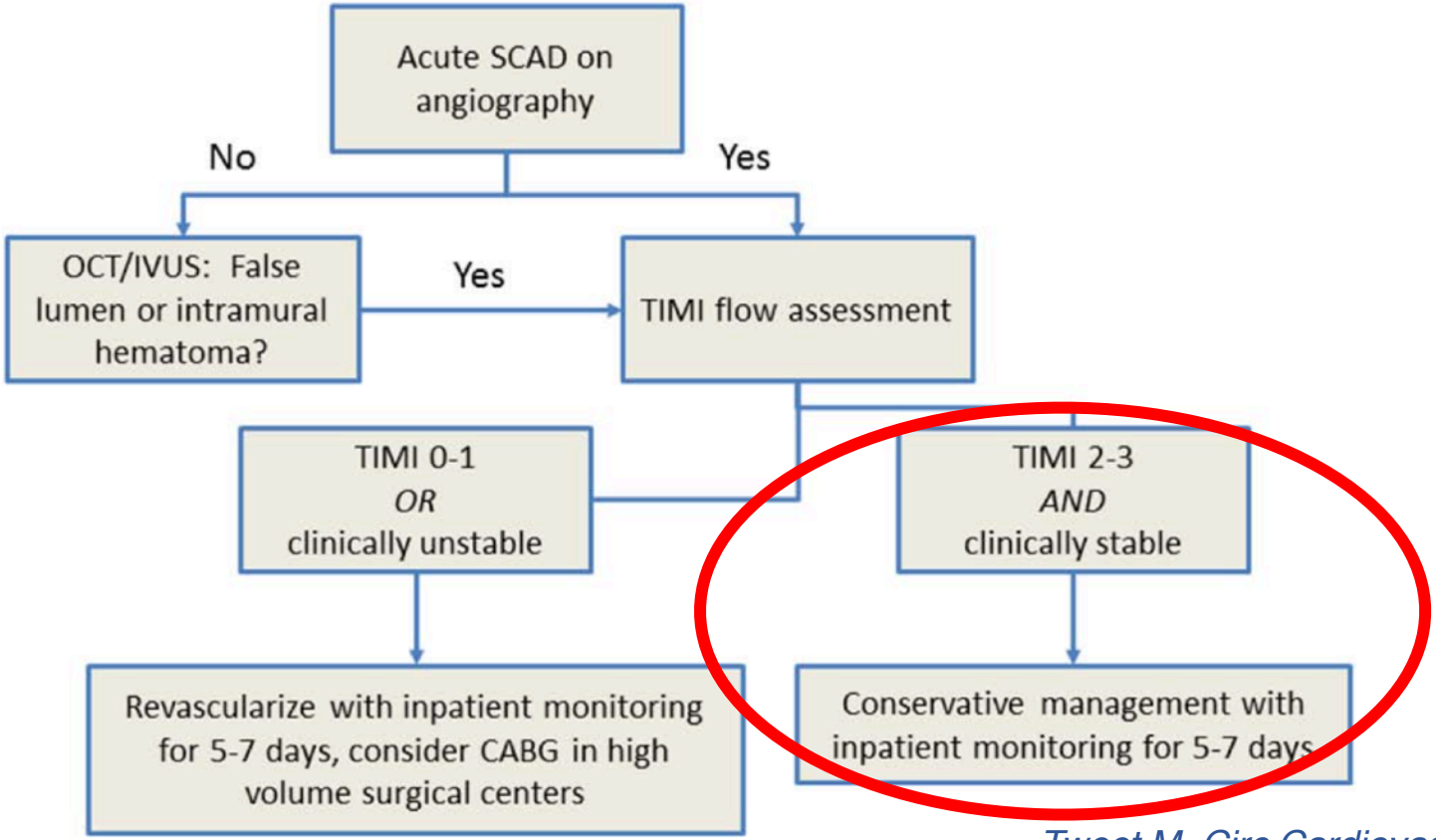
# *L'aide de l'imagerie endocoronaire pour le diagnostic*





# Quelle prise en charge ?

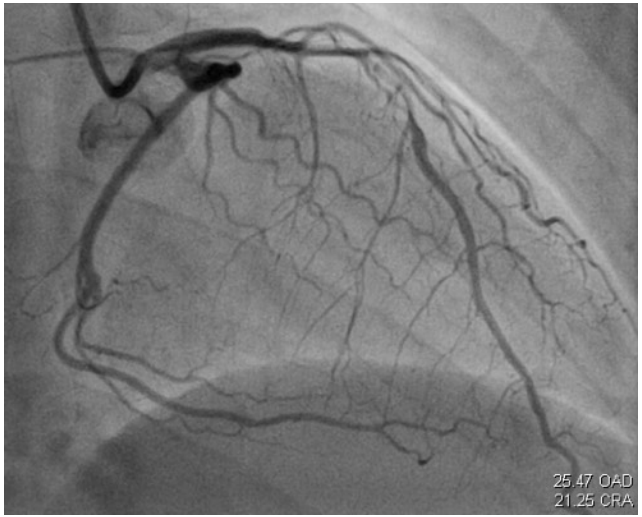





*Tweet M, Circ Cardiovasc Interv.*

# Quelle prise en charge ?



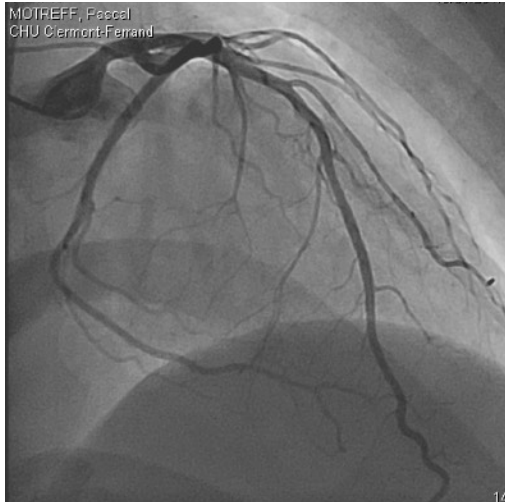




**Mme J, 42 ans**

NSTEMI

# *Quelle prise en charge ?*



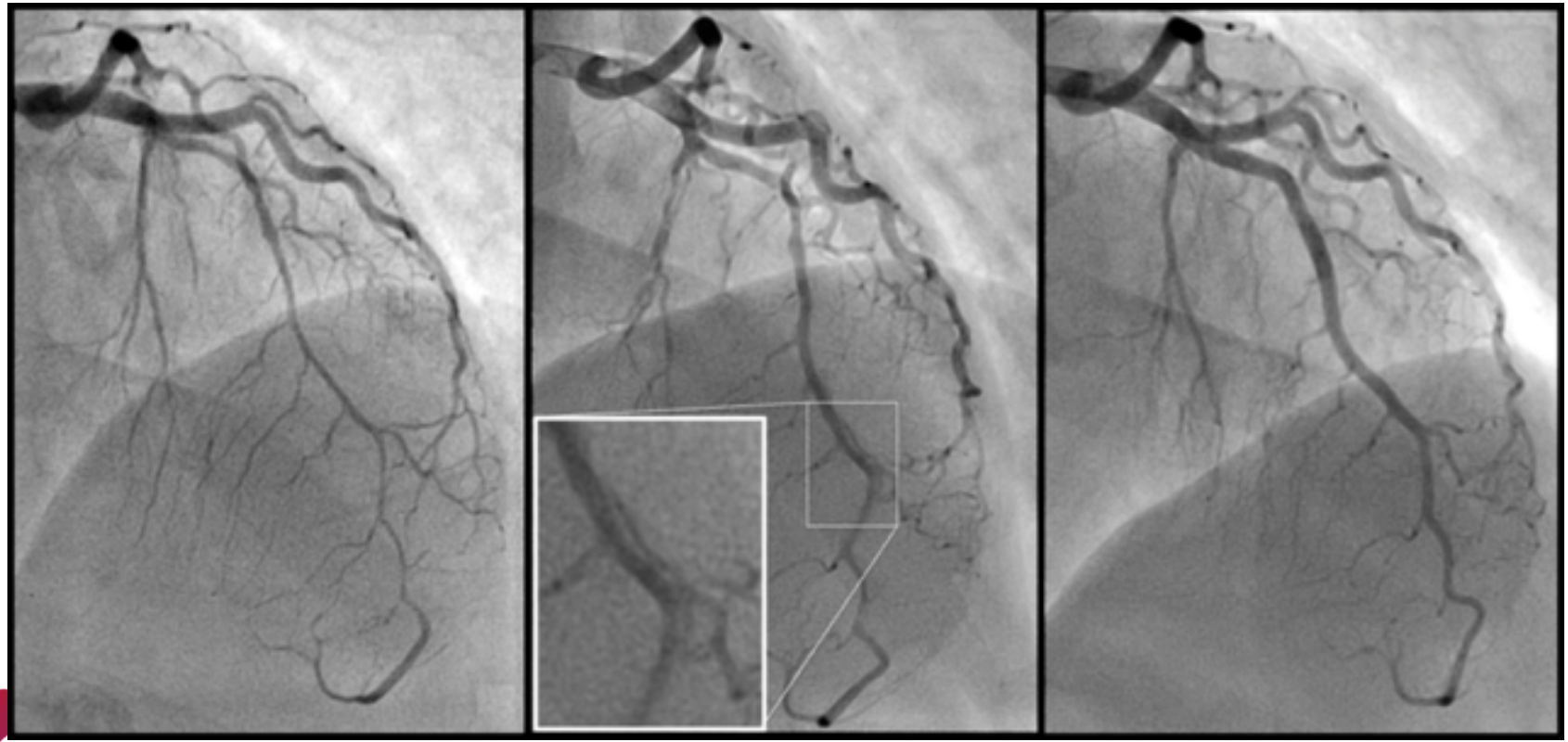




**Mme J, 42 ans**

Contrôle à J40, asymptomatique,
FEVG=70%

# *Quelle prise en charge ?*

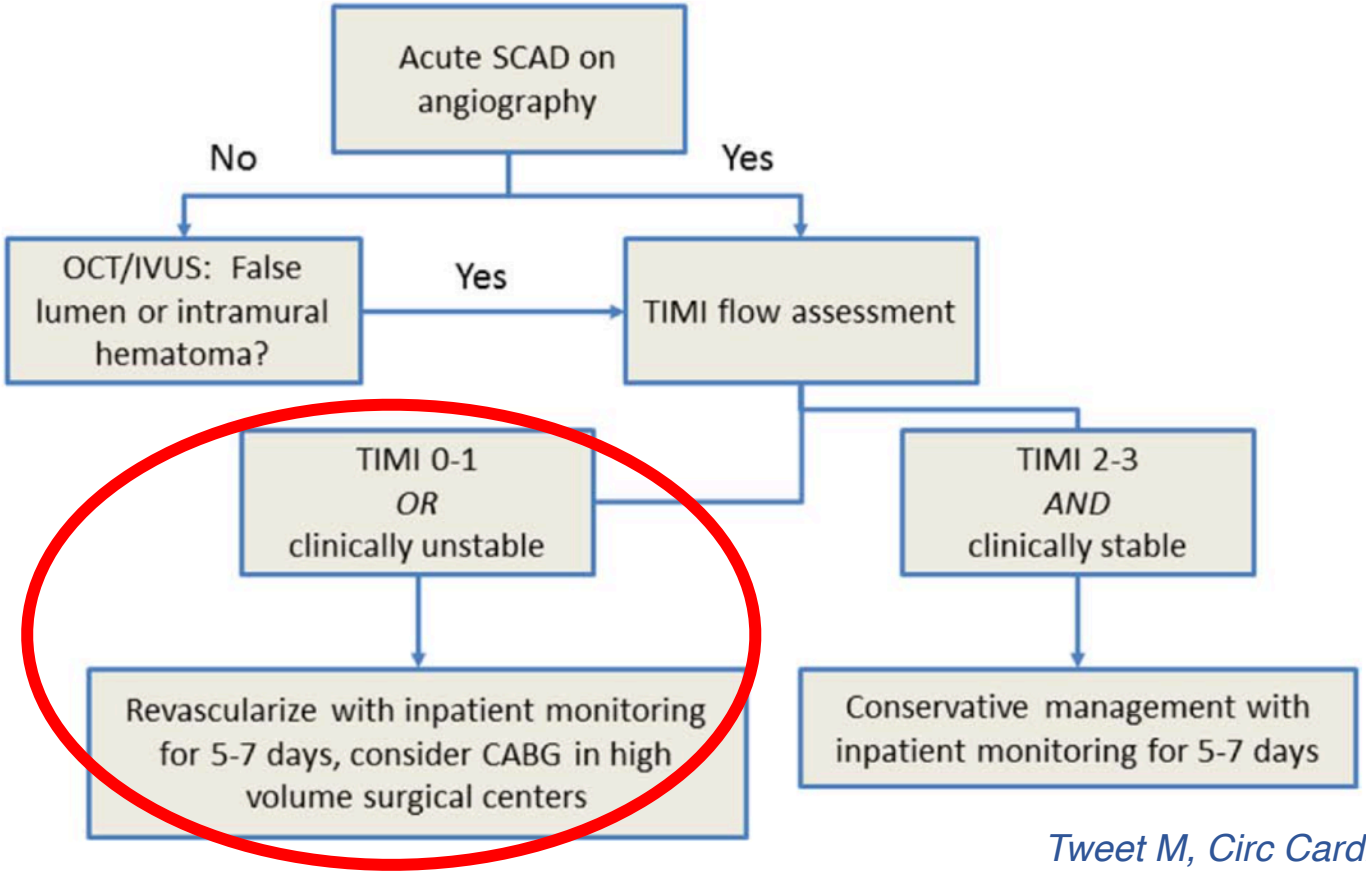




**Mono antiagrégation plaquettaire + statine + béta bloquants**

# Quelle prise en charge ?



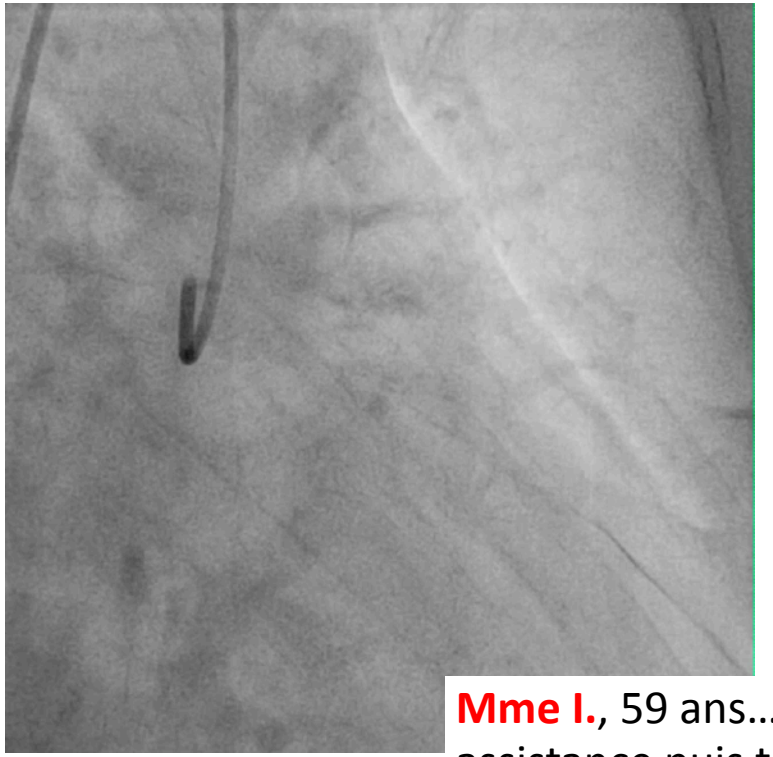


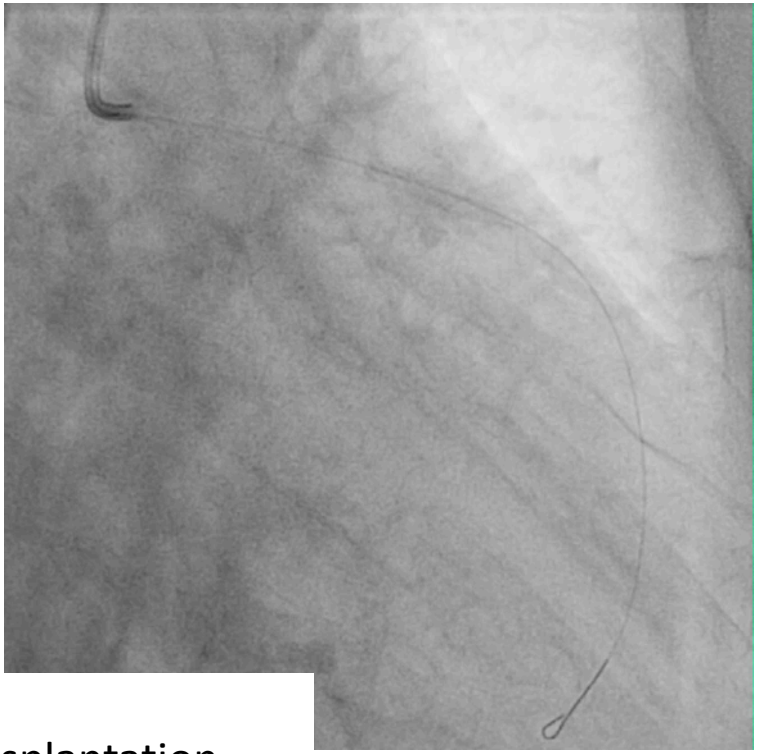

*Tweet M, Circ Cardiovasc Interv.*

# *Quelle prise en charge ?*



## Risque de stenter en fausse lumière



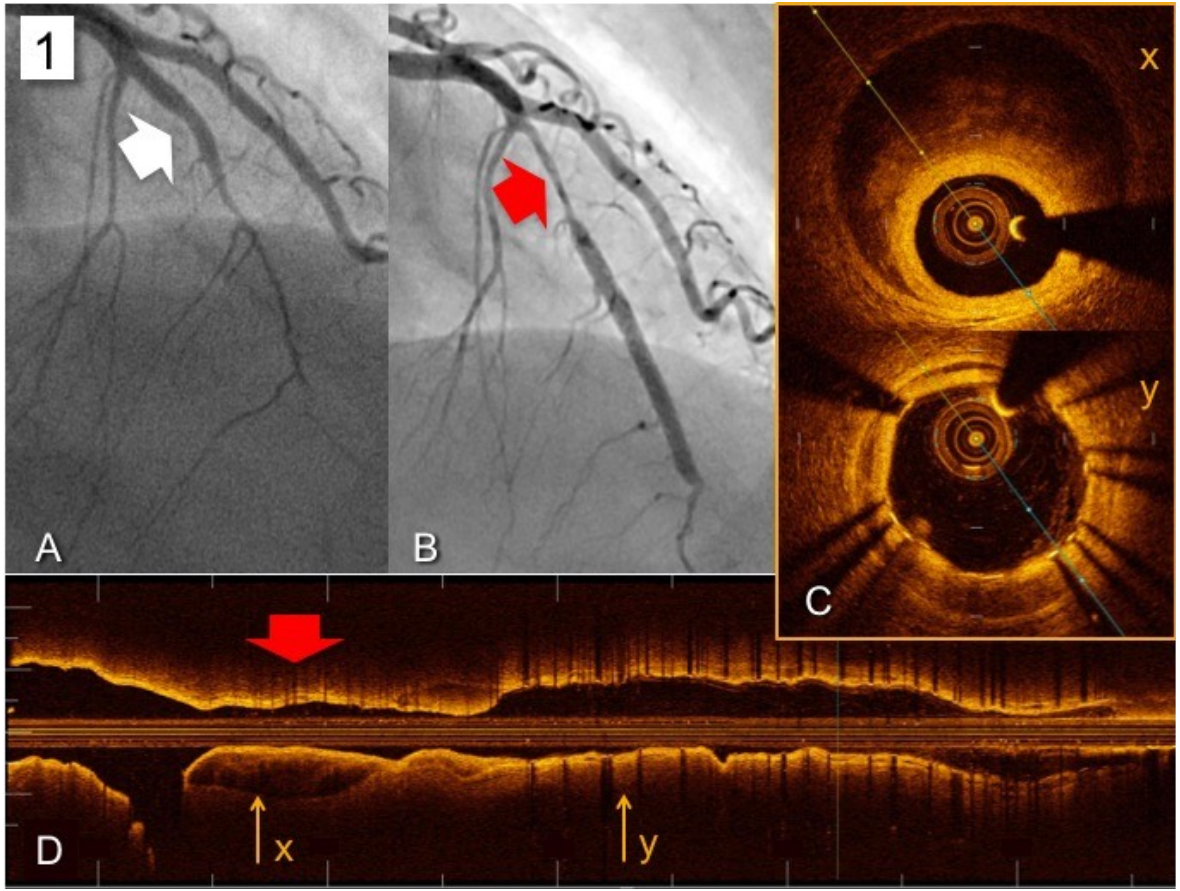


**Mme I.**, 59 ans…
assistance puis transplantation

# *Quelle prise en charge ?*



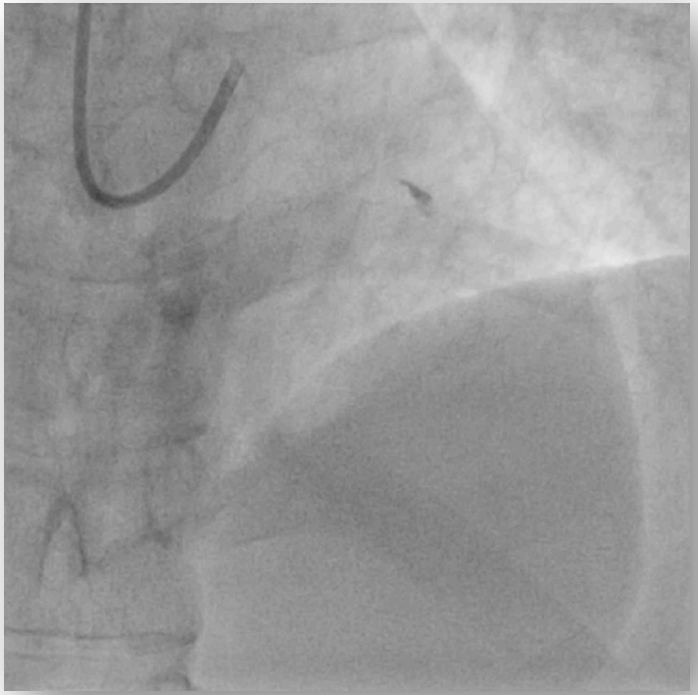
Risque de refouler l'hématome

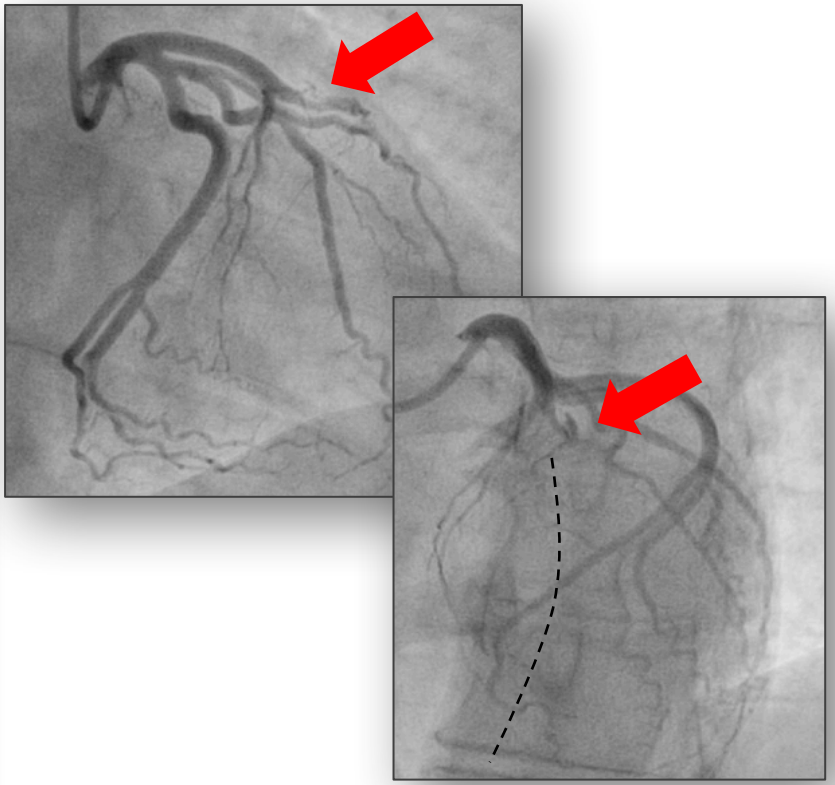


# *L'angioplastie guidée par OCT*



**Mme B. 42 ans**, pas de FRCV
SCA ST+ antérieur, Killip 4
Angioplastie de sauvetage à H3





*Combaret N, Eur Heart J Card Imaging 2013*

# *L'angioplastie guidée par OCT*



**Recanalisation difficile**

(>30mn) avec guide (GW1)

**Diagnostic de Dissection Coronaire Spontanée**

Stenting direct IVA ?

(3,5 x 20mm)

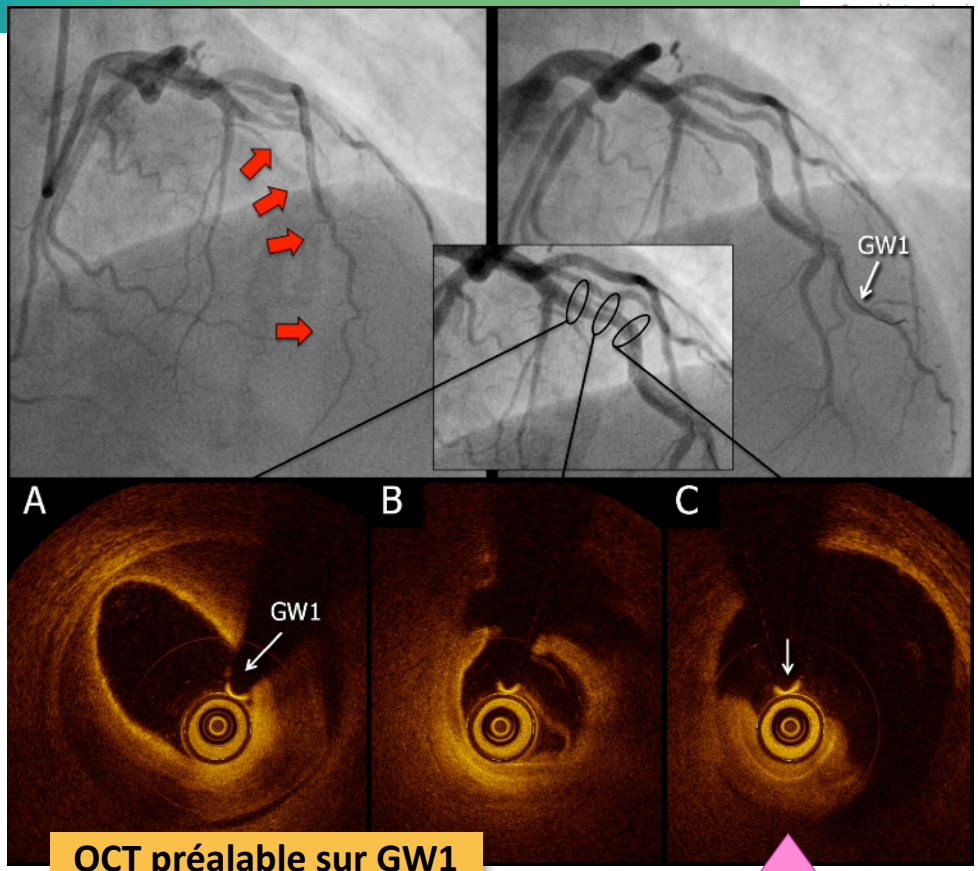
*Combaret N, Eur Heart J Card Imaging 2013*

# *L'angioplastie guidée par OCT*

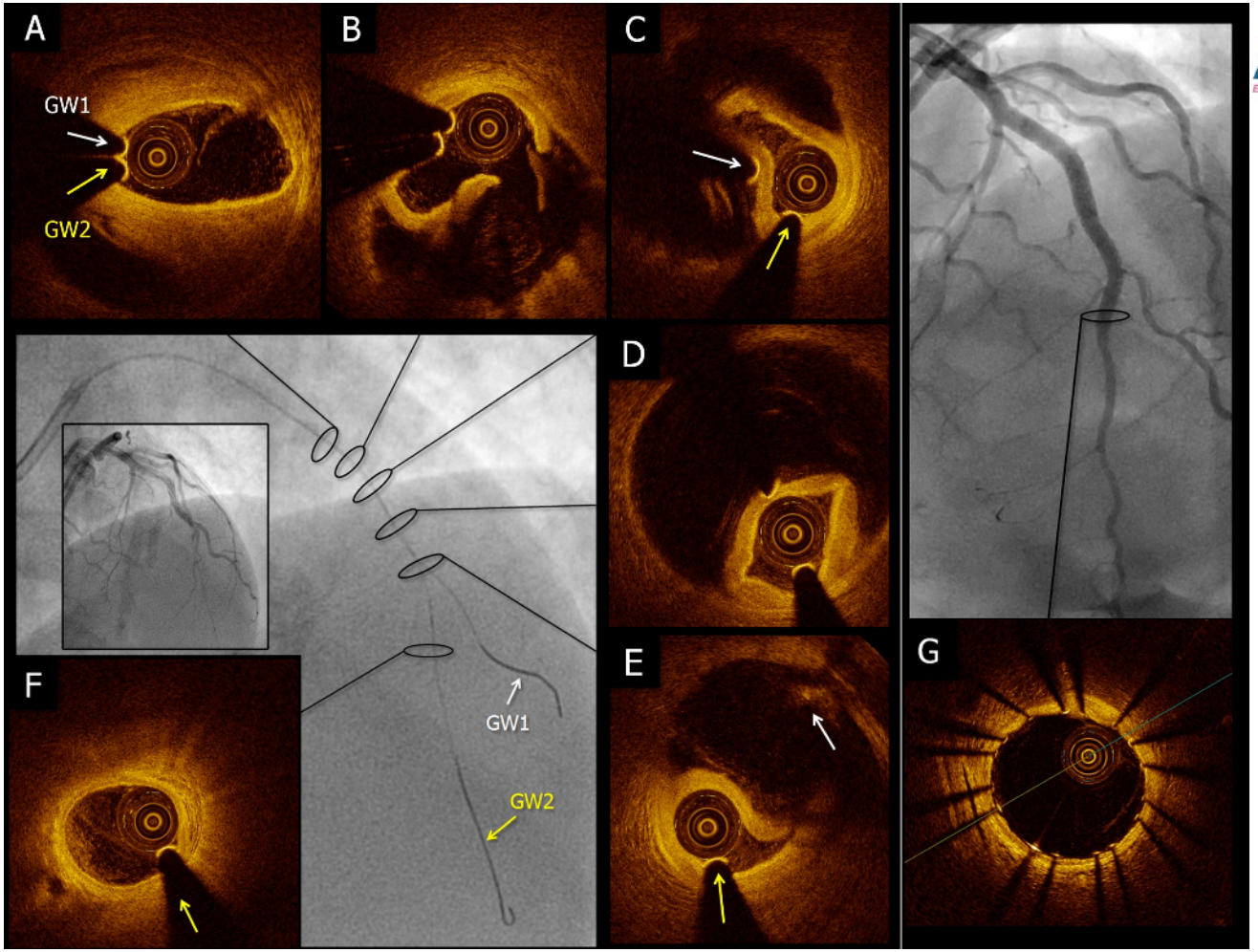


**Guide dans fausse lumière !**


*Al-Daraji, Histopathology 2005*




**OCT préalable sur GW1**

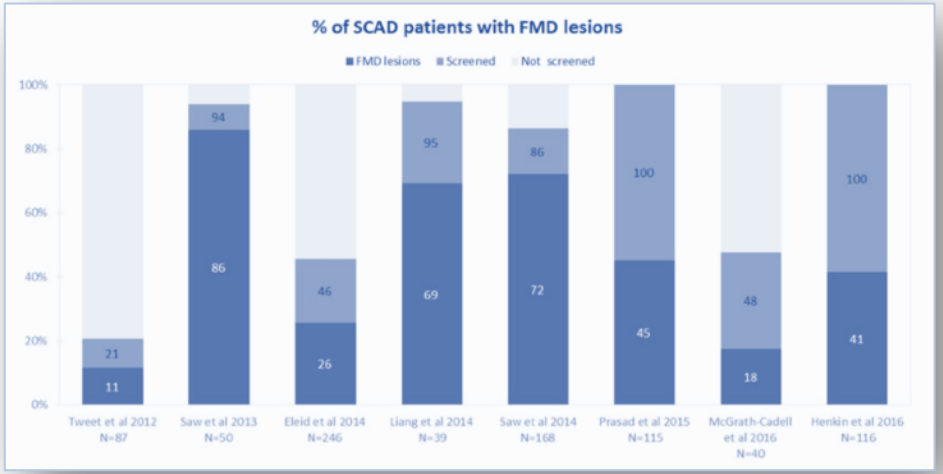



Stenting sur GW2 guidé par OCT

# *Lien avec la DFM*



- **Relation SCAD et dysplasie fibromusculaire** inconnue avant 2005
- Pourtant, même profil de patients **: femme 95 %** et **jeune (50 ans)**
- **Etudes récentes: 50-86% FMD**




*Michelis KC, J Am Coll Cardiol 2014*

# Registre DISCO



**61 centres français** - 424 inclusions

**373 SCAD** (validées)

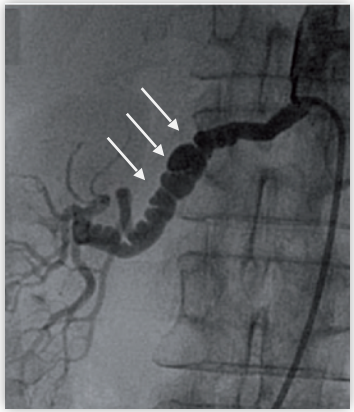
DISCO

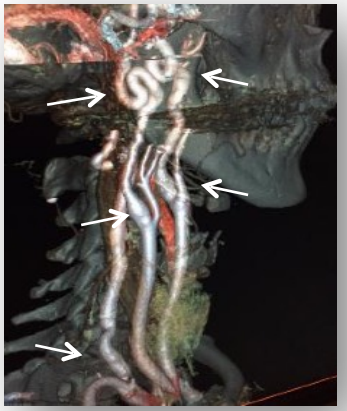
**Caractérstiques de la population**

**Analyses angiographiques**

**Analyses génétiques**

**Analyses des imageries de DFM**





# Registre DISCO



| Characteristics of the population (n=373) | | |
|---|---|---|
| Age (mean, years) | 51.5 +/-10.3 | |
| Women | 338 | 90.6 % |
| Patients < 60y | 286 | 76.7 % |
| Women < 60y | 253 | 67.8 % |
| Obesity | 59 | 16.3 % |
| Hypertension | 119 | 31.9 % |
| Dyslipidemia | 61 | 2.0 % |
| Diabetes | 13 | 3.5 % |
| Active Smoking | 93 | 25.1 % |
| Family History | 71 | 19.2 % |
| Number of CVRF | 1.1 +/-1.0 | |
| ≤ 2 CVRF | 334 | 90.0 % |

| Risk Factor and Potential Triggers (n=373) | | |
|---|---|---|
| Systemic Inflammatory Disease | 5 | 1.4 % |
| Peripartum Period | 15 | 4.4 % |
| Parity (W) | 2 | |
| Oral Contraception (W) | 59 | 18.4 % |
| Menopausal (W) | 165 | 51.2 % |
| Hormonal Substitution (W) | 26 | 8.1 % |
| Consumer of Drugs | 10 | 2.7 % |
| Emotion | 170 | 46.0 % |
| Exercise | 46 | 12.4 % |

DISCO

# Registre DISCO



| Clinical Presentation (n=373) | | |
|---|---|---|
| STEMI | 167 | 45.0 % |
| NSTEMI | 190 | 51.2 % |
| Stable Angina | 1 | 0.3 % |
| | | |
| Troponine Release | 253 | 95.4 % |
| Typical Chest Pain | 336 | 90.8 % |
| Cardiac Arrest | 21 | 5.7 % |
| Cardiogenic Shock | 7 | 2.0 % |

| Angiographic Analysis (n=369) | | | |
|---|---|---|---|
| SCAD conformed | | 369 | 100.0 % |
| Mono Vessel SCAD | | 346 | 93.8 % |
| Multi Vessel SCAD | | 23 | 6.2 % |
| | | | |
| Vessel Involved | LAD | 59 | 58.5 % |
| | Circumflex | 165 | 31.4 % |
| | RCA | 26 | 16.8 % |
| | Left Main | 10 | 2.2 % |
| | | | |
| TIMI Flow | 0 | 77 | 20.9 % |
| | 1 | 26 | 7.0 % |
| | 2 | 50 | 13.6 % |
| | 3 | 216 | 58.5 % |
| | | | |
| SCAD form | Intimal Flap | 51 | 13.8 % |
| | Hematoma | 310 | 84.0 % |
| | Mixed | 8 | 2.2 % |

# Registre DISCO



| Therapeutic Options and Prognosis (n=373) | | | |
|---|---|---|---|
| Acute Management | Conservative | 314 | 84.2 % |
| | PCI | 58 | 15.5 % |
| | Surgery | 1 | 0.3 % |
| Final Management | Conservative | 294 | 78.8 % |
| | PCI | 78 | 20.9 % |
| | Surgery | 1 | 0.3 % |
| Endocoronary Imaging | | 67 | 18.0 % |
| Medical Treatment | Aspirine | 352 | 94.4 % |
| | B-Blockers | 315 | 84.5 % |
| Hospital Mortality | | 0 | 0.0 % |
| 1 year Follow-up | Mortality | 0 | 0.0 % |
| | Asymptomatic | 199 | 84.0 % |
| | Free MACE | 219 | 92.4 % |
| | Recurrence | 6 | 2.5 % |
| | LVEF (%) | 59.7 | +/- 7.2 |

DISCO

# Registre DISCO : la génétique

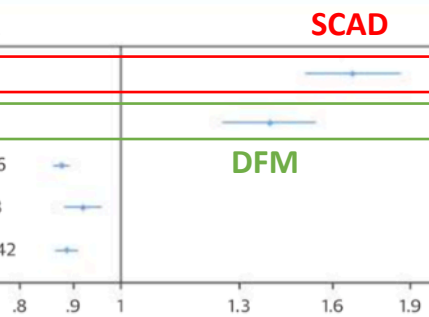


## Association of the *PHACTR1/EDN1* Genetic Locus With Spontaneous Coronary Artery Dissection

DISCO

**FIGURE 2** Associations Between rs9349379 and SCAD Were Compared With the Associations Previously Reported Between FMD and CAD/AMI Globally and Those Stratified by Sex

| Disease | Case/Control | OR (95% CI) | EAF | P Value | Study |
|---|---|---|---|---|---|
| SCAD | 1,055/7,190 | 1.67 (1.50-1.86) | 0.63 | $6.76 \times 10^{-21}$ | Current Study |
| FMD | 1,154/3,895 | 1.39 (1.25-1.54) | 0.63 | $7.40 \times 10^{-10}$ | Kiando et al. 2016 |
| MI | 43,171/127,176 | 0.88 (0.86-0.89) | 0.59 | $1.81 \times 10^{-42}$ | Nikpay et al. 2015 |
| Women CAD | 9,105/30,428 | 0.92 (0.88-0.96) | 0.57 | $6.09 \times 10^{-5}$ | Nikpay et al. 2015 |
| Men CAD | 30,428/36,042 | 0.89 (0.86-0.91) | 0.56 | $1.83 \times 10^{19}$ | Nikpay et al. 2015 |




+ 67 %

+ 39 %

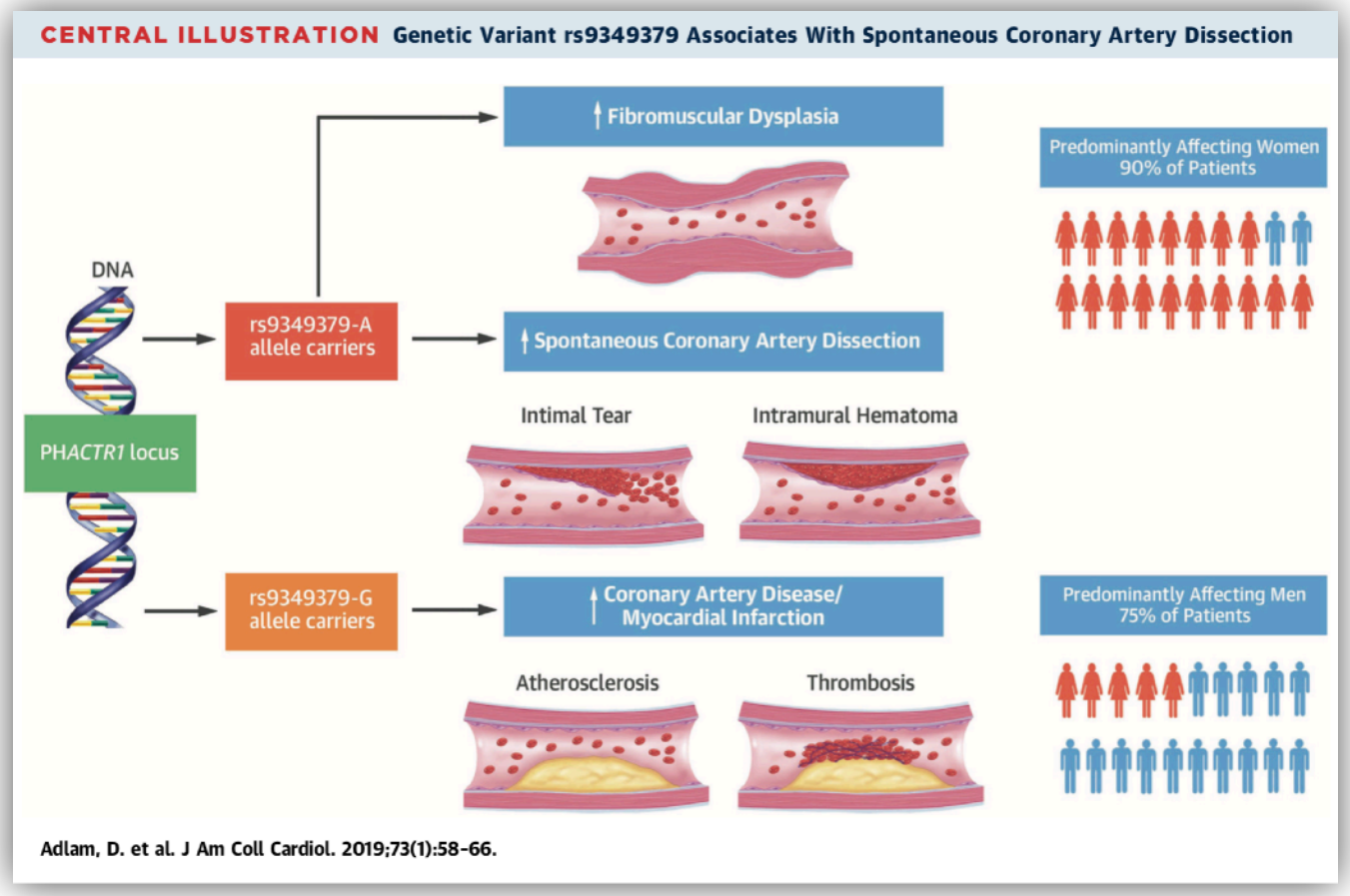
Paris Centre de recherche Cardiovasculaire PARCC H E G P

*Adlam D, J Am Coll Cardiol 2019*

# Registre DISCO : la génétique



DISCO




*Adlam D, J Am Coll Cardiol 2019*

# *SCAD: conclusion*



- Pas si rare qu'on le croyait – Femme jeune sans FRCV
- Reste **sous diagnostiquée** même si les **signes angiographiques** sont désormais bien décrits
- L'imagerie endocoronaire garde un rôle important en cas de doute diagnostique ou de prise en charge par angioplastie
- **Favoriser le traitement conservateur +++** (ATL à risque)
- Bon pronostic
- **Relation forte SCAD et DFM -> origine génétique commune**