Angor a lésions coronaires angiographiquement non significatives

# APPORT DE L'IMAGERIE ENDOCORONAIRE

- Jeudi 7 Décembre 2017
- Auditorium AB

CARDIOLOGIE INTERVENTIONNELLE


- Dr Philippe Brunel

# DÉCLARATION DE LIENS D'INTÉRÊT AVEC LA PRÉSENTATION

## Intervenant : Philippe Brunel

☑ Je déclare les liens d'intérêt suivants : aucun


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# Angor ?

- Myalgies épidémique (Bornholm)
- syndrome de l'articulation sterno claviculaire
- Douleur post-mastectomie
- Syndrome du muscle sternal
- xiphodynie
- Syndrome de l'articulation manubrio-sternale
- Syndrome du muscle dentelé antérieur
- Syndrome de Cyriax

JACC Vol. 25, No. 5
April 1995:1013–8





# Long-Term Prognosis of Patients With Anginalike Chest Pain and Normal Coronary Angiographic Findings

PAUL R. LICHTLEN, MD, FACC, KLAUS BARGHEER, MD, PAUL WENZLAFF, PHD

*Hannover, Germany*

*Objectives.* This study analyzes the long-term course of patients with typical angina pectoris or anginalike chest pain and normal coronary angiographic findings.

*Background.* In previous studies of such patients the rate of occurrence of typical coronary events during follow-up has differed widely, depending on the duration of the study and the number of patients.

*Methods.* One hundred seventy-six patients (mean age 48.3 years) who underwent coronary and left ventricular angiography for typical angina or anginalike chest pain were followed up for 5.8 to 15.8 years (median 12.4). By definition, all patients had normal findings on coronary and left ventricular angiograms; exercise test results were positive in 31.

*Results.* Fourteen patients (8%) had a coronary event (0.65%/year) after an average of 9.3 years (median 9.2). Two of the 14 died of a coronary event (0.09%/year), 1 of cardiogenic shock during acute myocardial infarction, 1 suddenly; 4 had a nonfatal myocardial infarction at an average of 8.1 years (median 9.1); 8 had severe angina pectoris after an average of 10.3 years (median 11.1), confirmed by a second angiogram, now with positive findings. Two patients died of a noncoronary cardiac event (chronic cor pulmonale due to obstructive lung disease, acute pulmonary embolism), eight of a noncardiac cause, mainly cancer. None of the 31 patients with a positive exercise test result had a coronary event. Patients with a coronary event had significantly more risk factors (hypercholesterolemia, hypertension, cigarette smoking, diabetes type II) than did those without an event (average 2.4/patient vs. 1.3/patient, $p < 0.01$). Chest pain persisted in 133 (81%) of the 164 survivors and disappeared in 31 (19%).

*Conclusions.* Patients with typical angina or anginalike chest pain and normal coronary angiograms have a good long-term prognosis despite persistence of pain for many years; coronary morbidity and mortality are similar to those of the overall population. An increased risk for the development of coronary events is present mainly in patients with elevated risk factors.

*(J Am Coll Cardiol 1995;25:1013–8)*

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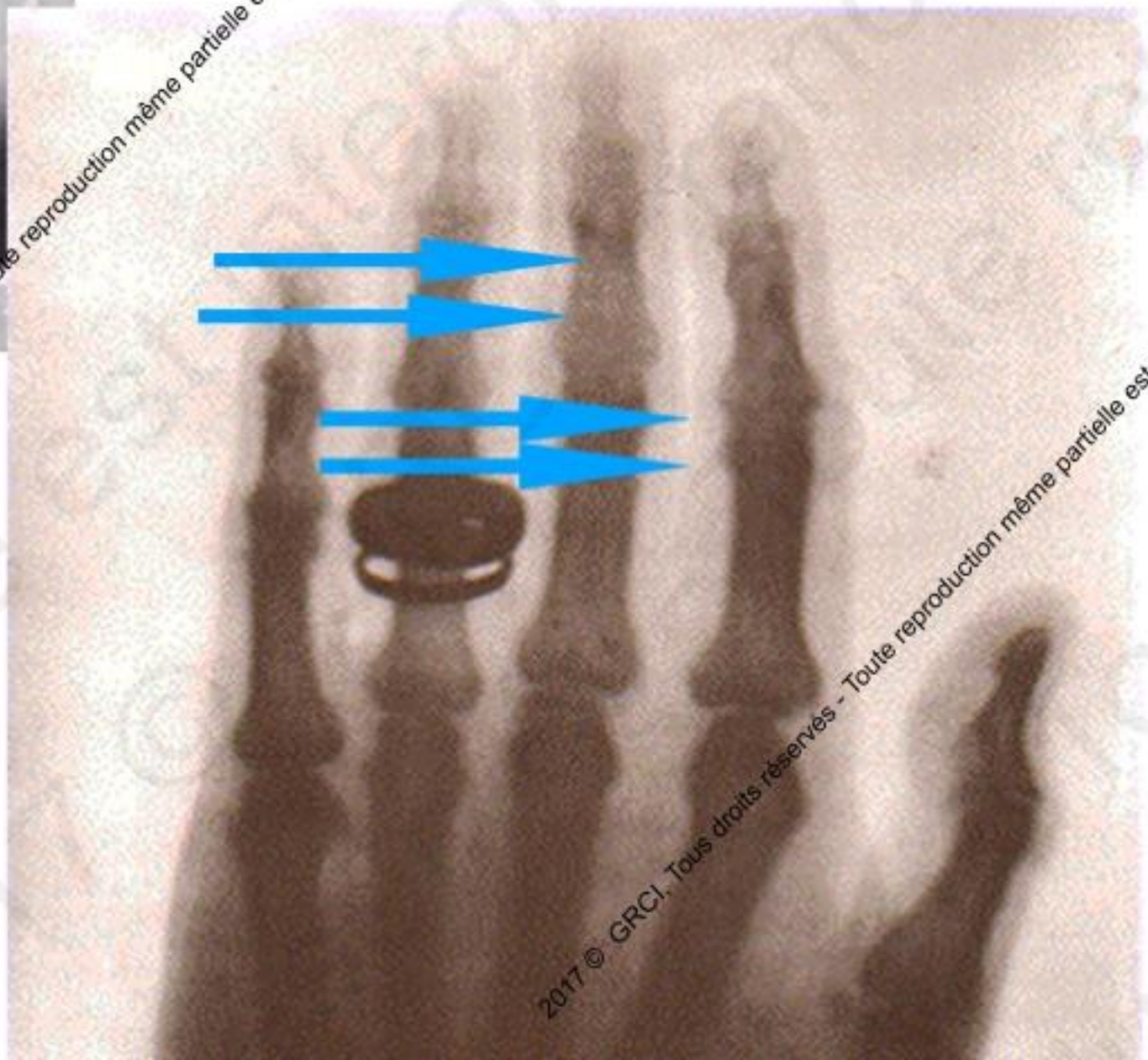
*(J Am Coll Cardiol 1995;25:1013–8)*

lar and coronary angiography in two planes (60° left anterior oblique, 30° right anterior oblique), performed by the Judkins or Sones technique. Before angiography, nitroglycerin, 0.8 mg sublingually, was administered to achieve maximal coronary artery dilation (19). Coronary angiograms were performed in several standard and half-axial projections, usually including a total of 10 to 12 scenes. All coronary angiograms were analyzed by two experienced independent investigators. Only angiograms with visually smooth contours without any wall irregularities were accepted as normal. All patients showed a normal left ventricle with normal contraction; left ventricular ejection fraction, calculated by the area-length technique from systolic and end-diastolic left ventricular contours obtained in the right anterior oblique projection, averaged 66.8 ± 7.2% and was >55% in all patients. Provocative tests for coronary artery spasm were not performed.

**Table 4.** Long-Term Follow-Up Studies of Patients With Normal Findings on Coronary Angiograms (modified from Inser et al. [12])

| First Author (ref. no.) | Year | Patients | | | Average Follow-Up Interval (mo) | No. of Coronary Deaths | Myocardial Infarction | Patients With Repeat Angiography | | Chest Pain (%) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. | Average Age (yr) | % Female | | | | Total No. | With CAD | Initial | Follow-Up |
| Waxler (1) | 1971 | 86* | 44 | 100 | 15 | 0 | 0 | 0 | — | 100 | 100 |
| Bemiller (2) | 1973 | 37 | 43 | 43 | 49 | 1† (2.7%) [0.66%] | 0 | 7 | 0 | 100 | 100 |
| Kemp (3) | 1973 | 200 | 47 | 50 | 36 | 0 | 0 | 5 | 0 | 100 | 90 |
| Humphries (4) | 1974 | 93 | — | — | 12–144 | 0 | 5‡ | 0 | — | 98 | 52 |
| Day (5) | 1976 | 45 | 43 | 50 | 25 | 0 | 0 | 0 | — | 100 | 68 |
| Marchandise (6) | 1978 | 22 | 49 | 58 | 52 | 0 | 0 | 22 | 0 | — | — |
| | | 26§ | 49 | 31 | 37 | 0 | 2 | 26 | 7‖ | — | — |
| Ockene (7) | 1980 | 57 | 48 | 60 | 16 | 0 | 0 | 0 | — | 100 | 70 |
| Pasternak (8) | 1980 | 159* | 46 | 45 | 43 | 0 | 1 | 0 | | 100 | 74 |
| Proudfit (9) | 1980 | 164§ | — | 38 | 120 | 16¶ (9.7%) [0.97%] | 14 | 21 | 12§ | 92 | 40 |
| | | 357 | — | 38 | 120 | 2 | 2 | 10 | 4 | 92 | 40 |
| DeMaria (10) | 1980 | 97 | — | — | 32 | 0 | 1 | 0 | — | — | — |
| Gleichmann (11) | 1981 | 15 | 49 | — | 13–64 | 0 | 0 | 0 | — | 100 | 93 |
| Inser (12) | 1981 | 121§ | 49 | 60 | 40 | 3† (2.5%) [0.83%] | 4 | 7 | 3‖ | — | 80 |
| Faxon (13) | 1982 | 72 | 48 | 42 | 24 | 0 | 0 | 0 | — | 100 | 76 |
| Kemp (14) | 1986 | 3,136 | 49 | 53 | 84 | 14# (0.44%) [0.06%] | — | — | — | — | — |
| | | 915§ | 52 | 45 | | 18 (1.96%) [0.28%] | — | — | — | — | — |
| Van Dorpe (15) | 1987 | 142 | 46 | 42 | 49 | 0 | 1 | 0 | — | 86 | 50 |
| Opherk (16) | 1989 | 40 | 48 | 25 | 48 | 0 | 0 | 6 | 0 | 100 | 100 |
| Pupita (17) | 1989 | 13 | 49 | 77 | 76 | 0 | 0 | 1 | 0 | 100 | 100 |
| Current study | 1995 | 178 | 48 | 34 | 144 | 2 (1.1%) [0.08%] | 5 | 21 | 13 | 176 | 133 |

*Inclusion of patients with stenoses ≤30%. †Sudden death, probably of coronary cause. ‡By the patient's history. §Inclusion of patients with stenoses ≤50%. ‖Impairment of preexisting coronary artery disease (CAD). ¶Assumed in 12 patients, proved in 4. #Cardiac death. ref. = reference; — = no data available. ( ) = percent over entire follow-up period; [ ] = percent per year.

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- Visualisation de la paroi / luminogramme
- Résolution de l'image

- Scanner 650 micron
- Coro 200 microns
- IVUS 90 microns
- OCT 20 microns


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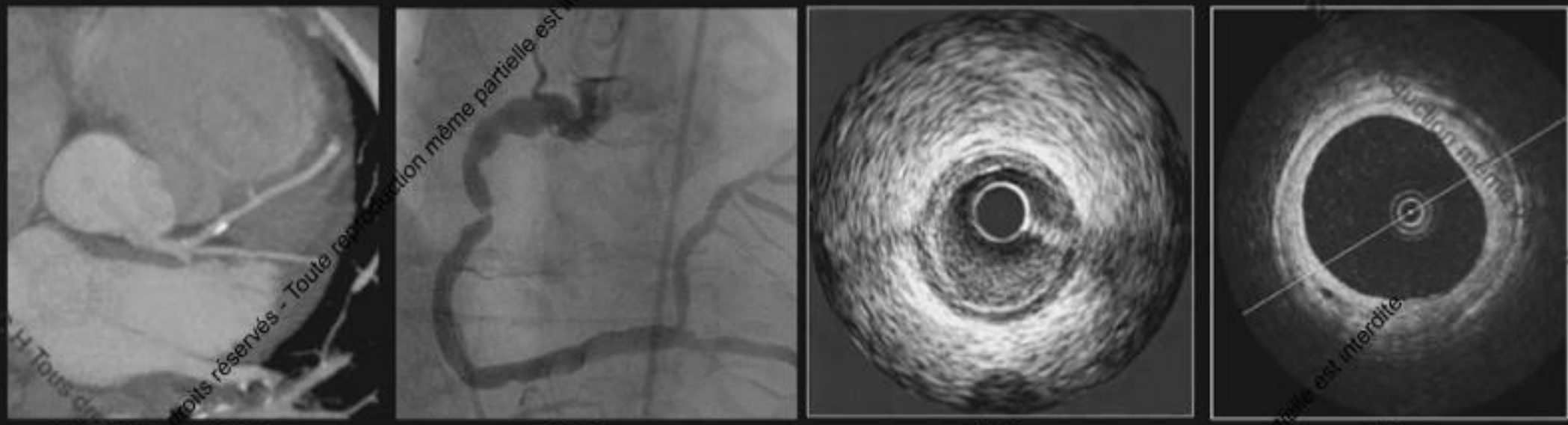
# Imagerie coronaire

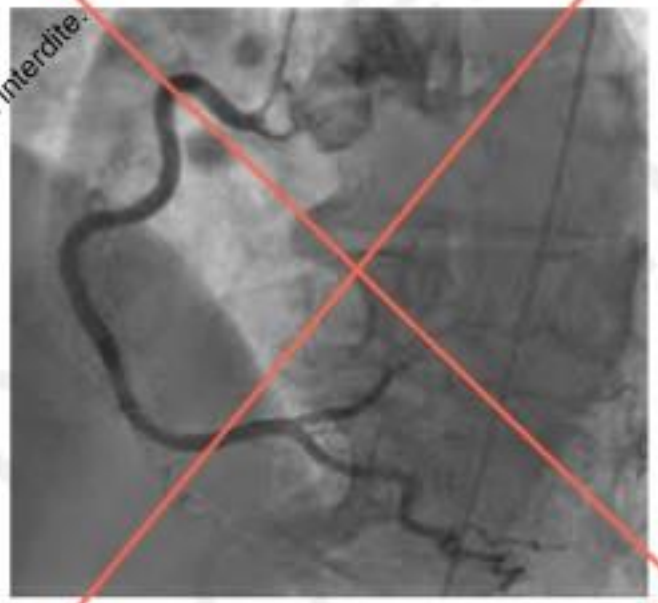
**Coroscanner** | **Angiographie** | **IVUS** | **OCT**



*Résolution : 600µm* | *200µm* | *100µm* | *10µm*

*OCT : résolution axiale de 10 microns*

# 2017





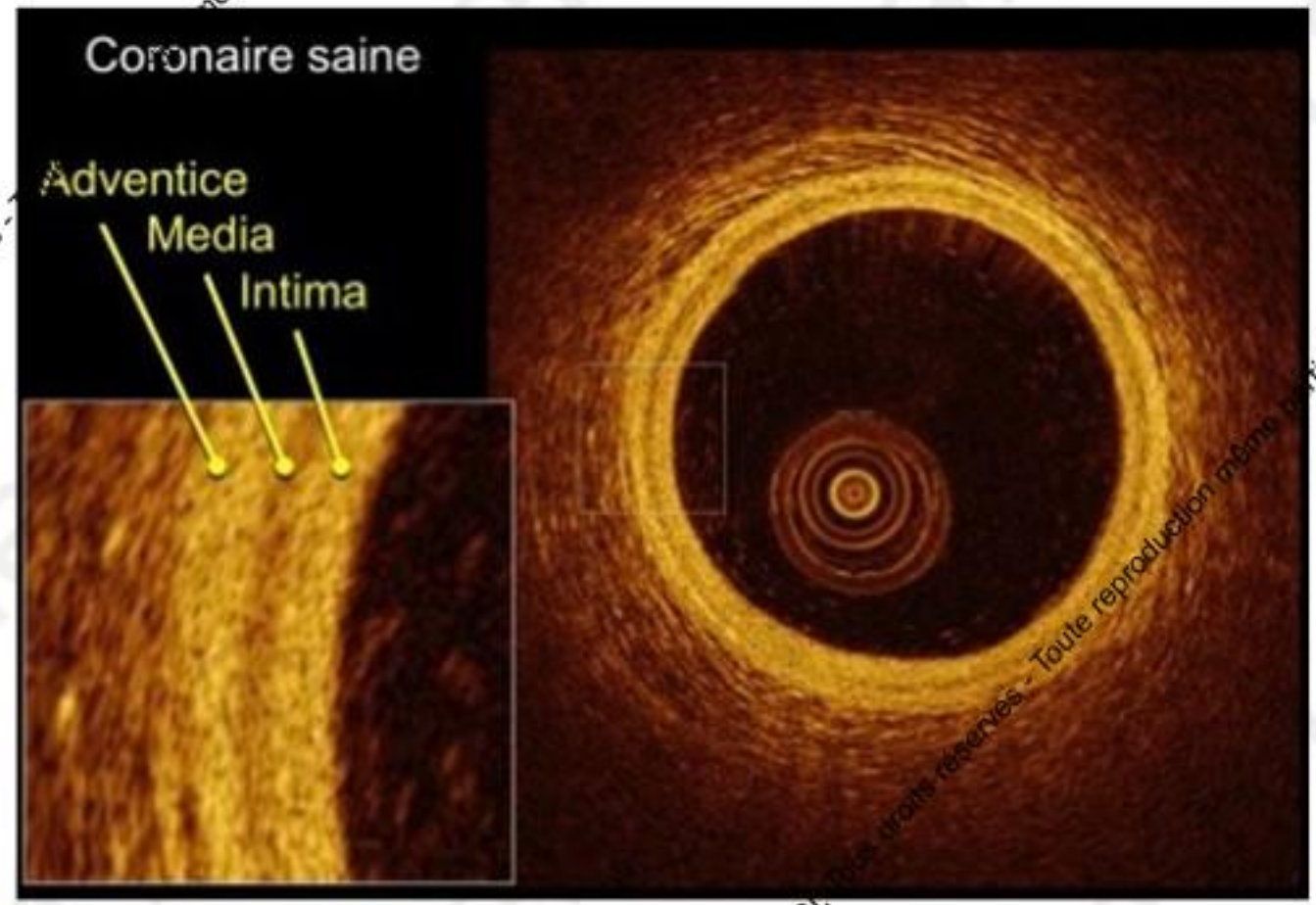
Angor a coronaires normale

Angor a coronaires saines

.....

# 2017

# CORONAIRE SAINE = DIAGNOSTIC OCT



# O.C.T.
# et
# angor à coronaires saines

- Redresser un mauvais diagnostic angiocoronarographique de coronaire non sténosée? // coroscanner

- Lever une ambiguïté d imagerie : s'assurer a tout prix de la normalité absolue d'un réseau coronaire? // quelle incidence thérapeutique dans L état actuel de nos connaissances

- Micro-rupture de plaques qui seraient invisible en angiographie? // faire un retrait de l'ensemble du réseau coronaire?

- Nouveau champs anatomo/morphologique de diagnostic dans l'angor

# Impact diagnostic redresse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Heart. 2017 Jul;103(13):995-1001. doi: 10.1136/heartjnl-2016-310129. Epub 2017 Feb 28.



# Symptoms and quality of life in patients with suspected angina undergoing CT coronary angiography: a randomised controlled trial

Williams MC1, Hunter A1, Shah A1, Assi V2, Lewis S2, Mangion K3, Berry C3, Boon NA1, Clark E1, Flather M4, Forbes J5, McLean S6, Rodtti G3, van Beek EJ1, Timmis AD7, Newby DE1; Scottish COmputed Tomography of the HEART (SCOT-HEART) Trial Investigators.
Collaborators (121)



While improving diagnosis, treatment and outcome, CTCA is associated with a small attenuation of the improvements in symptoms and quality of life due to the detection of moderate non-obstructive coronary artery disease.

# Les complications liées à une procédure d'OCT sont exceptionnelles

- dissections iatrogènes
- spasmes coronaires
- thromboses sur sonde

- Attention au traitements thrombotiques
- retirer la sonde dès l'acquisition terminée
- Dissections coronaires spontanées : injecter le produit de contraste avec prudence pour éviter l'extension de la dissection (injection dans le faux chenal).


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# IVUS et Complications

- **Hausmann et al. Circ. 1995;91:623-630.**
  - 2207 IVUS studies (915 Dx) at 28 centers
  - 23 (1.0%) major complications other than spasm
    - acute occlusion, embolization, dissection, thrombus
    - 9 related to IVUS, 14 pts not certainly related to IVUS
- **Gorge et al., JACC 1996;27:155A.**
  - 7085 IVUS studies at 51 centers
  - 10 (0.1%) major complications other than spasm (7 dissection, 1 thrombus, 1 VF, 1 severe unresponsive spasm)
- **Batkoff et al., JACC 1996;27:143A.**
  - 718 IVUS studies at 12 centers
  - 8 (1.1%) major complications (4 spasm, 2 dissection, 2 guide wire entrapment)

EuroIntervention



# A multicentre evaluation of the safety of intracoronary optical coherence tomography

**Peter Barlis[1], MBBS, MPH, FRACP, FESC; Nieves Gonzalo[1], MD; Carlo Di Mario[2], MD, PhD, FESC; Francesco Prati[3], MD, FESC; Lutz Buellesfeld[4], MD; Johannes Rieber[5], MD; Miles C. Dalby[6], MRCP; Giuseppe Ferrante[2], MD; Maria Cera[3], MD; Eberhard Grube[4], MD, FESC; Patrick W. Serruys[1], MD, PhD, FESC; Evelyn Regar[1]*, MD, PhD**

*1. Thoraxcenter, Erasmus Medical Centre, Rotterdam, The Netherlands; 2. Royal Bromption Hospital, London, United Kingdom; 3. San Giovanni Hospital, Rome, Italy; 4. Helios Heart Centre, Siegburg, Germany; 5. Medizinische Klinik Innenstadt, Ludwigs-Maximilians University, Munich, Germany; 6. Harefield Hospital, Middlesex, United Kingdom*

**Table 2. Risks of OCT.**

| | All (n=468) | Occlusive technique (n=256) | Non-occlusive technique (n=212) | p-value |
|---|---|---|---|---|
| Self-limiting events | | | | |
| Chest pain | 223 (47.6) | 179 (69.9) | 44 (20.8) | <0.001 |
| Widening QRS/ST depression | 192 (41.0) | 139 (54.3) | 53 (25) | <0.001 |
| ST elevation | 21 (4.5) | 17 (6.6) | 4 (1.9) | 0.01 |
| Sinus bradycardia | 14 (3.0) | 11 (4.3) | 3 (1.4) | 0.07 |
| Sinus tachycardia | 10 (2.1) | 7 (2.7) | 3 (1.4) | 0.33 |
| Atrioventricular block | 2 (0.4) | 2 (0.8) | 0 | 0.19 |
| Major complications | | | | |
| Arrhythmias | | | | |
| Atrial fibrillation | 0 | 0 | 0 | – |
| Ventricular tachycardia | 0 | 0 | 0 | – |
| Ventricular fibrillation | 5 (1.1) | 3 (1.2) | 2 (0.9) | 0.81 |
| Coronary spasm | 0 | 0 | 0 | |
| Dissection | 1 (0.2) | 1 (0.4) | 0 | 0.36 |
| Perforation | 0 | 0 | 0 | – |
| Thrombus | 0 | 0 | 0 | – |
| Air embolism | 3 (0.6) | 2 (0.8) | 1 (0.5) | 0.68 |
| Mechanical device failure | | | | |
| Wire tip fracture | 1 (0.2) | 0 | 1 (0.5) | 0.45 |
| Major adverse cardiac events during the procedure or in the 24 hour period post | 0 | 0 | 0 | – |

**Table 3. Outcome of adverse events/complications.**

| | |
|---|---|
| Immediate resolution | 96.7% |
| Required specific treatment but resolved before leaving the catheterisation laboratory | 3.1% |
| Persisting beyond discharge from catheterisation laboratory (including requiring ongoing clinical surveillance) | 0.2% |

## *MACE*

There were no MACE observed during or in the 24 hour period following OCT imaging. In one patient, stenosis was observed at the site of previous balloon occlusion four months following OCT evaluation of the LCx. Due to the presence of multivessel coronary disease with angina, the patient was referred for CABG.


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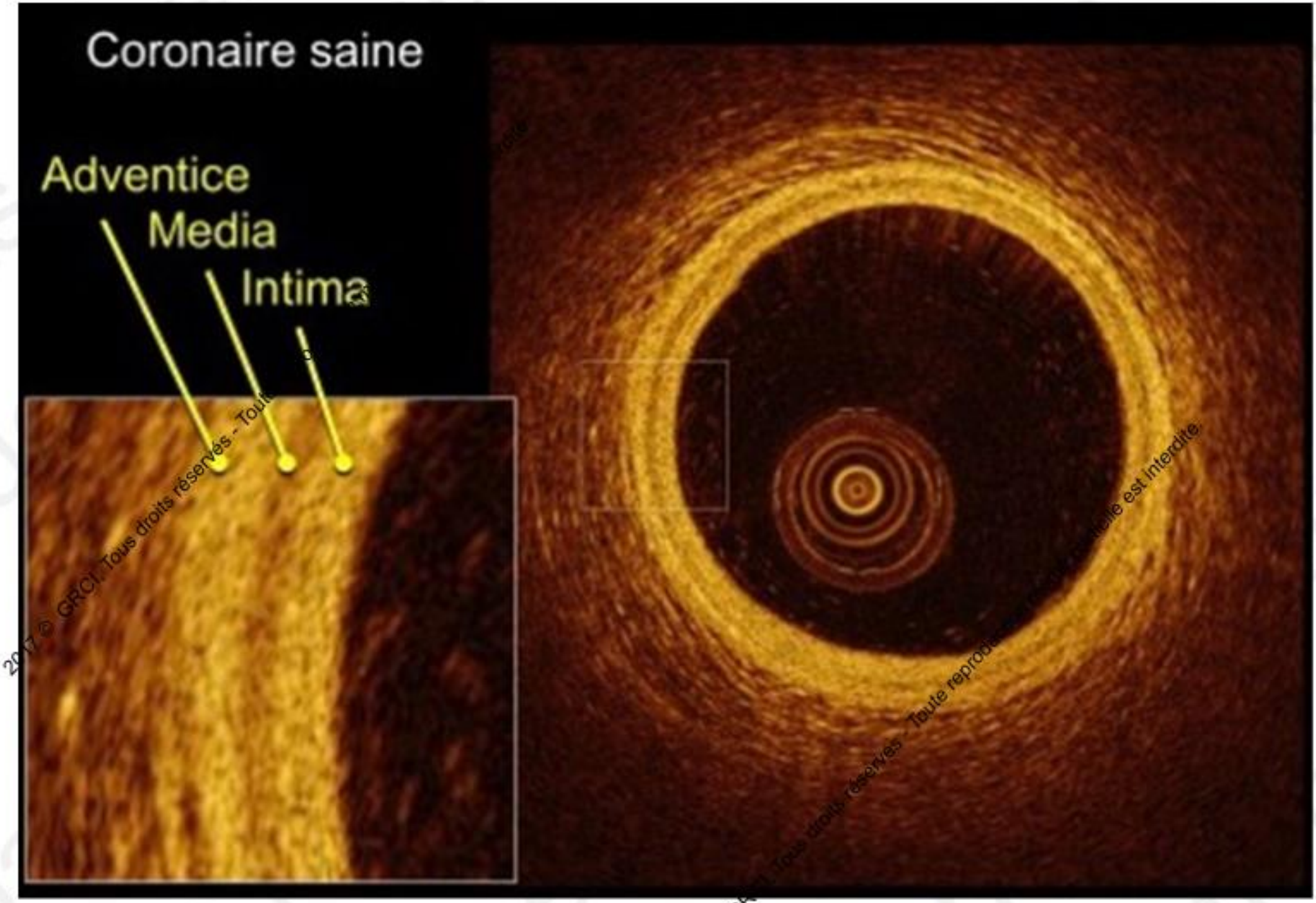
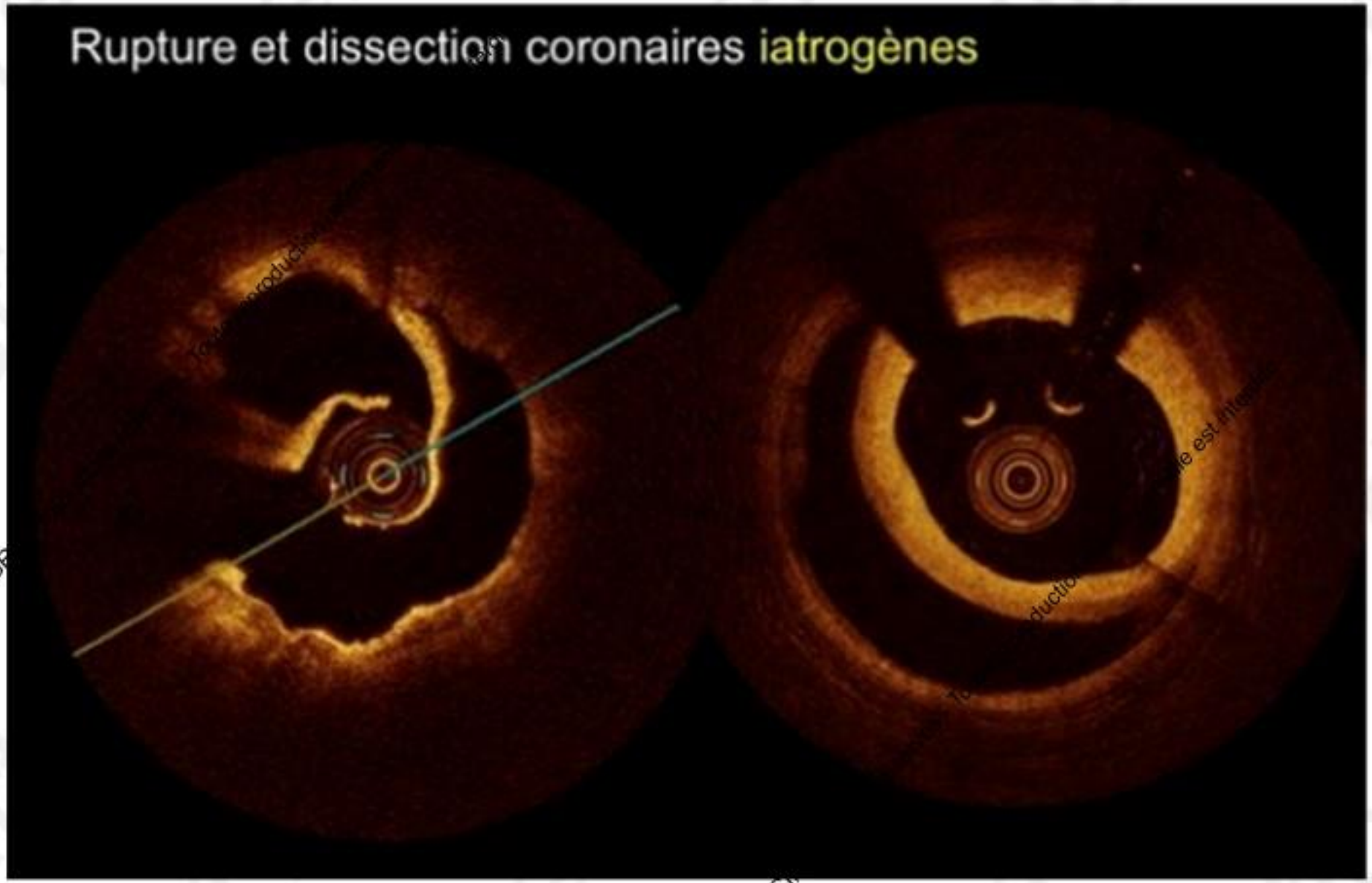
## 3) Mechanical device failure

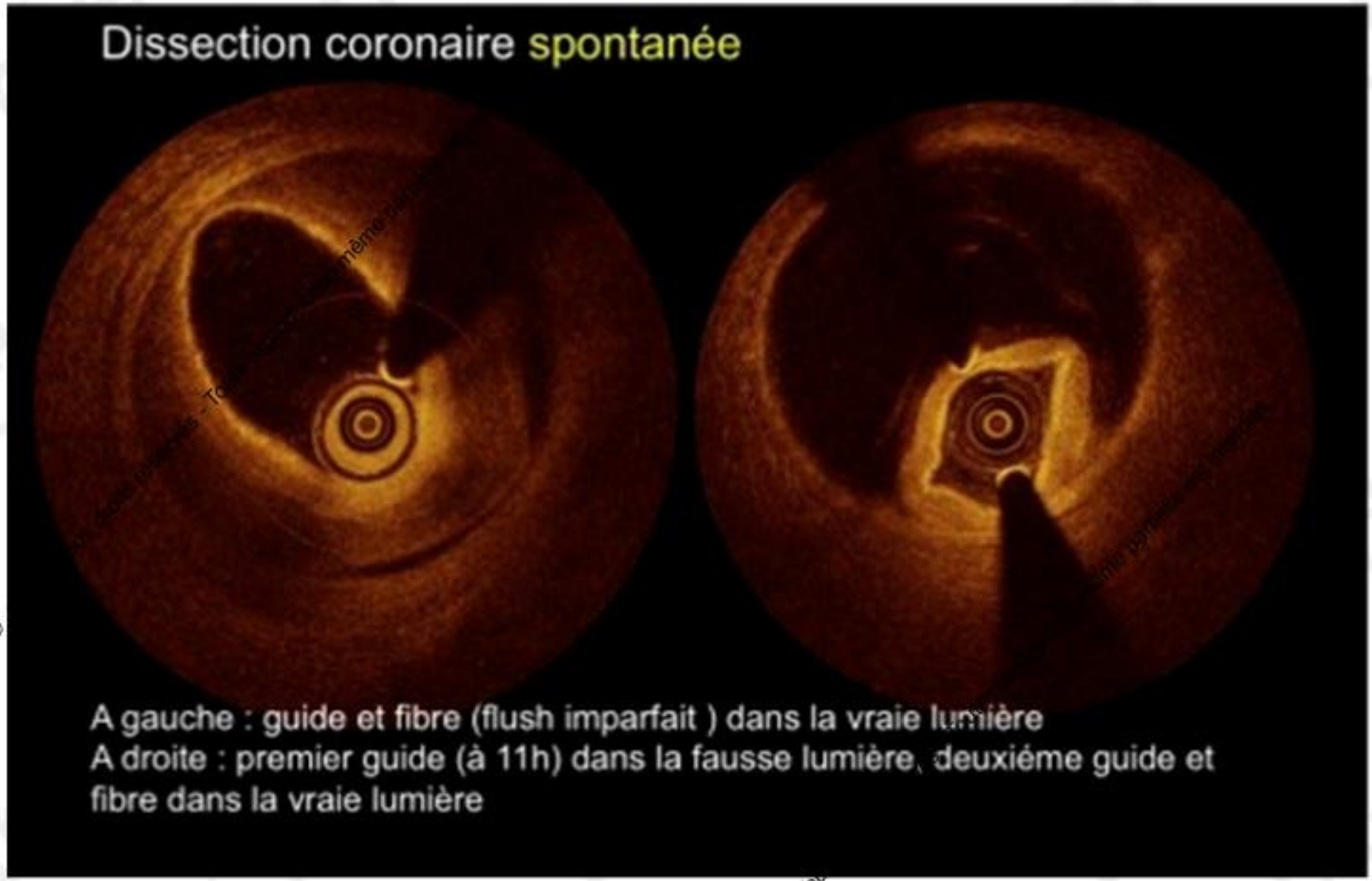
Although there was no adverse clinical outcome observed, in one (0.2%) patient having OCT nine months following stent implantation, the imaging wire became entrapped amongst stent struts in the LAD with subsequent fracture at the distal tip. In this case, an over-the-wire catheter was initially used to advance the wire distally however, once positioned, was found to be too proximal and within the stent. Attempts to advance the wire forward resulted in wire entrapment. Four month follow-up was uneventful with control angiography showing patent vessel without flow abnormalities.



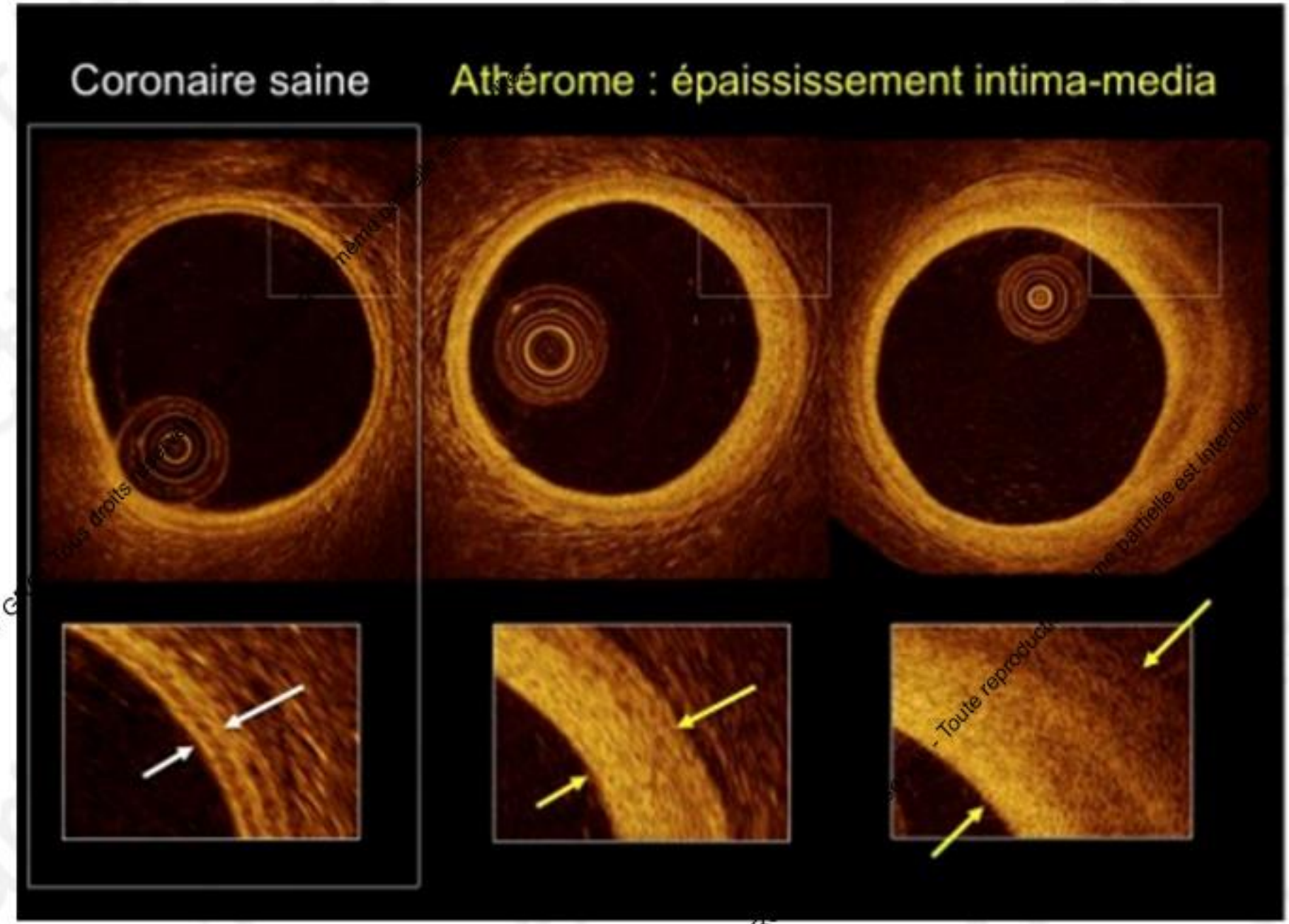
# Rupture et dissection coronaires iatrogènes



# Dissection coronaire spontanée



A gauche : guide et fibre (flush imparfait ) dans la vraie lumière
A droite : premier guide (à 11h) dans la fausse lumière, deuxiéme guide et fibre dans la vraie lumière


Coronaire saine
Athérome : épaississement intima-media

# Importance de la bonne classification des patients en cas d'absence de lésion coronaire significative traité

- Ph Brunel, MG Bourassa, and A Wiseman. **Different rates of coronary artery disease progression in patients with normal and mildly diseased coronary arteries.** Coronary Artery Disease 1991; 2: 449-454.

- Après relecture des films de coronarographie :
- Deux groupes de patients ont été identifiés parmi ce qui avait été classé coronaire normal dans le registre CASS
- Le groupe des patients à lésion non significatives VS groupe de patients a coronaires dites saines

- Sur un suivi moyen de 7 ans

- Moins de 5% Des patients du groupe coronaires saines présentaient des lésion devenues significatives

- Plus de 2/3 des patients du groupe à lésion non significative présentaient des lésions devenues significatives

Alzuhairi et al. BMC Cardiovascular Disorders (2017) 17:279
DOI 10.1186/s12872-017-0710-3

BMC Cardiovascular Disorders

RESEARCH ARTICLE Open Access

# Long-term prognosis of patients with non-ST-segment elevation myocardial infarction according to coronary arteries atherosclerosis extent on coronary angiography: a historical cohort study

Khalim Sadoon Alzuhairi[1*], Peter Søgaard[1,2], Jan Ravkilde[1], Aziza Azimi[3], Michael Mæng[4], Lisette Okkels Jensen[5] and Christian Torp-Pedersen[3]



**Abstract**

**Background:** Patients with non-ST-segment elevation myocardial infarction (NSTEMI) without obstructive coronary artery disease (CAD) are often managed differently than those with obstructive CAD, therefore we aimed in this study to examine the long-term prognosis of patients with NSTEMI according to the degree of CAD on coronary angiography (CAG).

**Methods:** We examined 8.889 consecutive patients admitted for first time NSTEMI during 2000–2011, to whom CAG was performed. Patients were classified by CAG into: 0-vessel disease (0VD), diffuse atherosclerosis (DA; 0% < stenosis <50%), 1-vessel disease (1VD), 2VD, and 3VD with stenosis ≥50%. Follow-up period: 13 years (median 4.5).

**Results:** One-year mortality for NSTEMI patients with 0VD was 3.7%, DA 5.7%, 1VD 2.5%, 2VD 4.8%, and 3VD 11.5%. Non-diabetic 0VD patients had higher risk of mortality than 1VD patients (HR:1.59; 95% CI:1.21–2.02; $P < 0.001$), while those with diabetes mellitus (DM) had not significantly different risk. In addition, 0VD group had higher risk of heart failure (HF) (HR 1.61; 95% CI: 1.39–1.88; $P < 0.001$), and lower risk of recurrent MI (HR:0.55; 95% CI:0.39–0.77; $P < 0.001$) compared with 1VD. For patients with DA; mortality and HF risks were higher than 1VD and not different than 2VD, while recurrent MI risk was not different than 1VD and lower than 2VD.
Finally, the DA group had higher risk of mortality if they had DM, higher risk of recurrent MI, and not different risk of HF and stroke compared with the 0VD group patients.

**Conclusion:** Patients with NSTEMI and non-obstructive CAD (both normal coronaries and diffuse atherosclerosis) have a comparable prognosis to patients with one- or two-vessel disease. Patients with diffuse atherosclerosis have worse prognosis than those with angiographically normal coronary arteries.

**Keywords:** Acute coronary syndrome, Myocardial infarction, Prognosis, Non-obstructive coronary artery disease

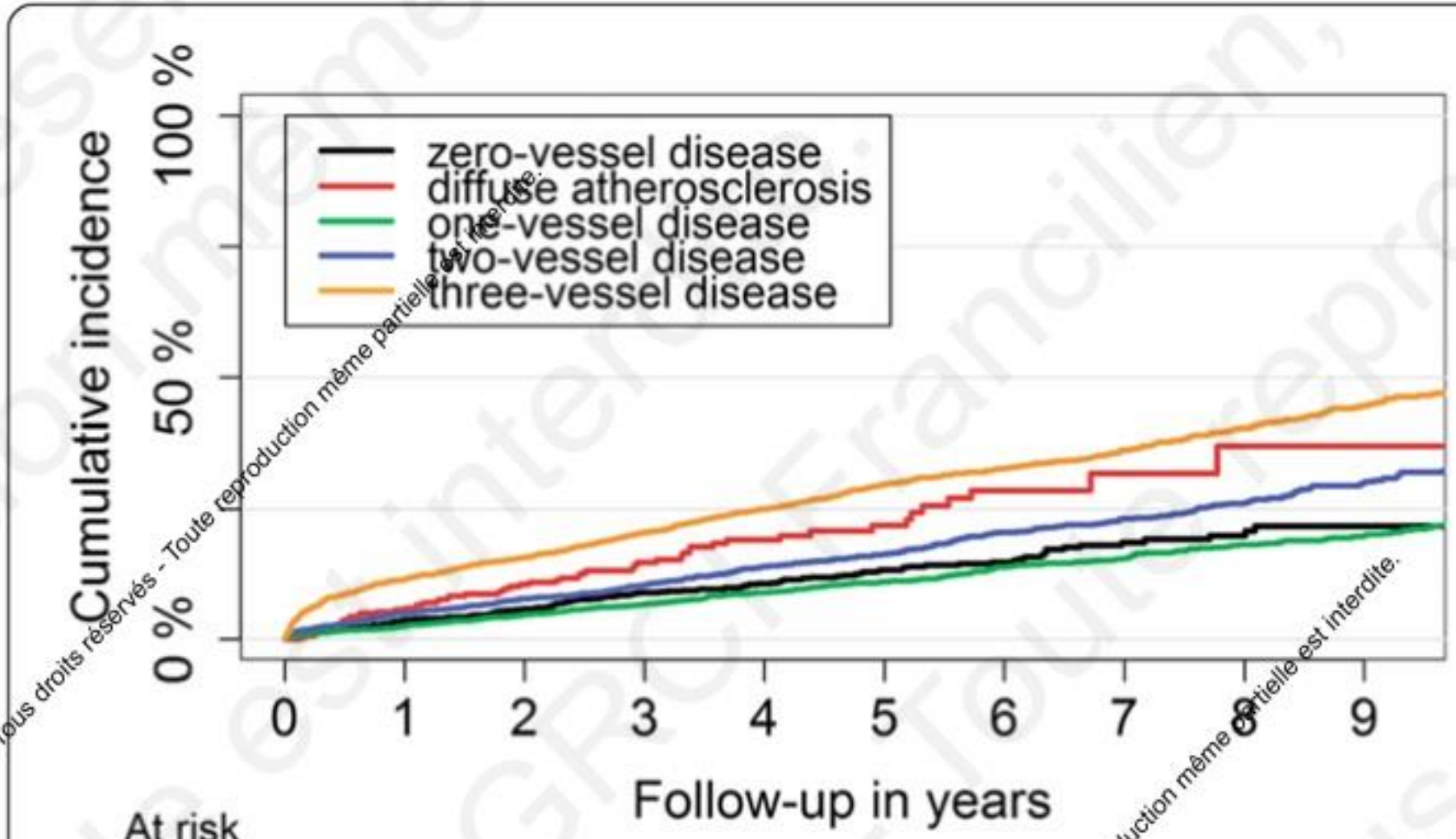





**Fig. 1** Long-term mortality in patients with non-ST-segment elevation myocardial infarction according to their coronary artery atherosclerosis extent

European Heart Journal (2013) **34**, 2949–3003
doi:10.1093/eurheartj/eht296



# 2013 ESC guidelines on the management of stable coronary artery disease

## The Task Force on the management of stable coronary artery disease of the European Society of Cardiology

**Task Force Members: Gilles Montalescot* (Chairperson) (France), Udo Sechtem* (Chairperson) (Germany), Stephan Achenbach (Germany), Felicita Andreotti (Italy), Chris Arden (UK), Andrzej Budaj (Poland), Raffaele Bugiardini (Italy), Filippo Crea (Italy), Thomas Cuisset (France), Carlo Di Mario (UK), J. Rafael Ferreira (Portugal), Bernard J. Gersh (USA), Anselm K. Gitt (Germany), Jean-Sebastien Hulot (France), Nikolaus Marx (Germany), Lionel H. Opie (South Africa), Matthias Pfisterer (Switzerland), Eva Prescott (Denmark), Frank Ruschitzka (Switzerland), Manel Sabaté (Spain), Roxy Senior (UK), David Paul Taggart (UK), Ernst E. van der Wall (Netherlands), Christiaan J.M. Vrints (Belgium).**

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**Table 31 Use of fractional flow reserve, intravascular ultrasound, and optical coherence tomography in SCAD**

| Recommendations | Class [a] | Level [b] | Ref. [c] |
|---|---|---|---|
| FFR is recommended to identify haemodynamically relevant coronary lesion(s) when evidence of ischaemia is not available. | I | A | 399, 401, 405 |
| Revascularization of stenoses with FFR <0.80 is recommended in patients with angina symptoms or a positive stress test. | I | B | 400 |
| IVUS or OCT may be considered to characterize lesions. | IIb | B | 404, 406 |
| IVUS or OCT may be considered to improve stent deployment. | IIb | B | 404 |
| Revascularization of an angiographically intermediate stenosis without related ischaemia or without FFR <0.80 is not recommended. | III | B | 399, 405 |

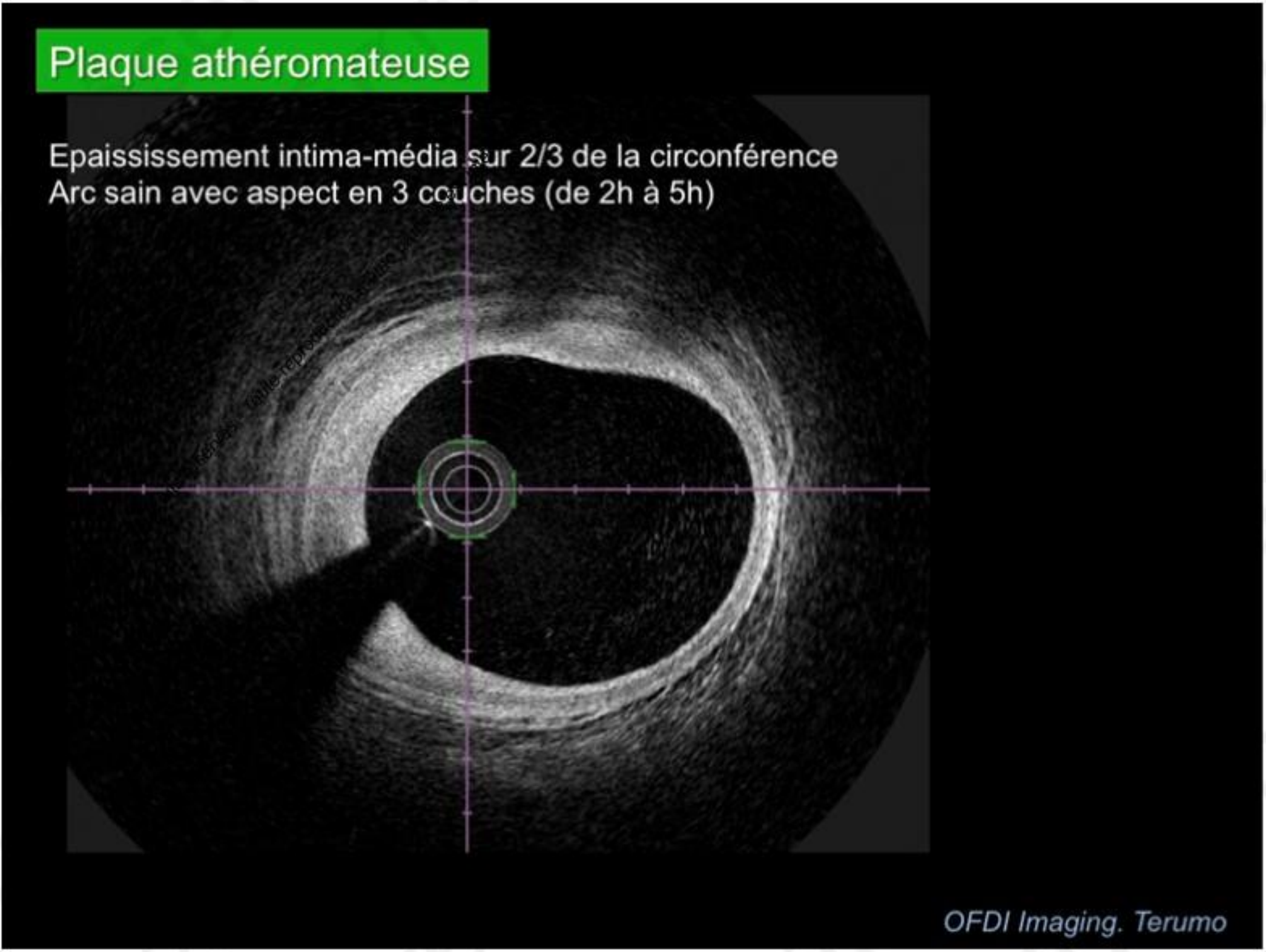
FFR = fractional flow reserve; IVUS = intravascular ultrasound; OCT = optical coherence tomography; SCAD = stable coronary artery disease.

[a] Class of recommendation.

[b] Level of evidence.

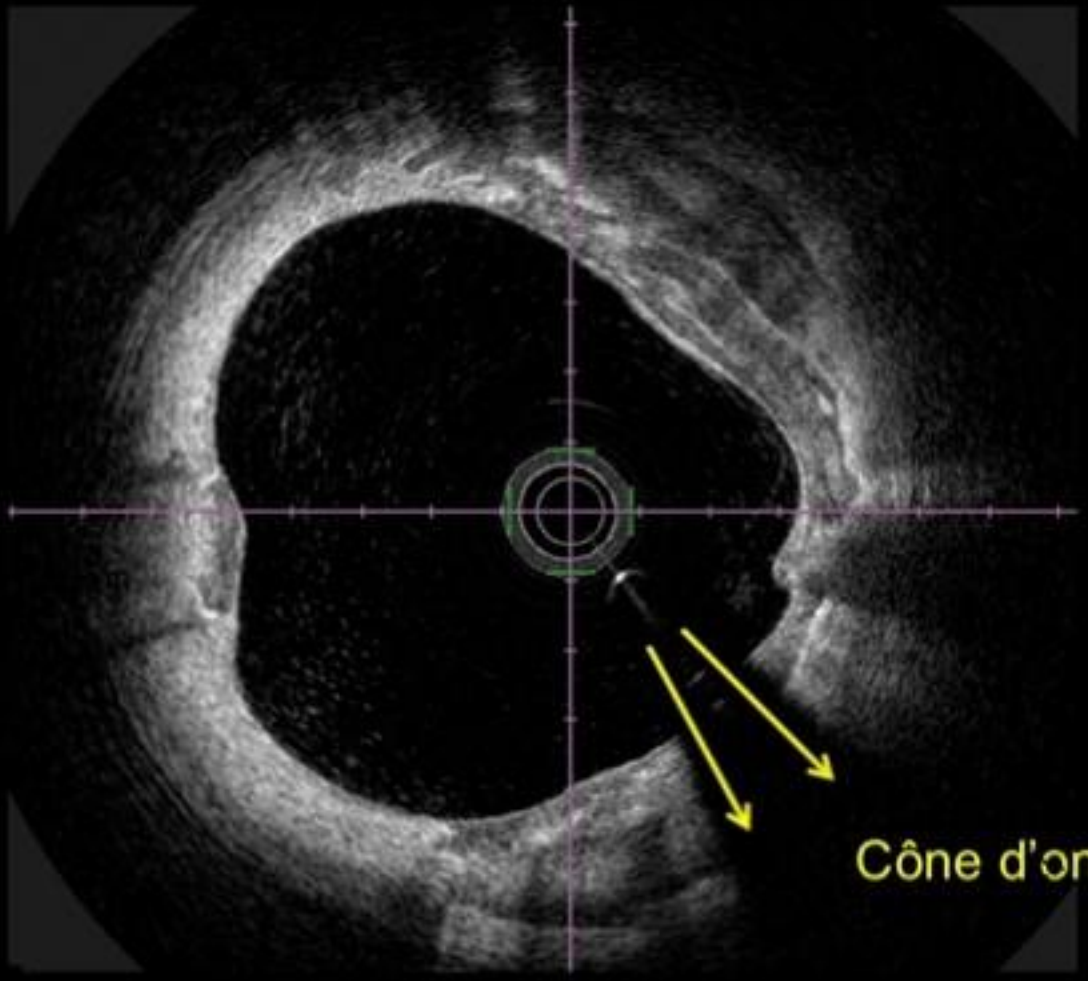
[c] Reference(s) supporting levels of evidence.

# Plaque athéromateuse



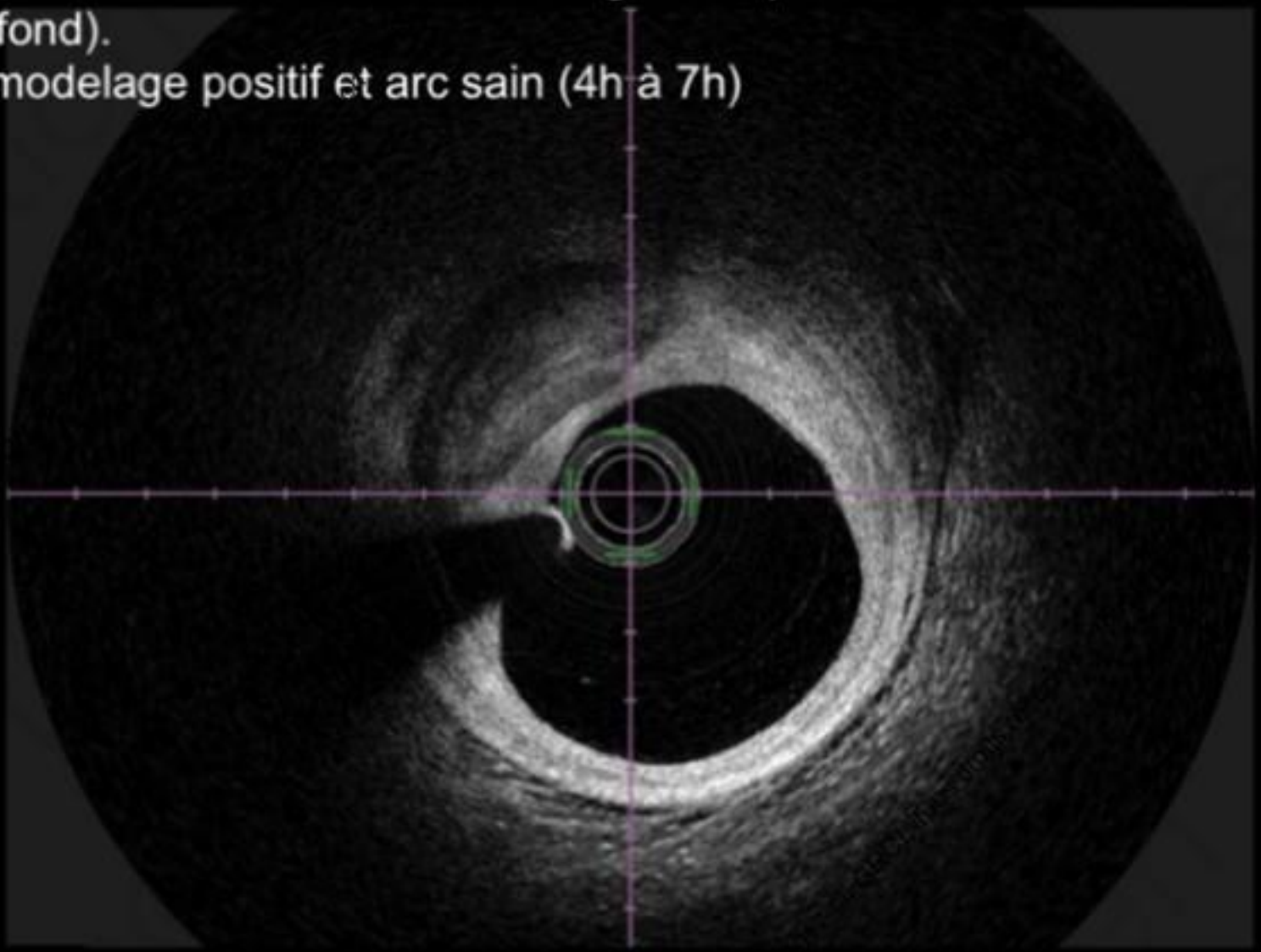
# Plaques calcifiées

Plaques superficielles déformant le contour luminal à bords tranchants, contenu hétérogène (hypo, iso et hypersignal par rapport à l'adventice), faible atténuation rendant possible la délimitation du contour profond).



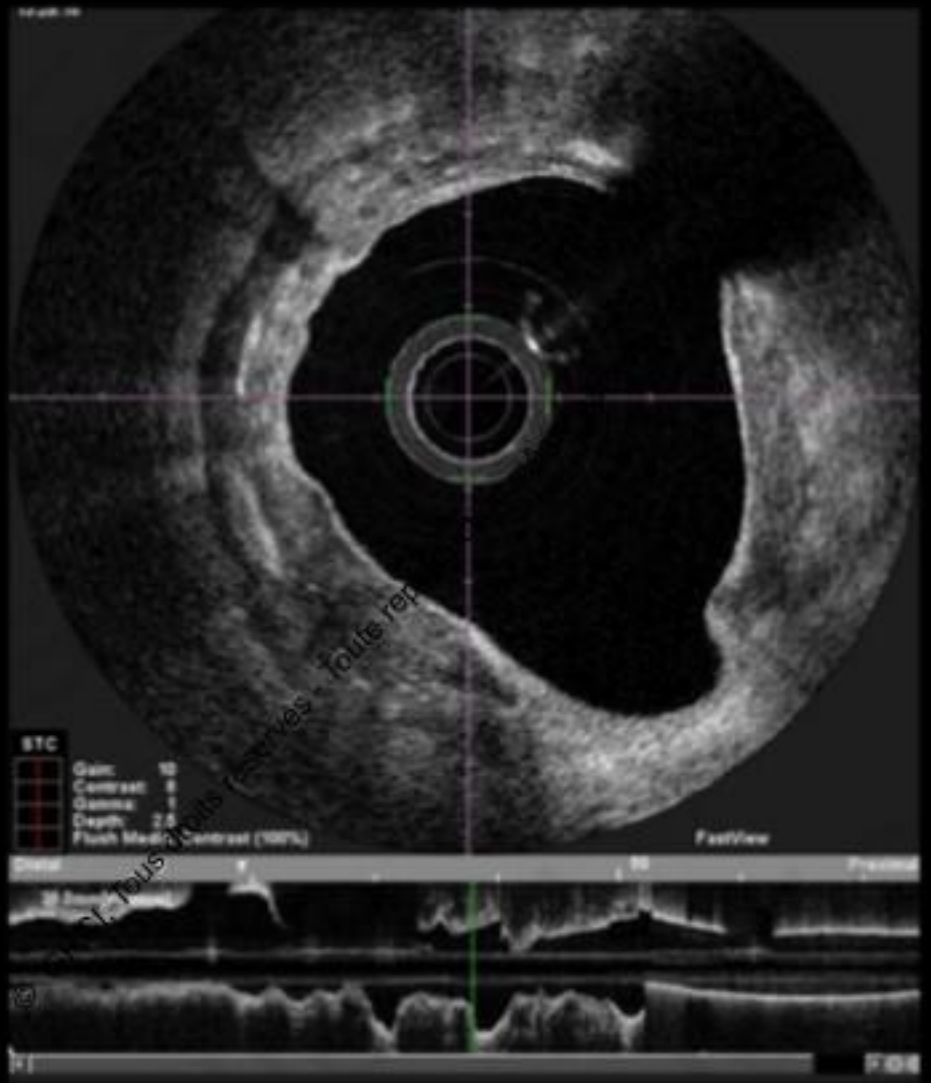
# Plaque lipidique

Plaque au contenu homogène (hyposignal par rapport à l'adventice) à bords mousses à forte atténuation du signal empêchant la délimitation du contour profond).
Remodelage positif et arc sain (4h à 7h)



# Plaques calcifiées

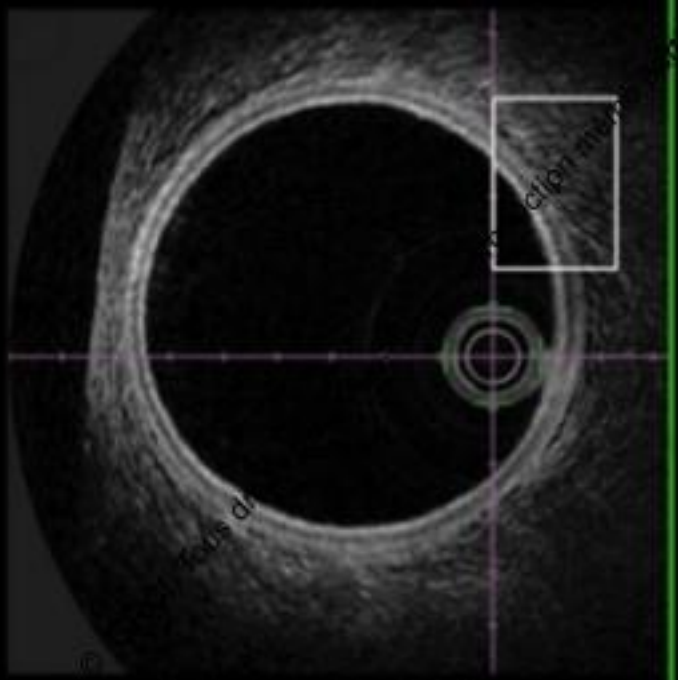
Calcifications annulaires circonférentielles
Sur la Longview, les calcifications s'étendent sur plus de 50mm.

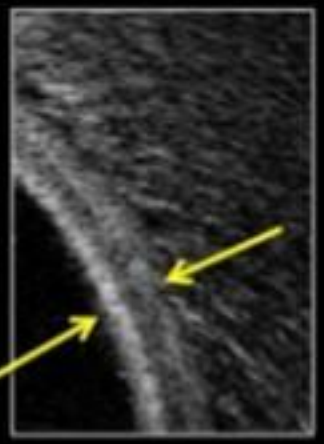



BRUNEL, Philippe
HOPITAL PRIVE DIJON BOURGOGNE

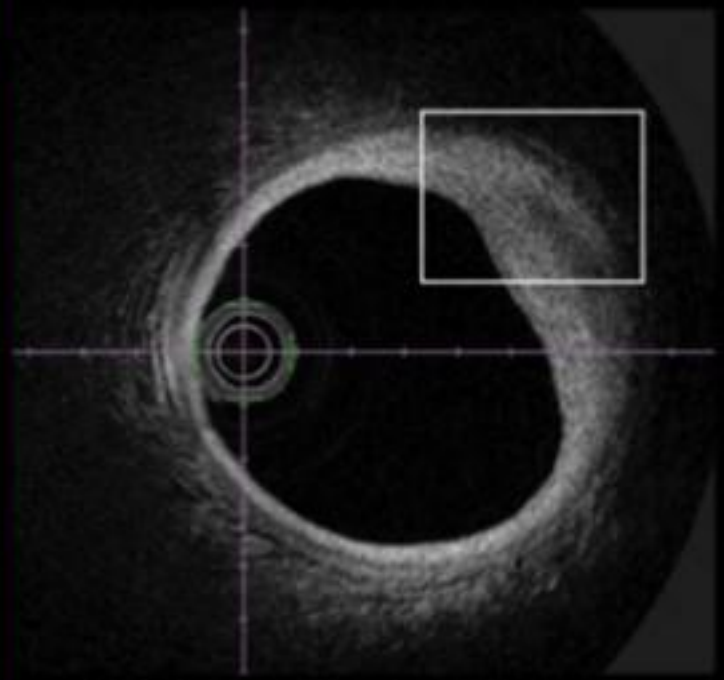
## Coronaire saine

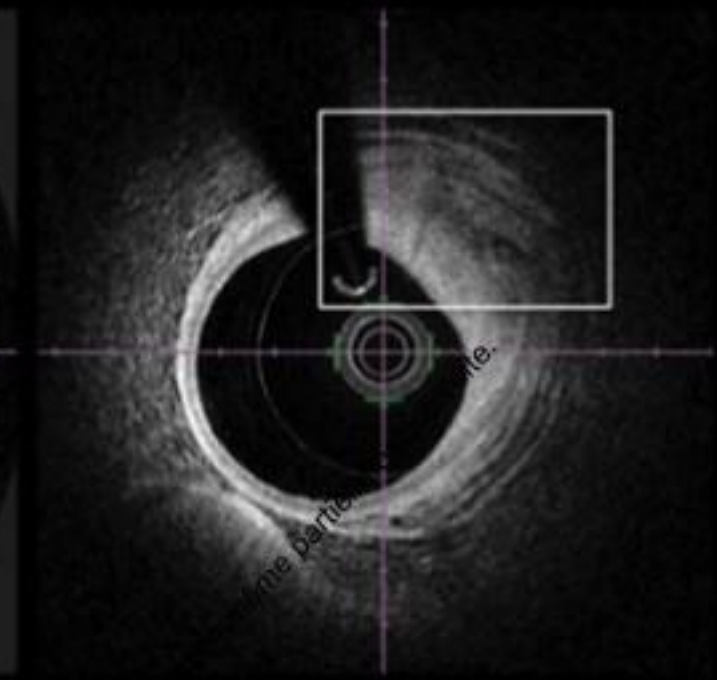
## Athérome : épaississement intima-media

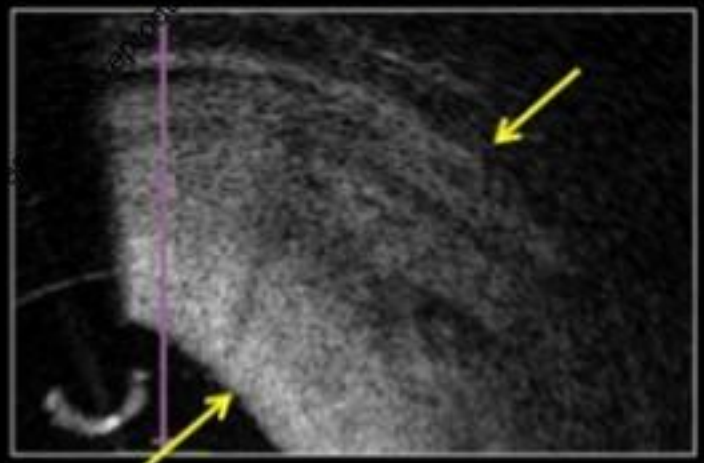




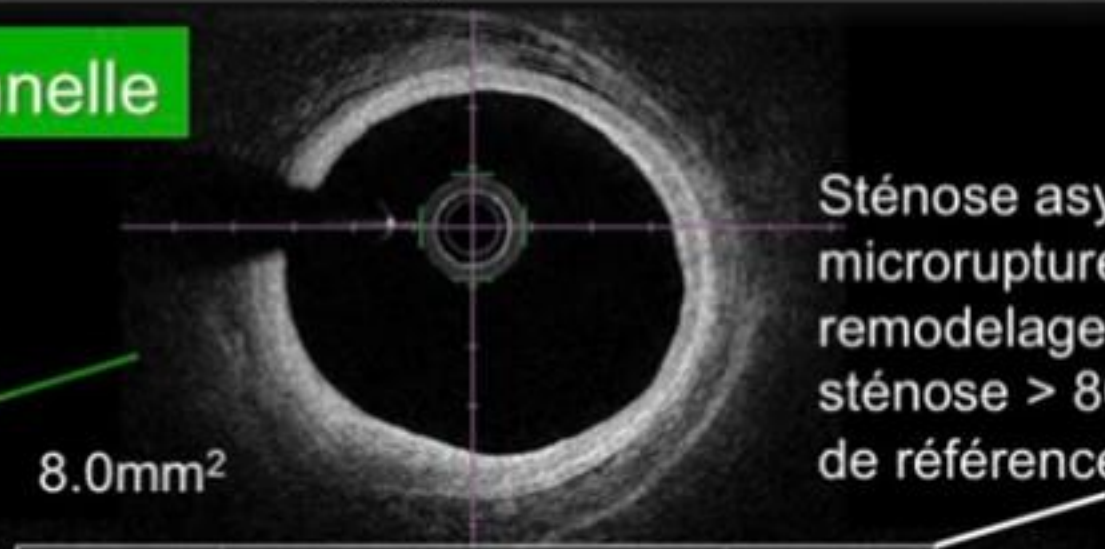
paroi ≈ 300µm



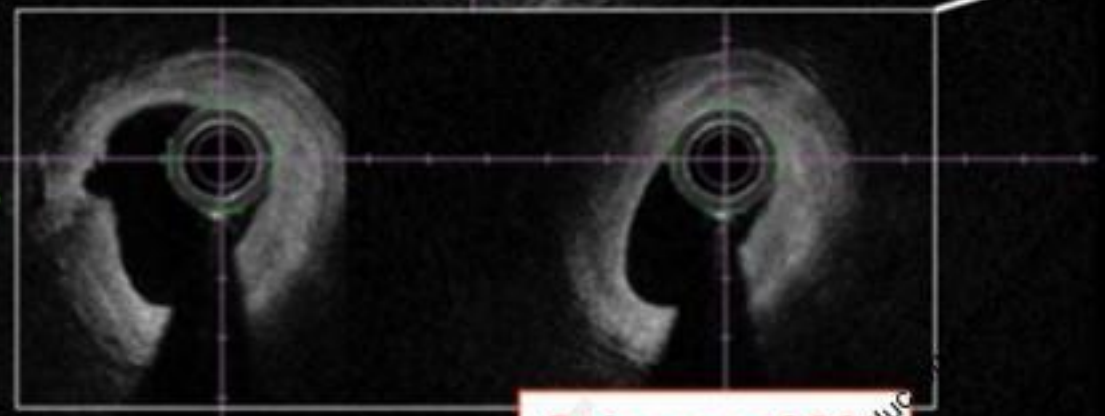




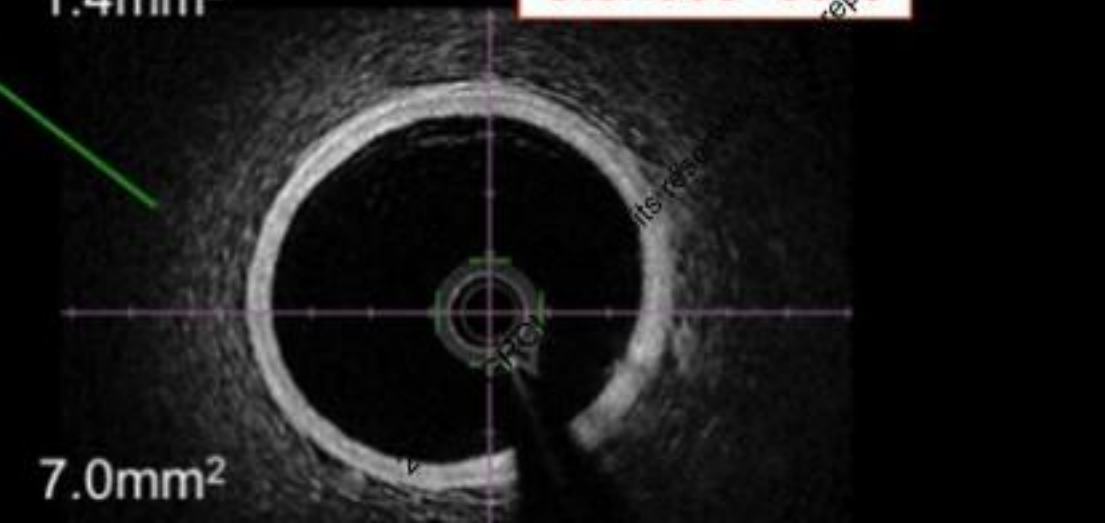
# Ambiguïté fonctionnelle


Sténose asymétrique, microrupture plaque (9h), remodelage négatif, sténose > 80% / surface de référence




Sténose>80%



# Systématique?

- Difficile en diagnostic
- Plus »facile » en Interventionel
- Intérêt +++ d'assister à une session de quelques jour dans un centre qui pratique l'OCT
- ATELIERS

# Quels chiffes retenir?

**Intravascular ultrasound-derived minimal lumen area criteria for functionally significant left main coronary artery stenosis.**
Park SJ, et al. JACC Cardiovasc Interv. 2014.

optimal IVUS MLA cutoff value for an FFR of ≤0.80 was 4.5 mm(2) (77% sensitivity, 82% specificity, 84% positive predictive value, 75% negative predictive value,

In patients with isolated ostial and shaft intermediate LMCA stenosis,
IVUS-derived MLA of ≤4.5 mm(2) is a useful index of an FFR of ≤0.80.

***Impact of intravascular ultrasound guidance on long-term mortality in stenting for unprotected left main coronary artery stenosis.***

*Park SJ, et al. Circ Cardiovasc Interv. 2009.*

CONCLUSIONS: Elective stenting with IVUS guidance, especially in the placement of drug-eluting stent, may reduce the long-term mortality rate for unprotected left main coronary artery stenosis when compared with conventional angiography guidance.

# Efficacy of Optical Coherence Tomography-derived Morphometric Assessment in Predicting the Physiological Significance of Coronary Stenosis: Head-to-Head Comparison with Intravascular Ultrasound.

Usui E1, Yonetsu T, Kanaji Y, Hoshino M, Yamaguchi M, Hada M, Hamaya R, Kanno Y, Murai T, Lee T, Kakuta T

s (OCT-MLA≤1.39 mm2 and FFR<0.75)

19% (22/113). Multivariate analysis showed that older age, non-left anterior descending artery and smaller angiographic reference diameter were independent predictors of false-positive results using the OCT-MLA criteria, whereas younger age and low left ventricular ejection fraction were independent predictors of false-negative results.

**CONCLUSIONS:**
Intravascular imaging is not interchangeable with FFR in clinical decision making. However, OCT may have superior efficacy to IVUS in detecting functional ischemia. Discrepancies between OCT-MLA and FFR should be taken into account for OCT-guided decision making.

# Efficacy of Optical Coherence Tomography-derived Morphometric Assessment in Predicting the Physiological Significance of Coronary Stenosis: Head-to-Head Comparison with Intravascular Ultrasound.

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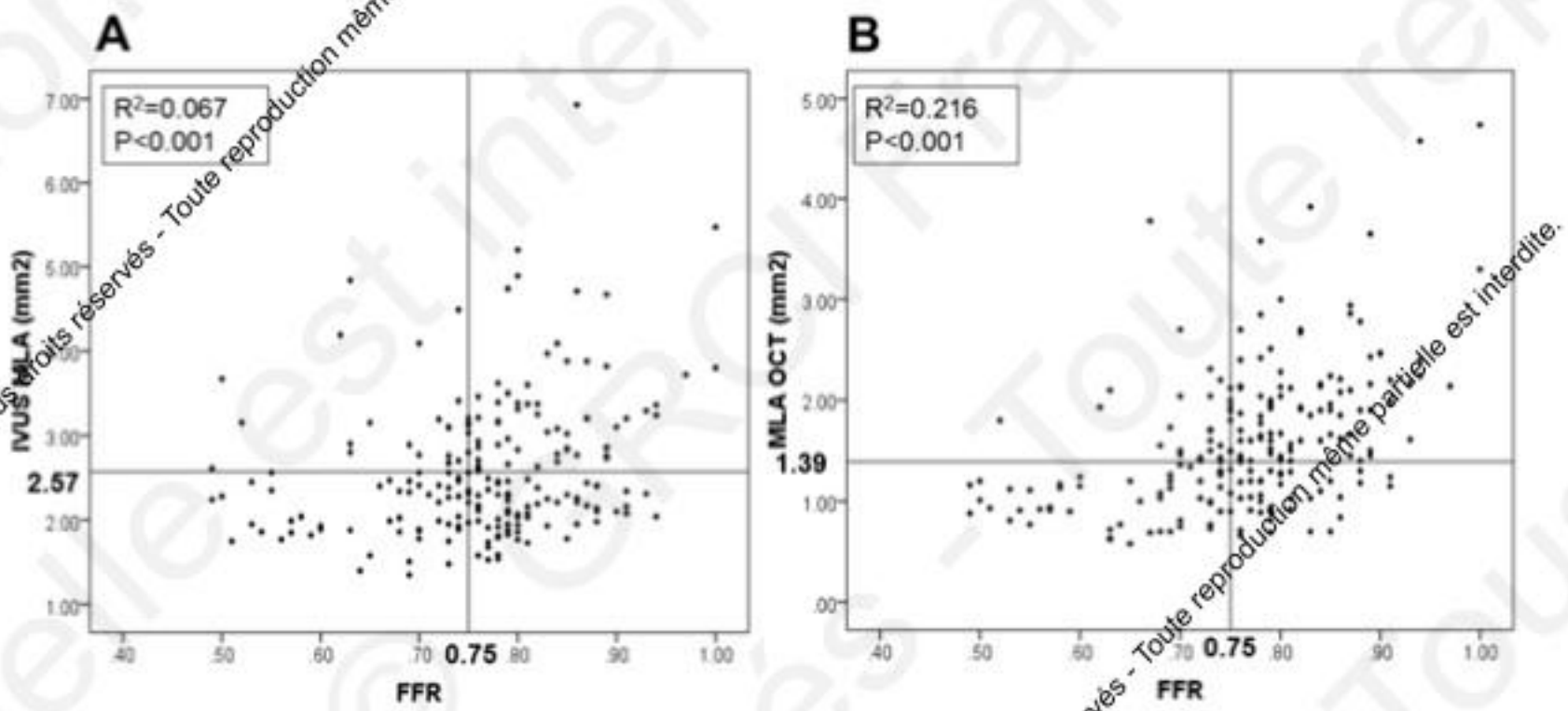
## Author information

This study aimed to investigate the diagnostic efficacy of optical coherence tomography (OCT) in identifying functional significance via fractional flow reserve (FFR) compared with that of intravascular ultrasound (IVUS).

**CONCLUSIONS:**

Intravascular imaging is not interchangeable with FFR in clinical decision making. However, OCT may have superior efficacy to IVUS in detecting functional ischemia. Discrepancies between OCT-MLA and FFR should be taken into account for OCT-guided decision making.

# Figure 3



Eur Heart J. 2015 Dec 14;36(47):3346-55.

**Optical coherence tomography imaging during percutaneous coronary intervention impacts physician decision-making: ILUMIEN I study.**

Wijns W1, Shite J2, Jones MR3, Lee SW4, Price MJ5, Fabbiocchi F6, Barbato E7, Akasaka T8, Bezerra H9, Holmes D10.



Optical coherence tomography and documentary FFR were performed pre- and post-PCI in 418 patients (with 467 stenoses) with stable or unstable angina or NSTEMI.

Based on pre-PCI OCT, ***the procedure was altered in 55% of patients*** (57% of all stenoses) by selecting different stent lengths (shorter in 25%, longer in 43%).

***After clinically satisfactory stent implantation using angiographic guidance, post-PCI FFR and OCT were repeated***

Optical coherence tomography abnormalities deemed unsatisfactory by the implanting physician were identified: 14.5% malapposition, 7.6% under-expansion, 2.7% edge dissection and **prompted further stent optimization based on OCT in 25% of patients** (27% of all stenoses) using additional in-stent post-dilatation (81%, 101/124) or placement of 20 new stents (12%)

# Comparison of Full Lesion Coverage versus Spot Drug-Eluting Stent Implantation for Coronary Artery Stenoses

Seunghwan Kim,[1*] Kyeong Ho Yun,[2*] Woong Chol Kang,[3] Dong-Ho Shin,[4] Jung-Sun Kim,[4] Byeong-Keuk Kim,[4] Young-Guk Ko,[4] Donghoon Choi,[4] Yangsoo Jang,[4,5] and Myeong-Ki Hong[4,5]

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[2]Department of Cardiovascular Medicine, Regional Cardiovascular Center, Wonkwang University Hospital, Iksan;
[3]Department of Cardiology, Gil Hospital, Gachon University, Incheon;
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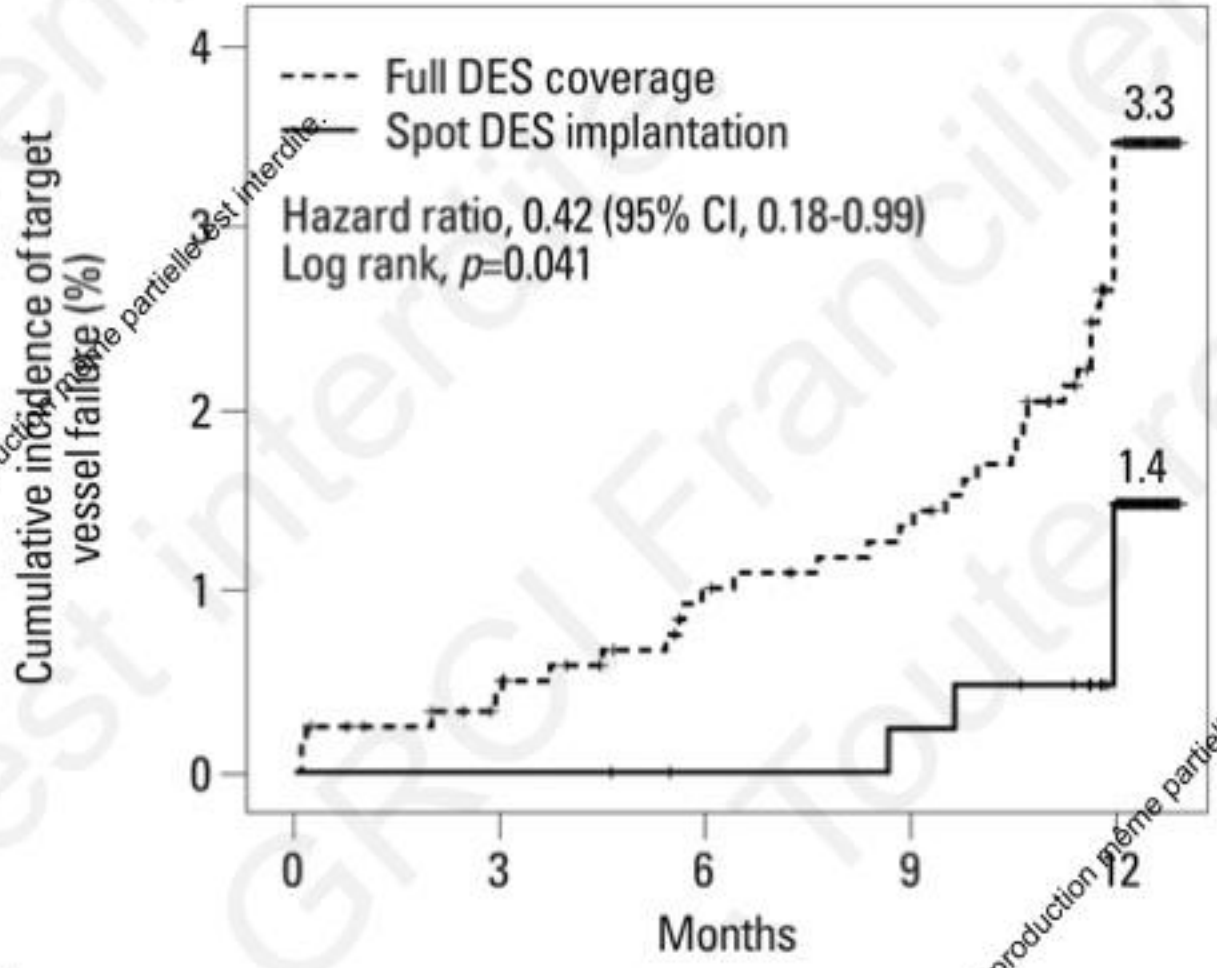


| No. at risk | | | | | |
|---|---|---|---|---|---|
| Full DES coverage | 1200 | 1184 | 1172 | 1107 | 1093 |
| Spot DES implantation | 419 | 419 | 416 | 416 | 392 |

**Fig. 1.** Cumulative incidence of target vessel failure at 1 year. One year time-to-event curves are shown for target vessel failure in patients treated with full DES coverage versus spot DES implantation. Event rates represent Kaplan-Meier estimates. The *p* values are based on the log-rank test. CI, confidence interval; DES, drug-eluting stent.

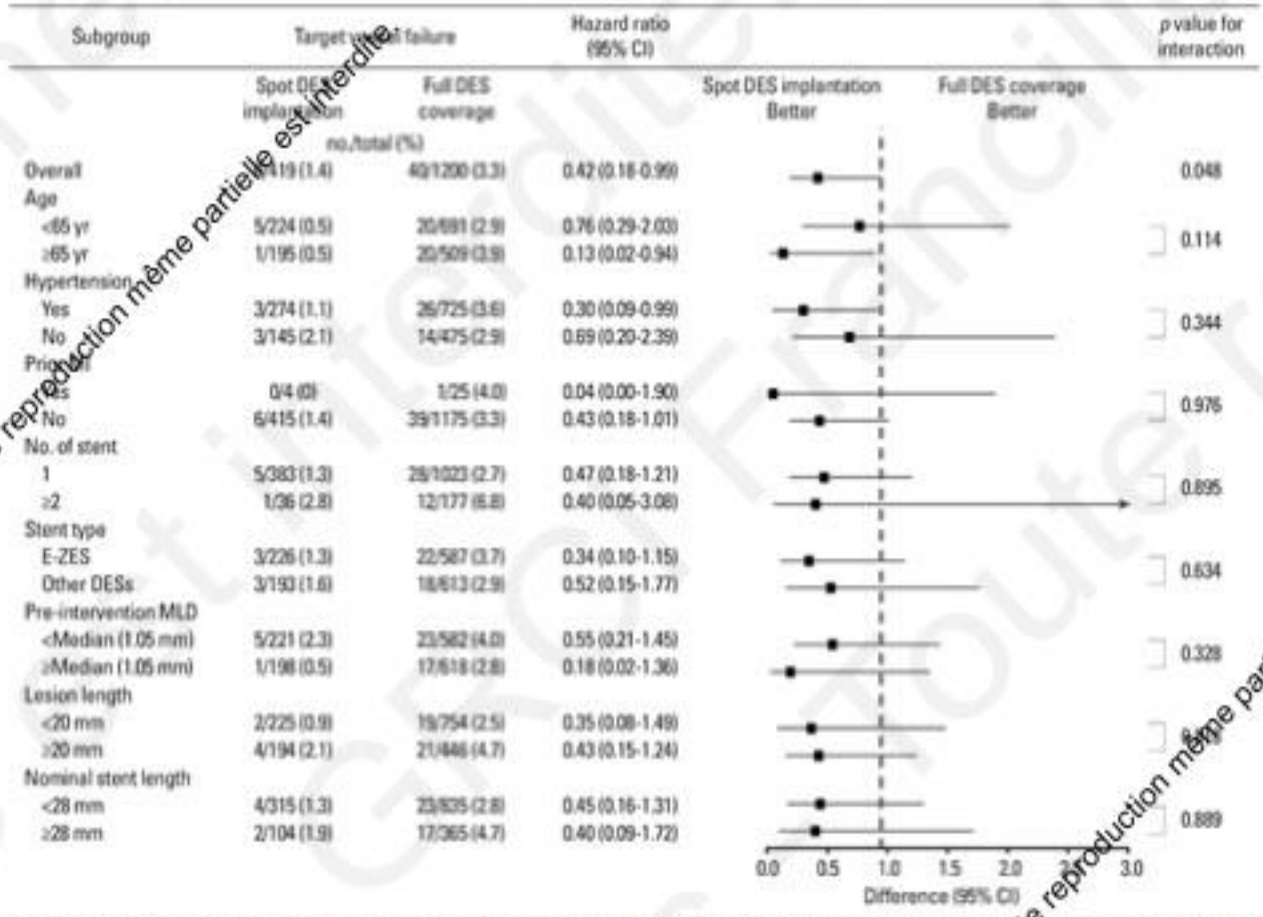


**Fig. 2.** Subgroup analyses of the 1-year rates of target vessel failure. Subgroup analyses are shown for the target vessel failure at 1 year among subgroups of patients treated with full DES coverage versus spot DES implantation. The *p* value for interaction represents the likelihood of interaction between the variable and the relative treatment effect. CI, confidence interval; DES, drug-eluting stent; E-ZES, Endeavor zotarolimus-eluting stent; MI, myocardial infarction; MLD, minimal lumen diameter.

**Table 4.** Independent Predictors of 1-Year Target Vessel Failure in Cox's Regression Analysis

| Predictors | Hazard ratio (95% CI) | *p* value |
|---|---|---|
| Age (yrs) | 1.01 (0.98-1.03) | 0.678 |
| History of hypertension | 1.10 (0.44-2.02) | 0.762 |
| History of prior myocardial infarction | 1.25 (0.17-9.19) | 0.827 |
| No. of diseased coronary arteries | 0.91 (0.57-1.43) | 0.652 |
| No. of stents | 1.61 (0.51-5.03) | 0.416 |
| E-ZES (vs. other DESs) | 1.27 (0.71-2.28) | 0.421 |
| Pre-intervention MLD (mm) | 0.65 (0.35-1.21) | 0.170 |
| Lesion length (mm) | 1.02 (0.96-1.10) | 0.507 |

# Conclusion

- fantastique images de l'OCT
- Nouvel univers
- Diagnostic de coronaire saines
- 1.4 mm2, 4.5 mm2 ?

- Faible iatrogènénie
- En angioplastie plus qu'en diagnostic??
- Ateliers

- ATEL