

Coronaropathie de l'adulte jeune À La Réunion

Cardio RUN 2014

Saint Gilles

Jeudi 02/10/2014

Docteur C. POUILLOT

Yoan S. 26 ans...

Adressé en urgence à l'USIC de la CSC
pour SCA ST- Troponine +



Antécédents médicaux et chirurgicaux : 0

Traitement habituel : 0

26/05/2014 à 8h30 : jogging pdt 2 heures

½ h après arrêt effort, DRS spontanée ,irradiant dans dos et bras gauche, durant \approx 2 h , puis cédant spontanément.

17 h : consultation médecin traitant

⇒ Urgences CHU site sud (St Pierre)

Aux Urgences



- angor : 0
- Examen clinique : normal
- ECG : RSR, minime sus ST apico latéral, pas de miroir, pas d'onde Q de nécrose
- ETT : normale
VG non dilaté, non hypertrophié, bonne fonction systolique globale et segmentaire
Péricarde sec
- Elévation Troponine : 0.06 ng/ml → 0.29 ng/ml

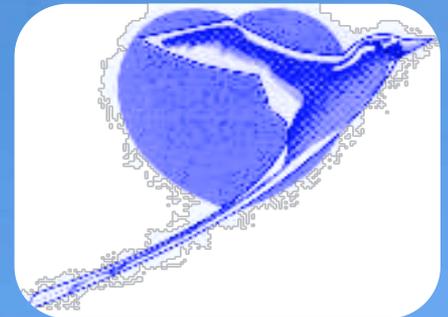
Diagnostic : SCA ST- Troponine +

Aspégic IV 250 mg

Brilique PO 180 mg

Arixtra SC 2.5 mg

Transfert en urgence à l'USIC de la CSC



Facteurs de risque artériels

- **Hérédité ++ :**
 - Père mort subite (27 ans)
 - Oncle paternel mort subite (32 ans)
 - Grand père paternel mort subite (47 ans)
- Diabète : 0, HbA1c 5.6 %.
- CT 1.95 g/l, TG 2.37 g/l, HDL C .29 g/l ,
LDL C 1.19 g/l
- Tabagisme : 3 PA, actif, 10 g/j
- P: 81 kg , T: 1m75 ,(IMC 26.5)

Examen clinique

Angor : 0

FC : 60/mn

Apyrexie

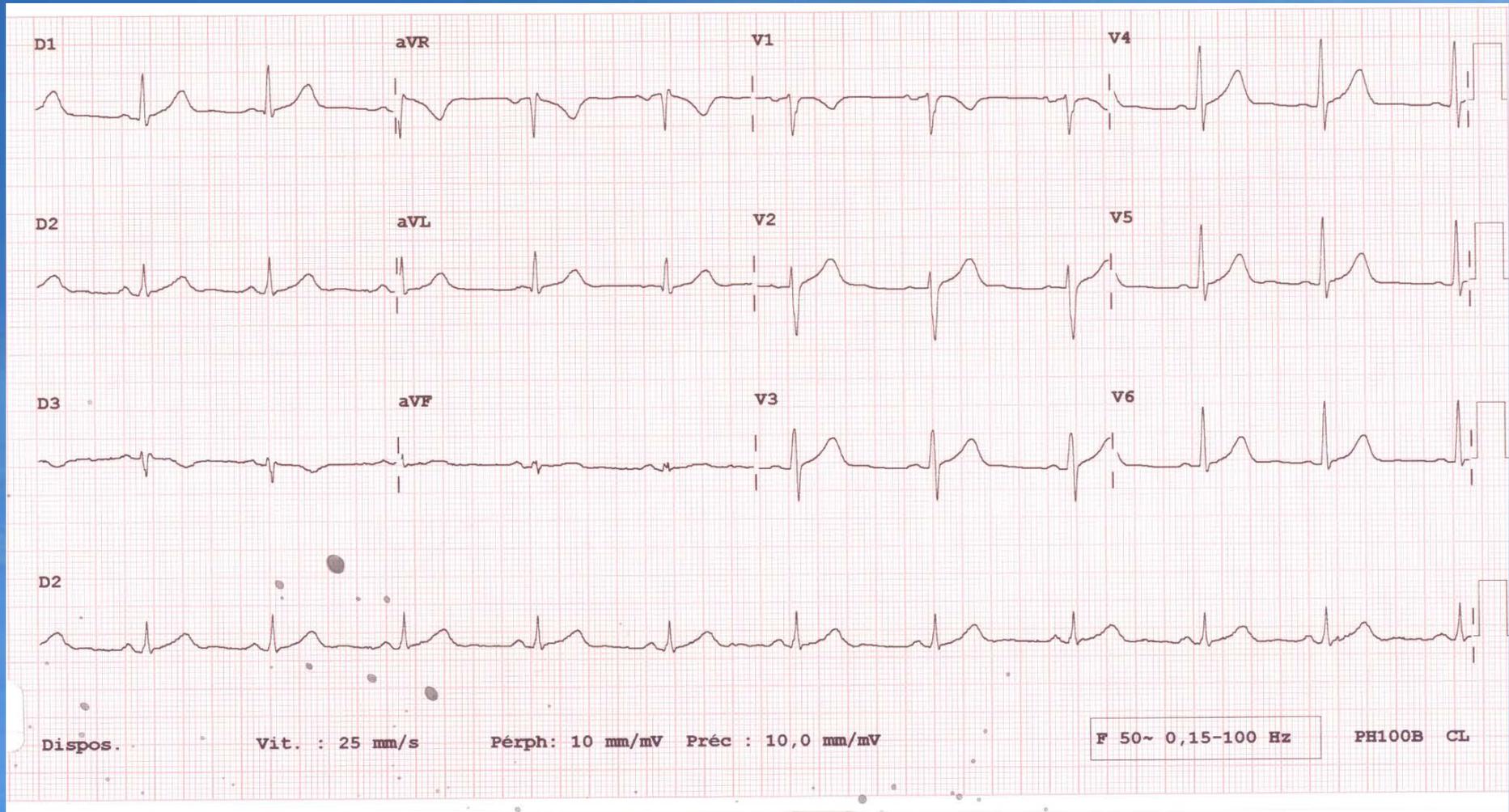
Sat AA : 100%

PA : 130/65 bras droit, 130/85 bras gauche

Auscultation cardio pulmonaire : normale.

Insuffisance cardiaque : 0

ECG



Bilan biologique

CK 386 UI/l, Troponine 2.4 ng/ml, GOT 41 UI/l

**Qu'auriez vous fait :
patient de 26 ans ans
ECG normal ?**

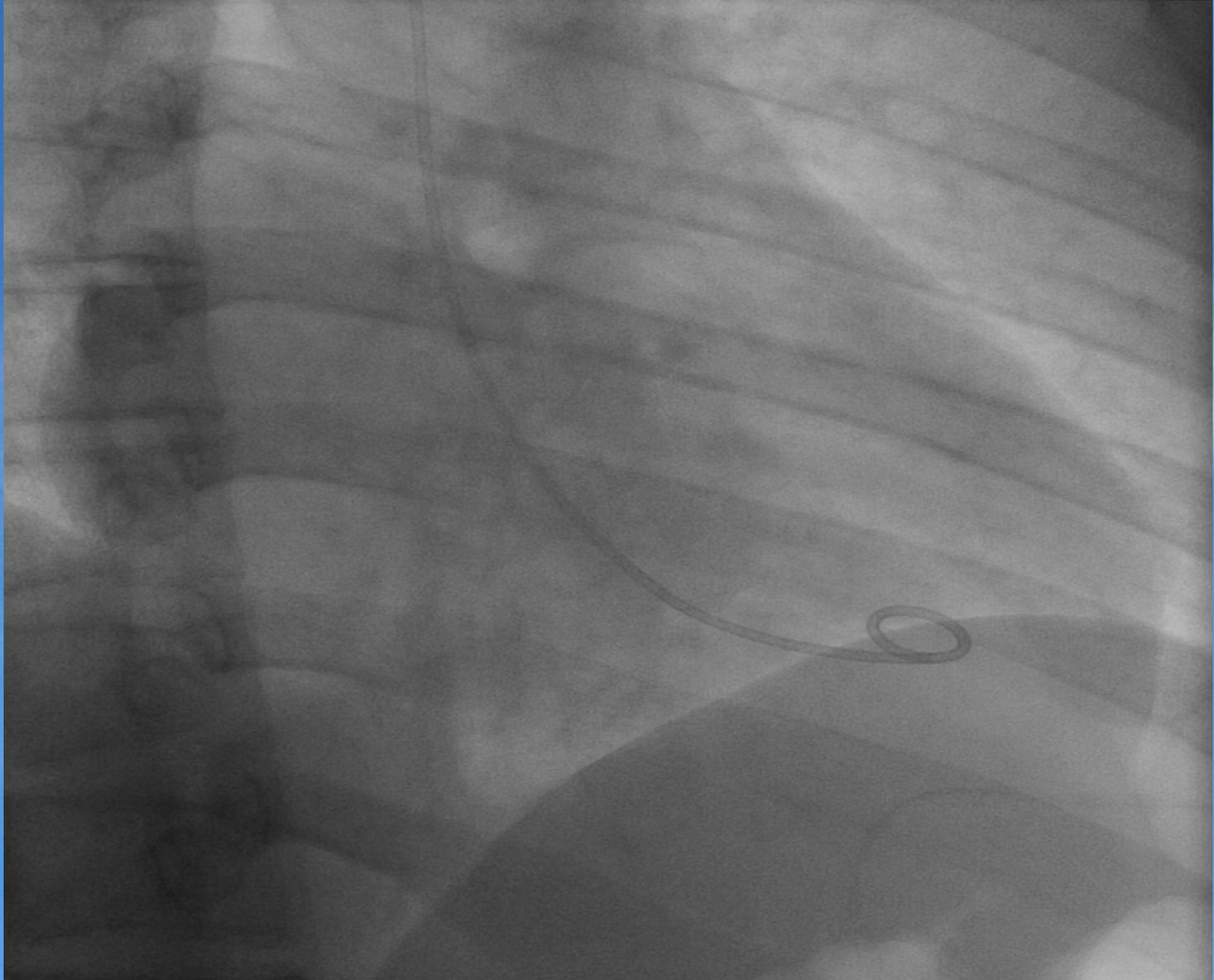


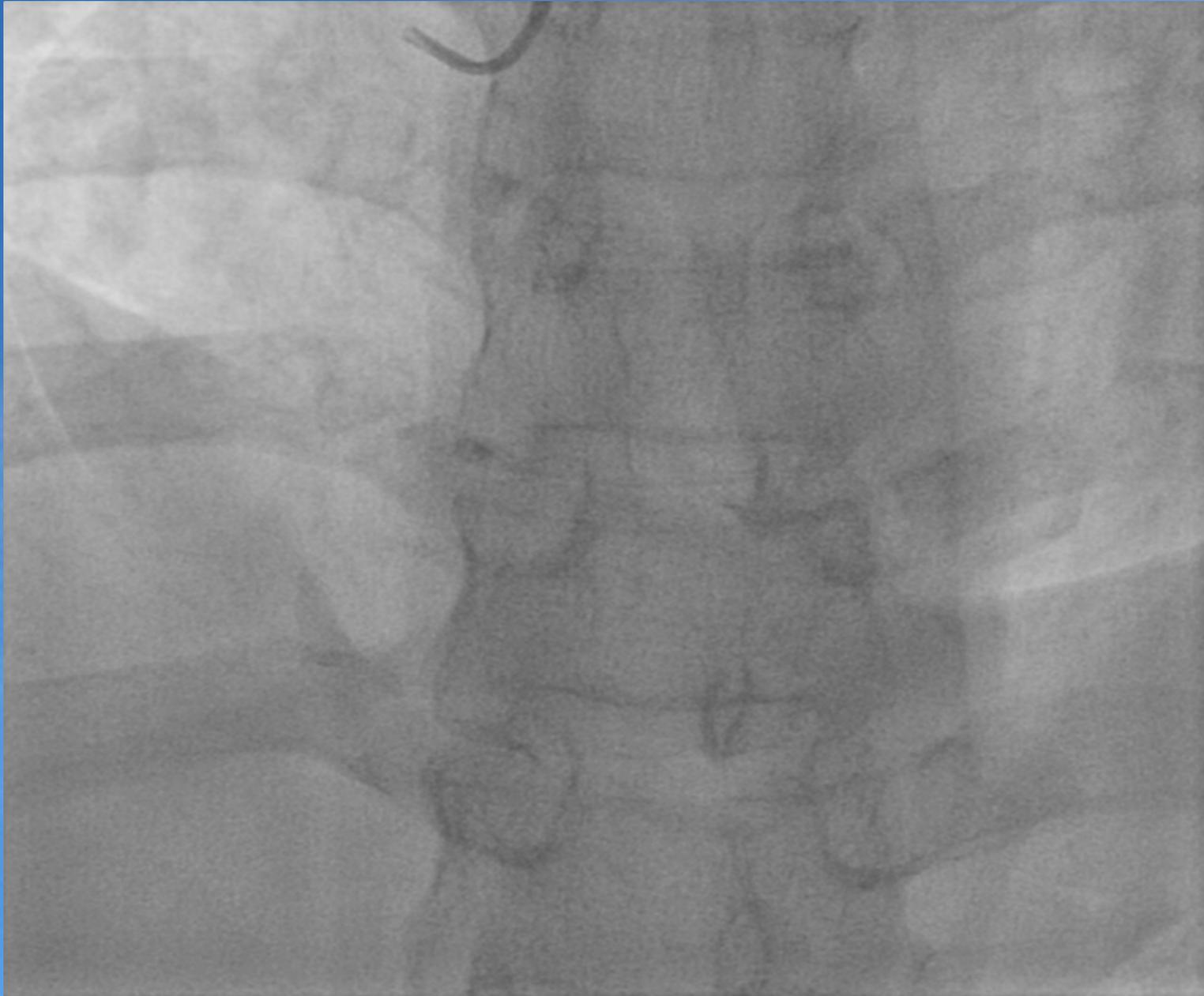
IRM myocardique ?

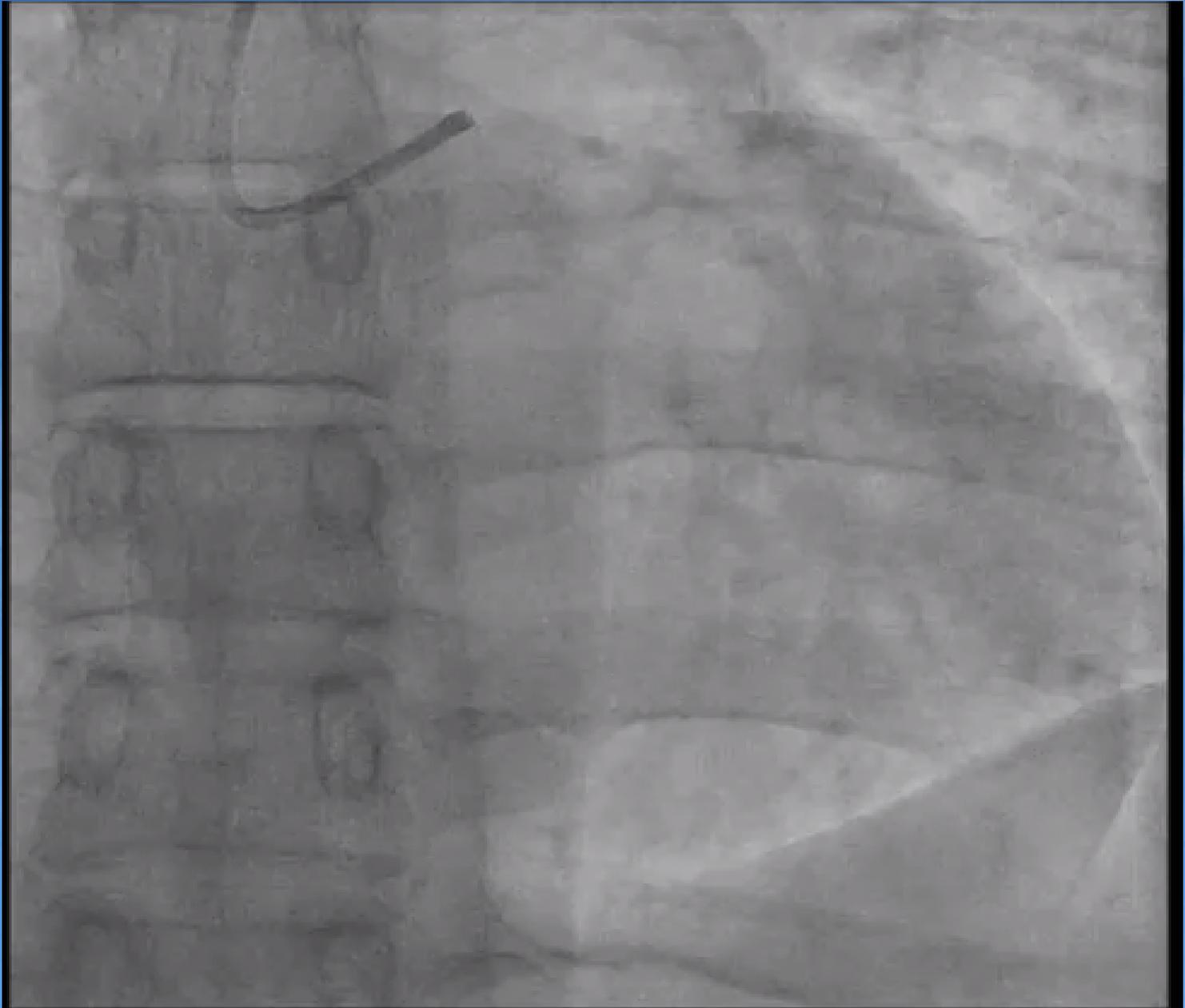


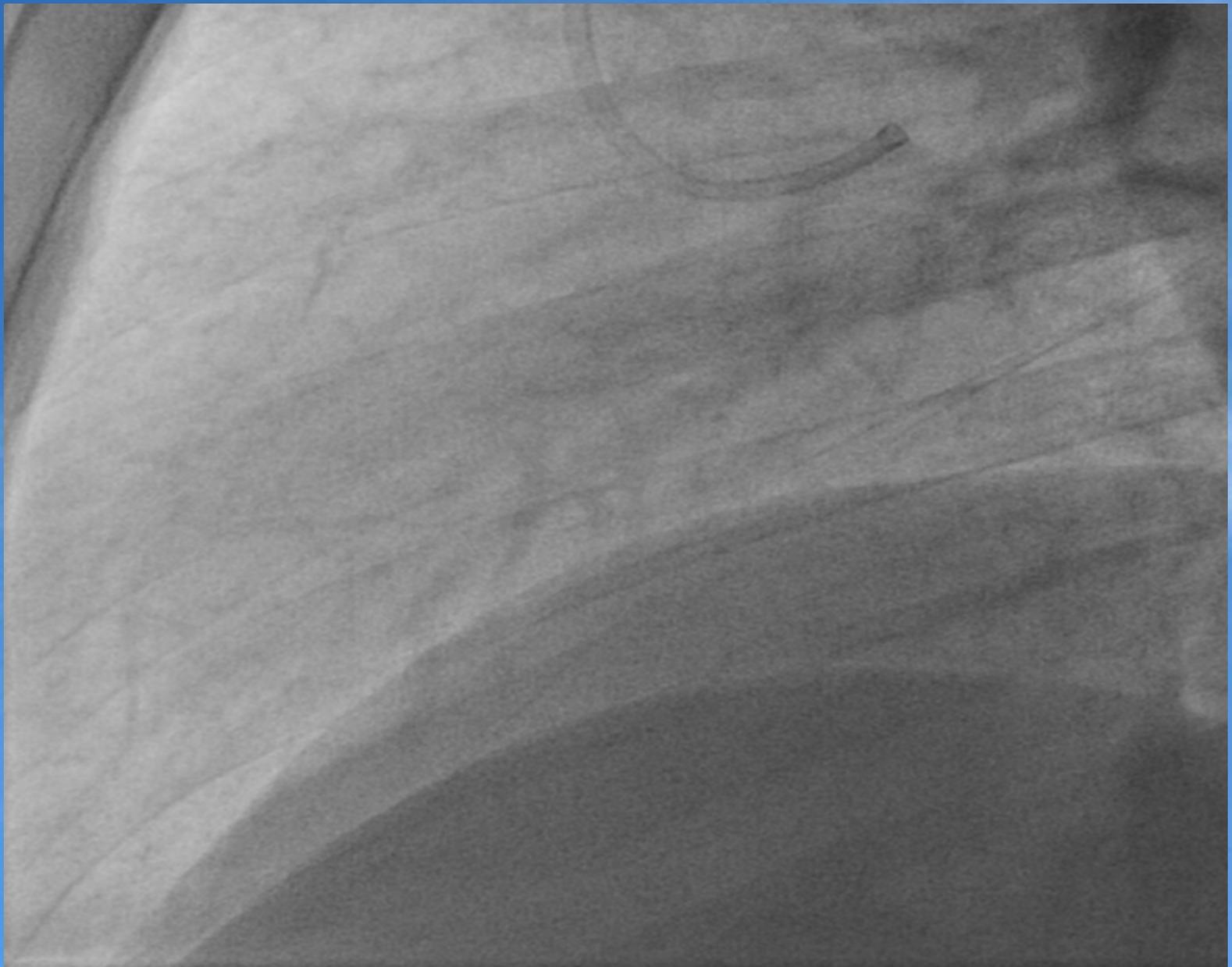
Coronarographie ?

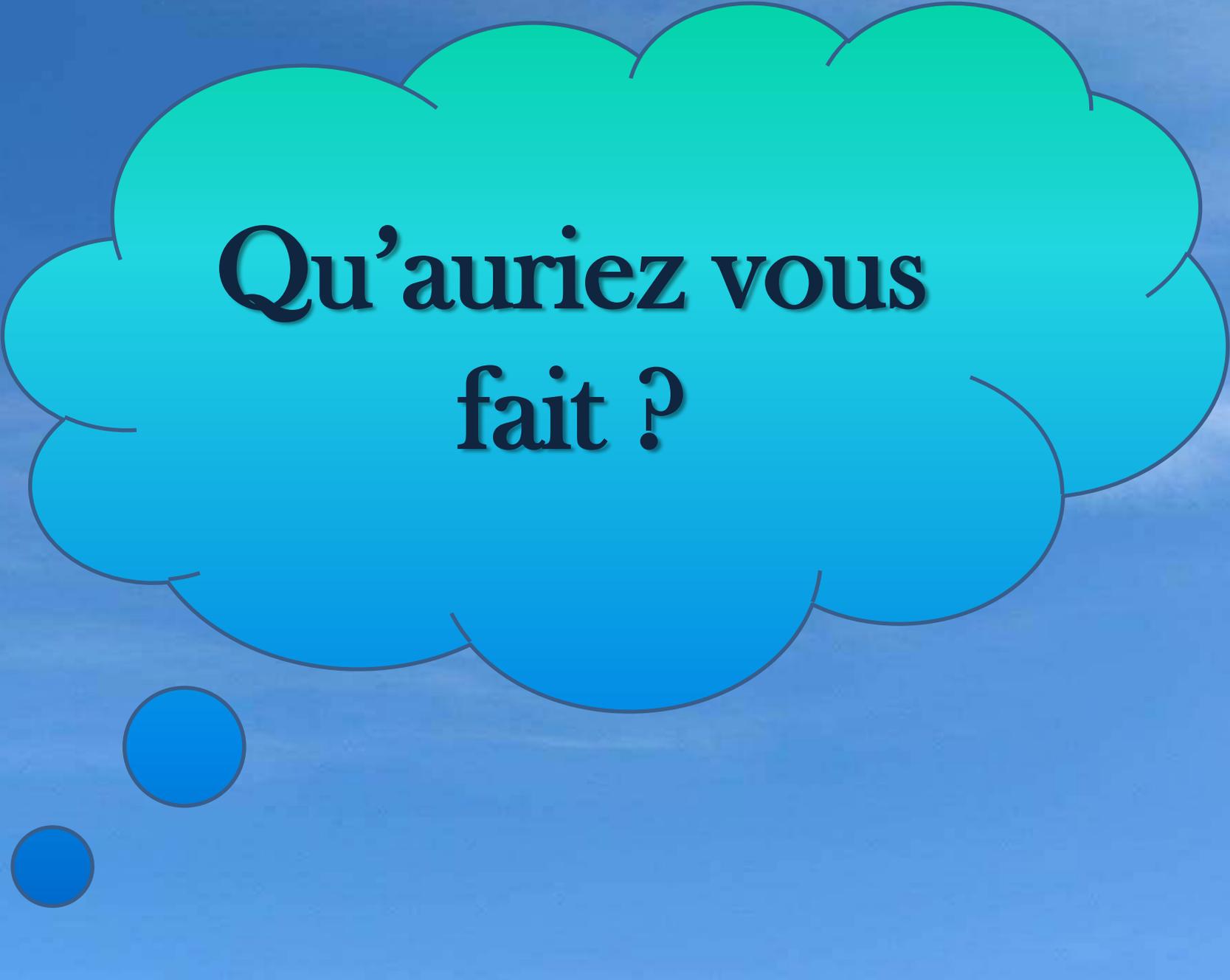
Coronarographie











**Qu'auriez vous
fait ?**



Thrombo aspiration ?



Anti GP IIb-IIIa ?



Thrombo aspiration + Anti GP IIb-IIIa ?



Traitement anticoagulant ?

Evolution sous ttt A coag (Lovenox)
&
triple AAP (Aspirine, Brilique et Agrastat)

Sous protection IPP

pdt 72h

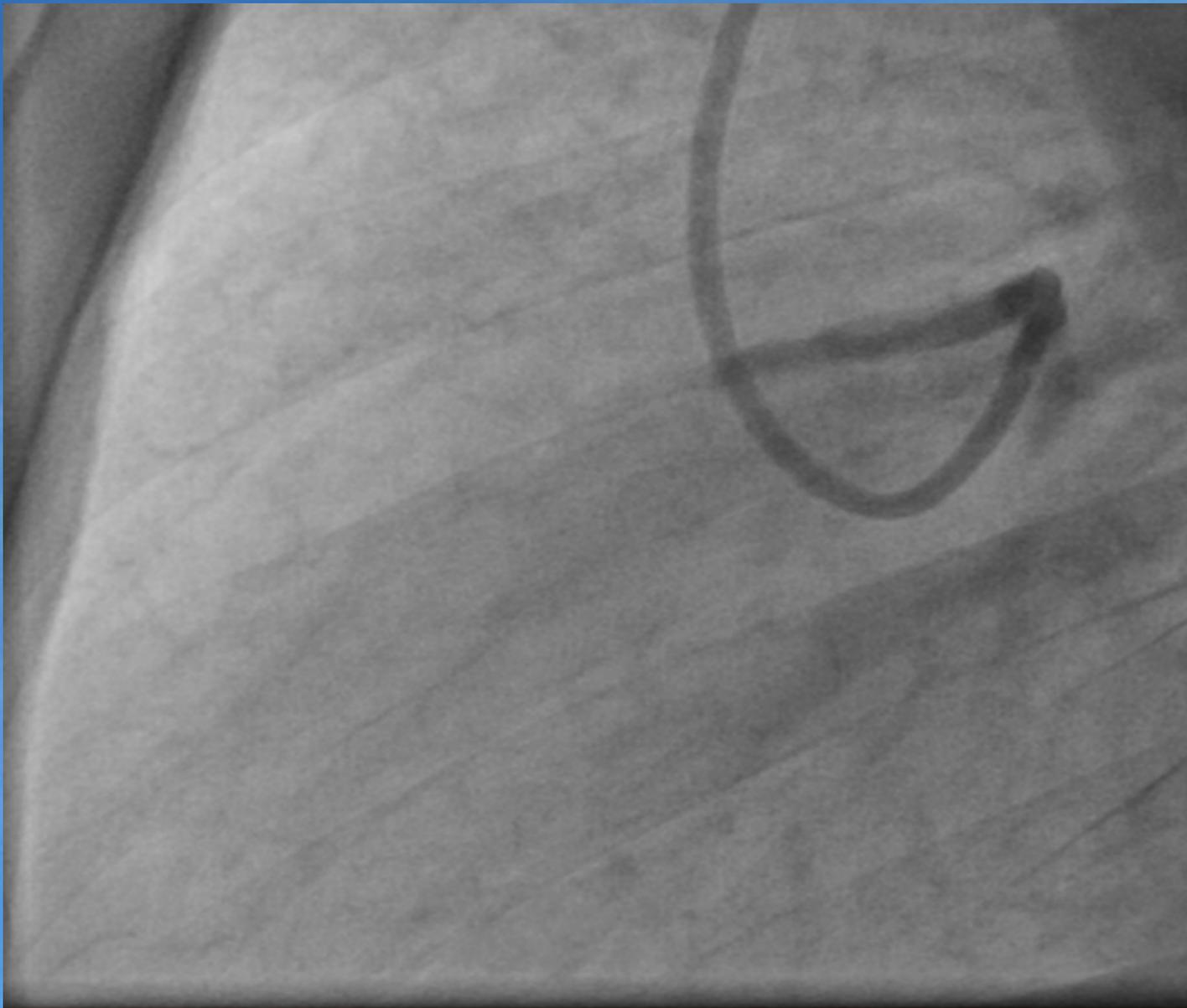
Récidive angor : 0

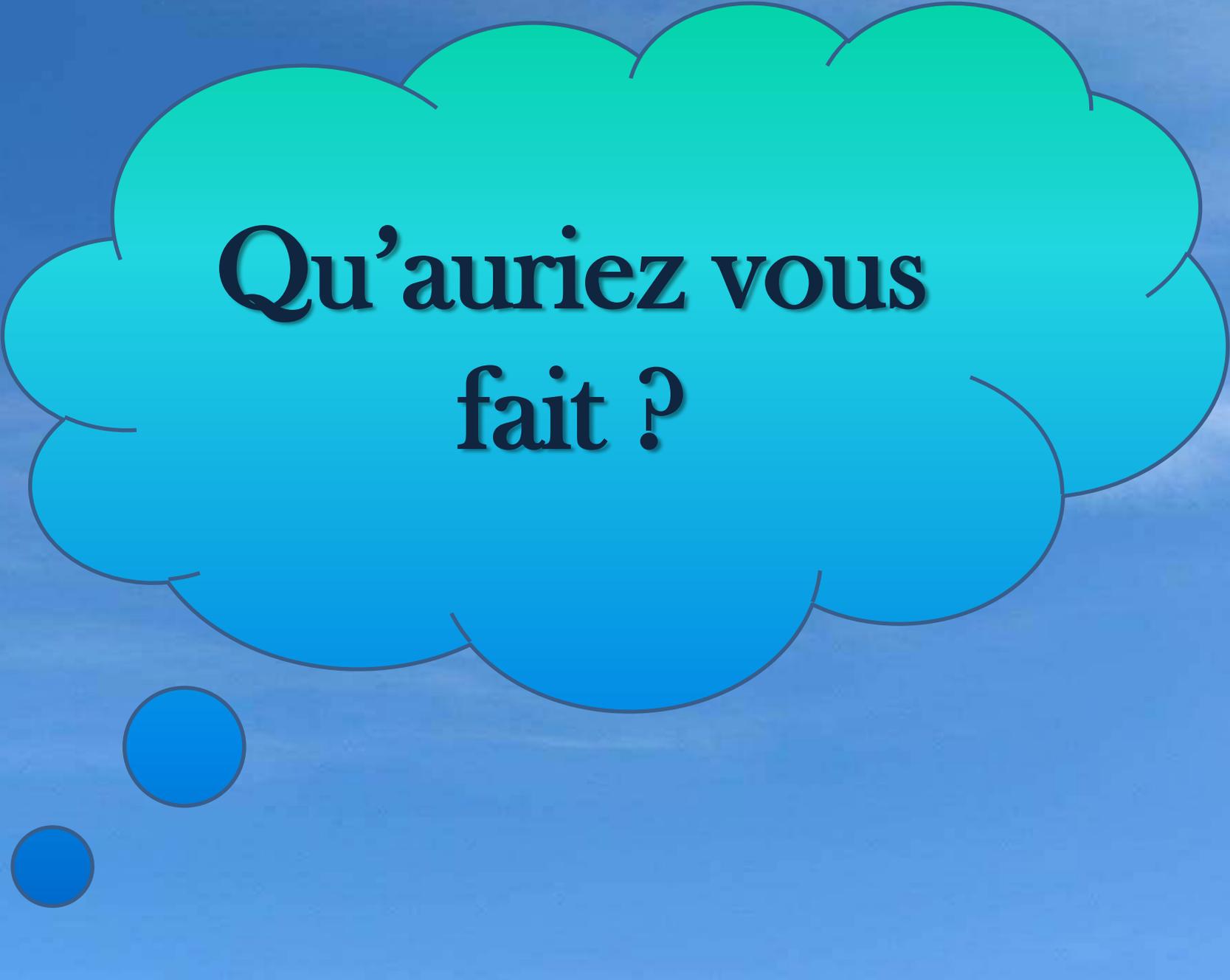
ECG : RSR, RAS

Troponine et CK : ↓

Coronarographie à J3







**Qu'auriez vous
fait ?**



Thrombo aspiration ?



Poursuivre Anti GP IIb-IIIa ?



Traitement AAP double et sortie ?



Traitement anticoagulant ?

- . AVK ?
- . NACO?



Combien de temps ?

- . 6 semaines ?
- . 3 mois ?
- . 1 an ?



CSC

Traitement AVK (Préviscan 20 mg)
et
APP double (Aspégic 100 mg-Plavix 75 mg)

+

IPP

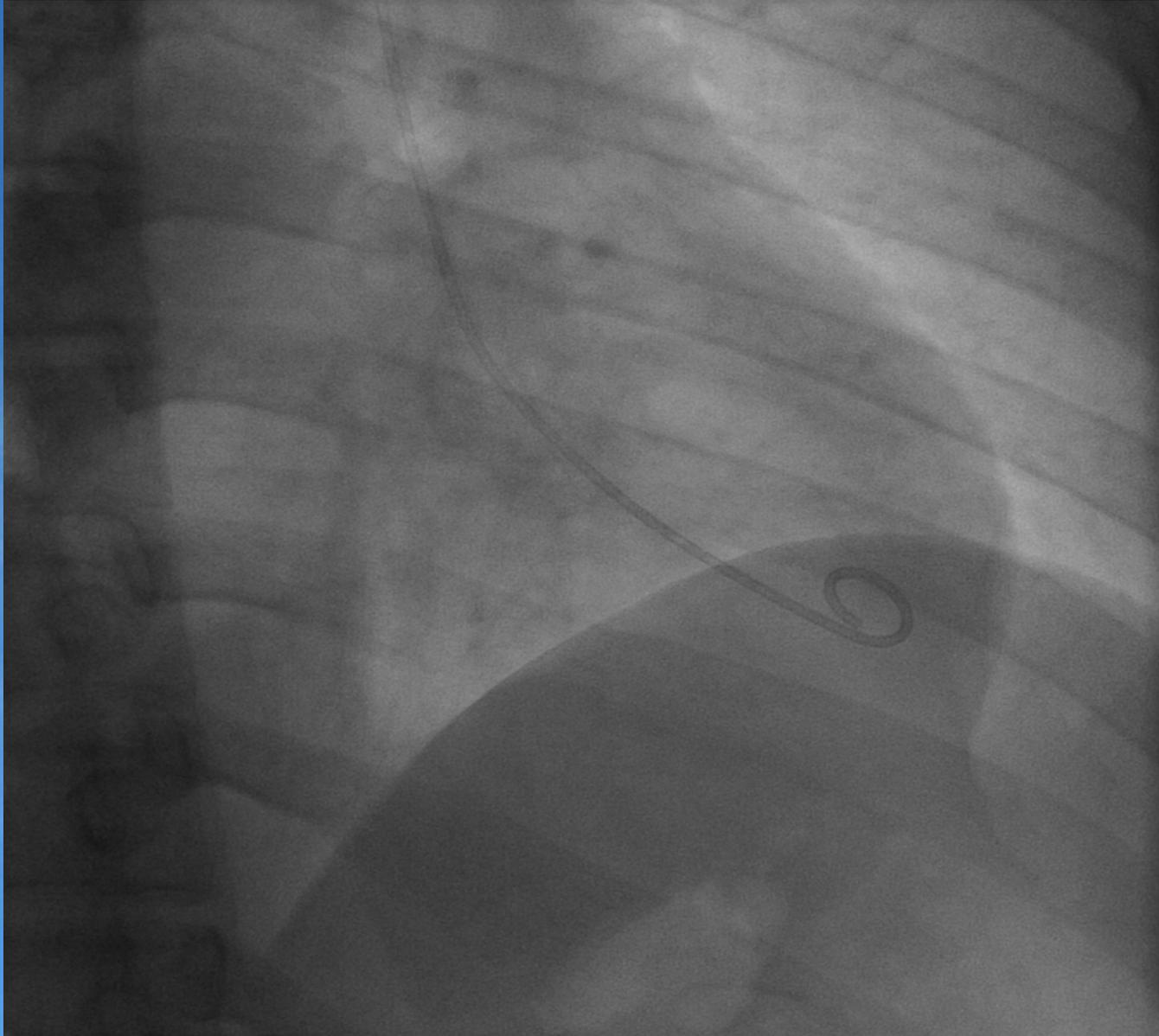
durant 6 semaines

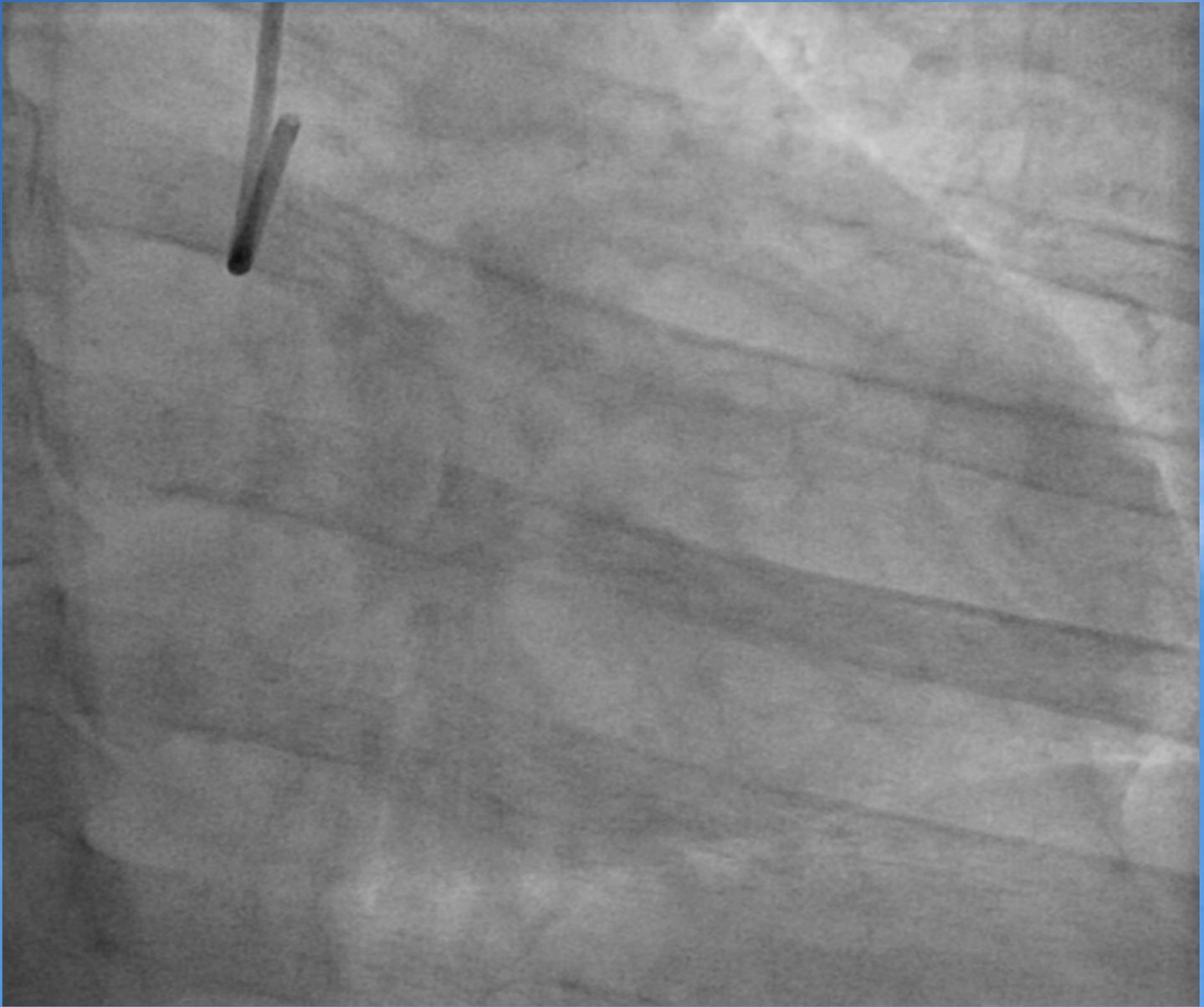
Sortie le 02/06/2014 (J6) avec :

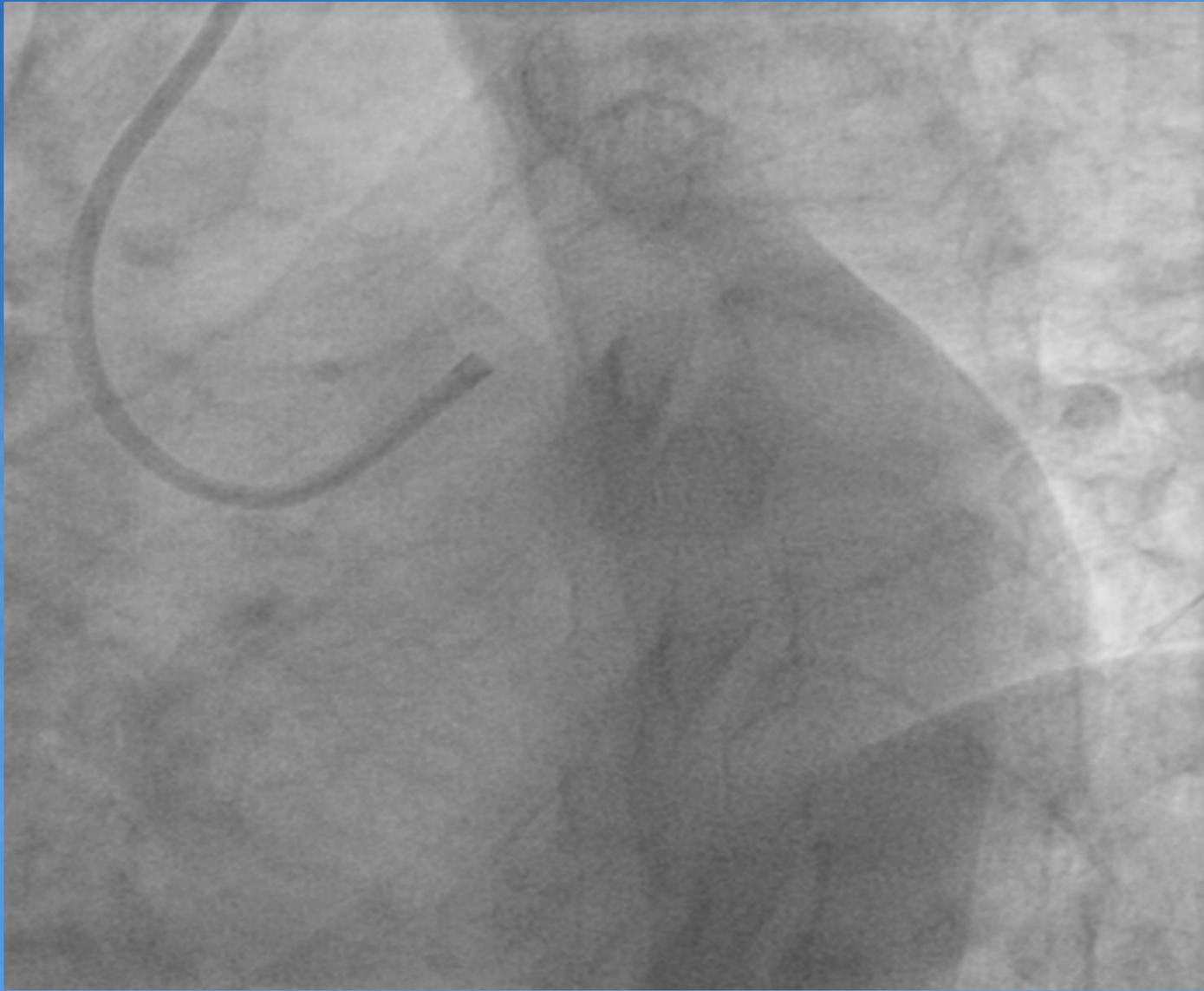
- Coversyl 5 : 1-0-1
- Bisoprolol 1.25 : 1-0-0
- Aspégic 100 : 0-1-0
- Plavix 75 : 0-1-0
- Préviscan 20 : 0-0-1
- Atorvastatine 80 : 0-0-1
- Inexium 20 : 0-0-1
- Fraxodi : 0.8 ml/j jusqu'à équilibration INR

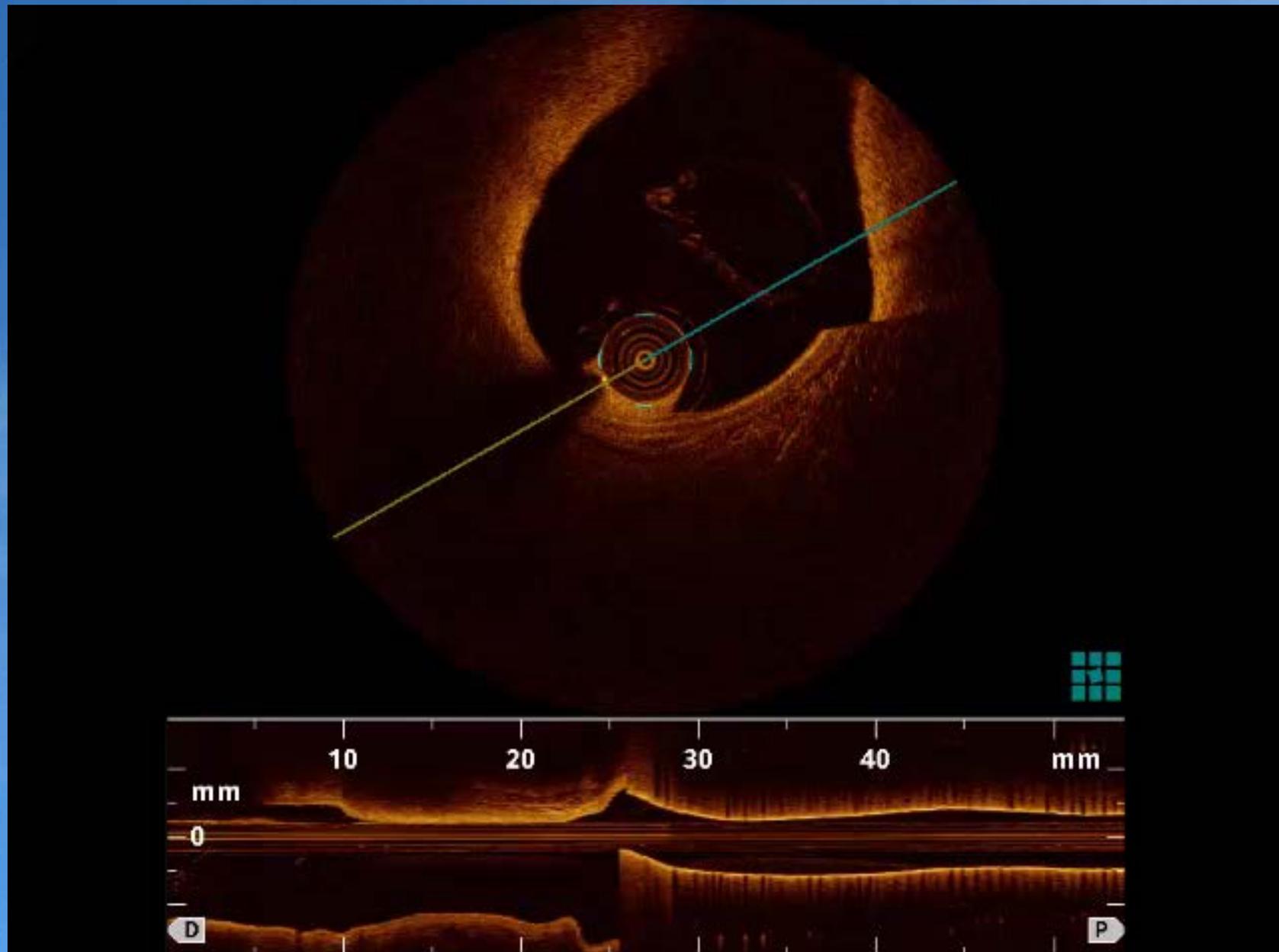
Consultation addicto : sevrage tabagique

Coronarographie + OCT (à 6 semaines)



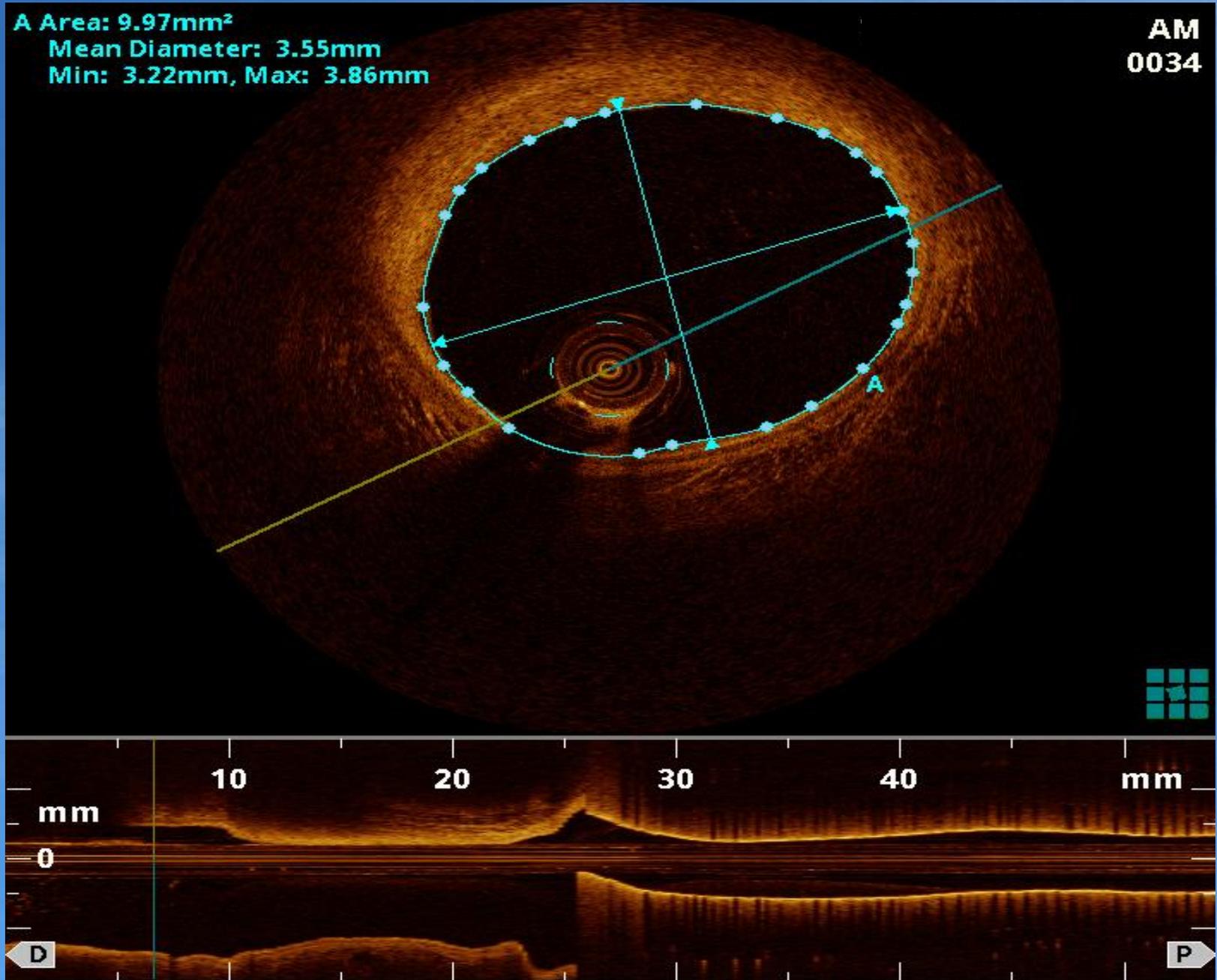






A Area: 9.97mm²
Mean Diameter: 3.55mm
Min: 3.22mm, Max: 3.86mm

AM
0034

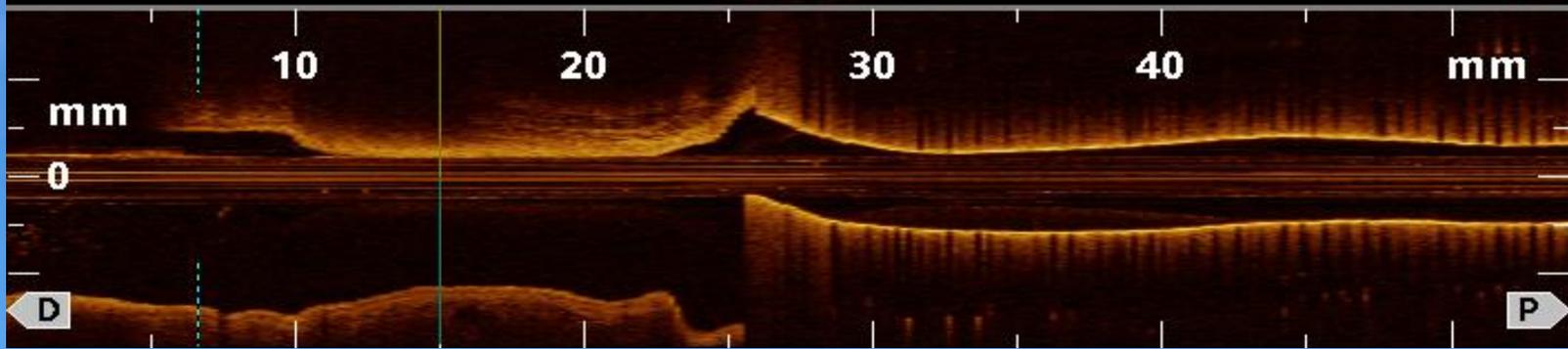
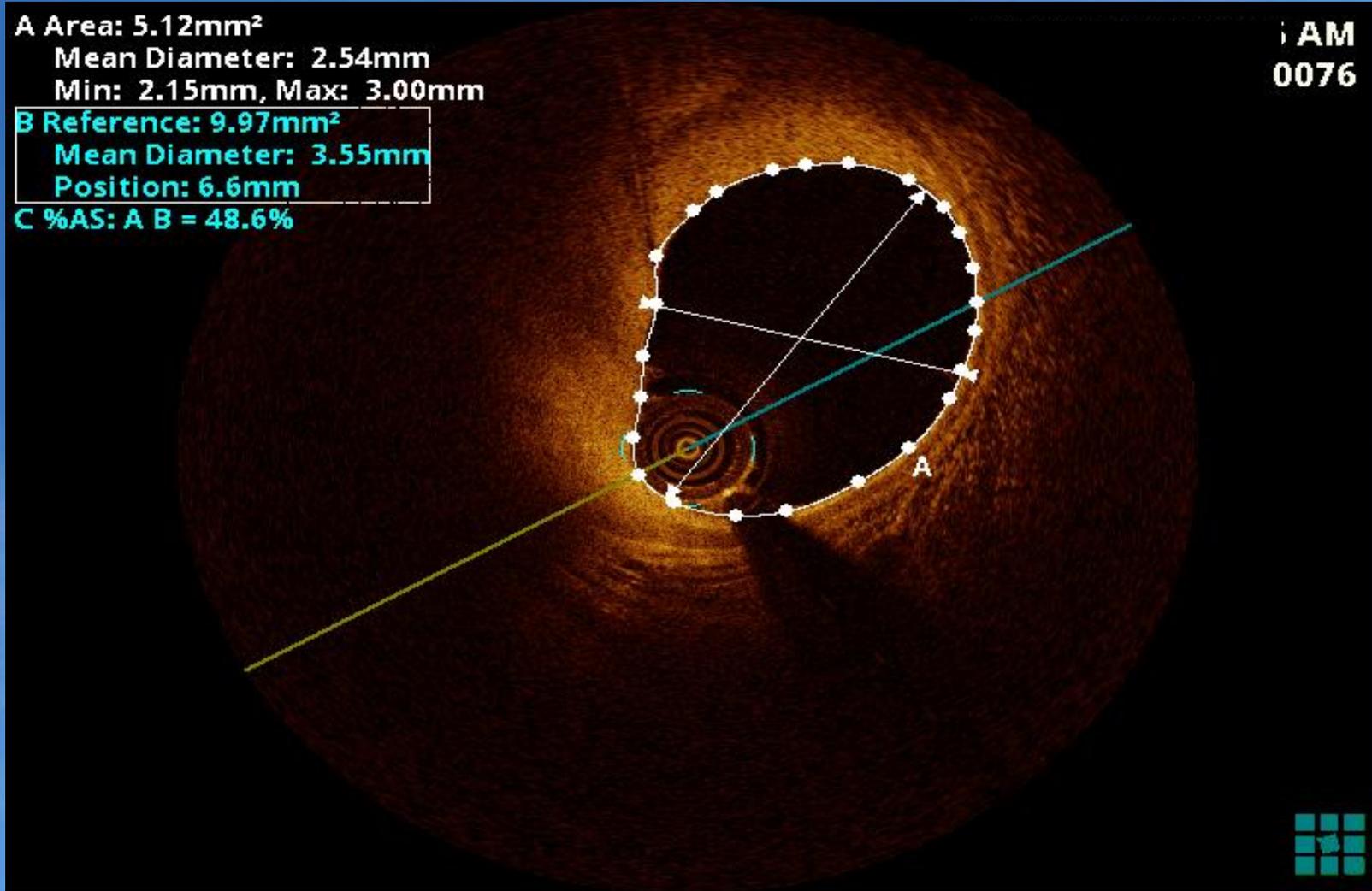


A Area: 5.12mm²
Mean Diameter: 2.54mm
Min: 2.15mm, Max: 3.00mm

AM
0076

B Reference: 9.97mm²
Mean Diameter: 3.55mm
Position: 6.6mm

C %AS: A B = 48.6%



Mr Pierrick G.
29 ans



Antécédents : médicaux, chirurgicaux = 0

Asthme : 0

Allergie : 0

Ulcère gastro duodénal : 0

Histoire cardiologique :

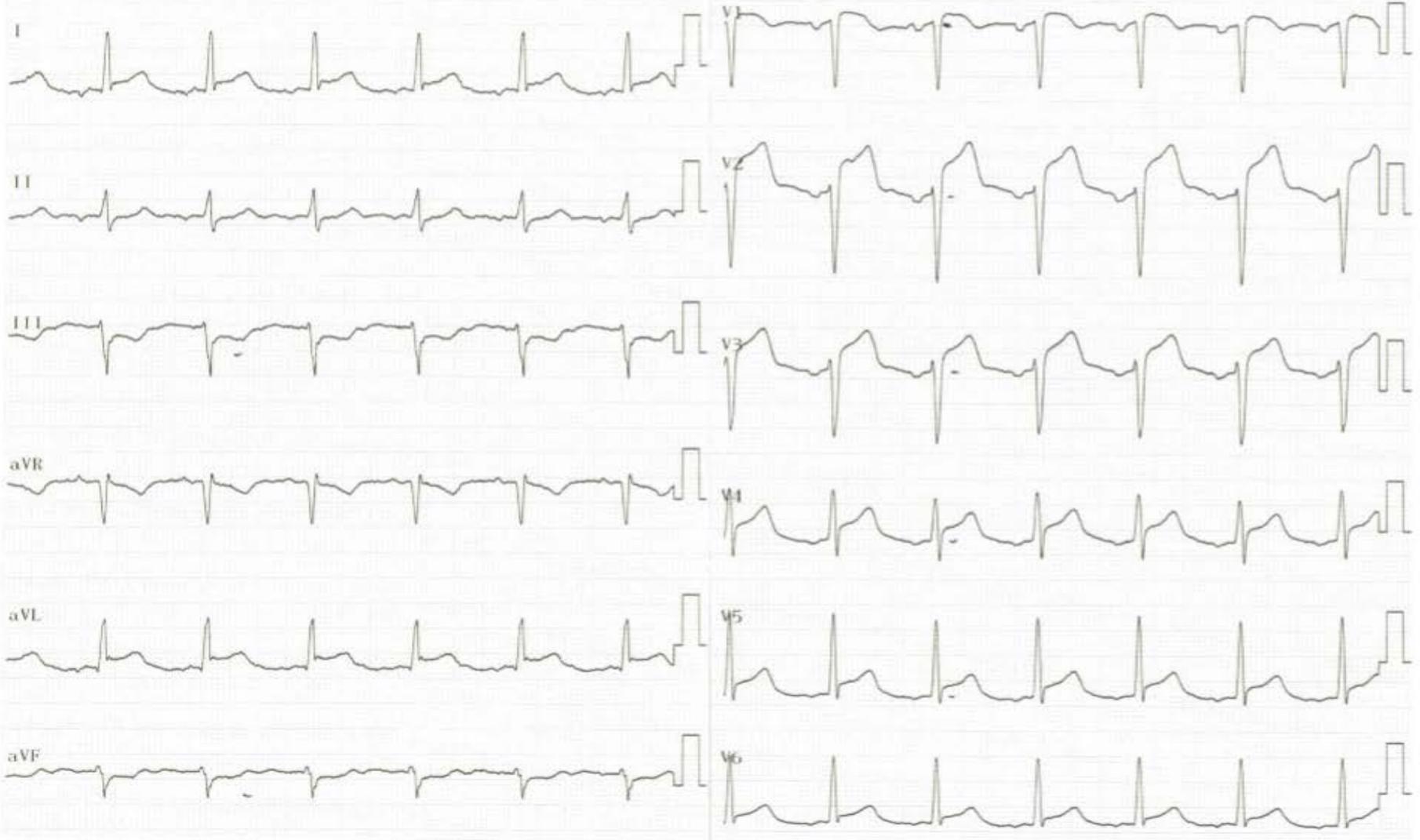
15/07/2014 à 6h le matin : survenue spontanée d'une douleur épigastrique prolongée + sueurs.

Amené par sa mère et son frère aux Urgences du CHGM à 6h45...

Persistance de la douleur épigastrique



ECG



1350K 03-01 02-52 Service:

Exam: CHGM DE ST PAUL

**Qu'auriez vous
fait ?**

**(Distance centre de cardiologie
interventionnelle 35 km)**



Examen complémentaire :
. ETT ?



Transfert en urgence centre de cardiologie
interventionnelle ?
Avec quel traitement ?



Thrombolyse IV au centre hospitalier puis
transfert le lendemain ?



Thrombolyse IV et transfert immédiat en
centre de cardiologie interventionnelle ?



CHGM

Métalyse 9 000 unités

Lovenox SC 80 mg

Aspégic IV 250 mg

Plavix PO 300 mg

Morphine

*Transfert en urgence à l'USIC
de la Clinique Sainte Clotilde*

Arguments en faveur de la thrombolyse IV et transfert immédiat en centre de cardiologie interventionnelle

« STREAM * like situation »

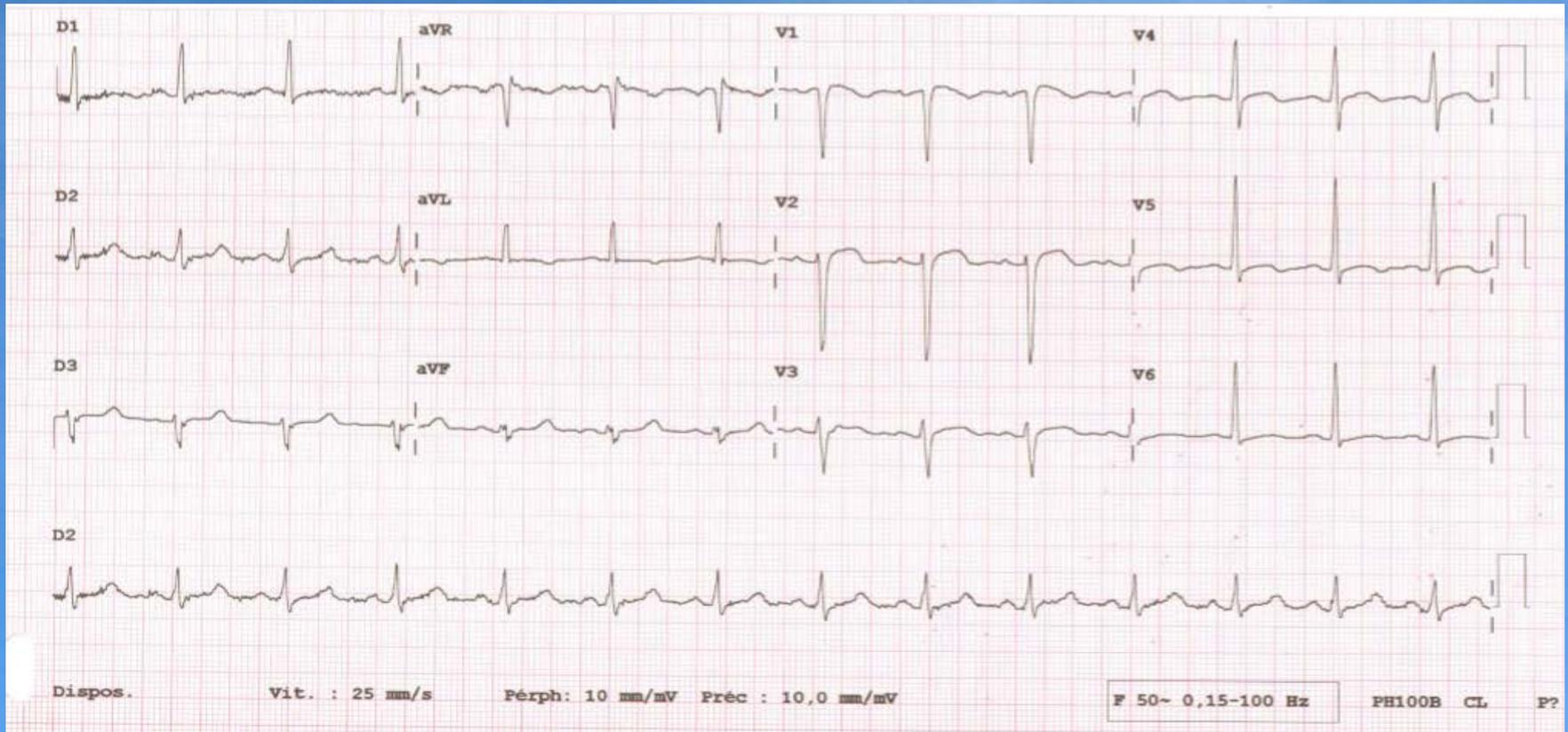
- Nécrose myocardique antérieure étendue très précoce (H1)
- Délai probable avant reperfusion 1h à 1h30...
- Risque hémorragique faible :
29 ans
Pas de co-morbidité
IMC 30



CSC

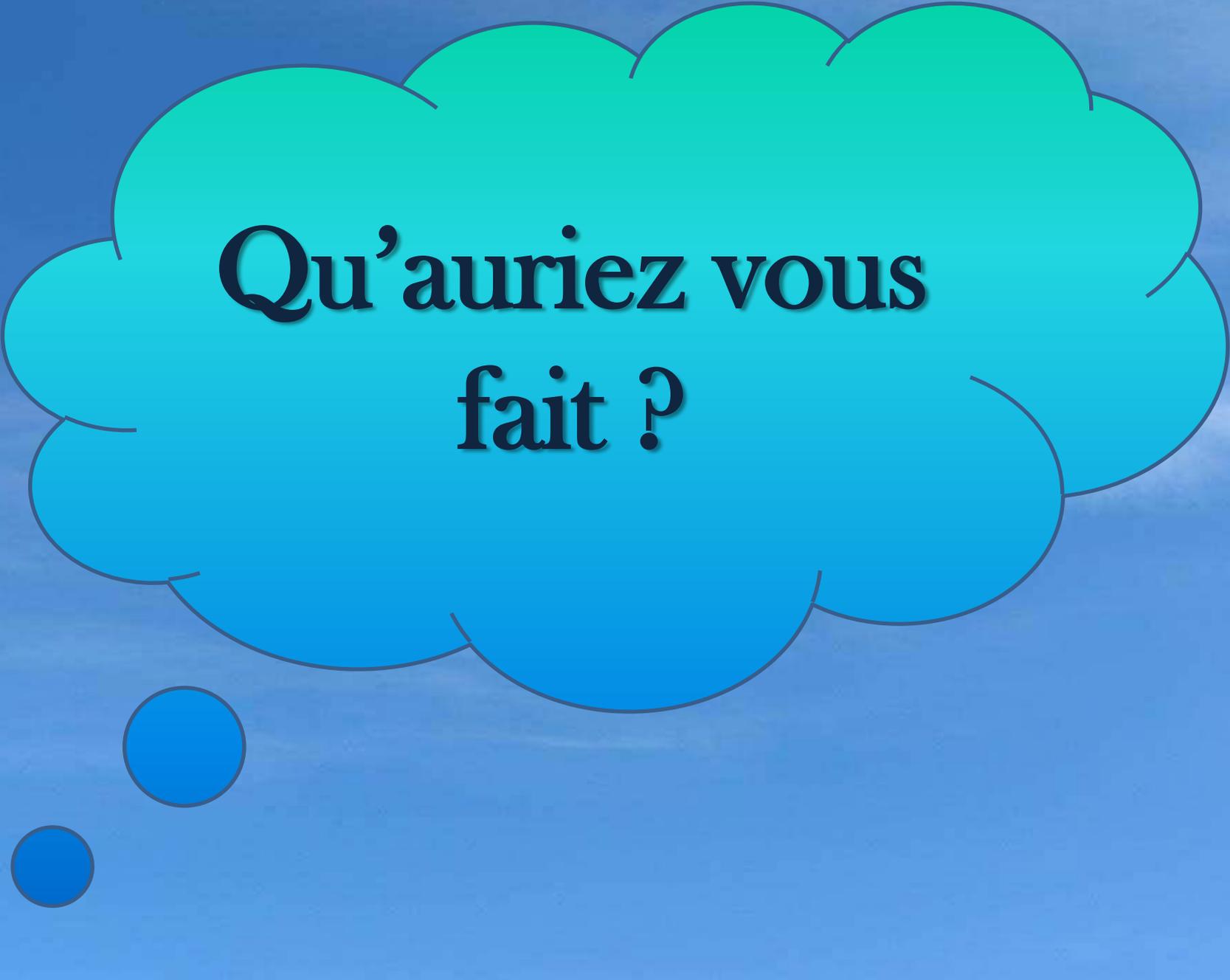
Sédation de la douleur épigastrique

ECG



Facteurs de risque artériels

- *Hérédité : 0*
- *Diabète : 0 ; HbA1c 5.1%*
- *CT 1.38 g/l ; TG .96 g/l ; HDL C .27g/l ;
LDL C .92g/l*
- *HTA : 0*
- *Tabac :10 PA ; actif 20g/J*
- *Obésité: P 87kg; T 1.70; BMI 30*



**Qu'auriez vous
fait ?**

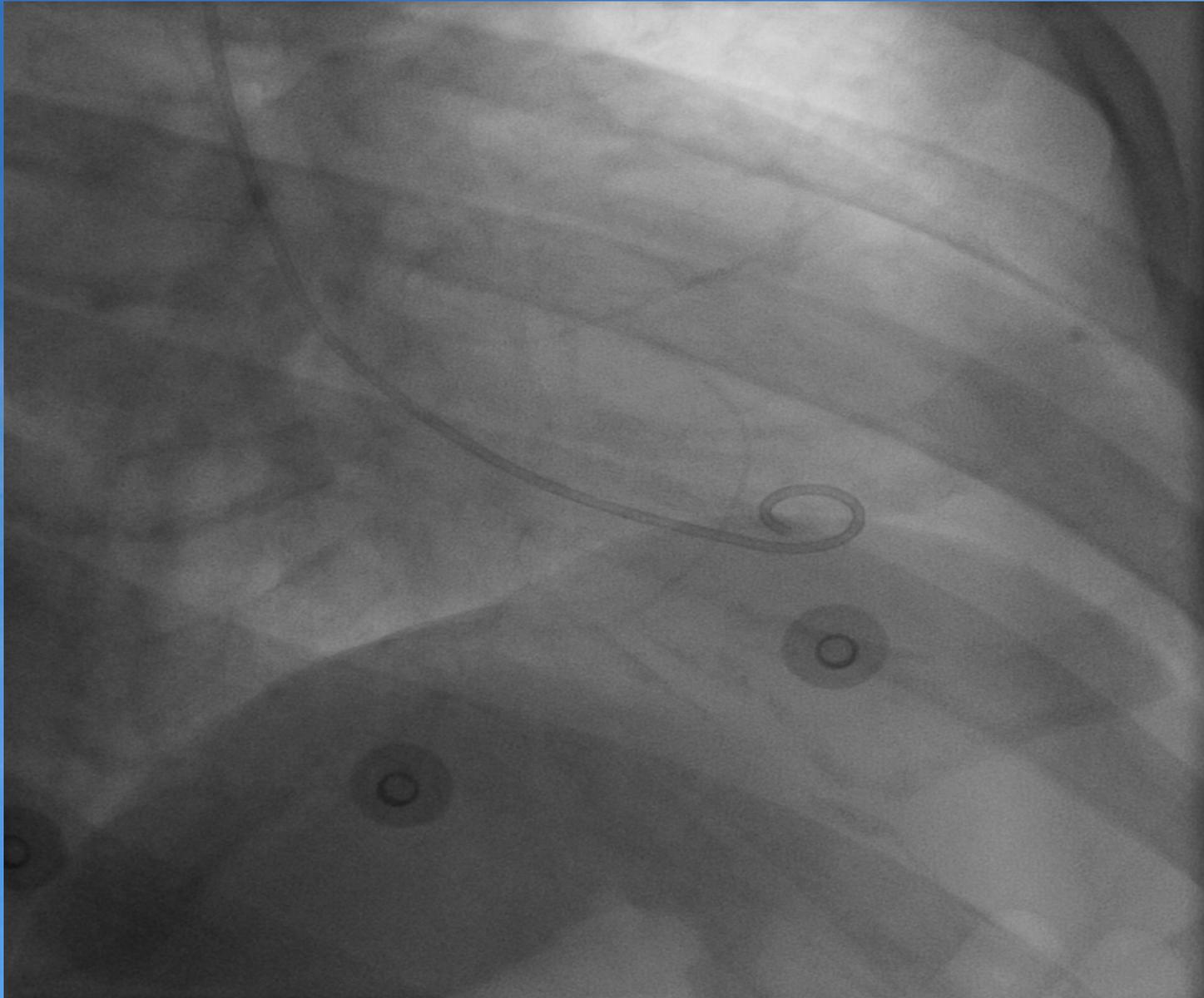


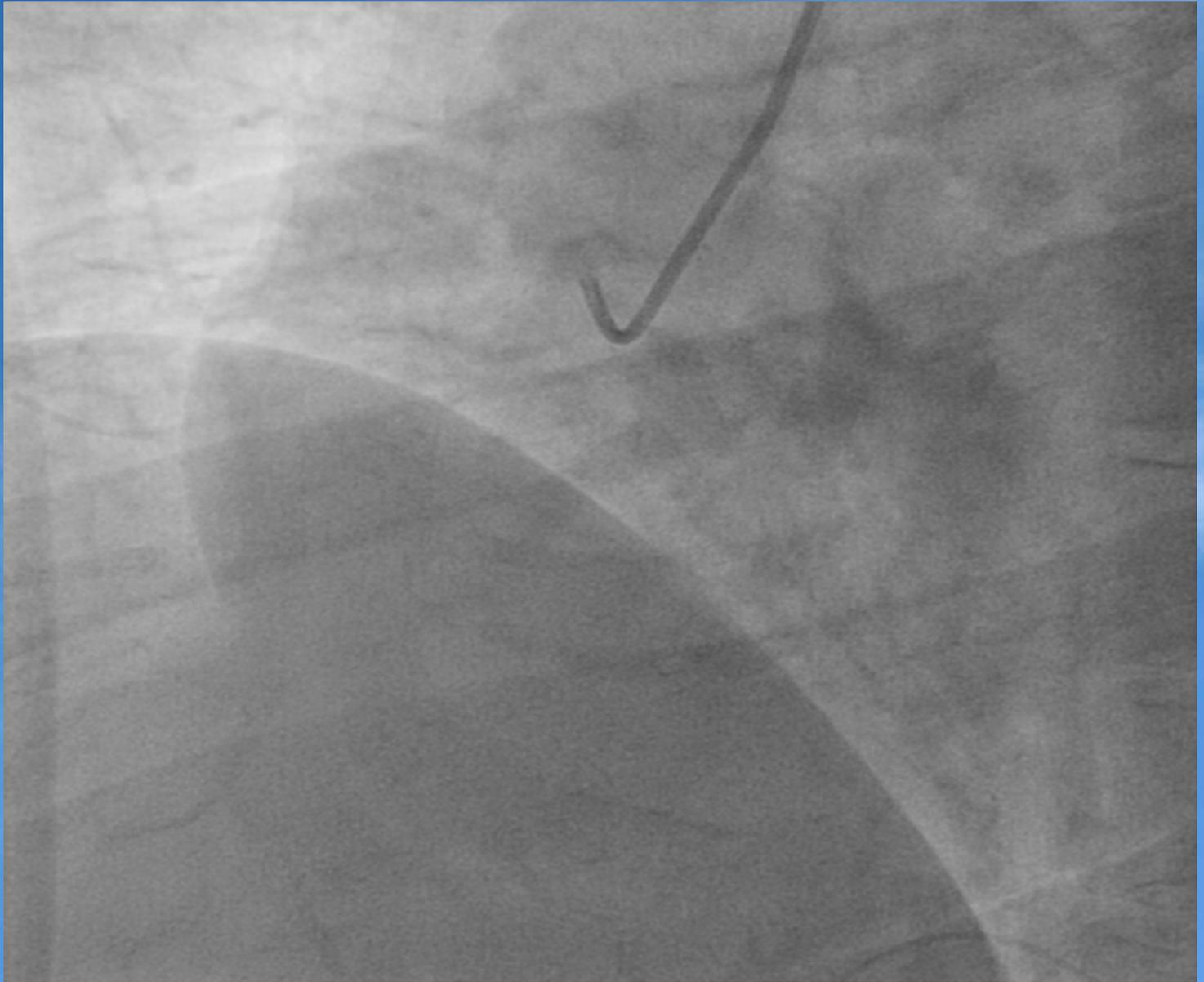
Coronarographie en urgence à l'arrivée ?



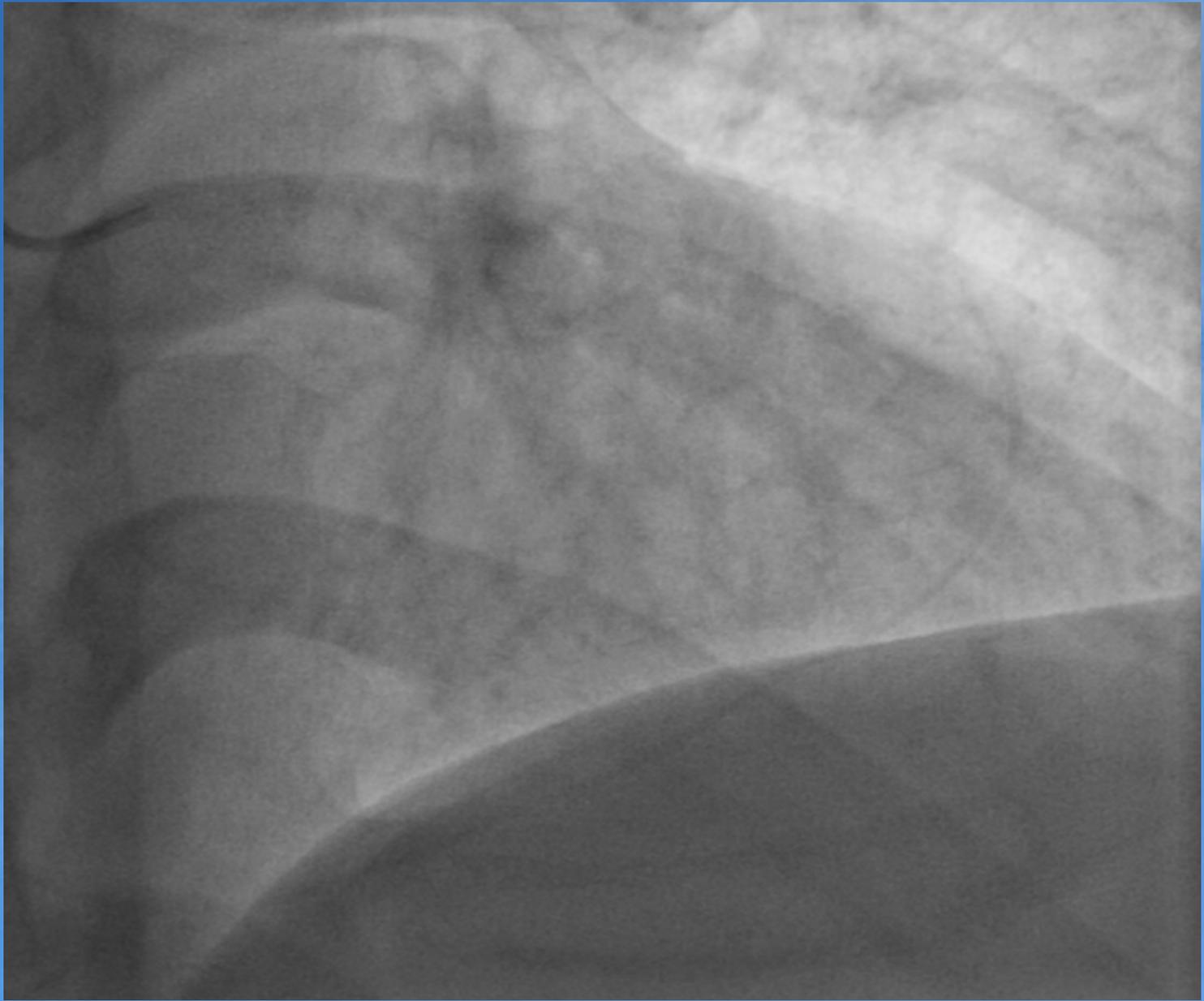
Coronarographie différée le lendemain ?
(signes de reperfusion +)

Coronarographie CSC (H 3)

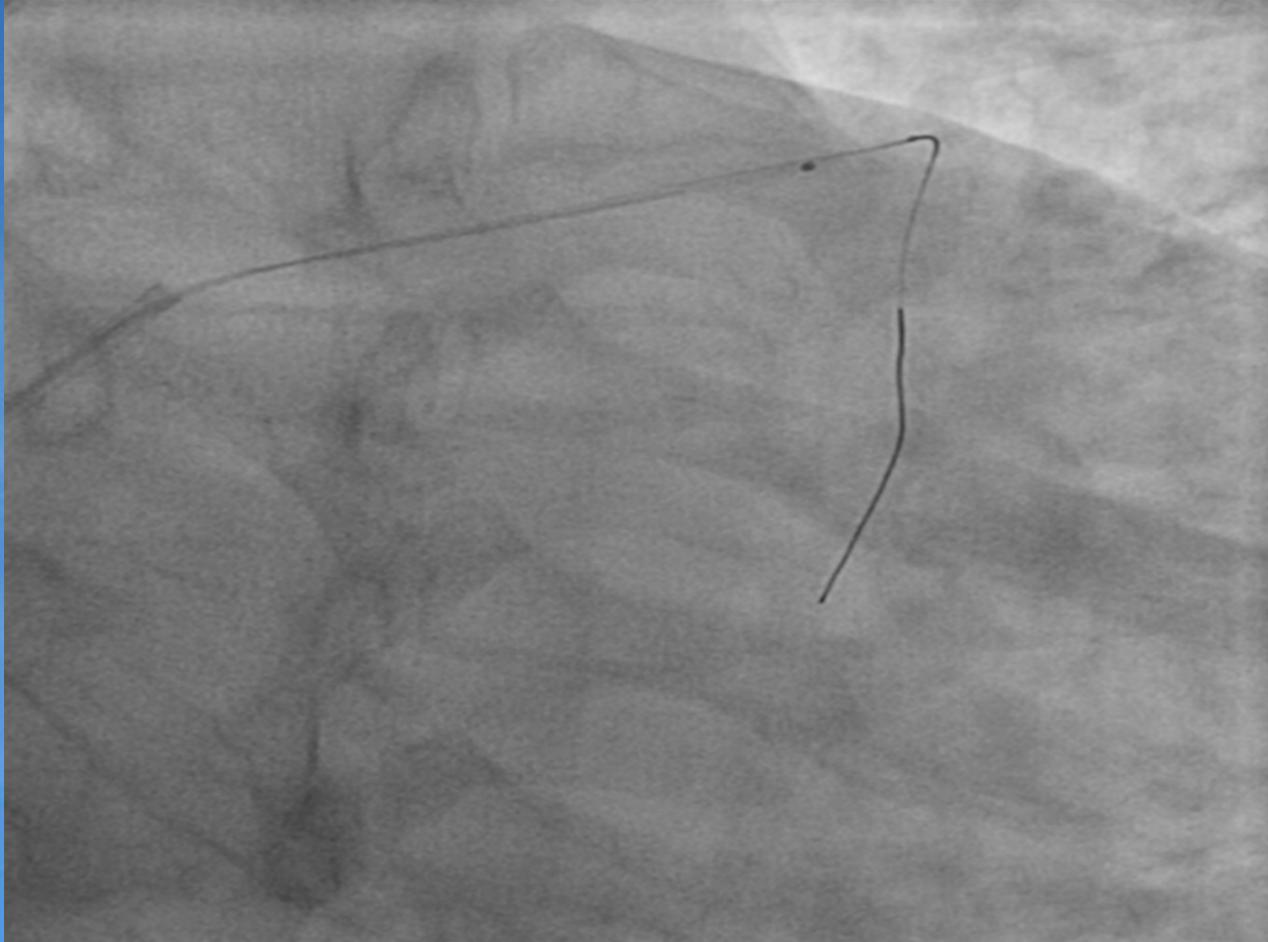


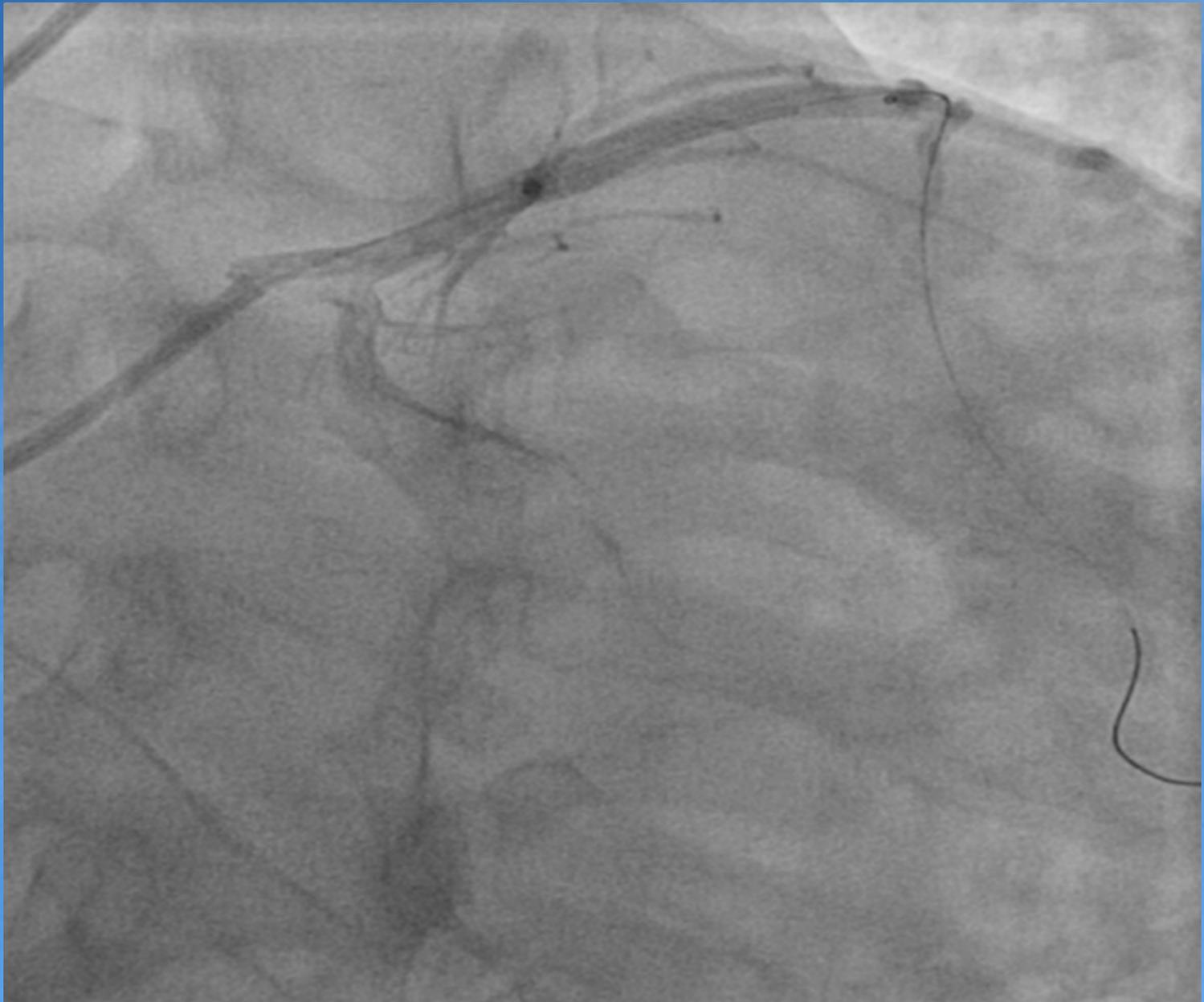


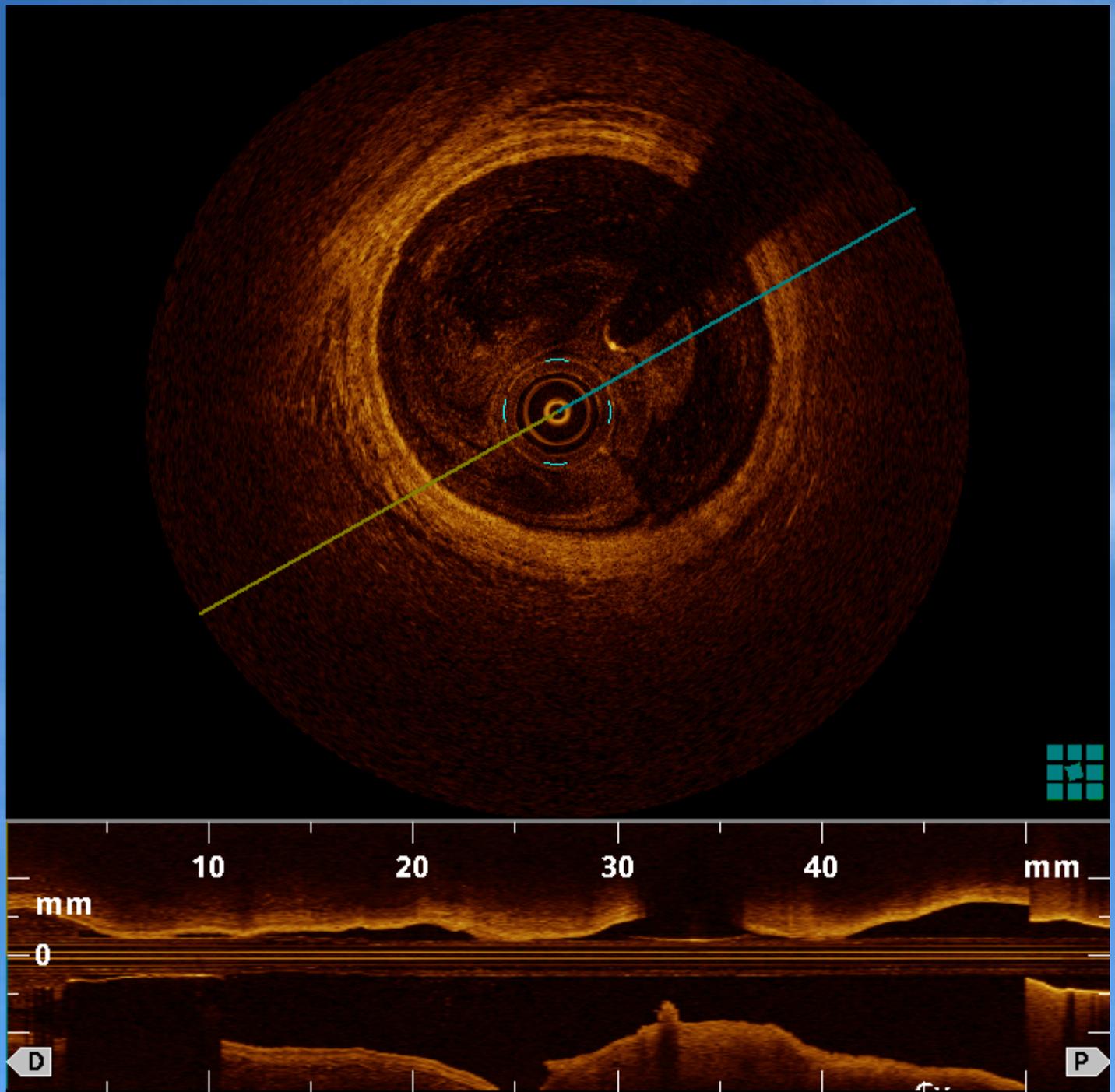




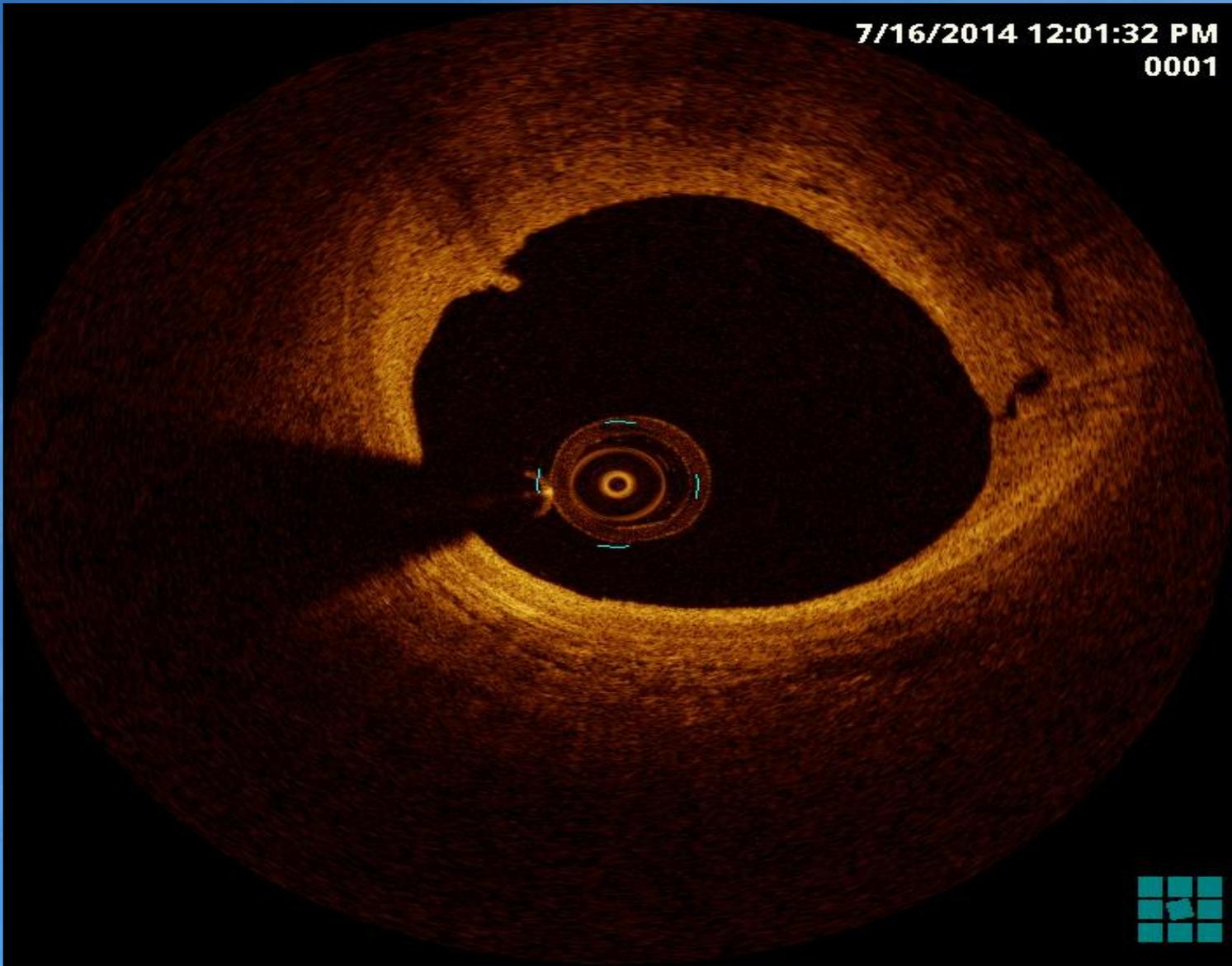
Etude OCT (spasme coronaire)



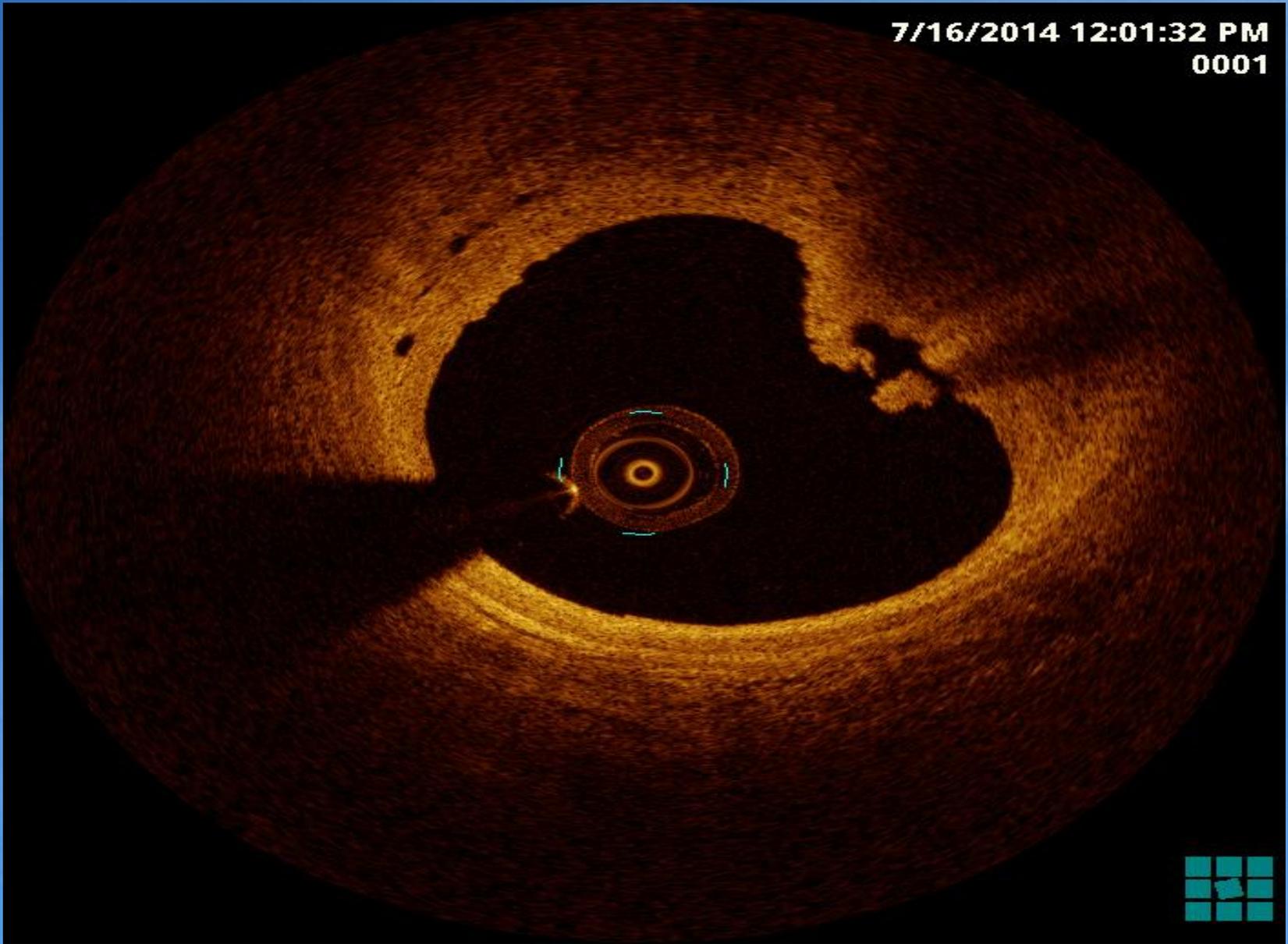




7/16/2014 12:01:32 PM
0001



7/16/2014 12:01:32 PM
0001





Mécanisme de la nécrose myocardique aigue en territoire antérieur :

1. Rupture / fissuration plaque athéromateuse ?
2. Spasme sur plaque athéromateuse ?
3. 1 + 2 ?

Evolution : favorable

Pic CK 287 UI/l, Tropono 5.7 ng/ml le 16/07

Sortie le 17/07/2014 (J2)

Traitement de sortie :

- . ATENOLOL 50 : 1-0-1/2
- . COVERSYL 2.5 : 1-0-1
- . KARDEGIC 160 : 0-1-0
- . PLAVIX 75 : 0-1-0
- . ATORVASTATINE 80 : 0-0-1

Interruption complète et définitive de l'intoxication tabagique.



Consultation addictologique au CHGM.

Patients coronariens < 35 ans

Clinique Sainte Clotilde

registre rétrospectif 2010 - 2014

Années	patients < 35 ans ayant eu une coro
2010	12
2011	24
2012	23
2013	27
2014*	11
TOTAL	97

9050 coro

≈20 patients / an
≈ 1 % coro

REVUE DE LA LITTERATURE

Definition du “ coronarien jeune”

< 35 years old ? ^{(1) (2) (3)}

< 40 to 45 years old ? ^{(4) (5)}

Prevalence

Autopsy study (760 pts) 15 to 34 years old ⁽⁶⁾

Accidents/ suicides/ homicides

Advanced coronary atheroma (> 40 % LAD stenosis)

. 2 % ♂ < 20 y. 0 % ♀

. 20 % ♂ 30 to 34 y. 8 % ♀

IVUS study (recently transplanted hearts) ⁽⁷⁾

Coronary artery disease :

> 50 % pts (33 +/- 13 y.)

16 % teenagers

CT Scans (asymptomatic young adults) ⁽⁸⁾

Coronary artery disease : 11 % pts < 40 y. (92 % ♂)

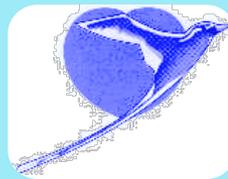
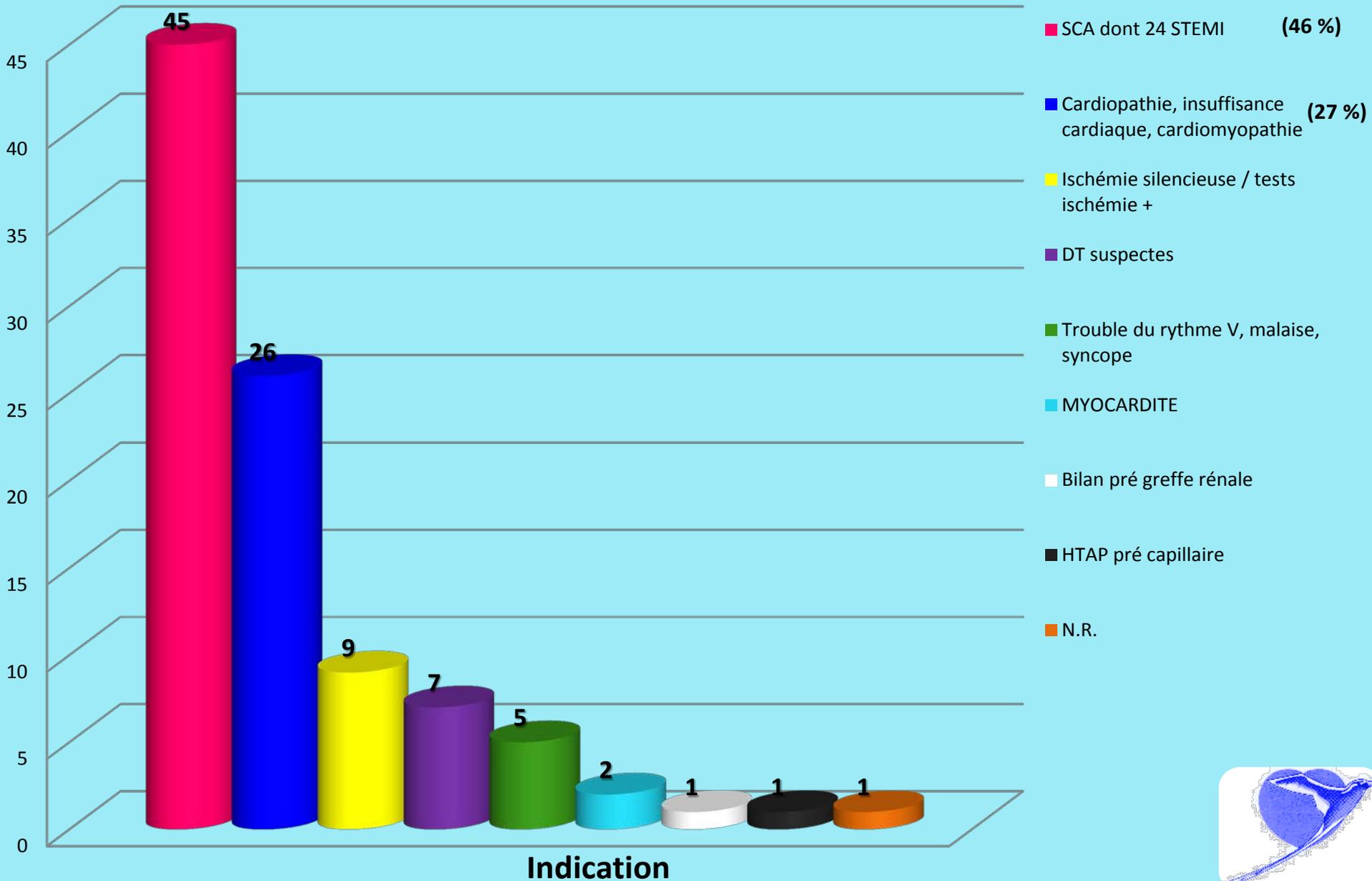
Incidence

1.3 % ♂, 30 - 34 y. → MI / 10 y. period follow up
(Framingham heart study)

3 % of all CAD occur pts < 40 y. ⁽⁹⁾

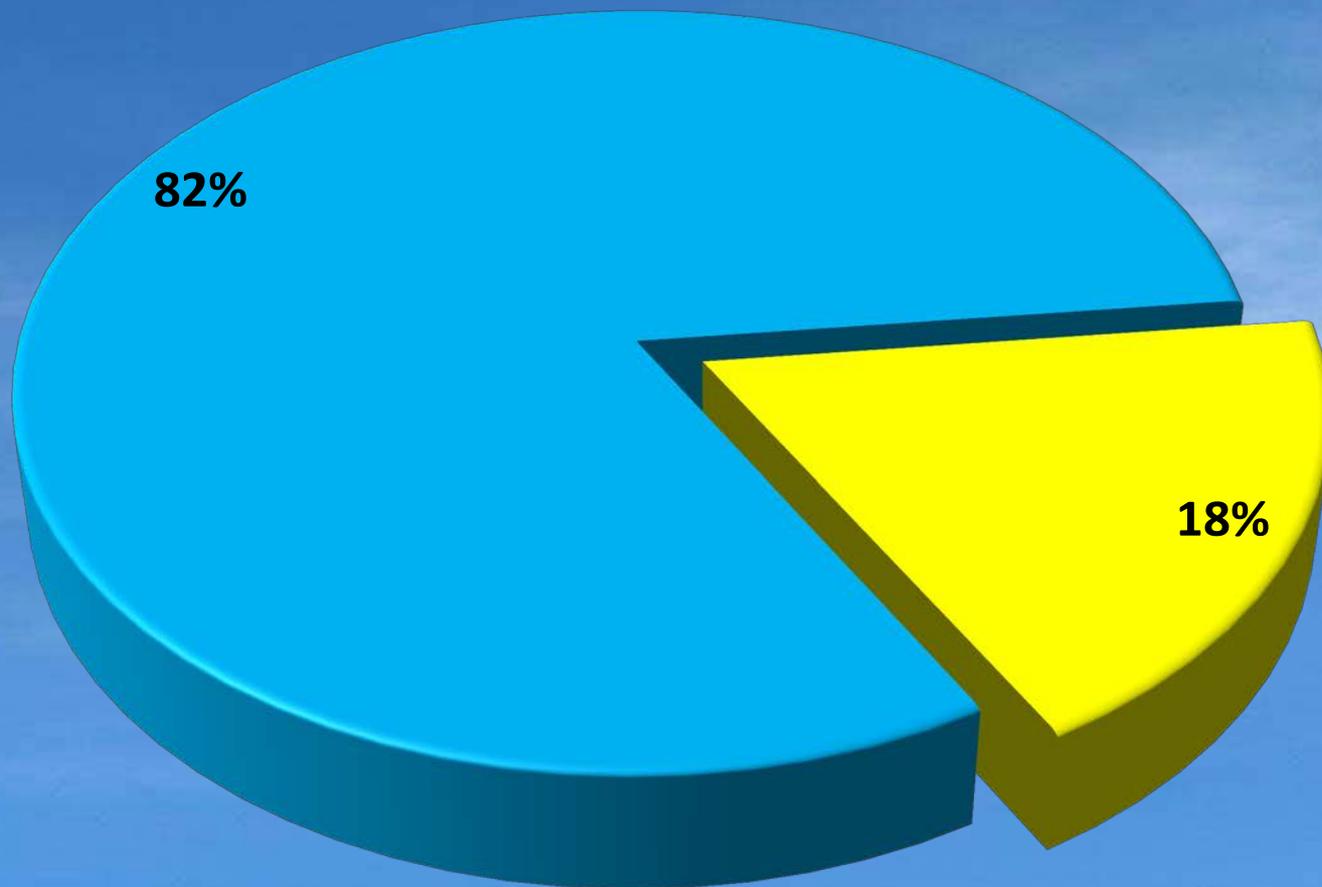
< 10 % acute MI occur pts < 40 y. ^(1,10,11,12)

CSC : 97 pts < 35 ans coronarographie



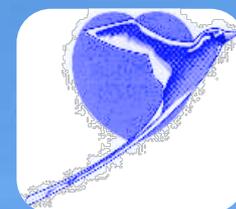
38 patients coronariens (lésion >50 %)

Sexe

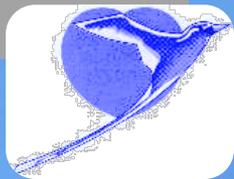
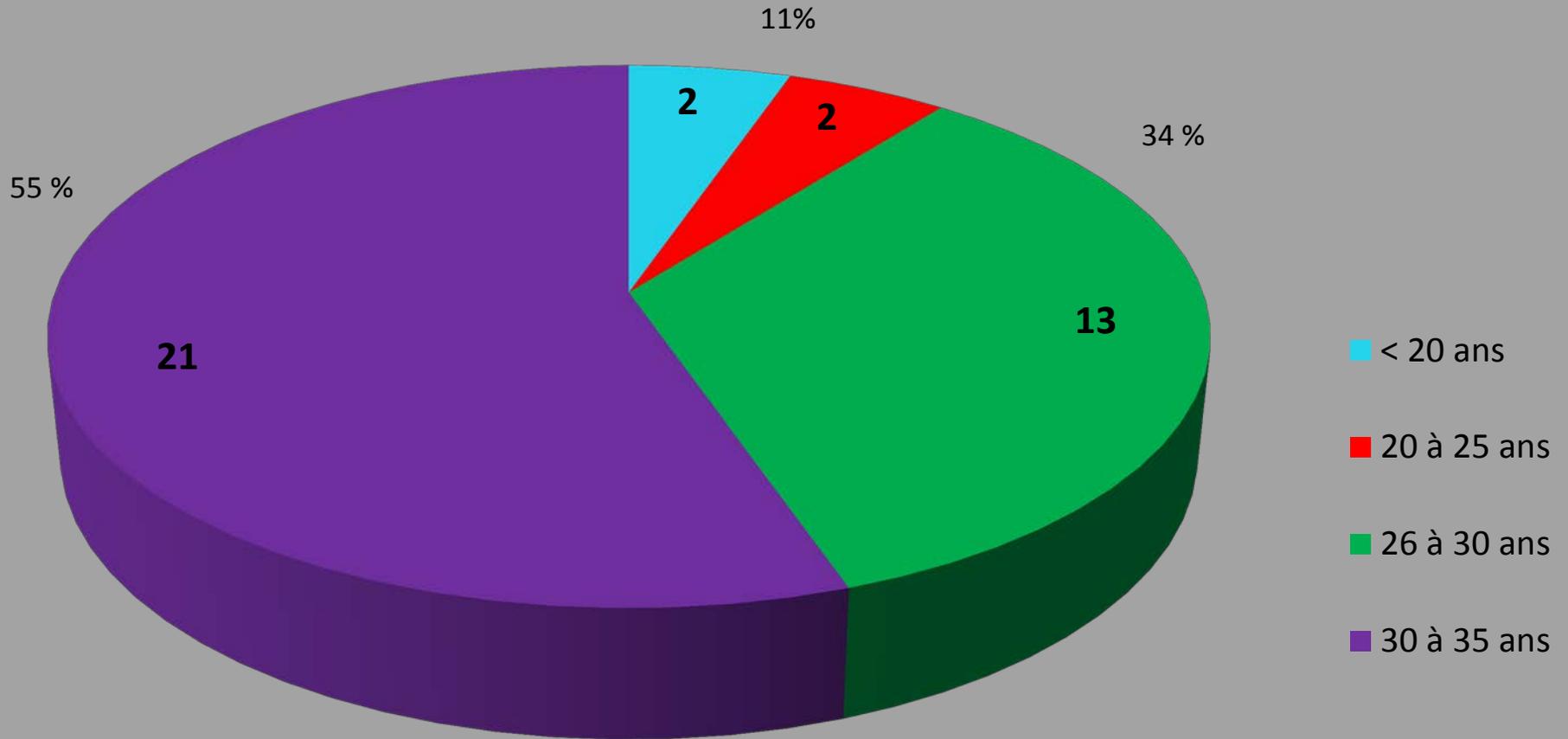


■ MASCULIN 31 @

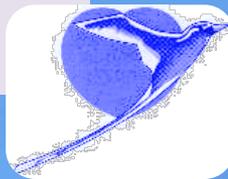
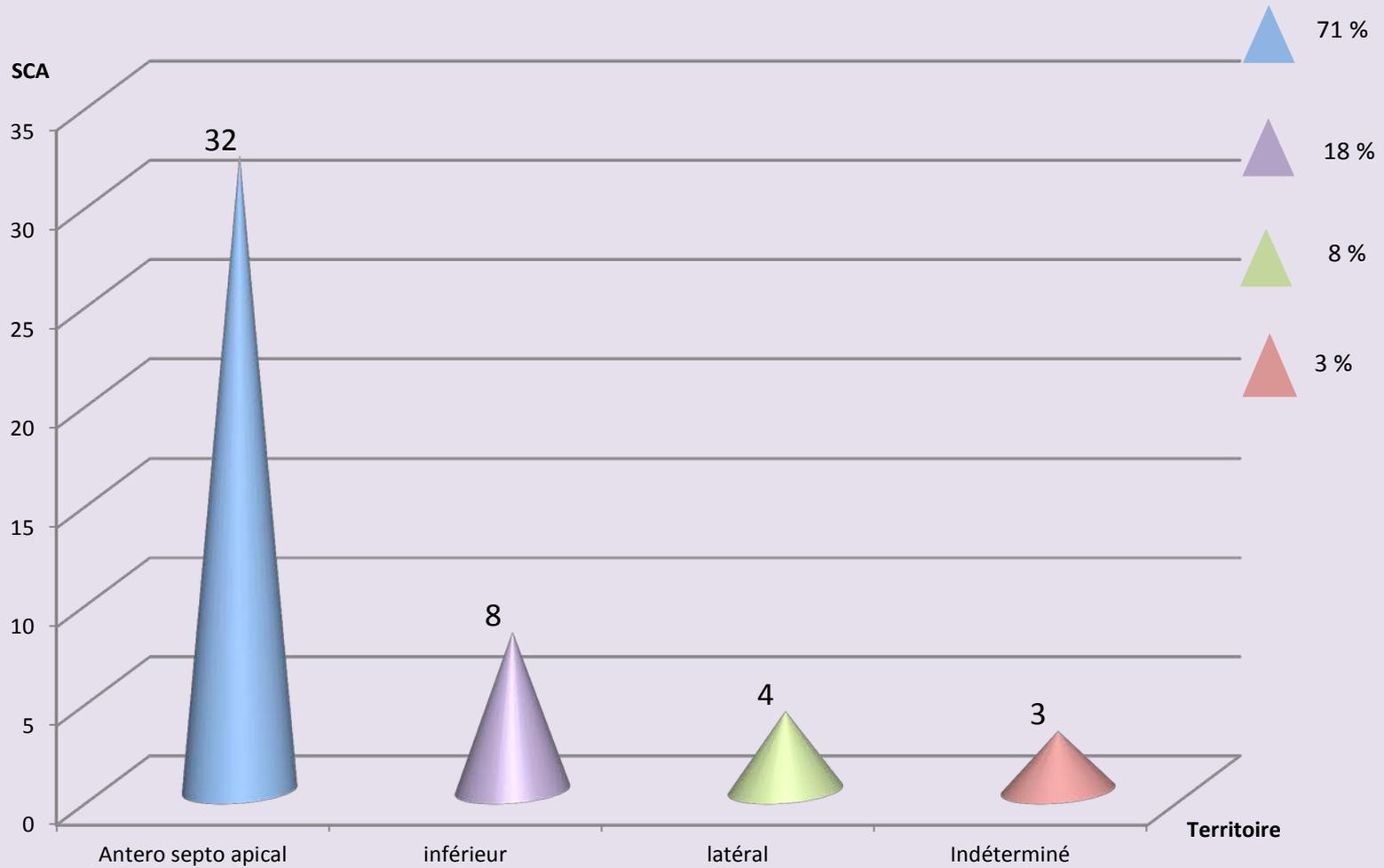
■ FEMININ 7 B



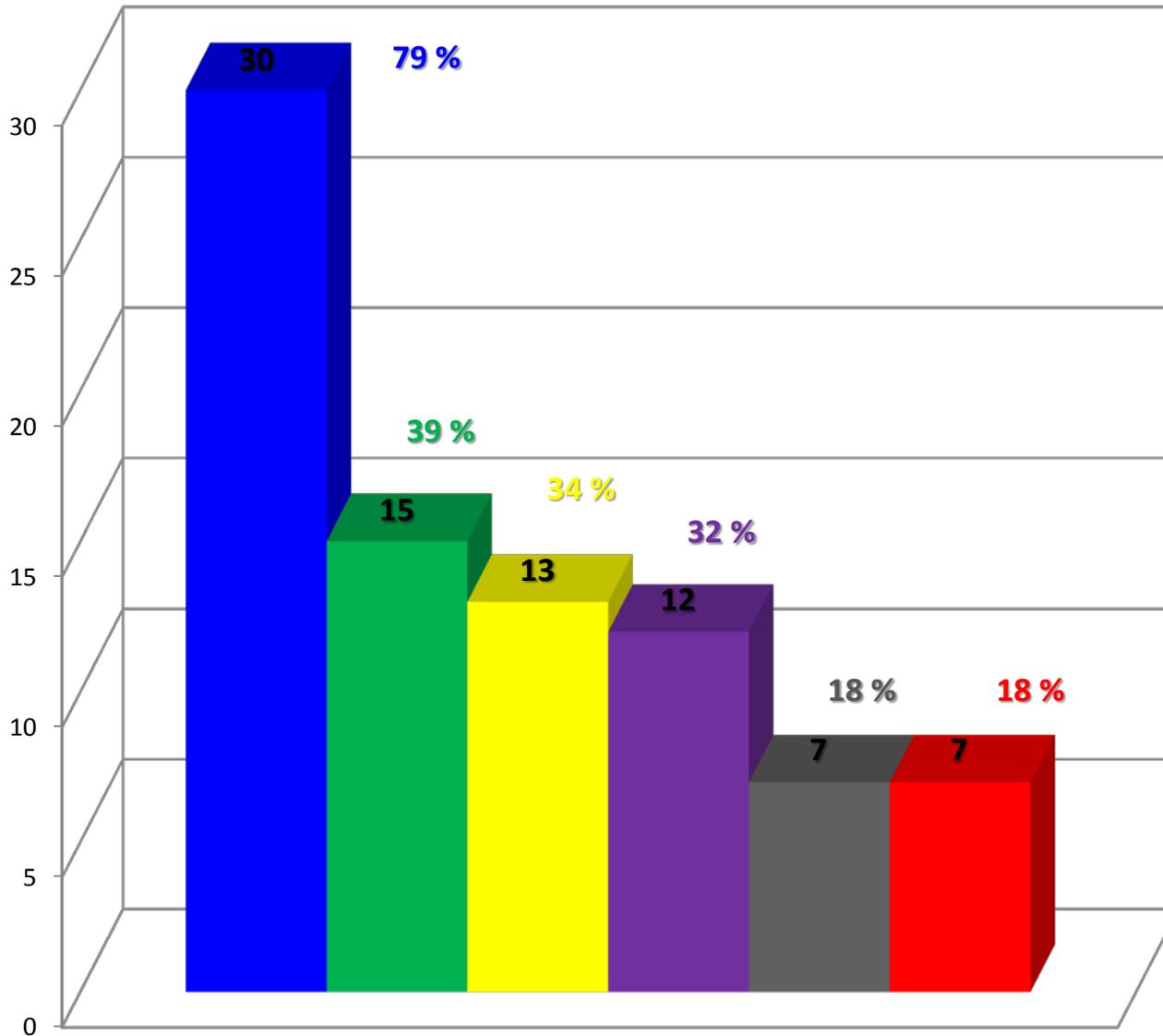
Age (38 pts coronariens : CSC)



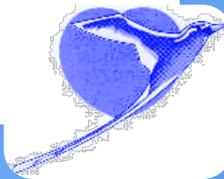
Territoire ECG (45 SCA)



Facteurs de risque (38 pts coronariens)



- Tabac dont 4 sevrés
- Surcharge pondérale / obésité (BMI>25)
- Antécédent familiaux
- Cholesterol (LDL > 1,40 g/L)
- Diabète
- HTA



Risk Factors : CAD & MI < 35 Years old

Atherosclerotic factors

Male sex : 92 - 97 % pts < 35 y. ⁽²⁾

Family history of Coronary Artery Disease

Lipid profile : ↑ Lpa, ↑ TG, ↓ HDL C

↑ homocysteine

« Genetic predisposition to vulnerable plaque production »

Cigarette smoking (passive smoking)

Prothrombotic state

Direct toxicity on the endothelium

The high prevalence of cigarette smoking is reported in nearly every study of CAD or MI in young adults

- . 76 - 90 % young patients with MI ⁽¹⁴⁾
- . Smoking 10 cig / day ↑ likelihood CAD by 50 %

Diabetes

Obesity ; insuline resistance ; metabolic syndrome

Hyperlipidemia

Anger ; emotional stress ; job strain (15)

Drugs : Alcohol (Binge drinking) ; cocaine ;
amphetamines ; marijuana ...

- . Vaso spastic effect
- . Direct toxicity on the endothelium
- . Promoting platelet aggregation and thrombosis

⇒ **Accelerated CAD & MI**

Sedentary behavior

etc...

Non atherosclerotic factors (20 % CAD young adults)

Congenital coronary abnormalities

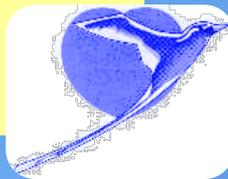
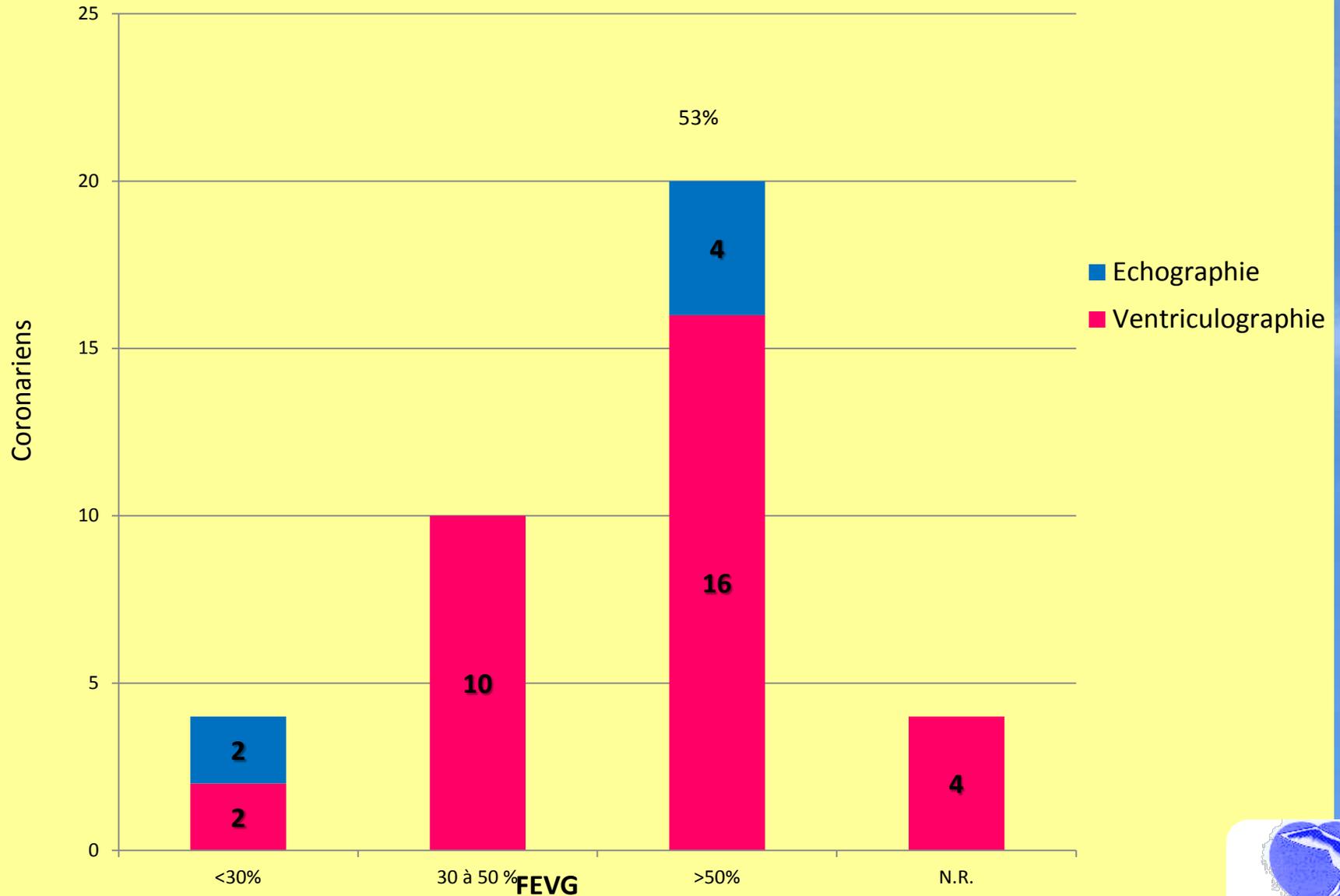
Arteritis (Kawasaki disease)

Connective tissue disorders : spontaneous coronary artery dissection ...

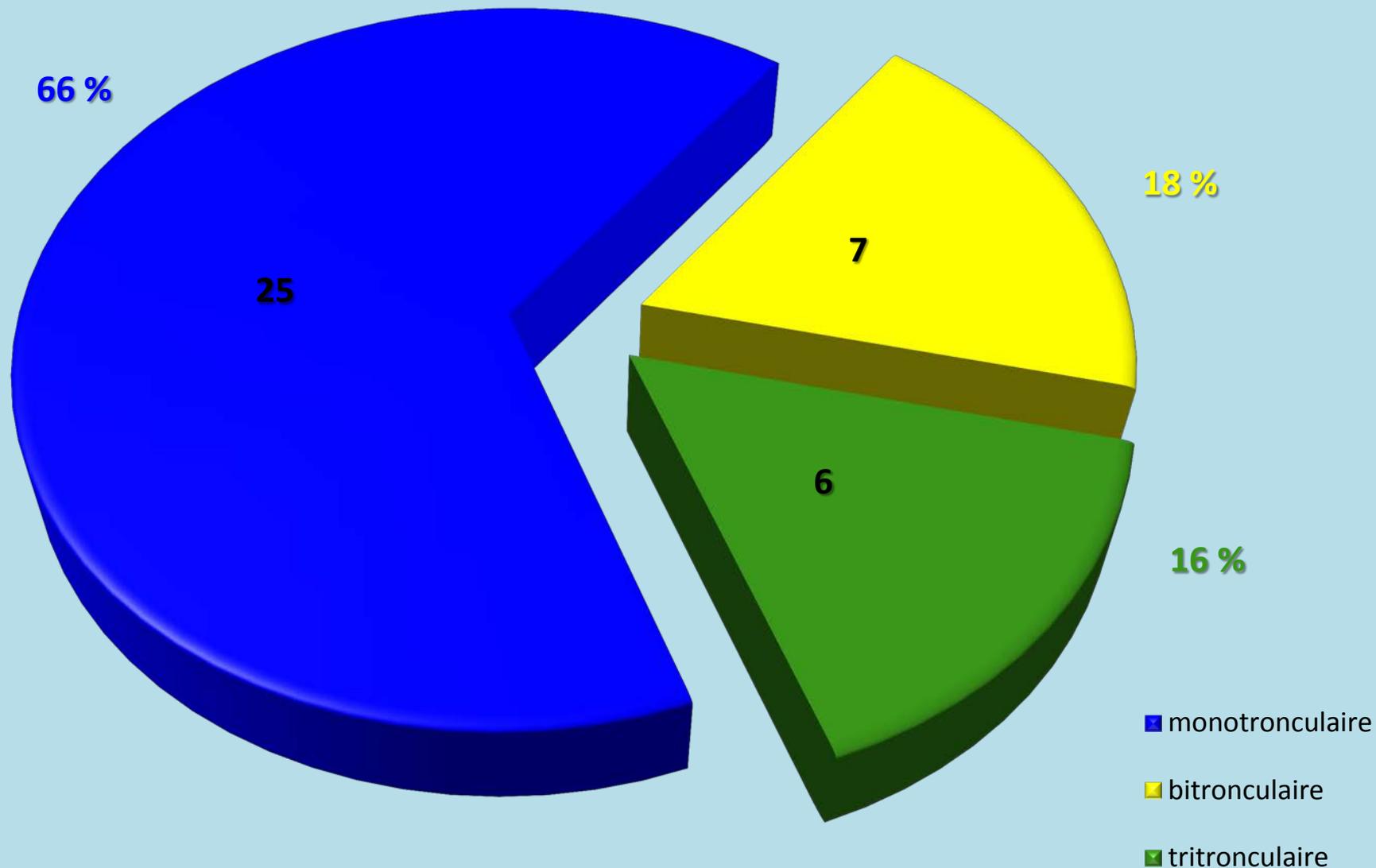
Autoimmune diseases : hyper coagulable states ,
Antiphospholipide syndrome ...

Thrombophilia etc...

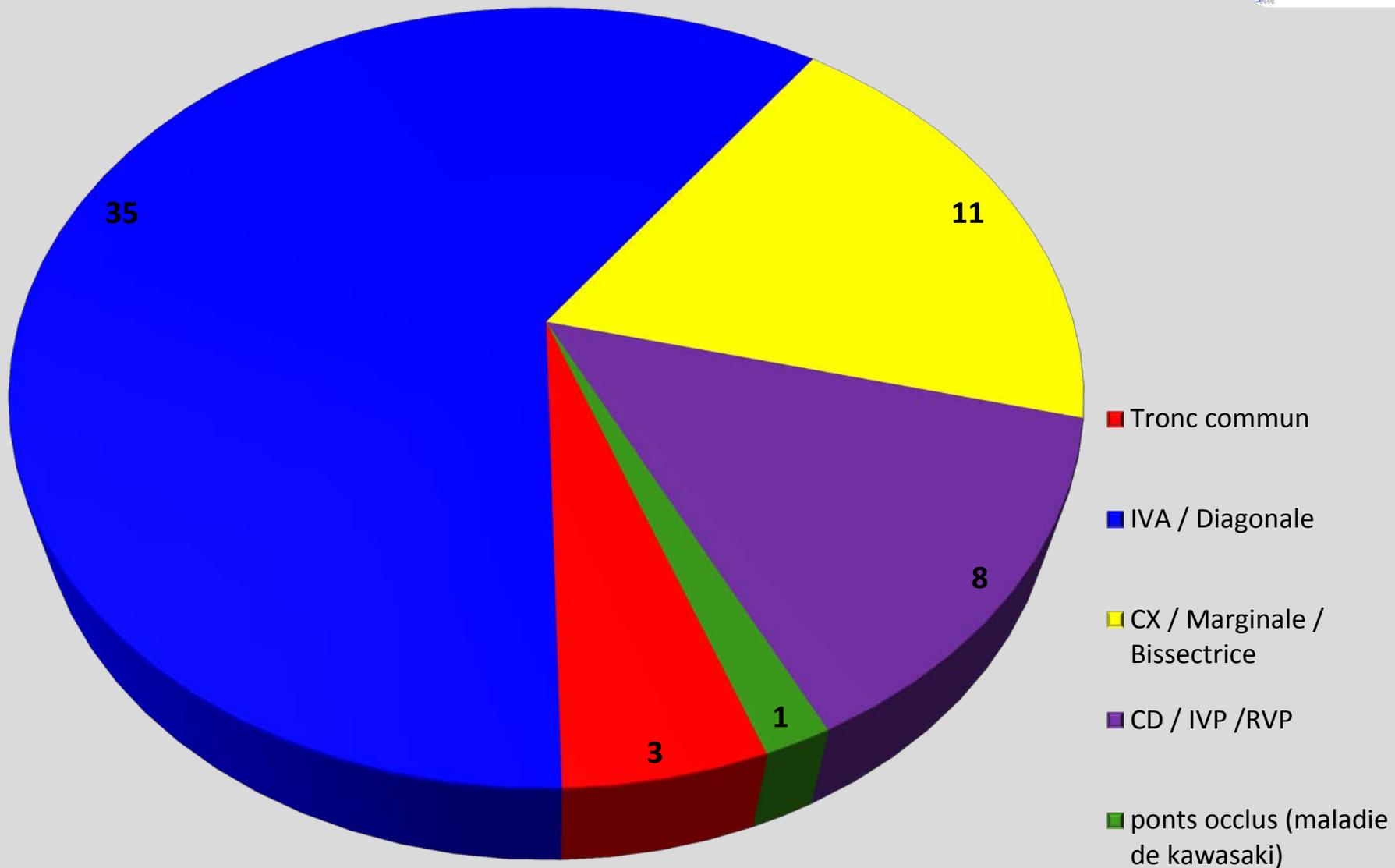
Fraction d'éjection (38 pts coronariens)



Bilan lésionnel



Bilan lésionnel



MI & young patients < 35 years

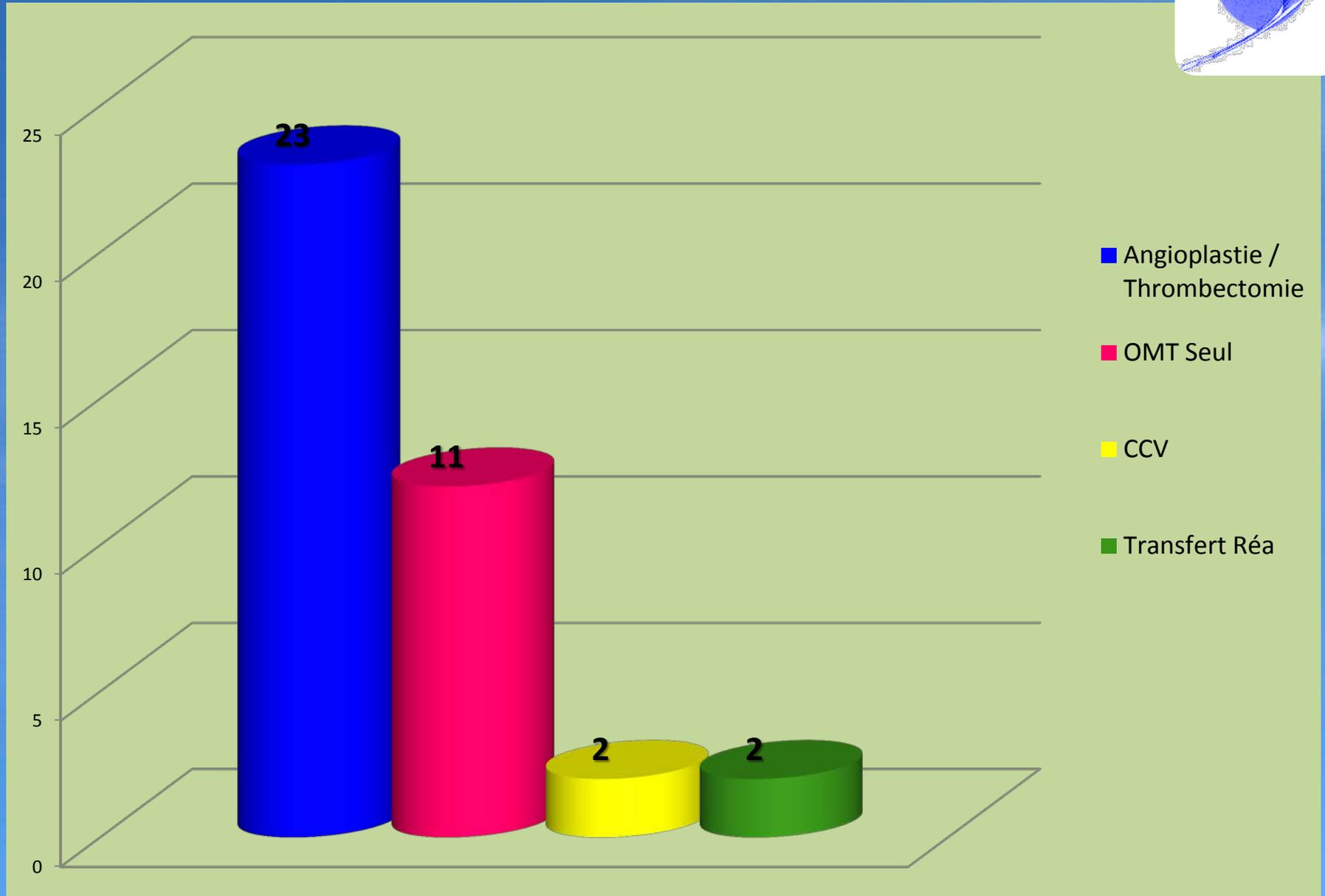
Most often plaque rupture

Normal coronary angiogram (20%)

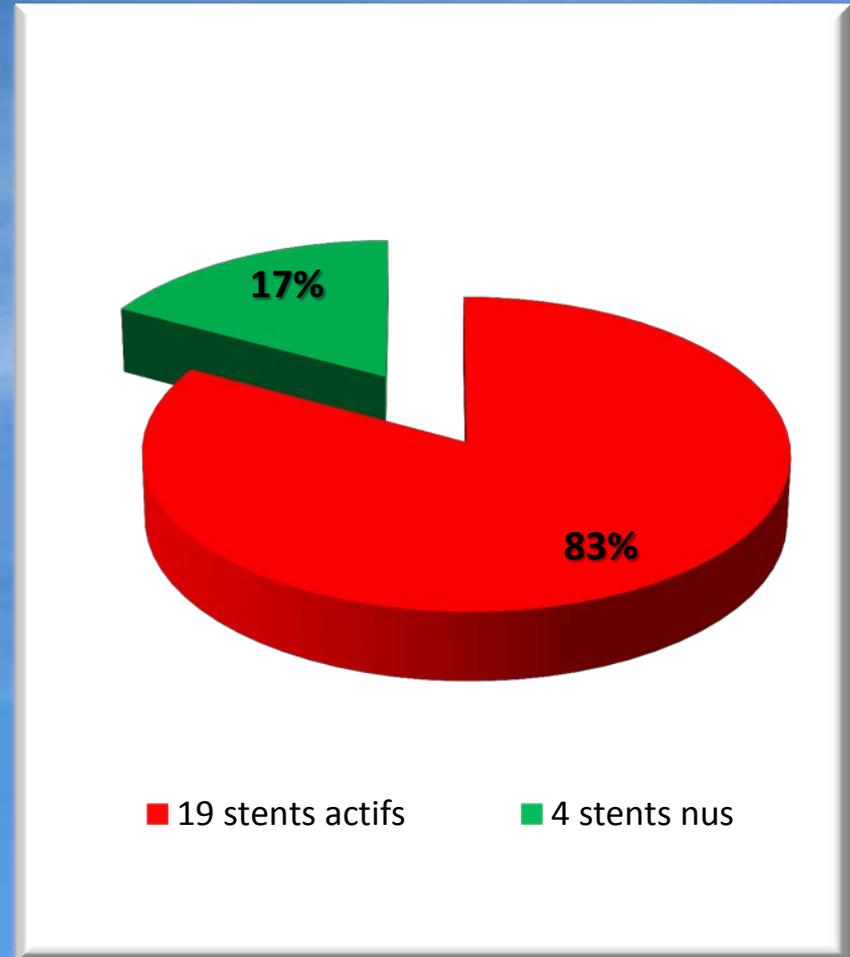
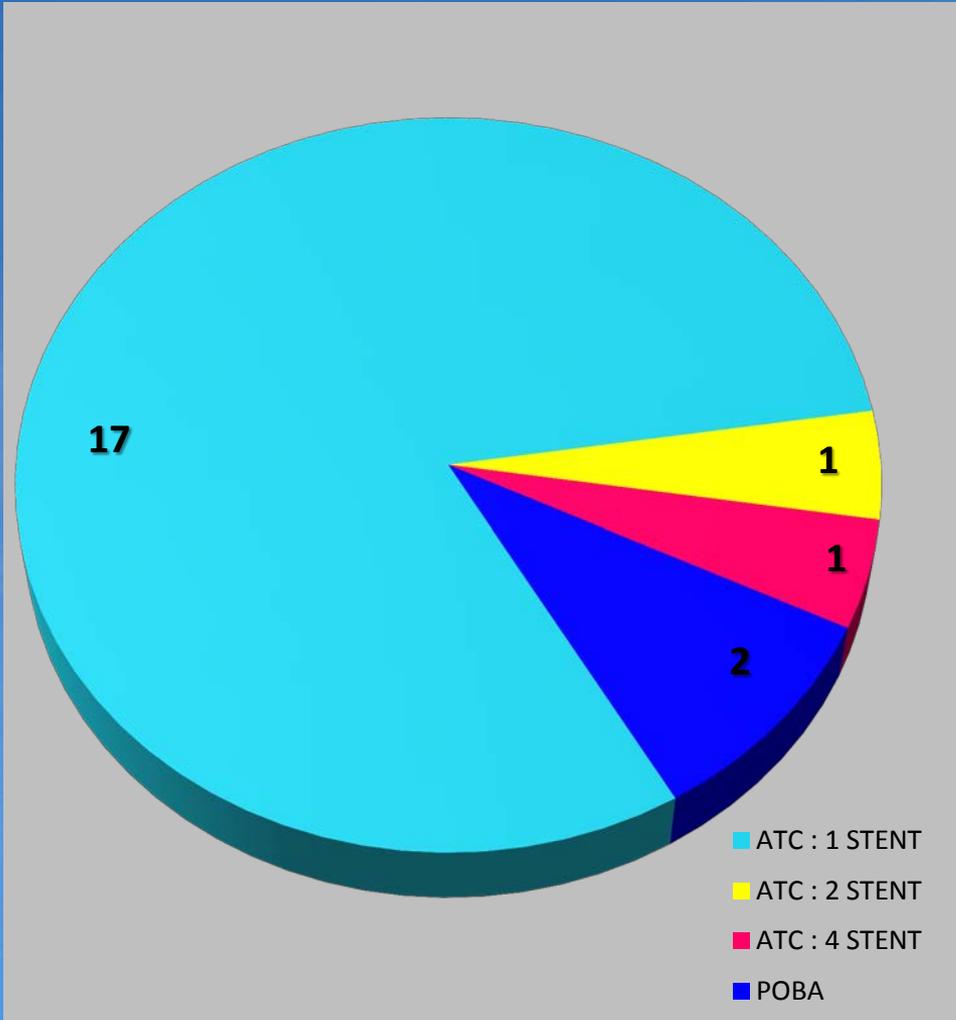
Single vessel disease (60%)

LAD location (50 to 69 %) (ref 1,2, 14, 20, 21,22)

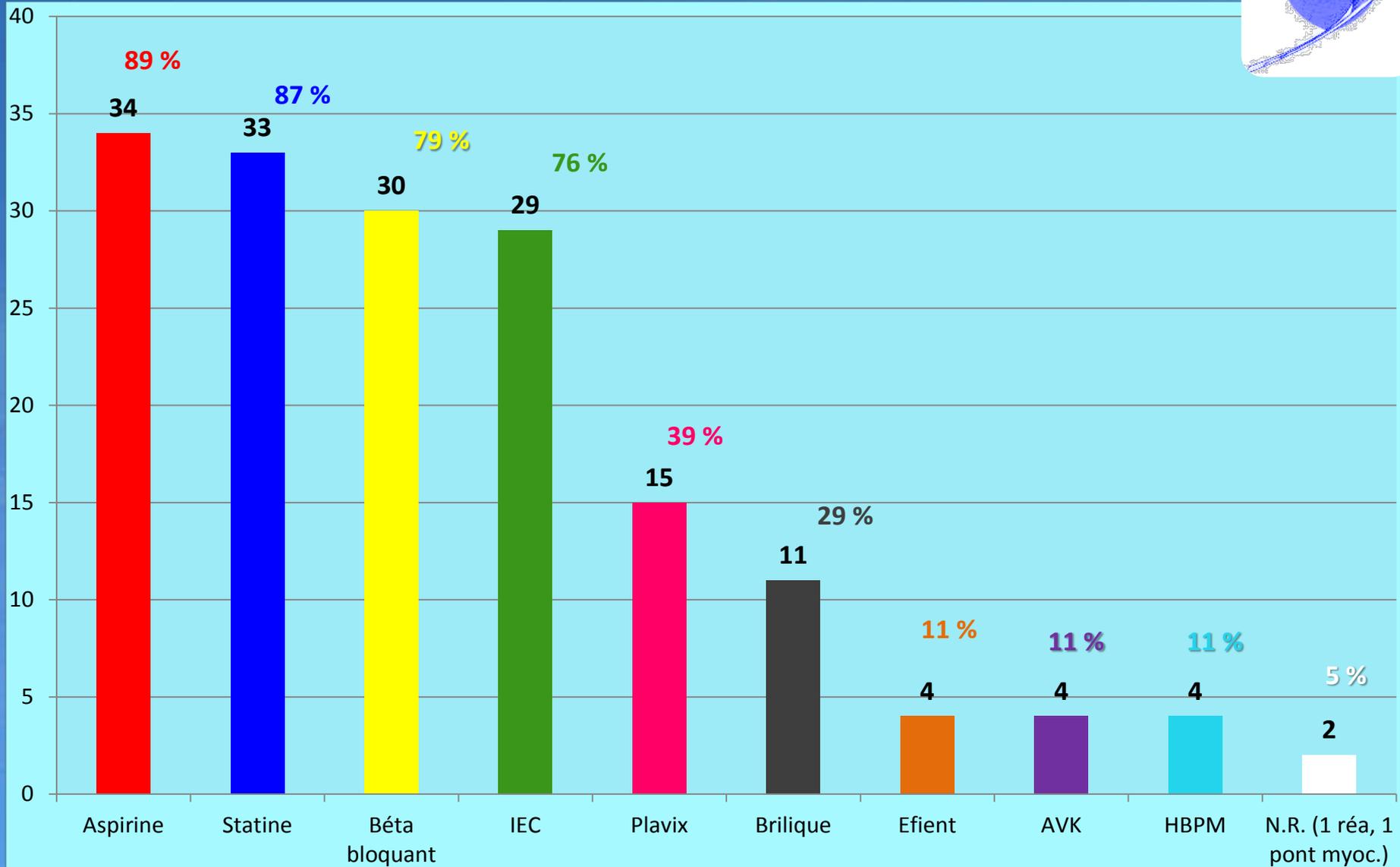
Décision thérapeutique (38 pts)



Angioplastie



Traitement de sortie



Follow up

After acute MI patients < 35 years

Mortality ^(14, 23): 5 years \Rightarrow 6 %

10 years \Rightarrow 15 %

15 years \Rightarrow 30 %

Ejection fraction

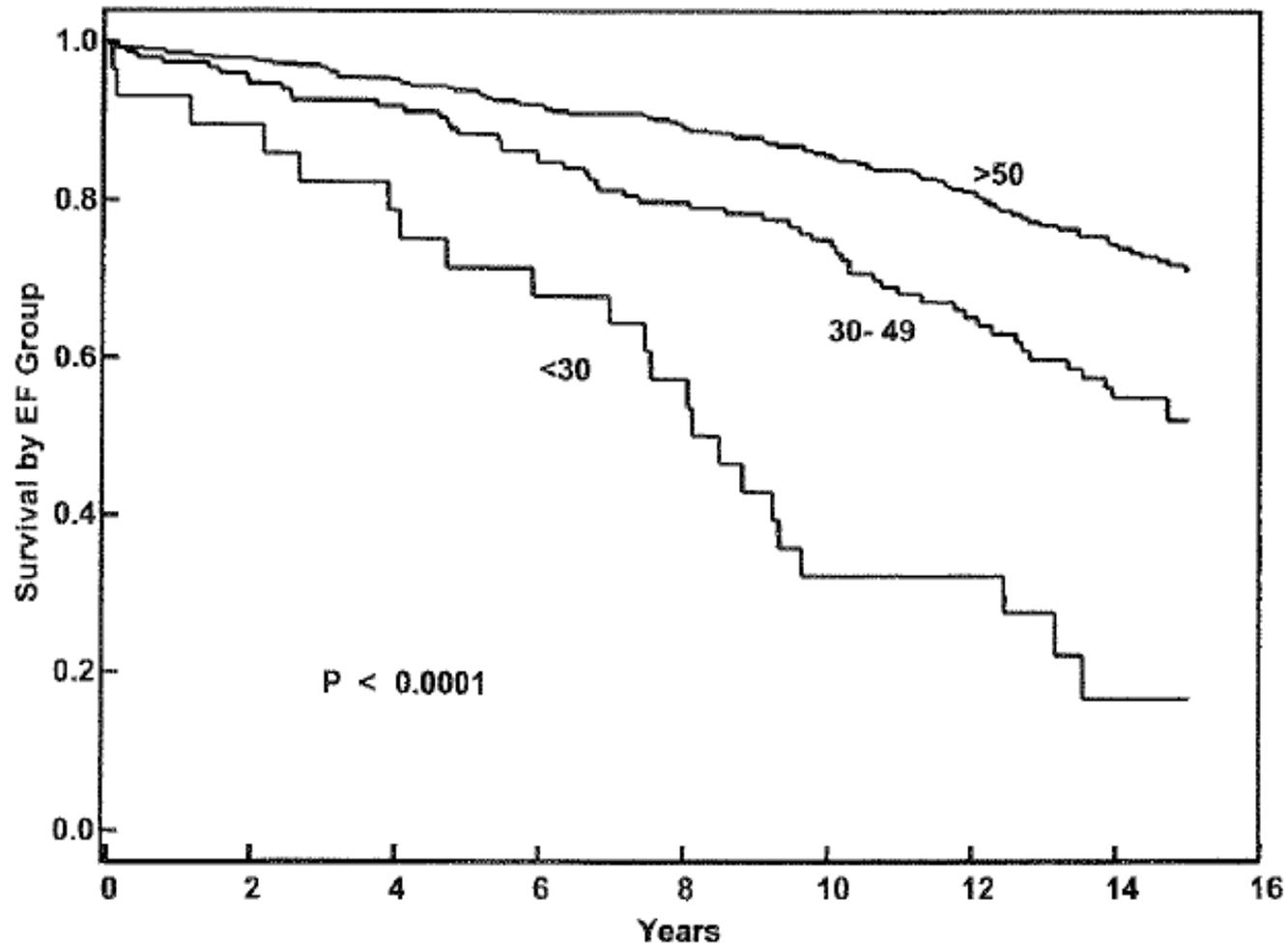


Figure 3. Fifteen-year survival for patients categorized by ejection fractions (EFs) <30%, 30%–49%, and >50%. Patients with an EF <30% had a dramatic mortality increase during the first year of follow-up, and only 17% were alive at 15 years ($p < 0.0001$ for differences across the three groups of therapy).

Diabetics mortality (65 % 15 years)

524

Cole et al.
15-Year Follow-Up of CAD in Patients Under 40

JACC Vol. 41, No. 4, 2003

February 19, 2003:521-8

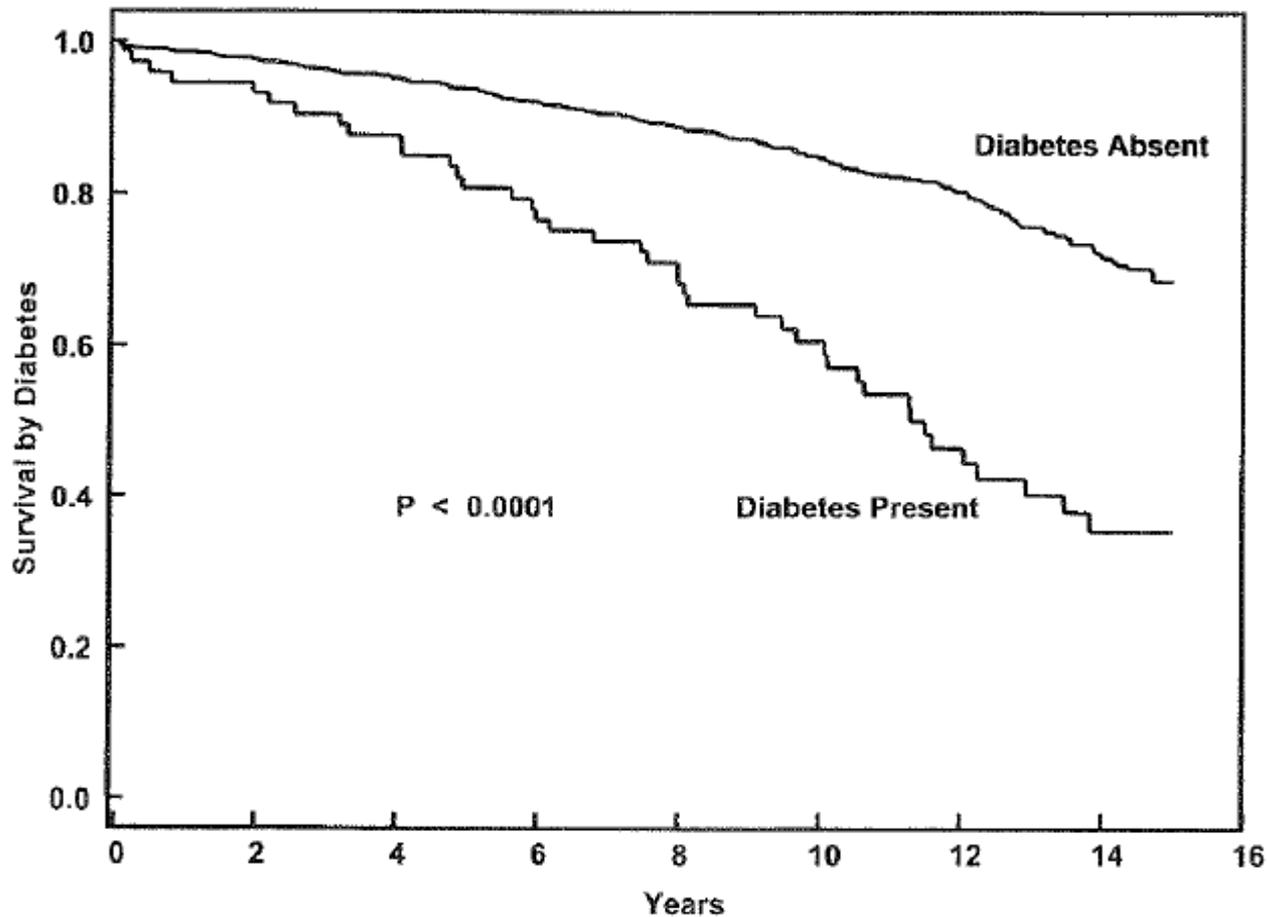
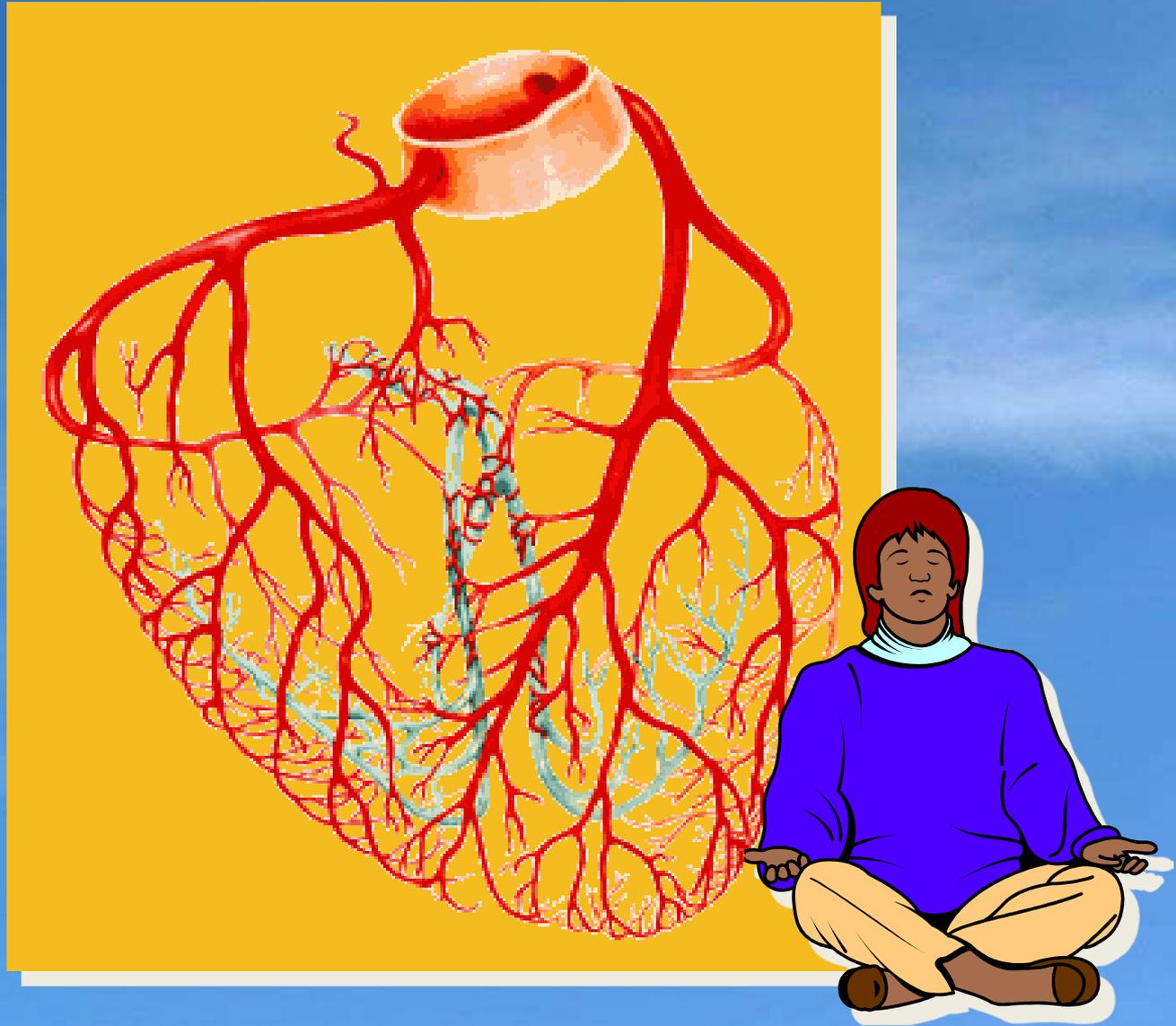


Figure 1. Survival in diabetic and nondiabetic patients. The increase in diabetic mortality starts in the first year after angiography and continues over the 15 years of follow-up ($p < 0.0001$). After 15 years only 35% of the diabetic patients had survived.

Crucial Importance of 2d prevention for young patients

- Diabetes treatment (HbA1c)
- APT
- Beta-bloqueurs
- ACE inhibitors
- Statines
- Life style changing (stop smoking and exercise)...

MERCI



- (ref 1) : myocardial infarction in young adults : angiographic characterization, risk factors and Prognosis (CASS Registry) : Franklin H. Zimmerman – JACC Sept 1995
- (ref 2) : comparison of clinical features and outcomes of patients with acute myocardial infarction younger than 35 years with those older than 65 years : Huang J. – Am J Med Sci. 2013
- (ref 3) : young adults with coronary atherosclerosis : 10 year results of surgical myocardial revascularization : Lytle BW – Am coll cardiol 1984
- (ref 4) : coronary heart disease and myocardial infarction in young men and women : Rabih R. Azar
- (ref 5) : coronary artery disease in young adults : Editorial comment : Lloyd W. Klein – JACC 2003
- (ref 6) : Association of coronary heart disease risk factors with microscopic qualities of coronary atherosclerosis in youth : Mc Gill HC Jr – Circulation 2000
- (ref 7) : High prevalence of coronary atherosclerosis in asymptomatic teenagers and young adults : evidence from intravascular ultrasound : Tuzcu EM – circulation 2001
- (ref 8) : Coronary artery disease in asymptomatic young adults : its prevalence according to coronary artery disease risk stratification and the CT characteristics : Eun JU Ha – Korean J Radiol 2010
- (ref 9) : Myocardial infarction in the young and in women : Jaloweil DA – Cardiovasc Clin 1989

(ref 10) : La maladie coronaire chez les jeunes adultes -33ème congrès annuel AQT –V Mai 2009
Montréal

(ref 11) : Myocardial infarction in men aged 40 Years or less : a prospective clinical angiographic study : Fournier JA – Clin Cardiol 1996

(ref 12) : Acute ST- segment elevation myocardial infarction in young adults : who is at risk
BAJAJ S – Coron Artery Disease 2011

(ref 13) : Havard Men's Health Watch newsletter Novembre 2009

(ref 14) : Long-term follow-up of coronary artery disease presenting in young adults : Jason H. Cole
JACC 2003

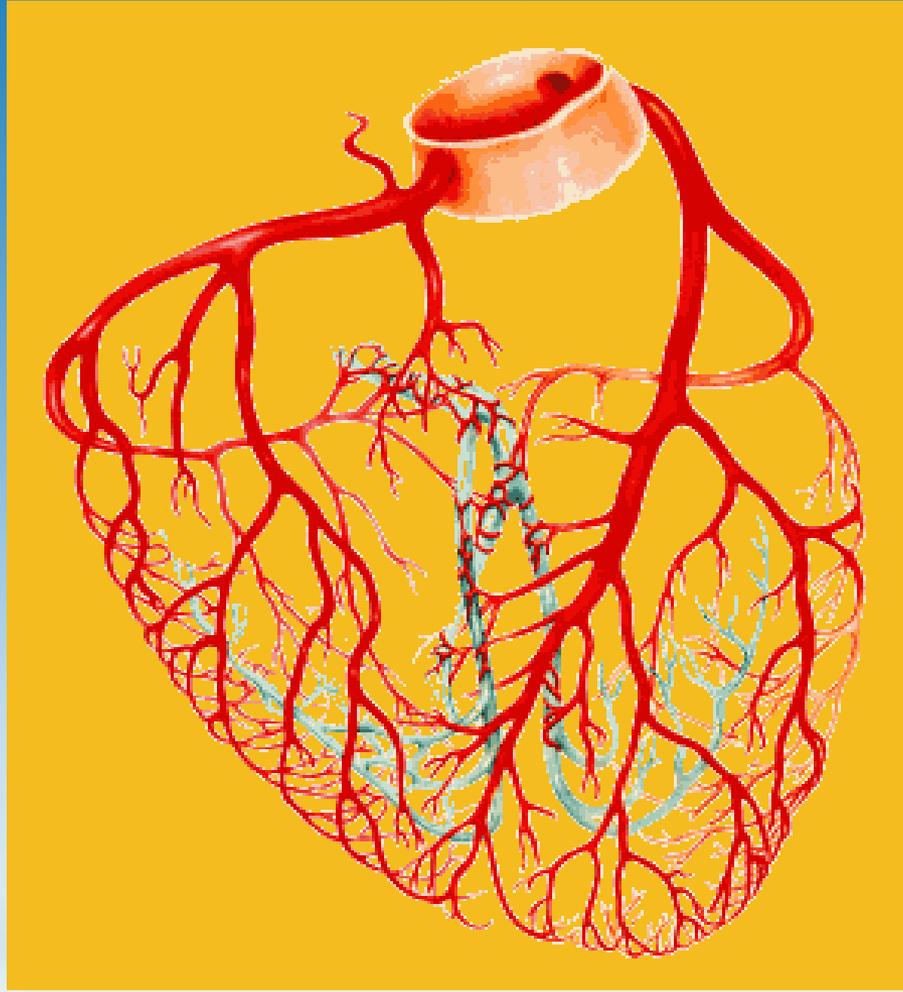
(ref 15) : Job strain and incident metabolic syndrome over 5 years of follow up : the coronary artery risk development in young adults study : Edwards EM – ccup Environ Med 2012

(ref 16) : inflammation in young adulthood is associated with myocardial infarction later in life :
Fredrik Toss – American Heart Journal 2013

(ref 17) : white blood cell count and the risk for coronary artery disease in young adults : Gilad Twig
PLOS ONE October 2012

- (Ref 18) : Coronary risk factors in people from Indian sub-continent living in West London and their siblings in India : Bhatnager D 6 Lancet 1995
- (ref 19) : Malignant coronary artery disease in young Asian Indians : thoughts on pathogenesis , prevention and treatment : Enas EA – Clin Cardiol 1995
- (ref 20) : Clinical features of myocardial infarction and myocarditis in young adults : a retrospective study : Cyril Pellaton, Olivier Muller – BMJ Open 2012
- (ref 21) : Clinical and coronary characteristics of young patients (<30 years old) with acute myocardial infarction : Cheng ZW – Zhonghua Xin Xue Guan Bing Za Zhi 2010
- (Ref 22) : Age-related alteration of risk profile, inflammatory response, and angiographic findings in patients with acute coronary syndrome : Badran HM – Clin Med Cardiol 2009
- (ref 23) : Young adults with coronary atherosclerosis : 10 years results of surgical myocardial revascularization : Lytle BW – Am Coll Cardiol 1984

Merci



Cardiovascular News

The international newspaper for cardiovascular specialists

August 2014 Issue 34



Robert Byrne:
Drug-coated balloons

Page 10



Azeem Latib:
Profile

Page 18



Ziyad M Hijazi:
Congenital conditions

Page 20

Staged intervention is right way to treat STEMI patients with multivessel disease

According to panellists at the 2014 EuroPCR (20–23 May, Paris, France) Great Debate, patients with ST-segment elevation myocardial infarction (STEMI) and multivessel disease should undergo staged revascularisation procedures to treat culprit and non-culprit vessels rather than undergoing one procedure to treat both vessels—indicating that the PRAMI (Randomised trial of preventive angioplasty in myocardial infarction) should not change clinical practice.



Sajidah Khan



Flavio Ribichini

Survival after Acute MI patients < 35 years

Persistence of cigarette smoking

Diabetis ; High serum cholesterol ; High blood pressure

Revascularisation > medical therapy

↓ mortality : PCI & CABG

Ejection fraction

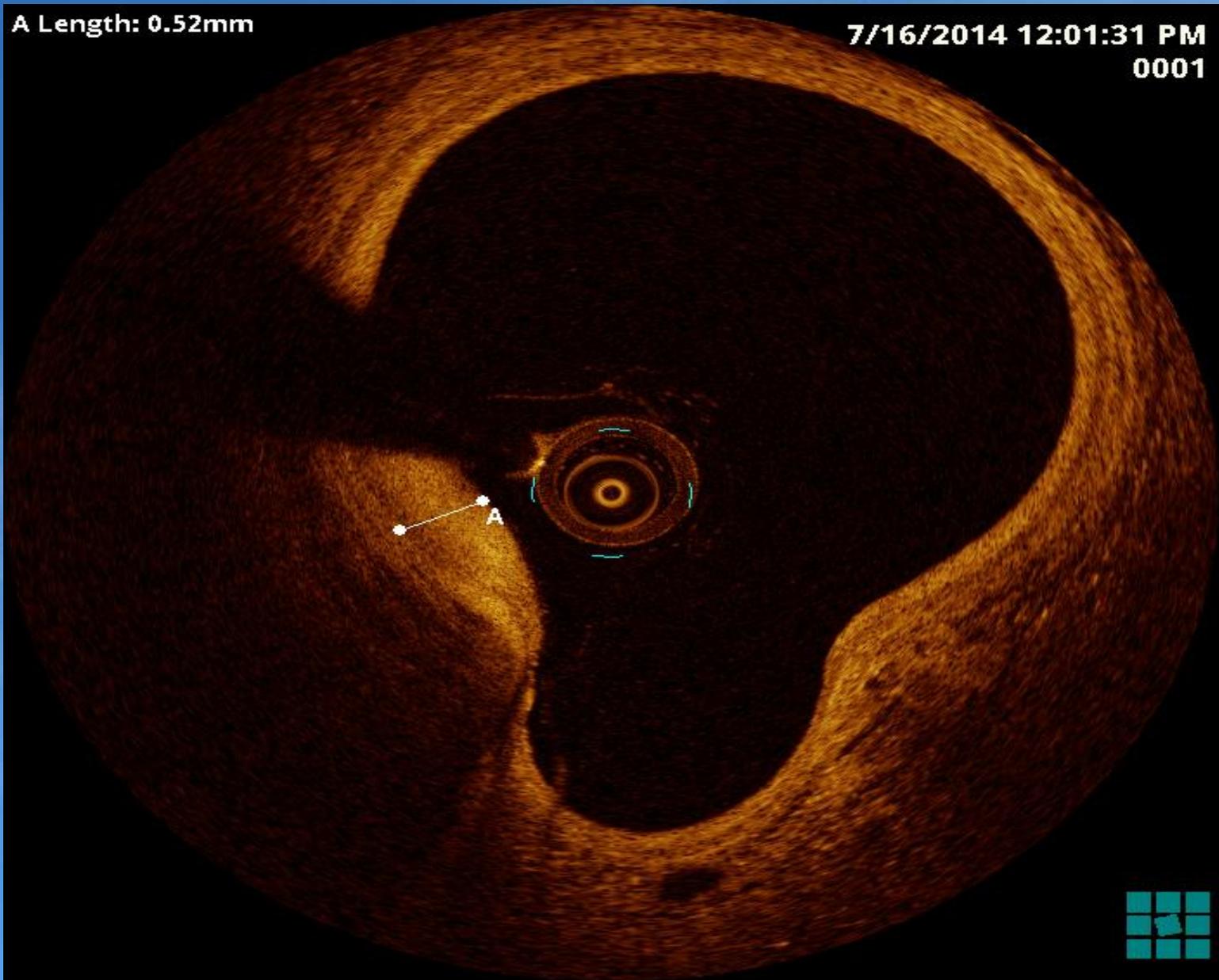
Prior MI existence

Poverty (Socio Economic Status)

Quality of life

A Length: 0.52mm

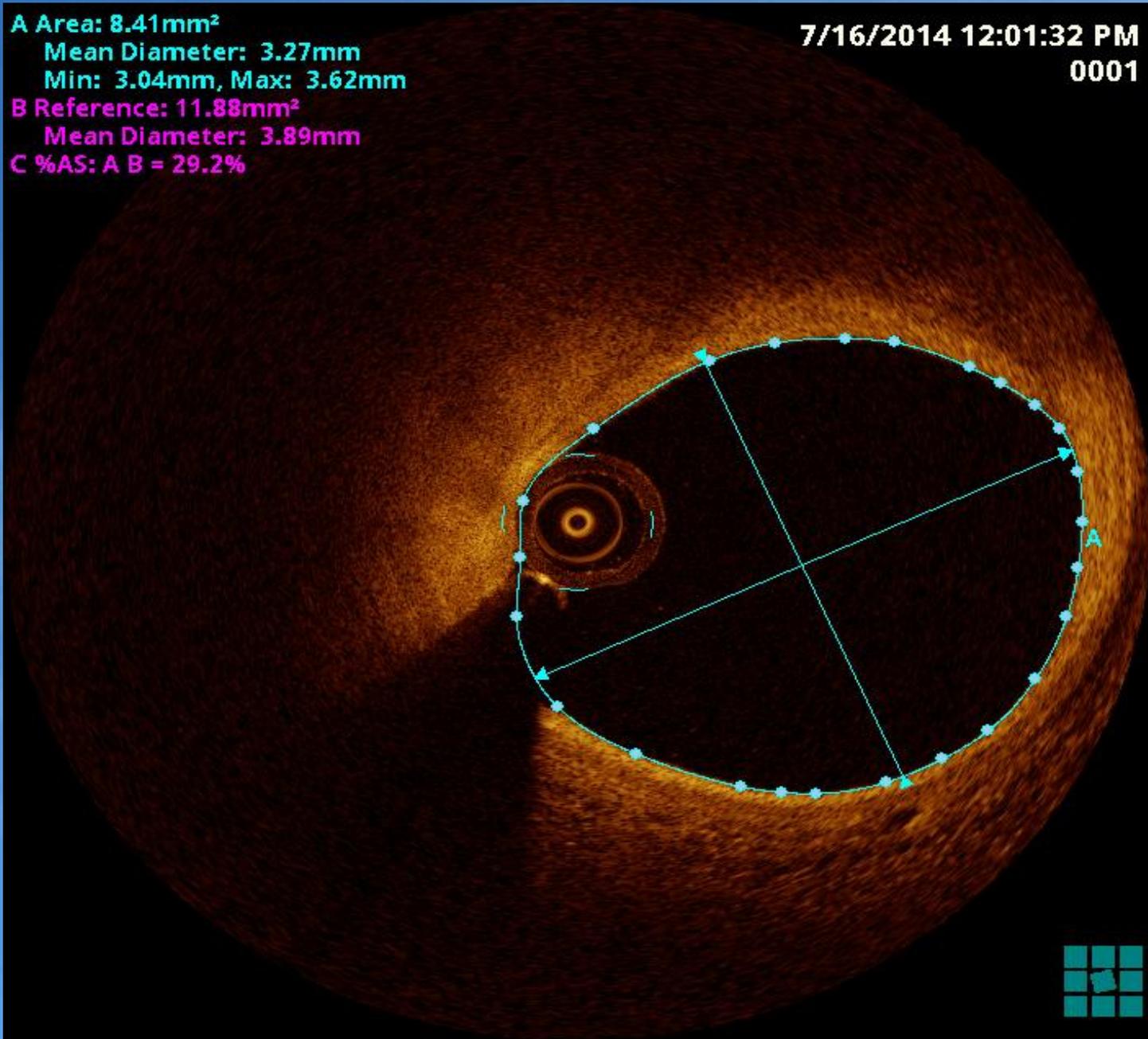
7/16/2014 12:01:31 PM
0001



A Area: 8.41mm²
Mean Diameter: 3.27mm
Min: 3.04mm, Max: 3.62mm

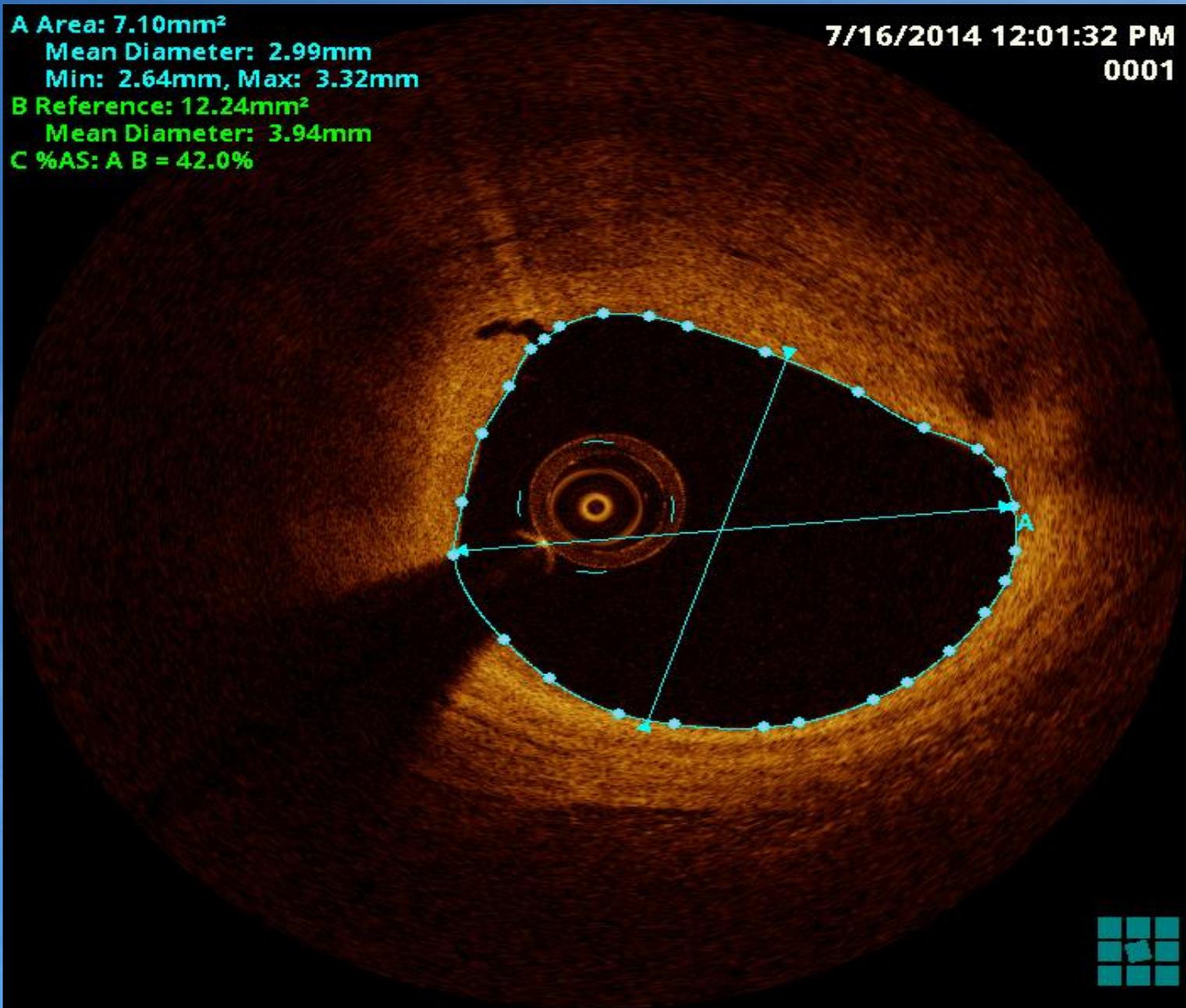
7/16/2014 12:01:32 PM
0001

B Reference: 11.88mm²
Mean Diameter: 3.89mm
C %AS: A B = 29.2%

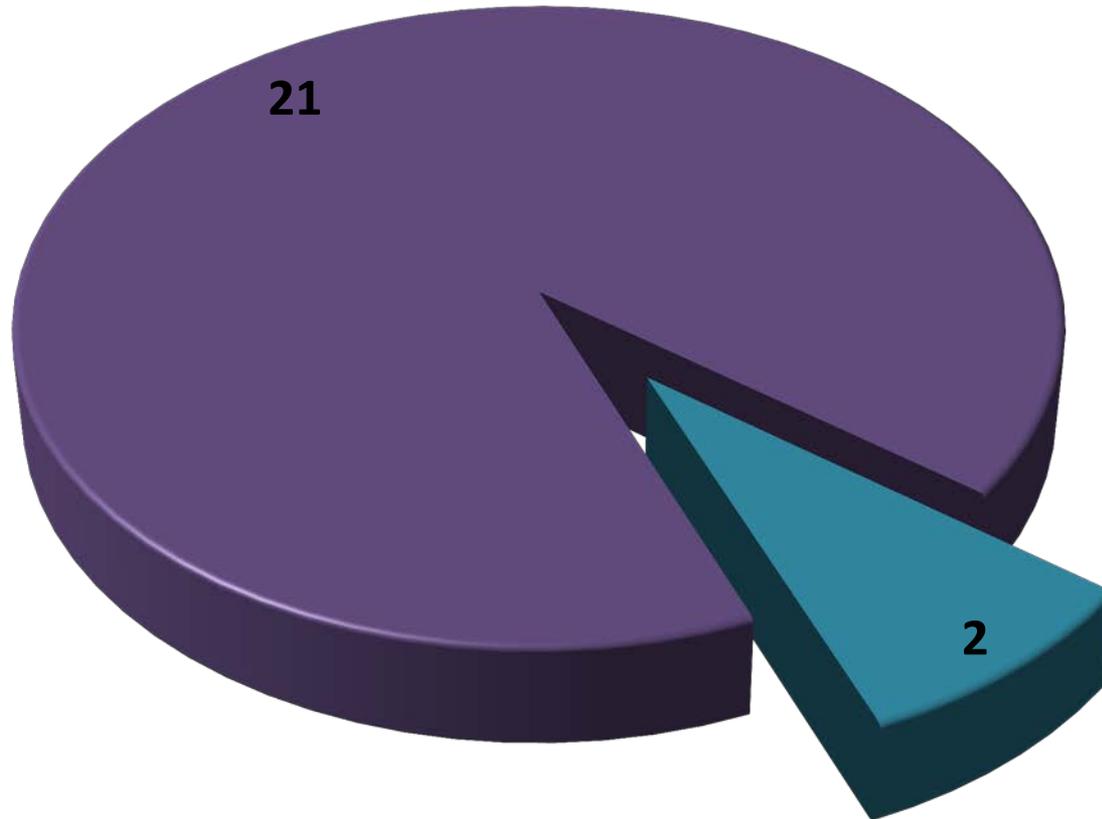


A Area: 7.10mm²
Mean Diameter: 2.99mm
Min: 2.64mm, Max: 3.32mm
B Reference: 12.24mm²
Mean Diameter: 3.94mm
C %AS: A B = 42.0%

7/16/2014 12:01:32 PM
0001



Décision thérapeutique



■ ATC (dont 8 avec aspi)

■ Thrombo aspi seule (IVA)



Quel traitement auriez vous instauré ?

- . Béta-bloquant ?
- . IEC ?
- . Traitement AAP double ?
- . Statine ?

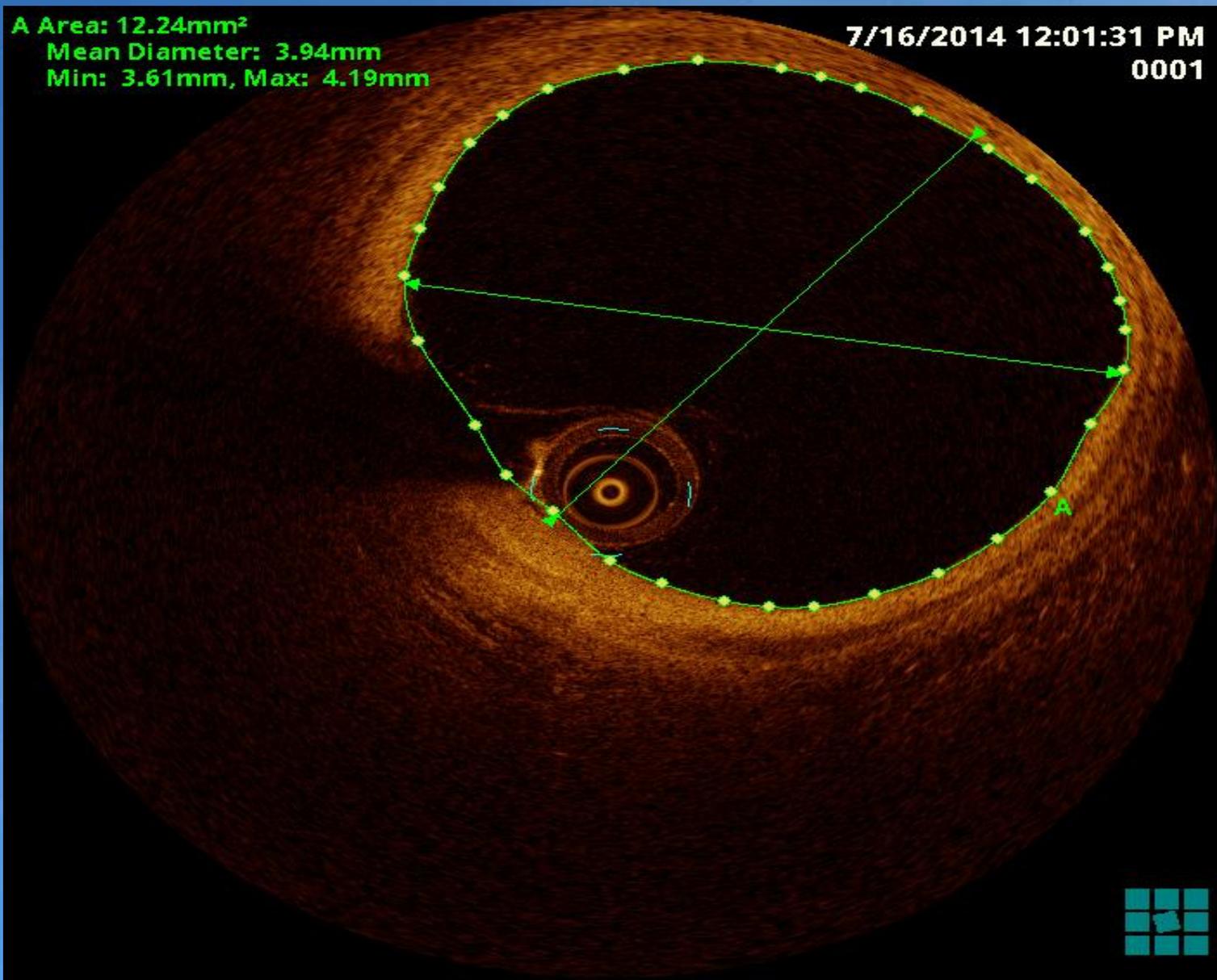


Pour quelle durée chez ce jeune patient (29 ans) ?

- . 1 an ?
- . A vie ?

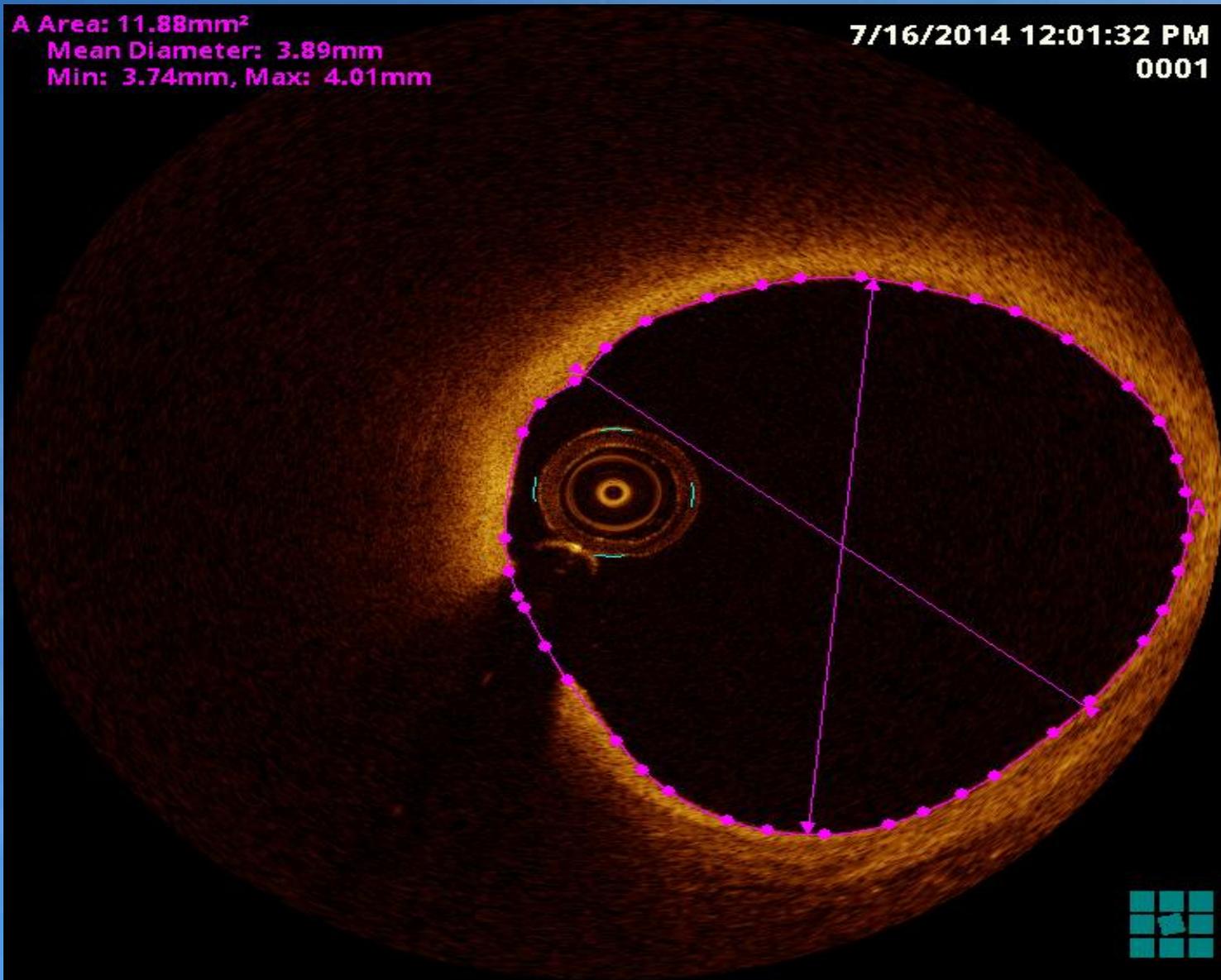
A Area: 12.24mm²
Mean Diameter: 3.94mm
Min: 3.61mm, Max: 4.19mm

7/16/2014 12:01:31 PM
0001



A Area: 11.88mm²
Mean Diameter: 3.89mm
Min: 3.74mm, Max: 4.01mm

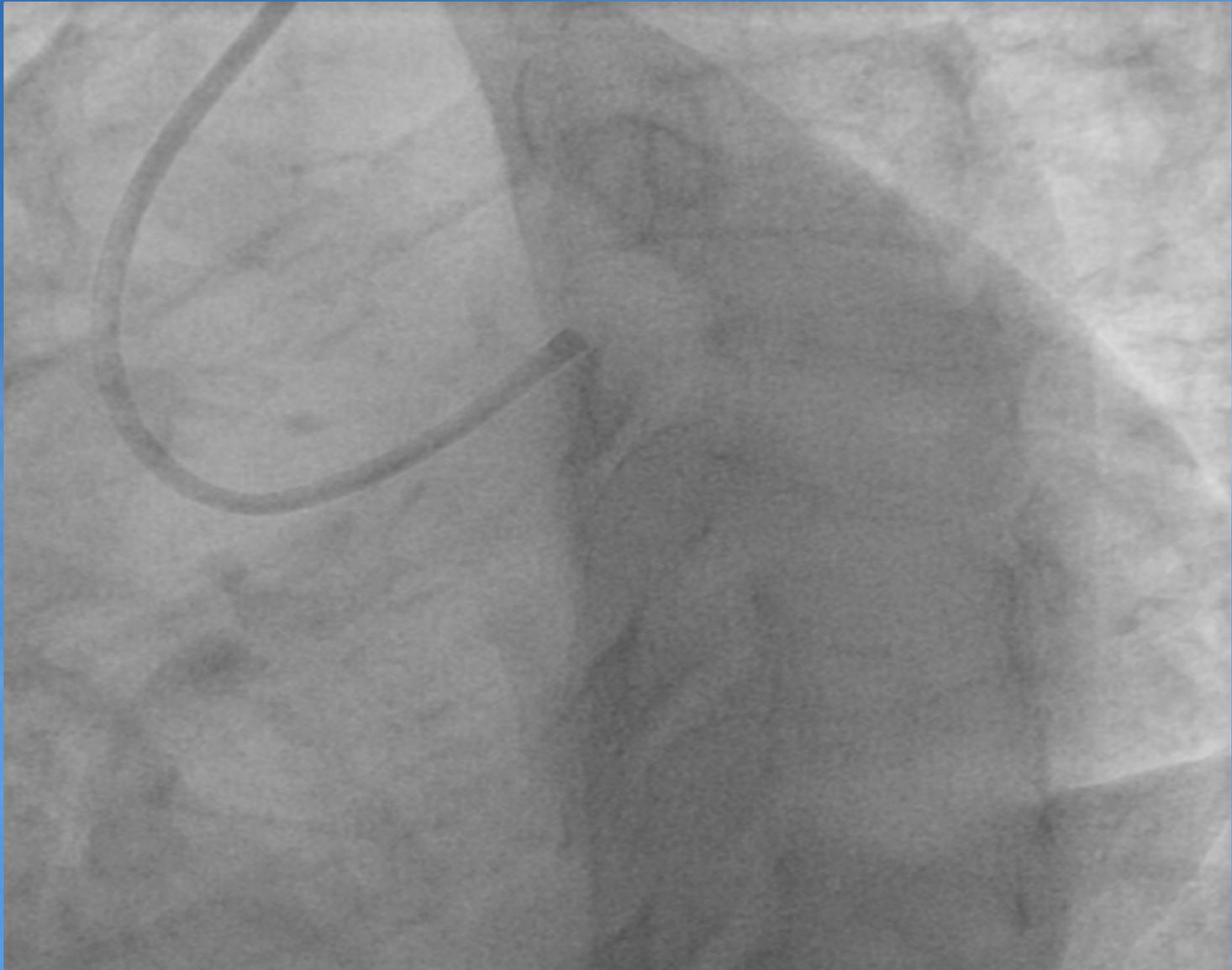
7/16/2014 12:01:32 PM
0001



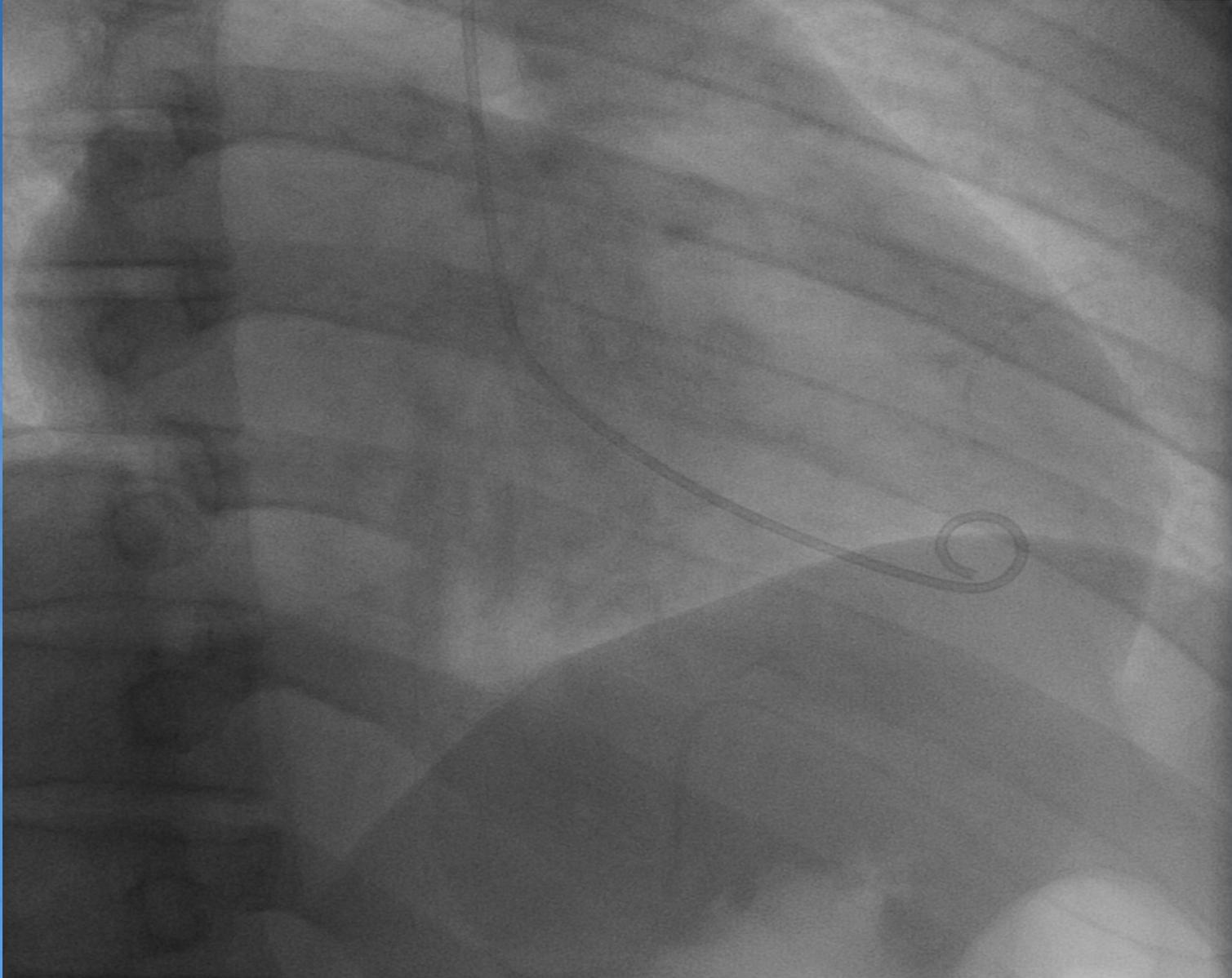
Mr Yoan S.

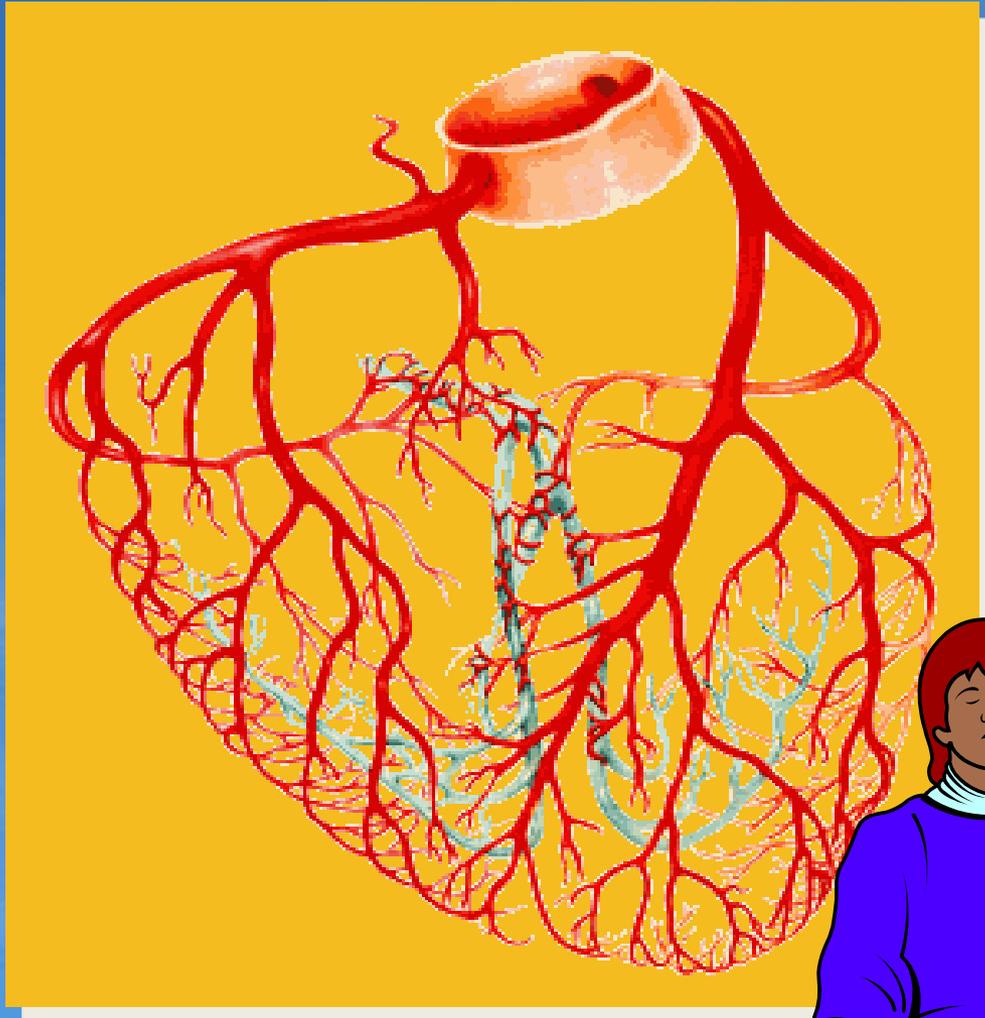
26 ans





Coronarographie (72 heures)







Sudden death in pts 18 → 35 y. ⁽¹³⁾

Only 50 % related to heart disease :

- . 28 % coronary artery disease
- . 33 % abnormalities of coronary anatomy
- . 20 % myocarditis
- . 13 % structural abnormalities of the heart muscle...

Inflammation : erythrocyte sedimentation rate

↑ risk of MI ⁽¹⁶⁾

White blood cell count : ↑ risk of CAD ⁽¹⁷⁾

Infection : Mycoplasma ; Chlamydia ;
Helicobacter pylori

Chest trauma

Low birth weight : ↓ one pound

↑ 5 to 10 % risk of CAD ⁽¹³⁾

Ethnicity : Asian Indian ^(18, 19)

Clinical And Angiographic Features

Chest pain and ↑ Troponine

Emergency department CHU Vaudois

49 patients / 30 month

1/3 patients MI

2/3 patients myocarditis (ref 20)

Revue de la littérature ...

