



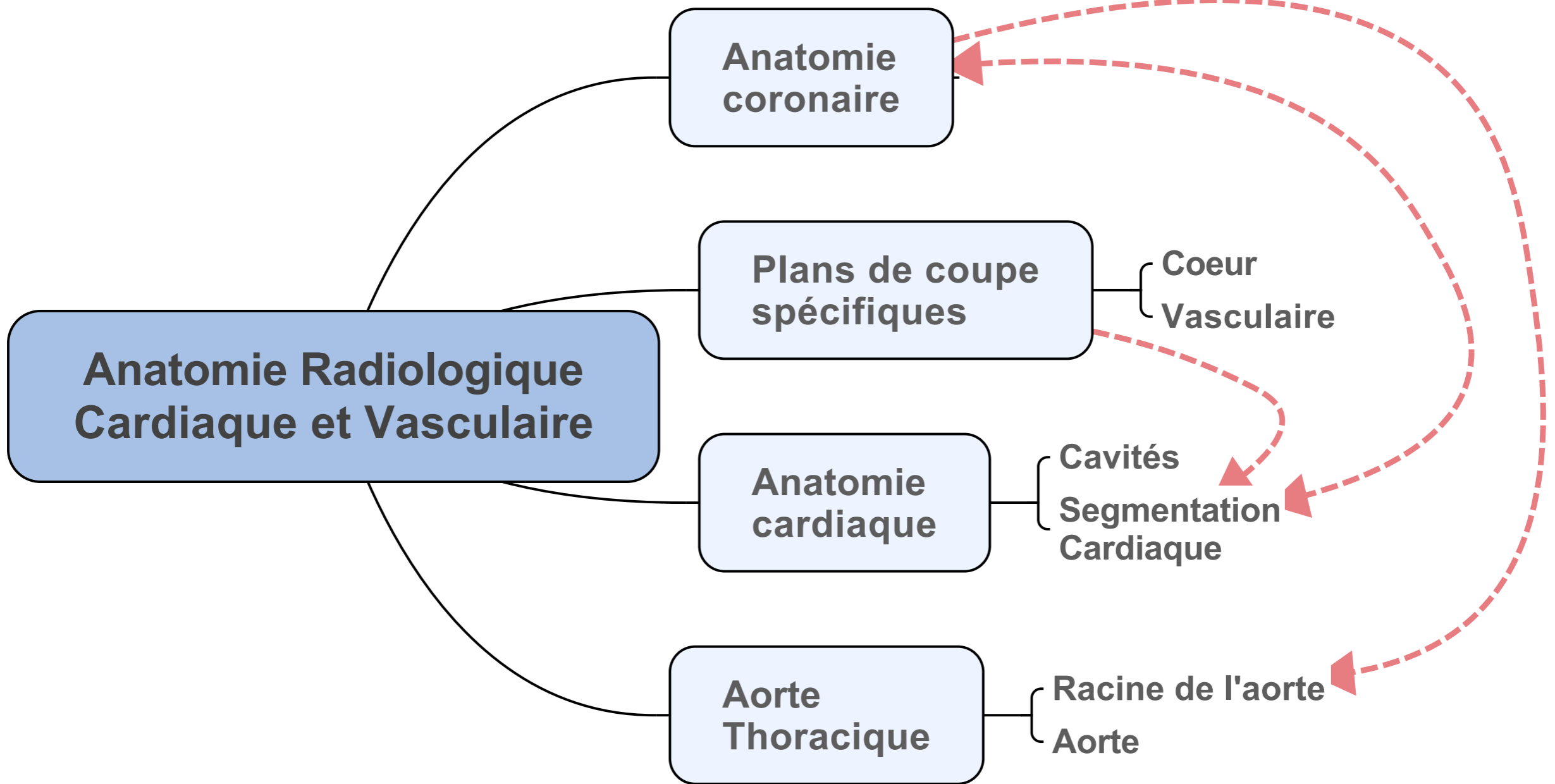
Anatomie Radiologique Cardiaque et de l'Aorte Thoracique

S Willoteaux



Service de Radiologie
CHU d'Angers

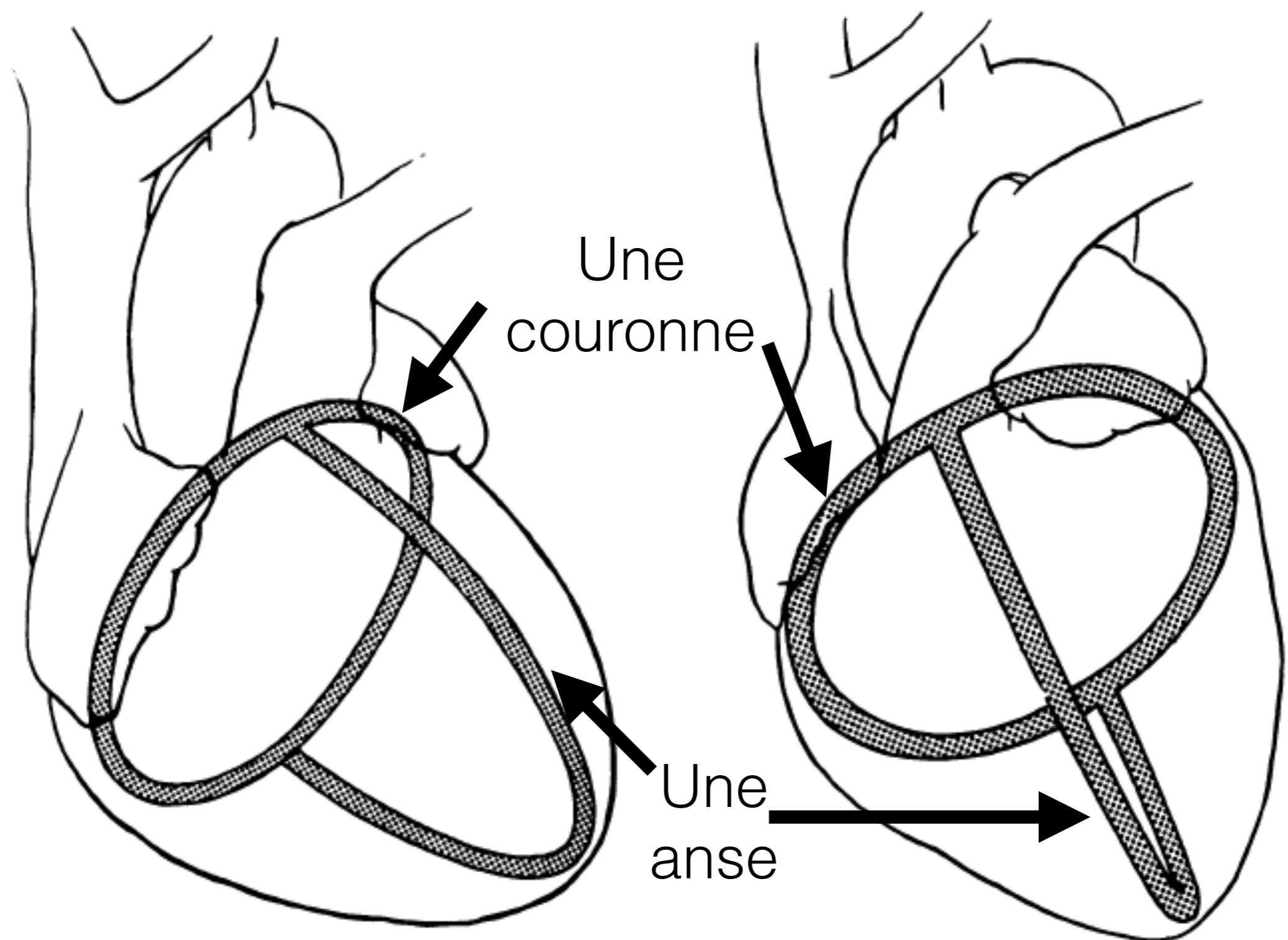




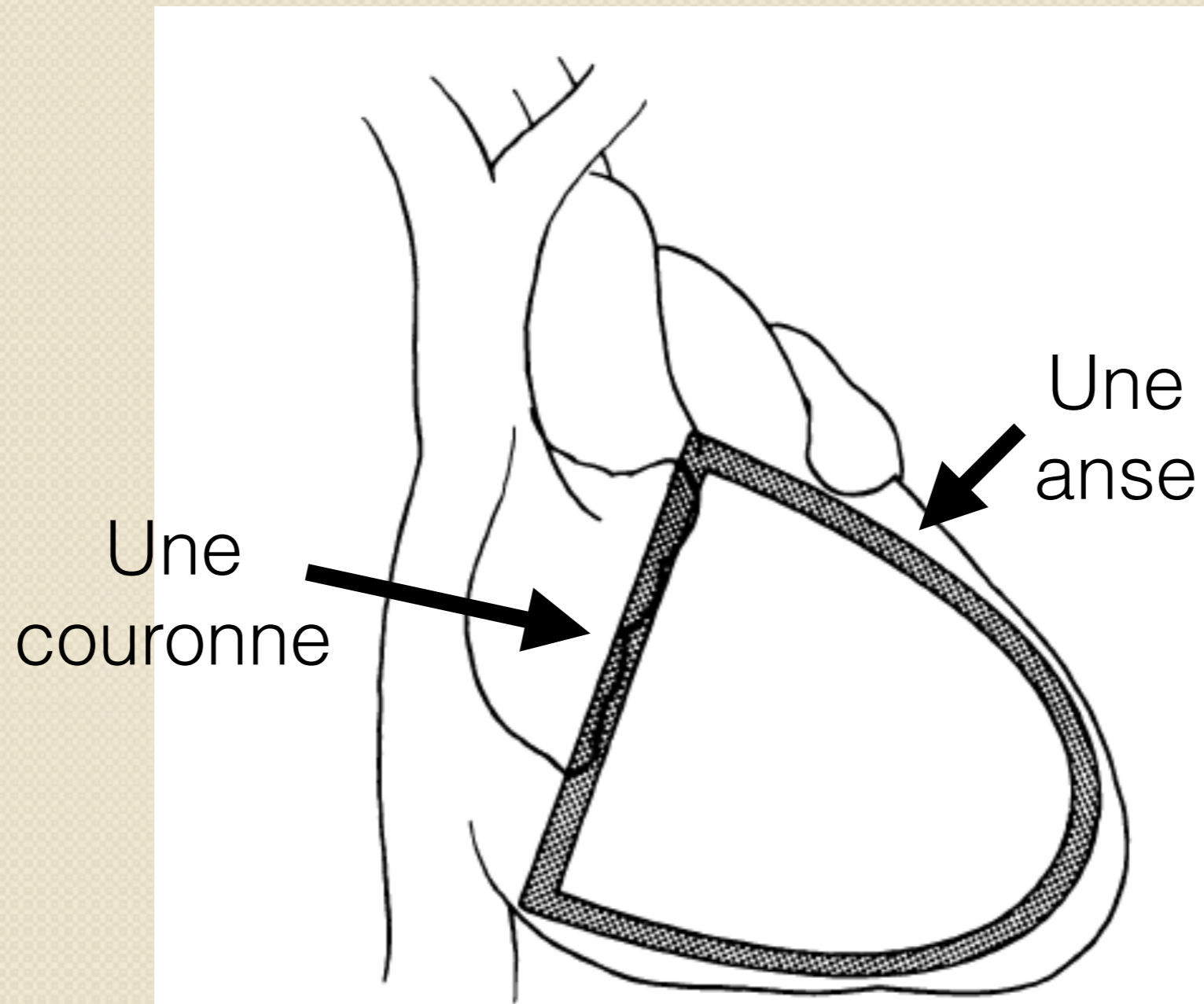


Anatomie des artères coronaires

Anatomie coronaire

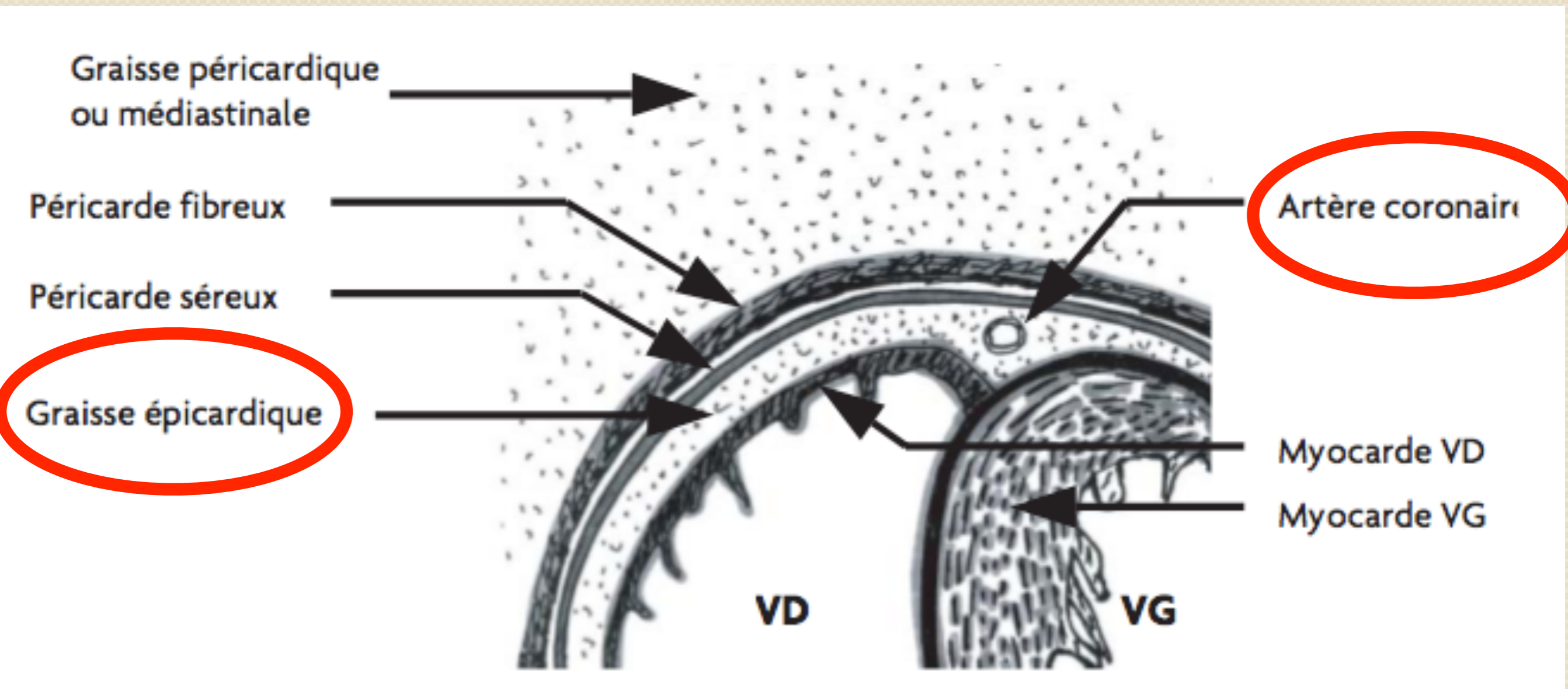


ANATOMIE CORONAIRE



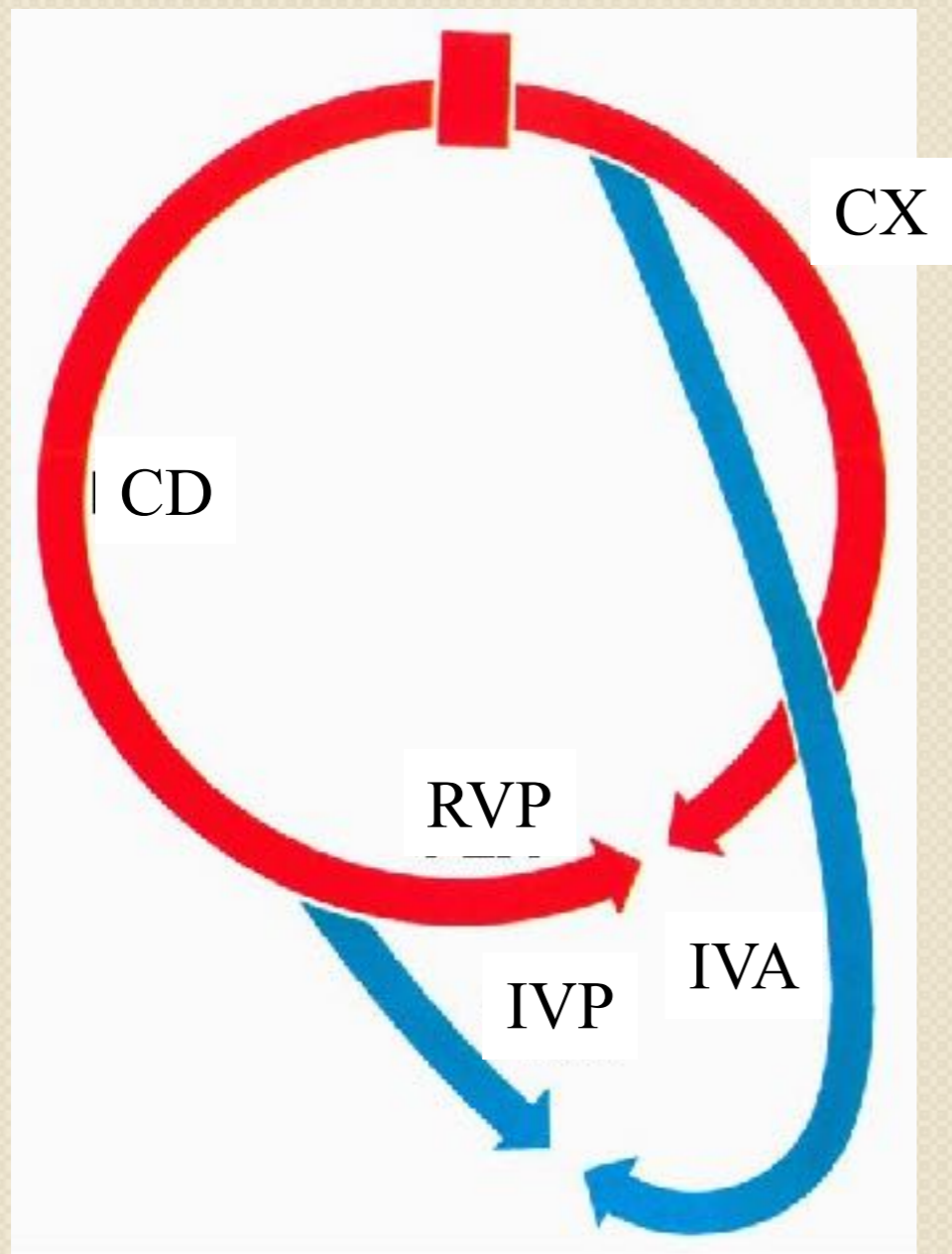
Kubicka Radiographics 1986;6:661-701

Réseau coronaire



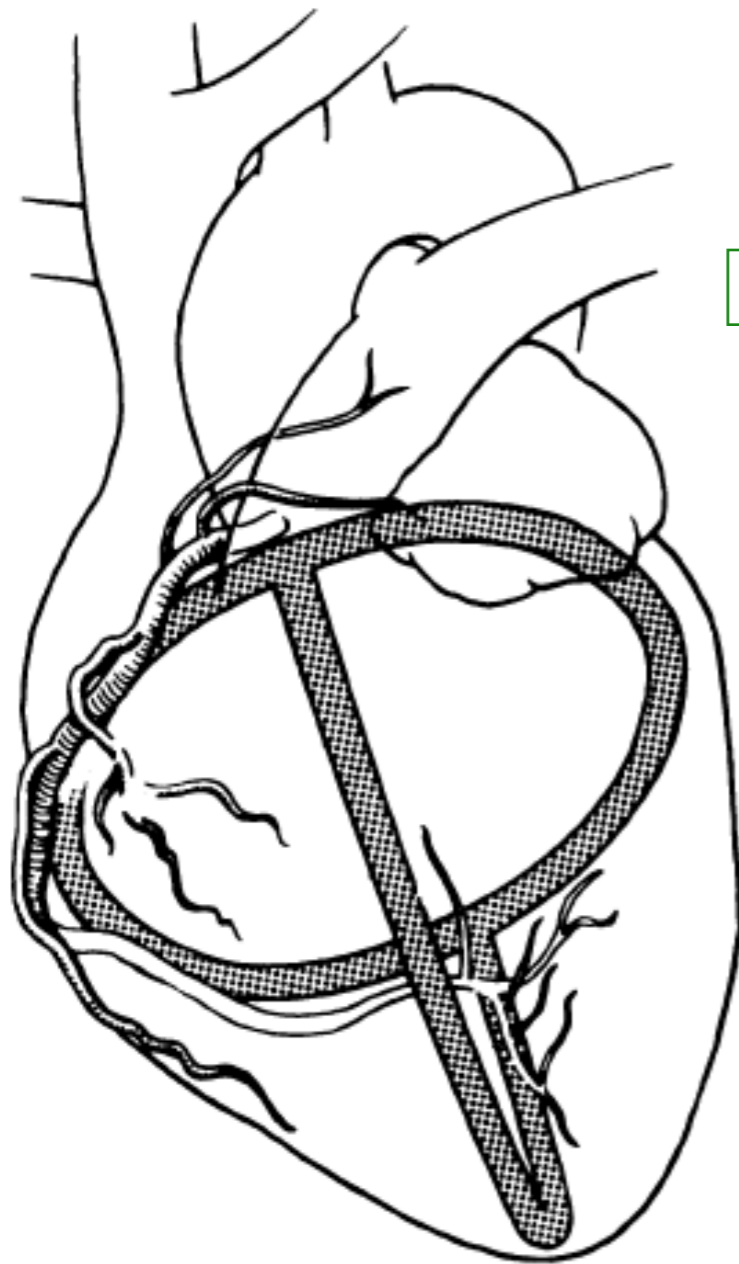
Les artères coronaires sont entourées par la graisse épocardique

ANATOMIE CORONAIRE



- CD: artère coronaire droite
- RVP: Artère Rétro Ventriculaire Postérieure
- IVP: Artère Inter Ventriculaire Postérieure
- IVA: Artère Inter Ventriculaire antérieure
- CX: Artère circonflexe

RESEAU CORONAIRE DROIT

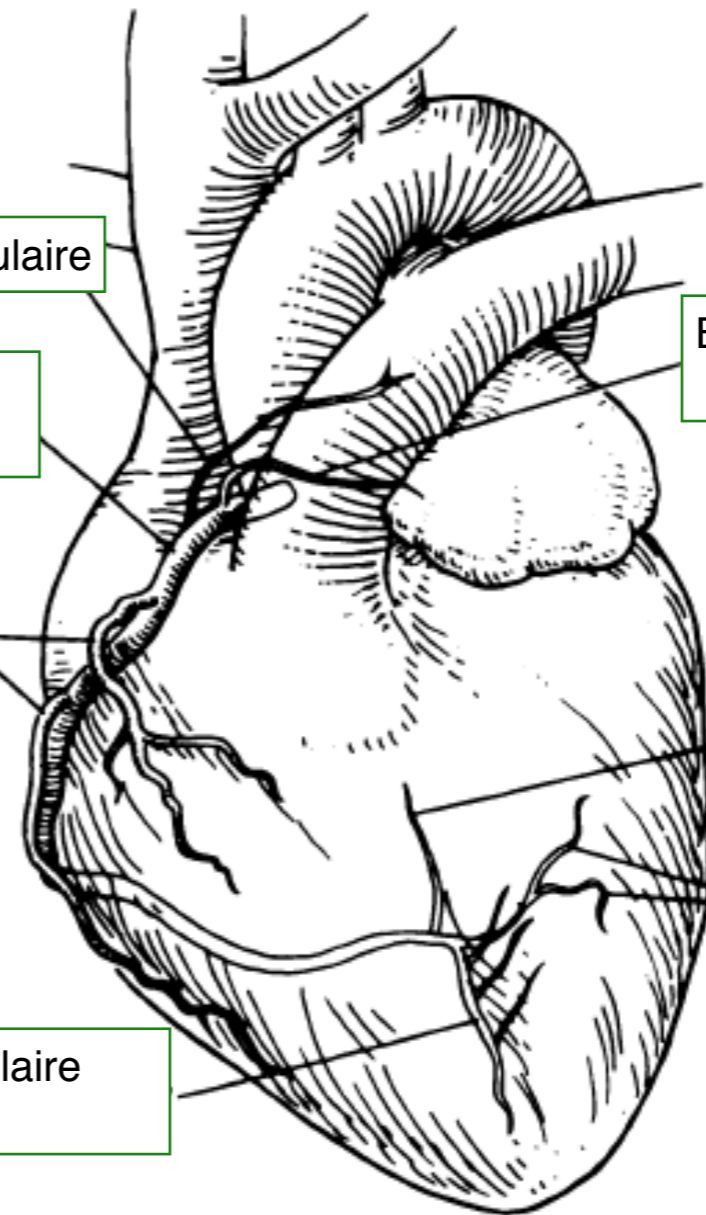


Branche du noeud sino-auriculaire

Artère coronaire droite

Artères marginales du bord droit

Artère inter-ventriculaire postérieur

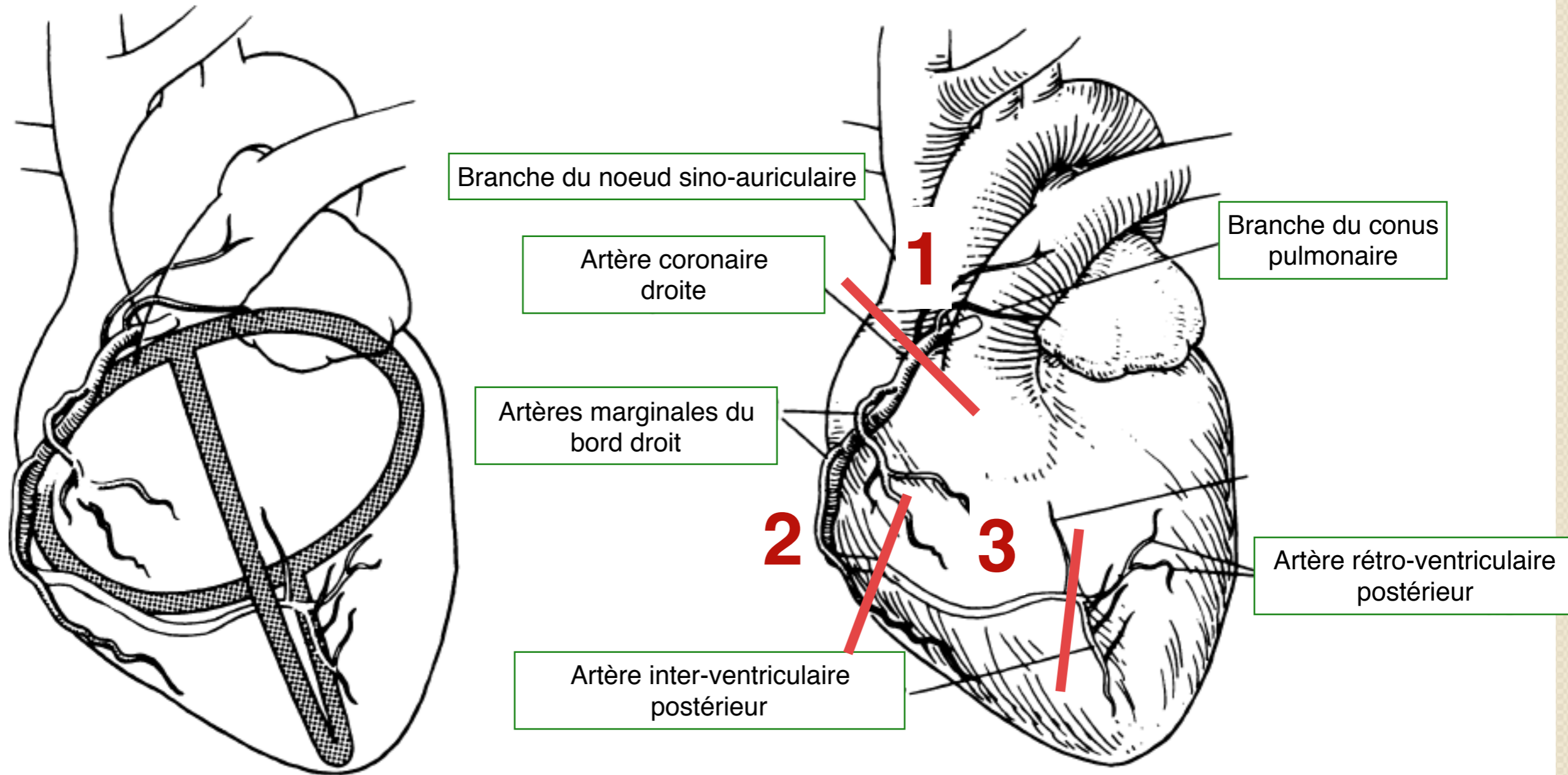


Branche du conus pulmonaire

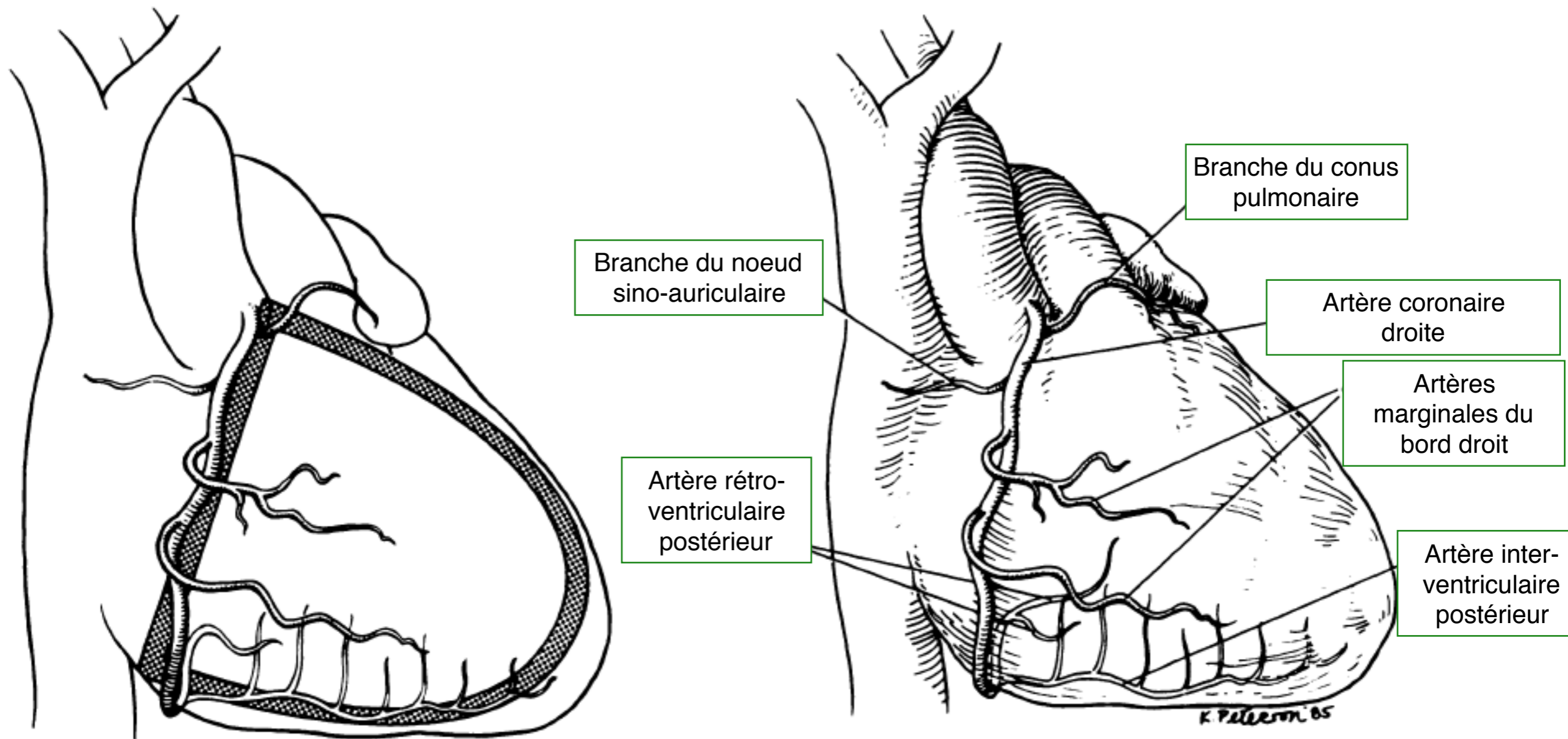
Artère rétro-ventriculaire postérieur

RESEAU CORONAIRE DROIT

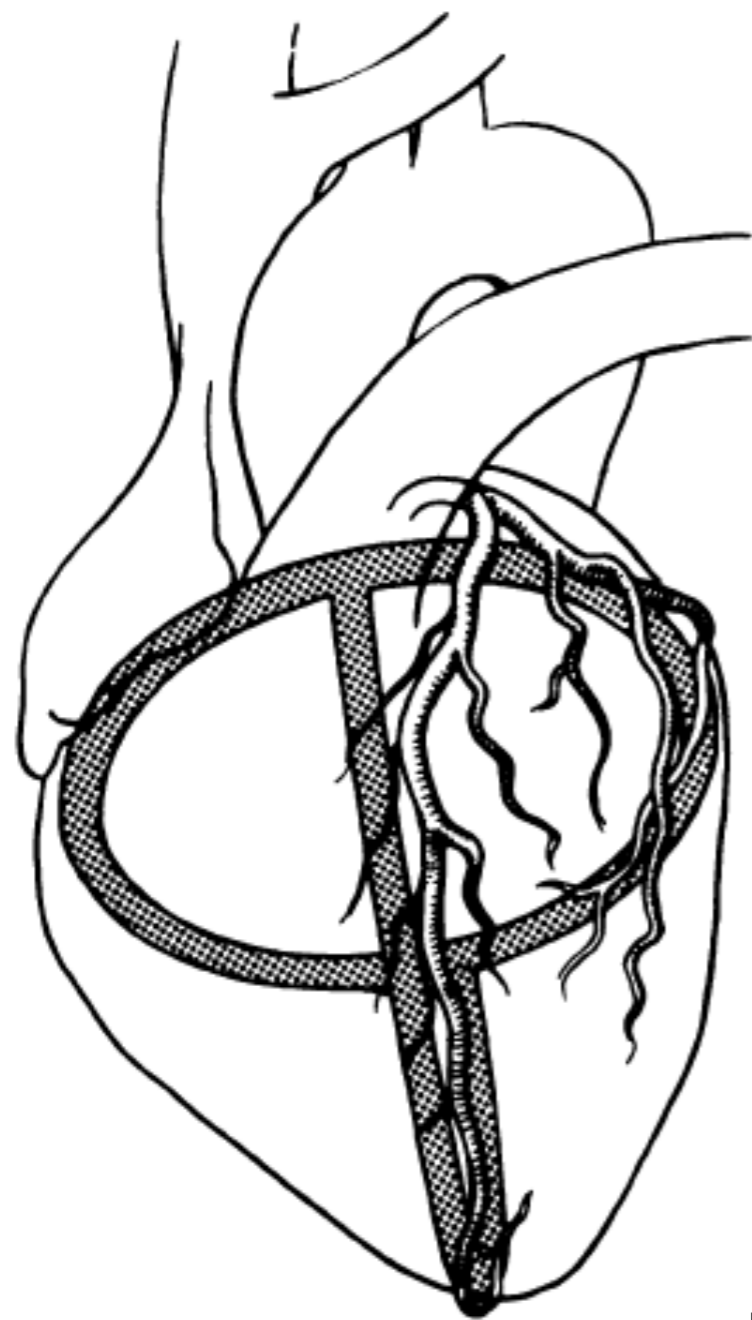
Segment 1
Segment 2
Segment 3



RESEAU CORONAIRE DROIT

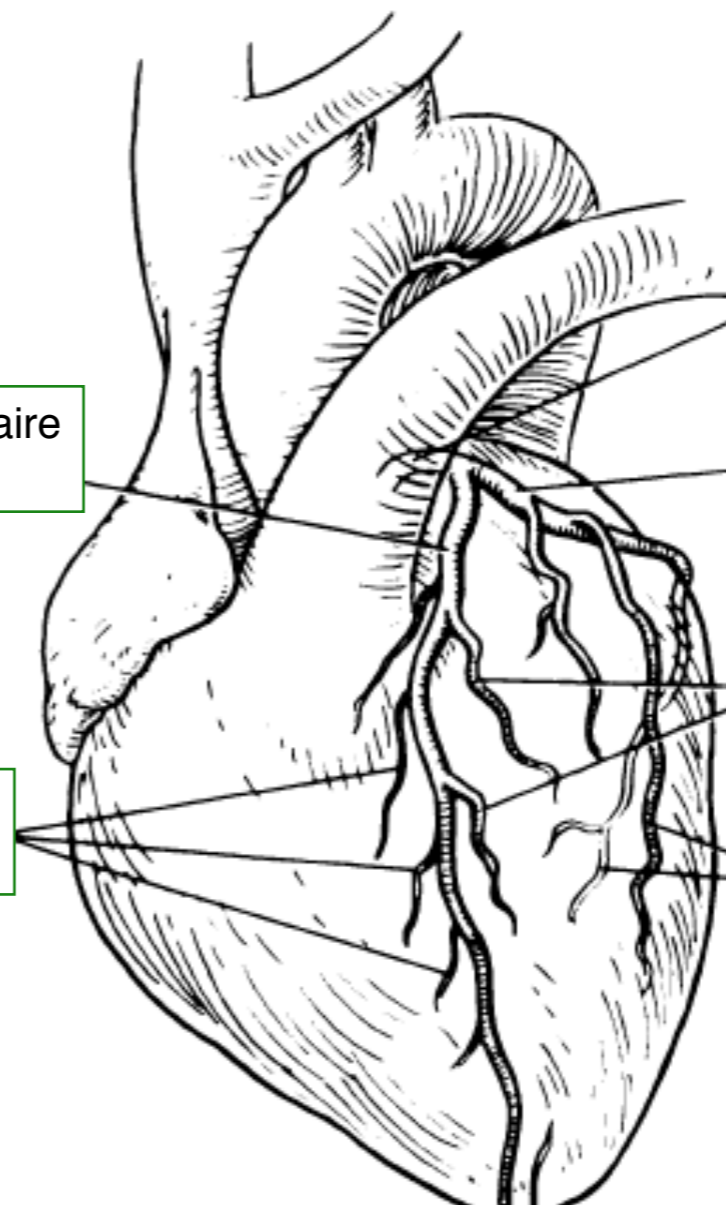


RESEAU CORONAIRE GAUCHE



Artère inter ventriculaire antérieure (IVA)

Branches septales



Tronc commun (Tc)

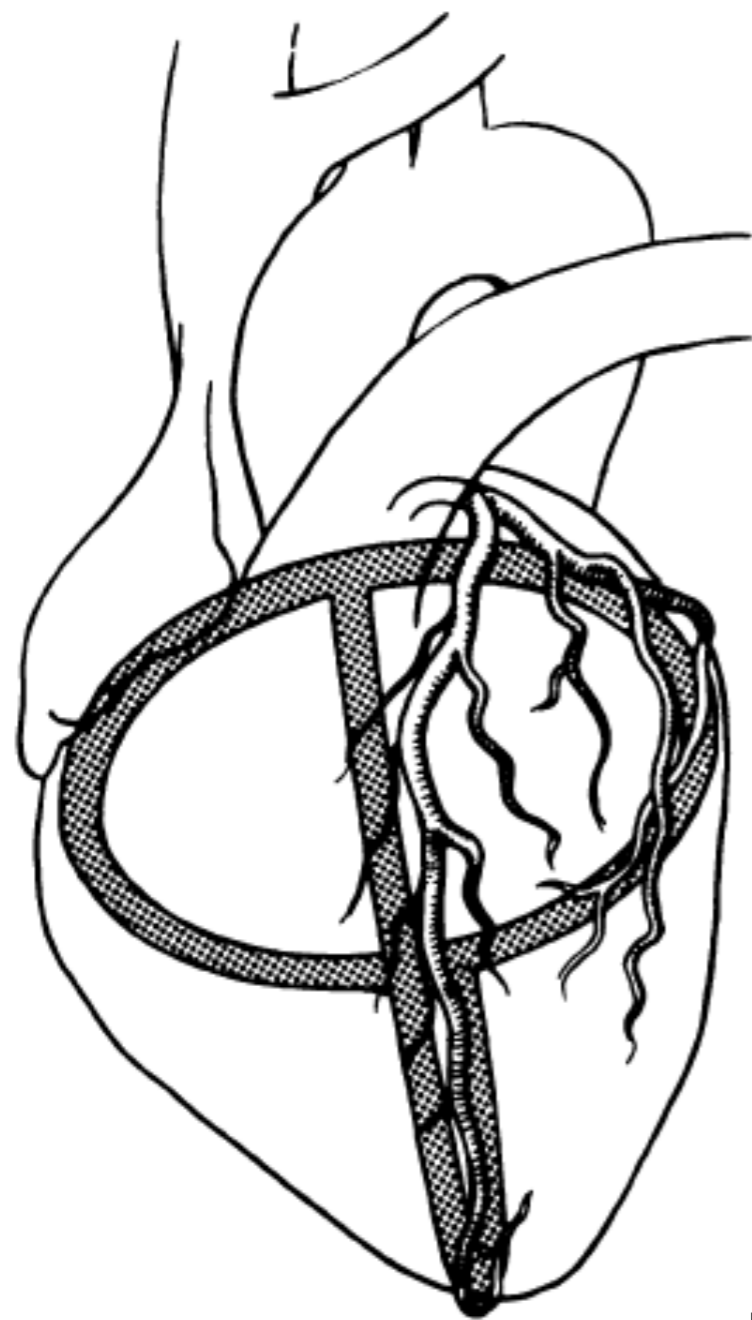
Artère circonflexe (Cx)

Branches diagonales

Branches marginales (M)

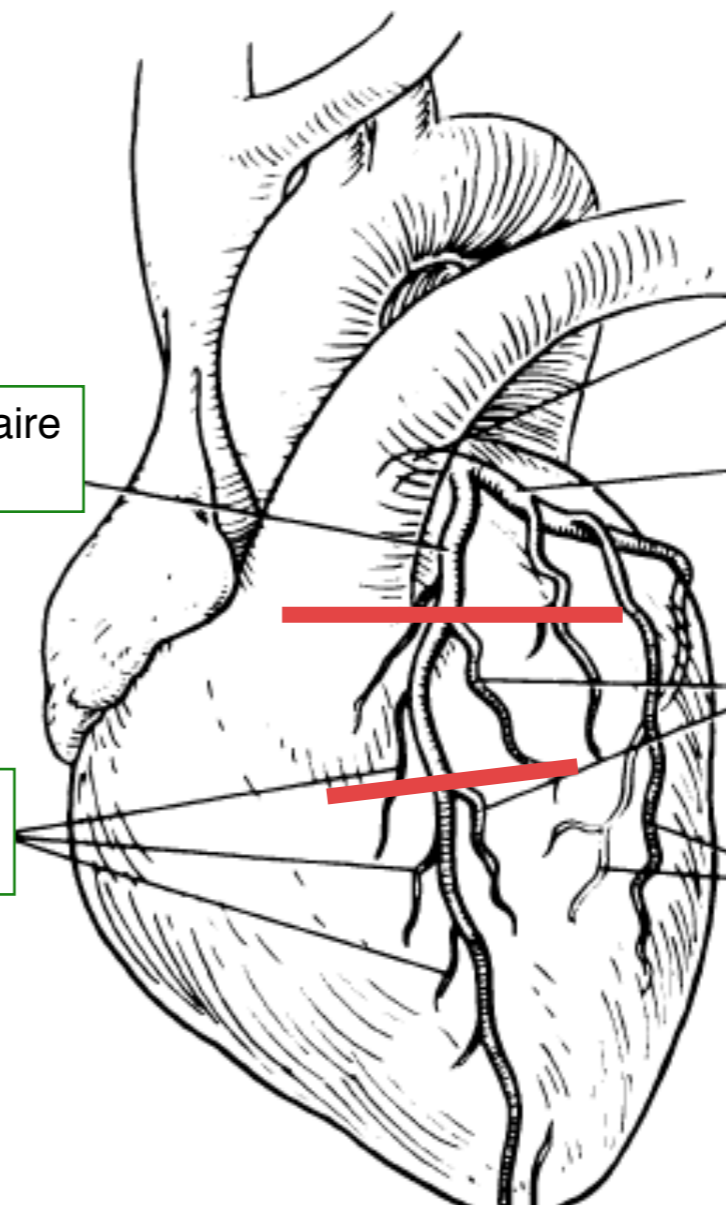
RESEAU CORONAIRE GAUCHE

- IVA Proximale
- IVA Moyenne
- IVA Distale



Artère inter ventriculaire antérieure (IVA)

Branches septales



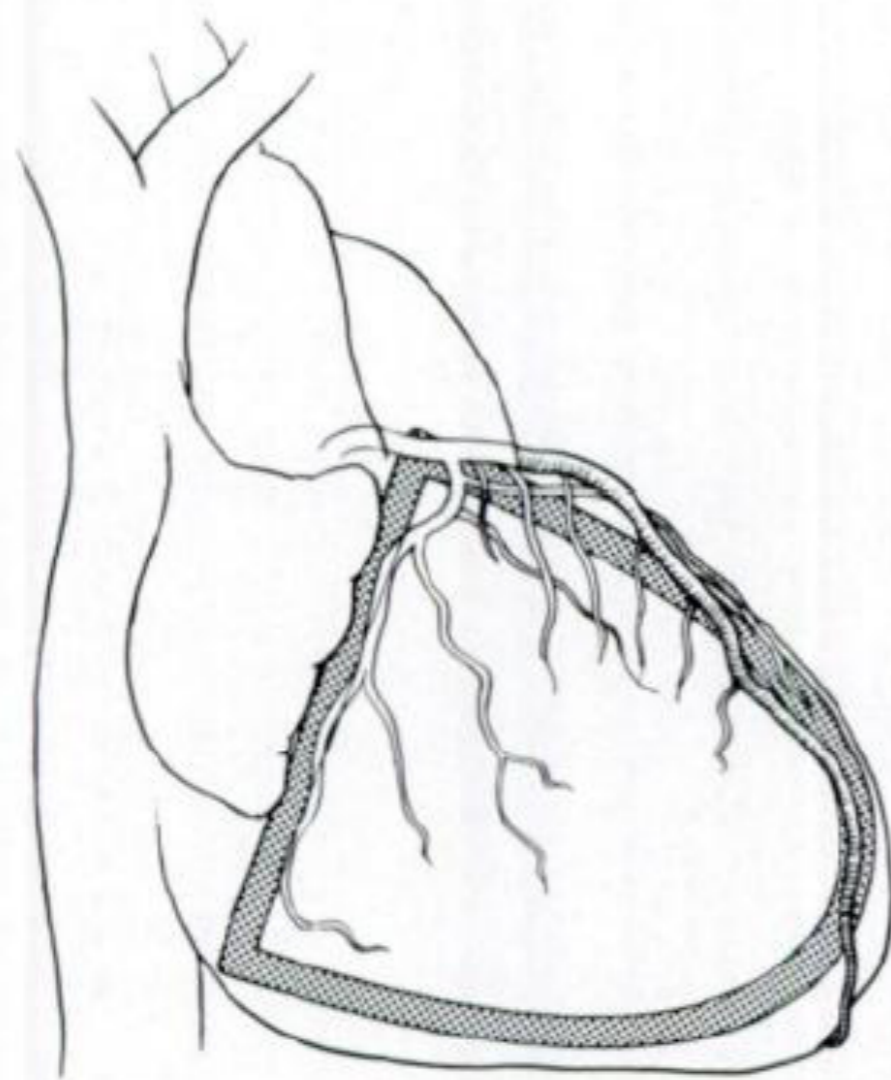
Tronc commun (Tc)

Artère circonflexe (Cx)

Branches diagonales

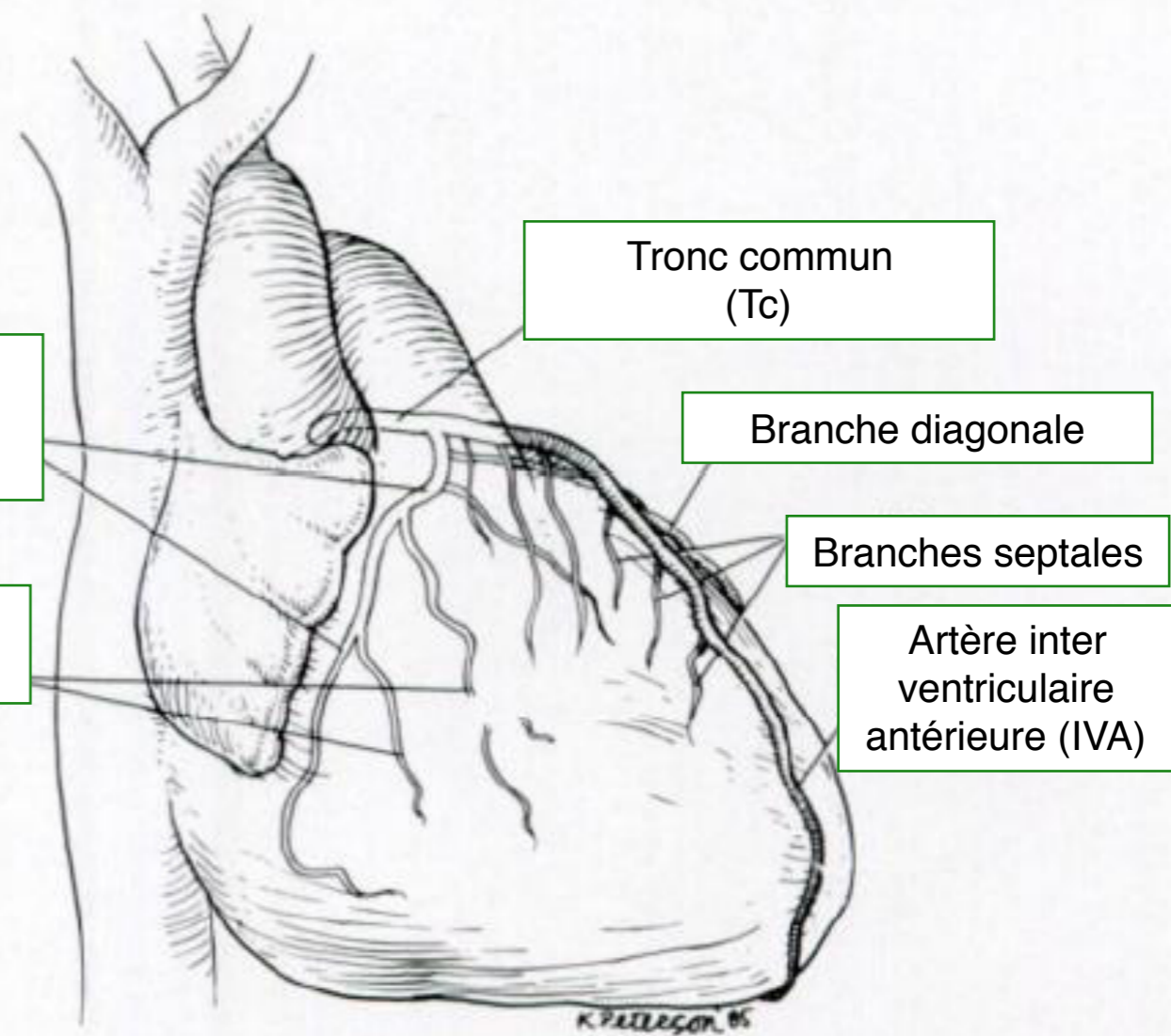
Branches marginales (M)

RESEAU CORONAIRE GAUCHE



Artère
circonflexe
(Cx)

Branches
marginales



Tronc commun
(Tc)

Branche diagonale

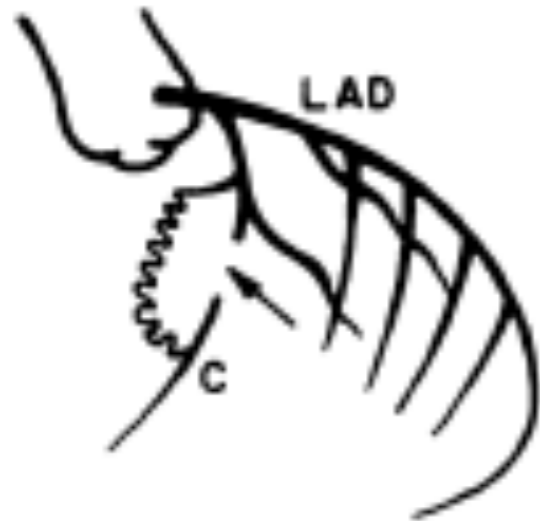
Branches septales

Artère inter
ventriculaire
antérieure (IVA)

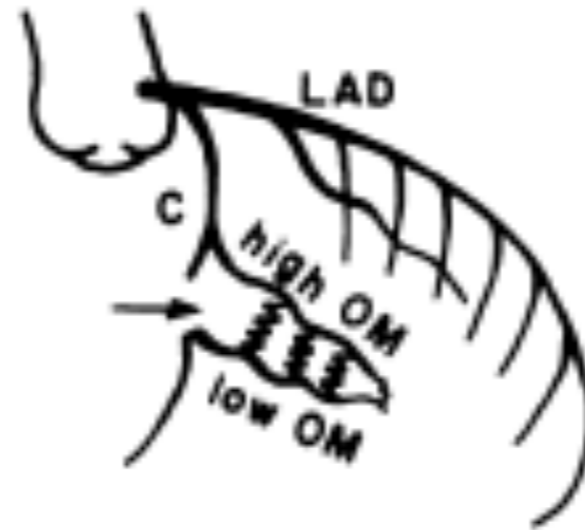
Dominance Coronaire

- Définition:
 - Détermination de l'artère vascularisant la paroi diaphragmatique et le septum inférieur
- Types:
 - Dominance droite: 85% des cas
 - Dominance gauche (Circonflexe): 10% des cas
 - Distribution équilibrée: 5% des cas

OCCLUSION DE CX / COLLATÉRALES



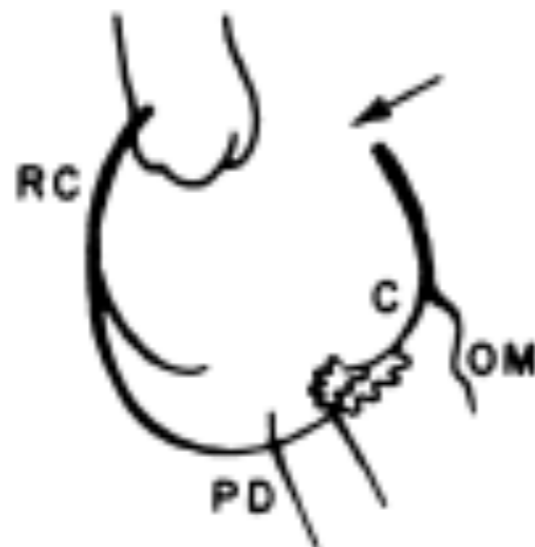
A. RAO-LC Injection (7)



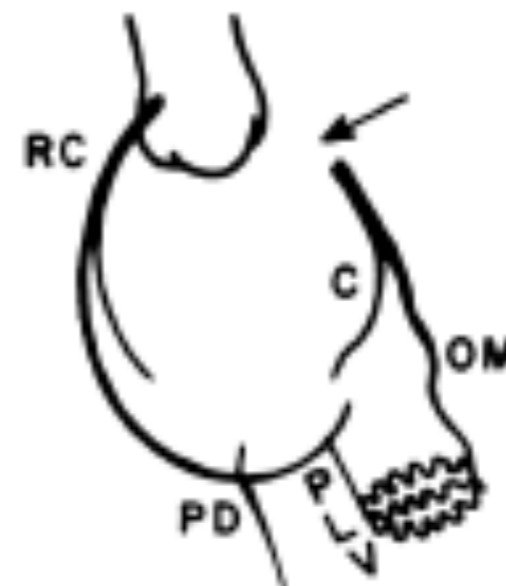
B. RAO-LC Injection (6)



C. RAO-LC Injection (5)



D. LAO-RC Injection (2)

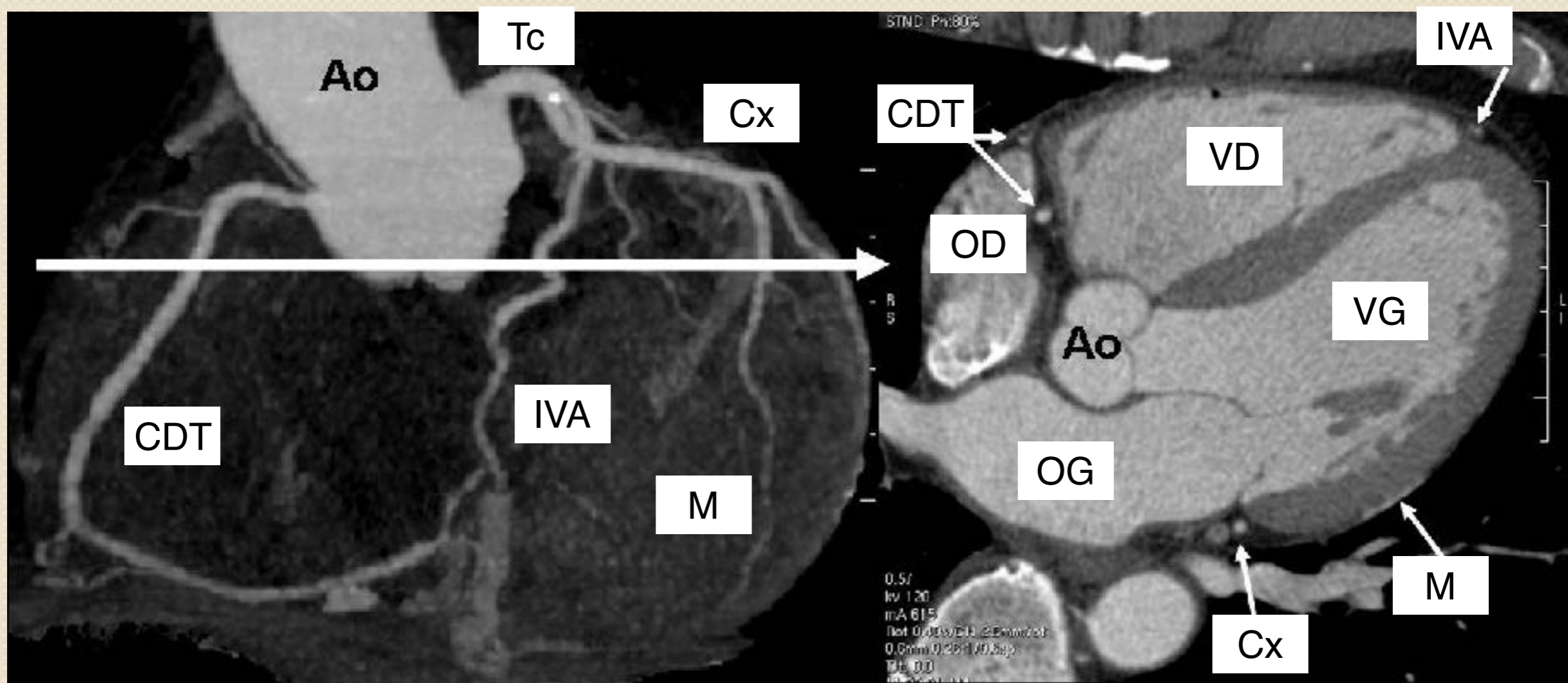


E. LAO-RC Injection (2)

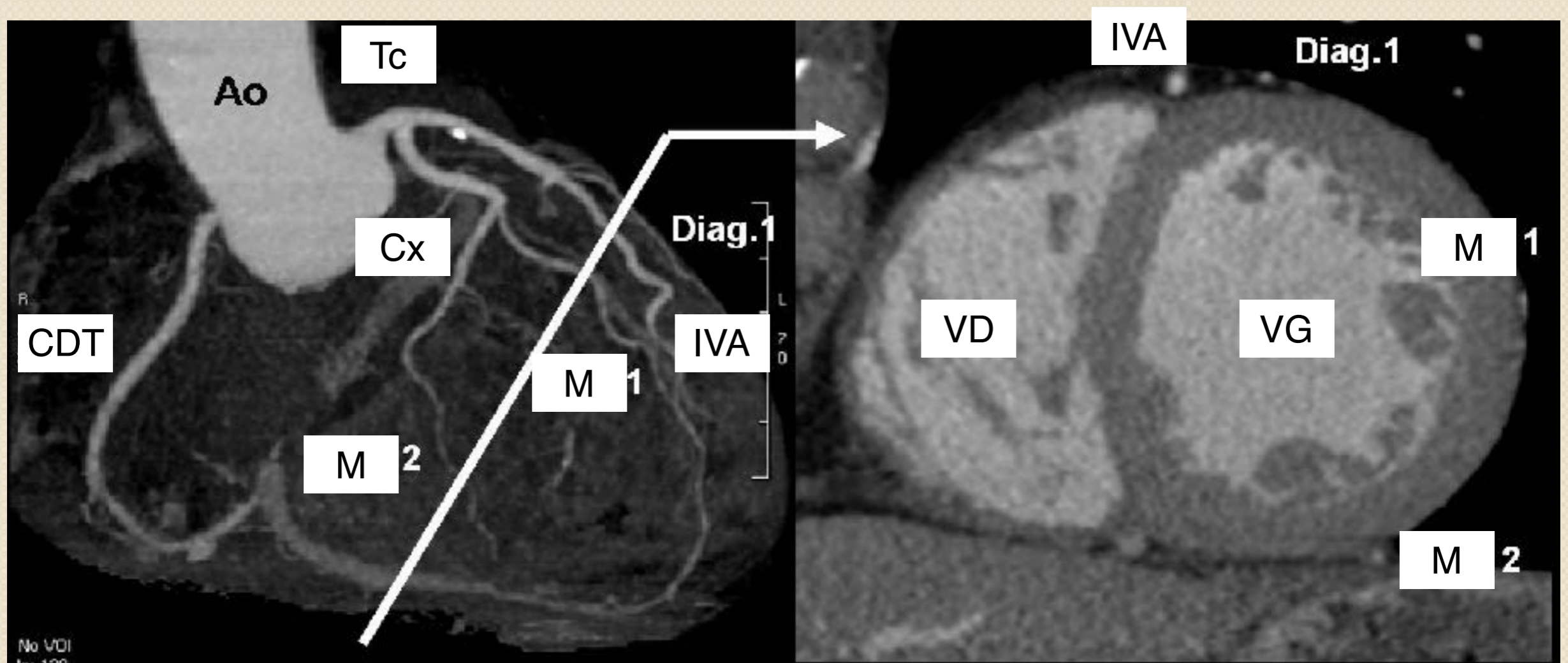
Anatomie coronaire / Plan Axial transverse



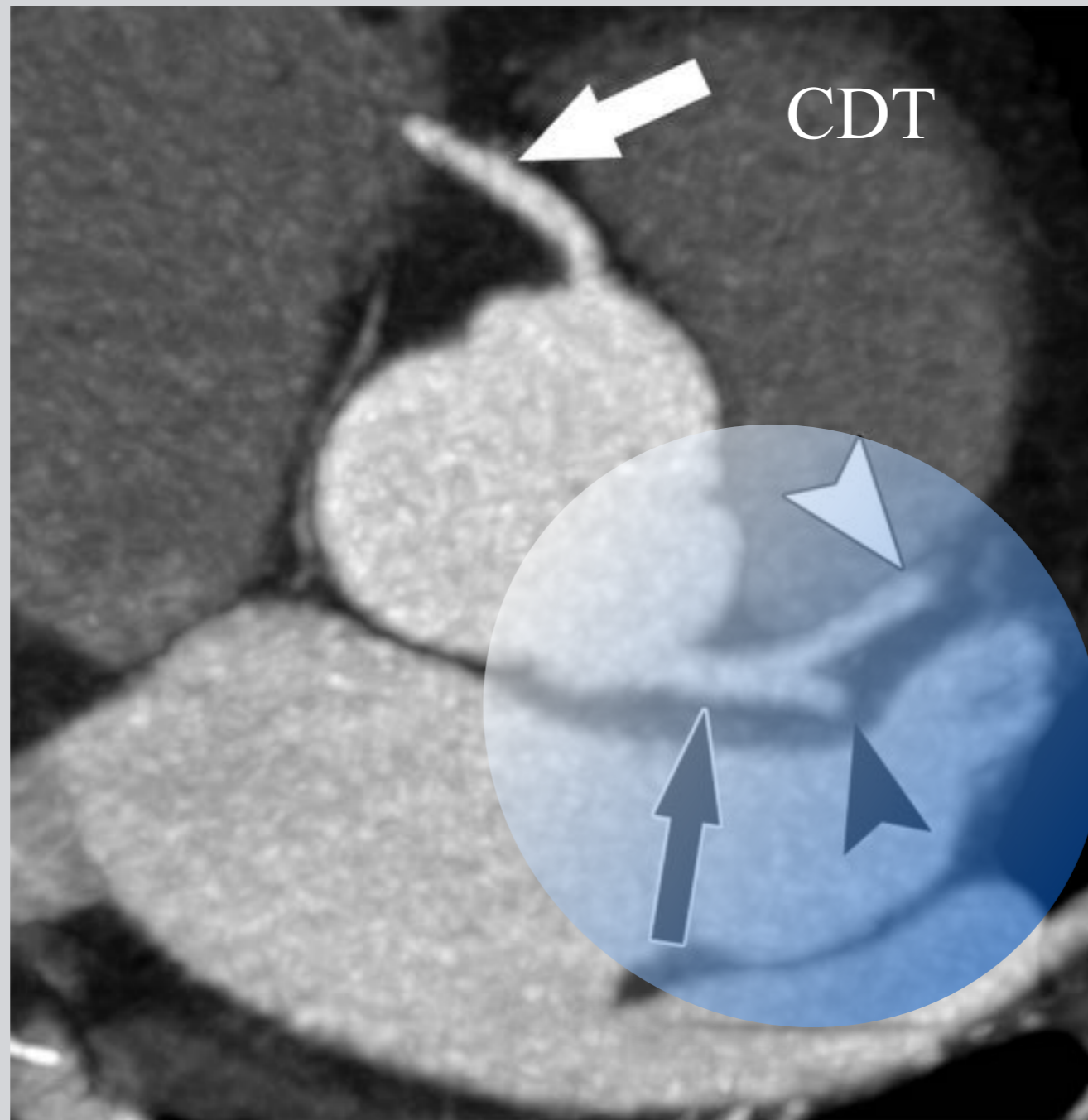
ANATOMIE CORONAIRE



ANATOMIE CORONAIRE



Réseau coronaire droit

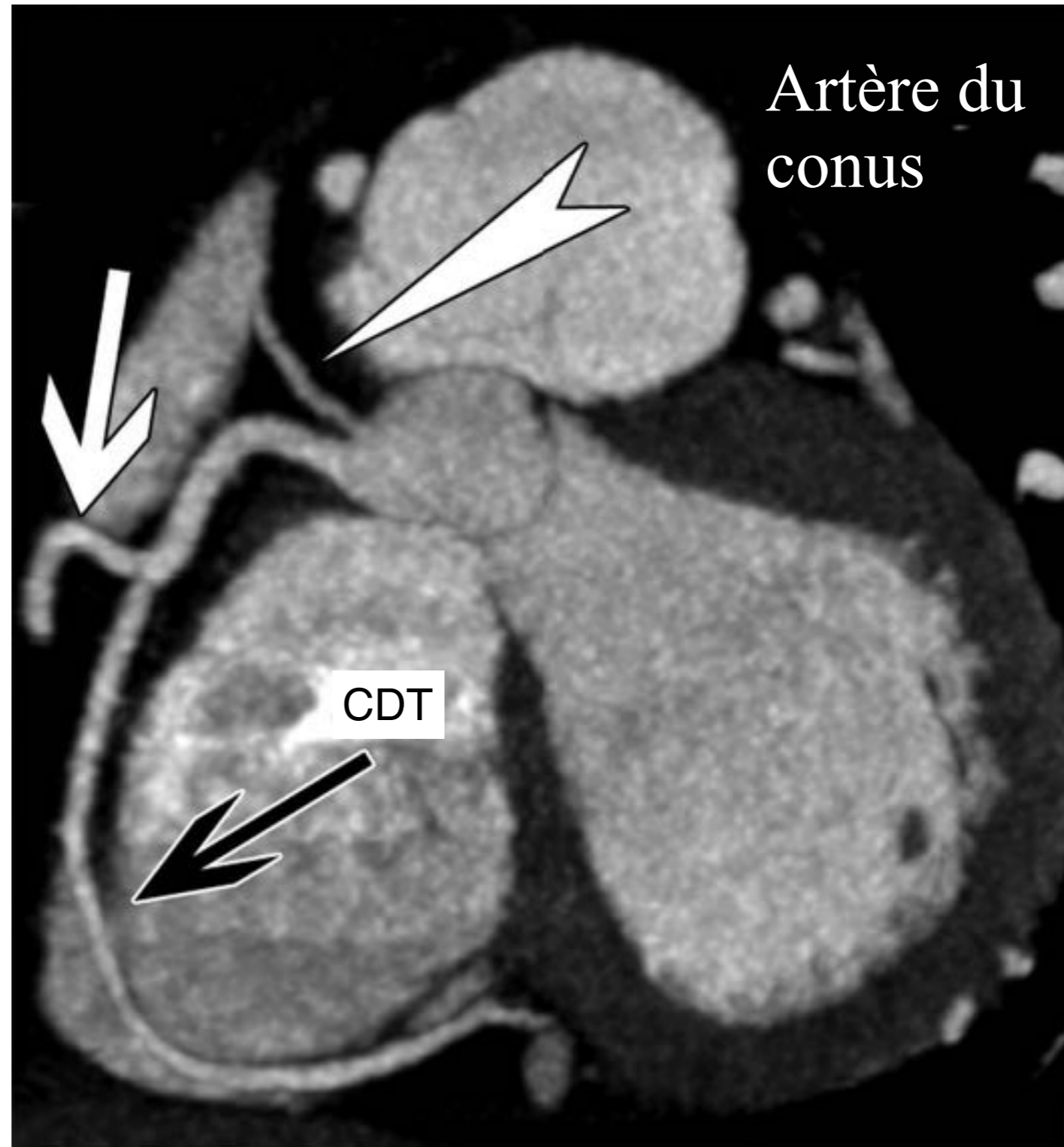


O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

Radiographics

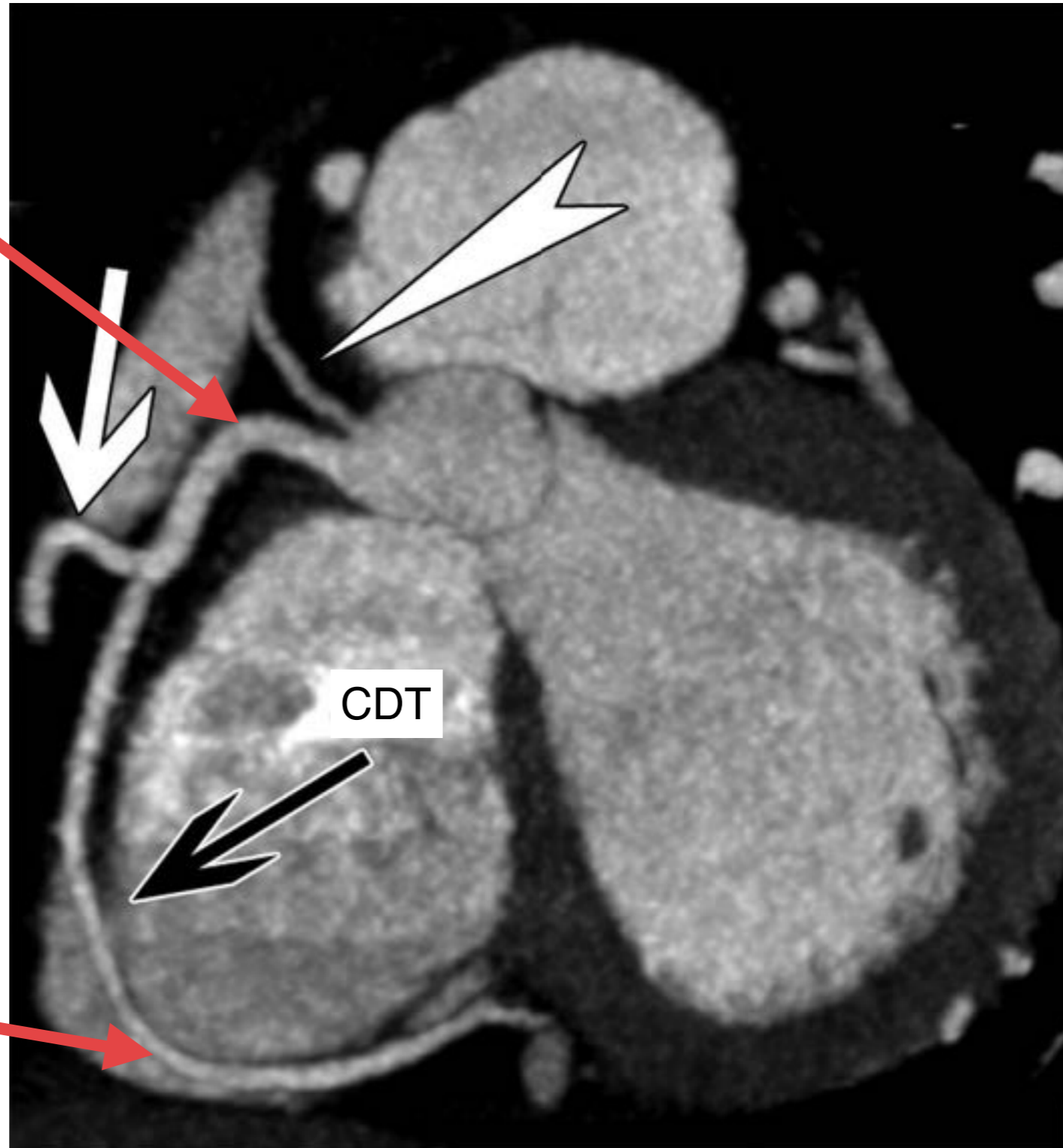
Artère coronaire droite

Artère
marginale
du bord
droit



Artère coronaire droite

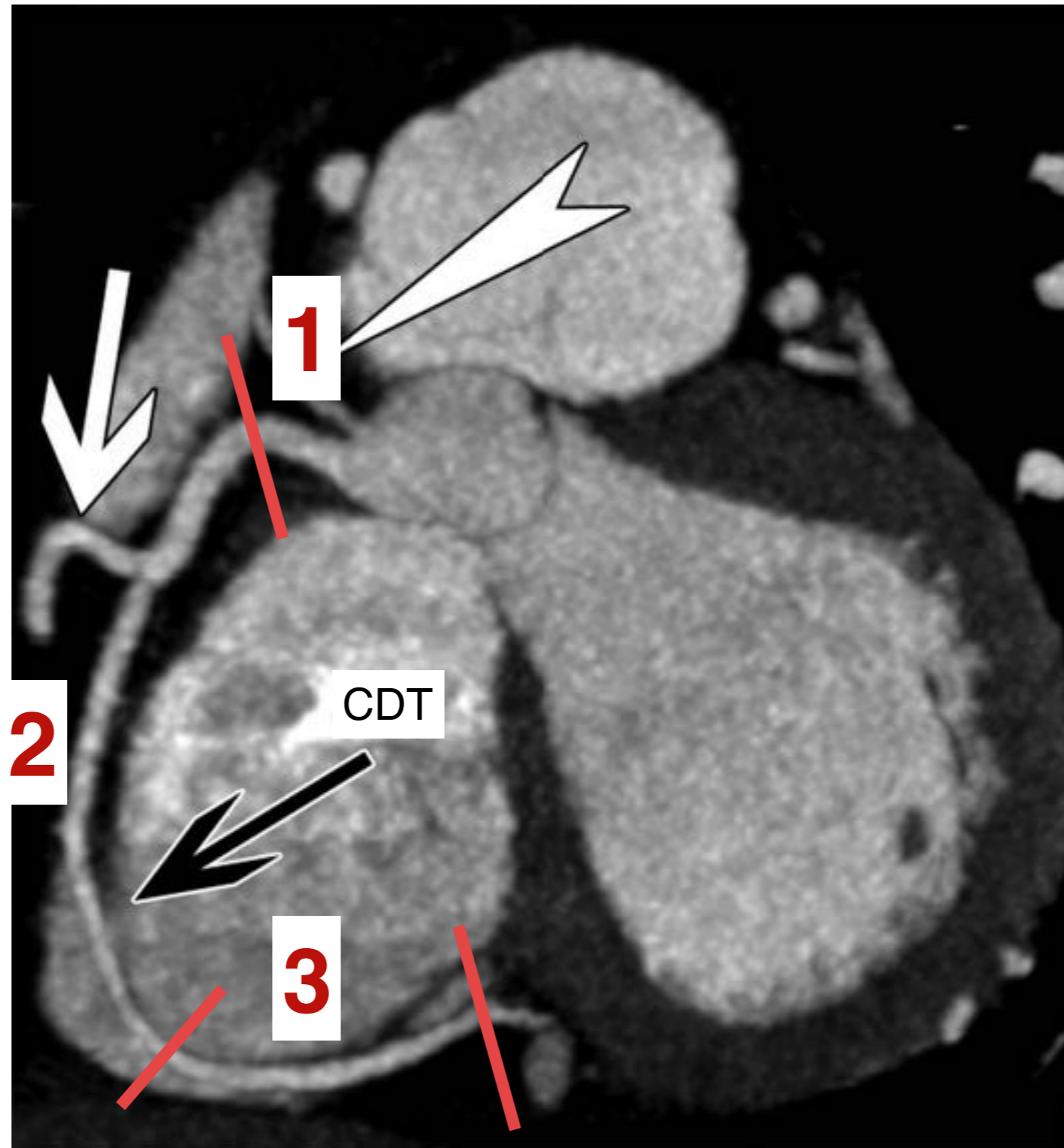
Genu
Superius



Genu
Inferius

Artère coronaire droite

Segment 1
Segment 2
Segment 3



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

nautoGraphics

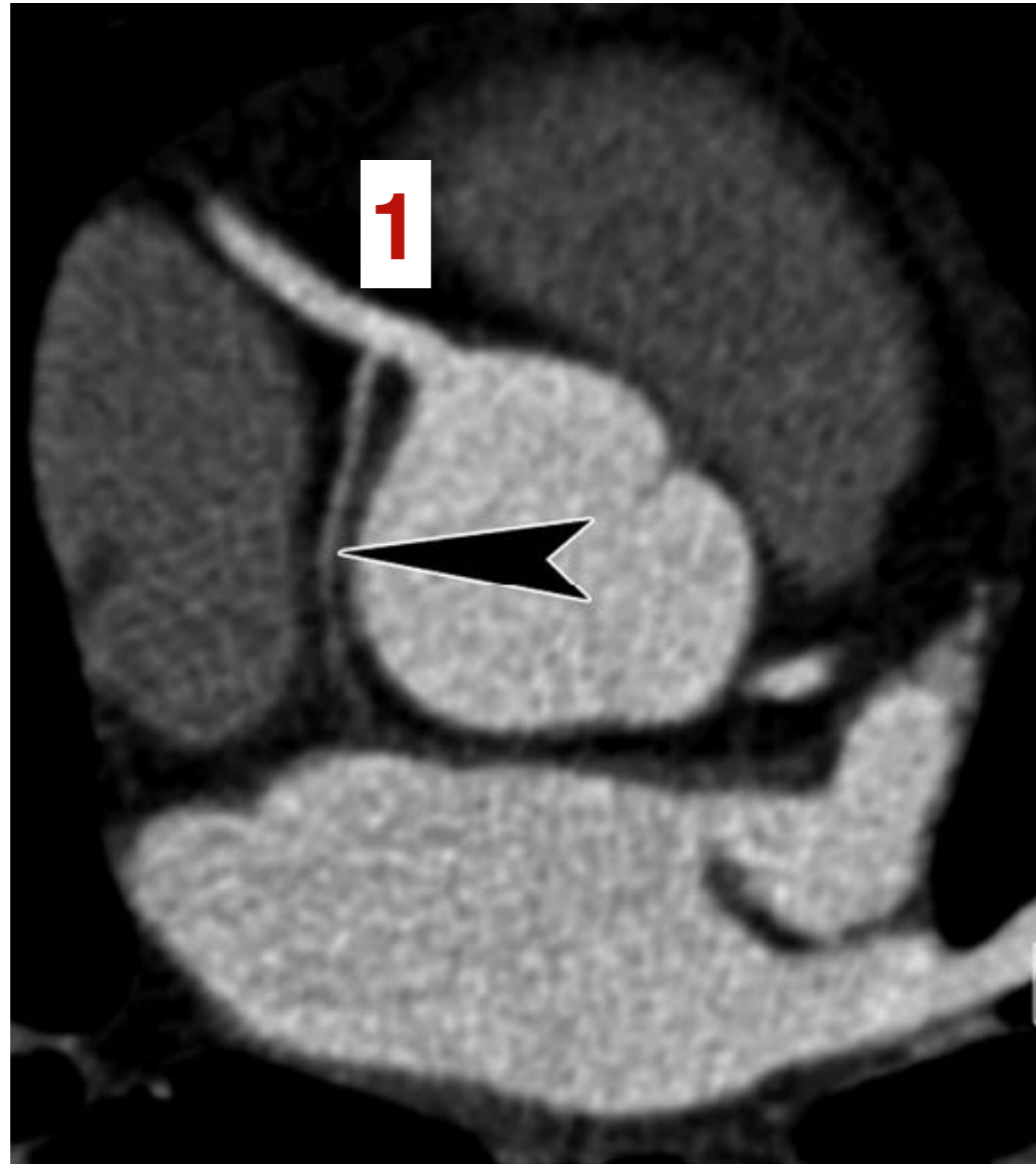
Artère marginale du bord droit



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

Radiographics

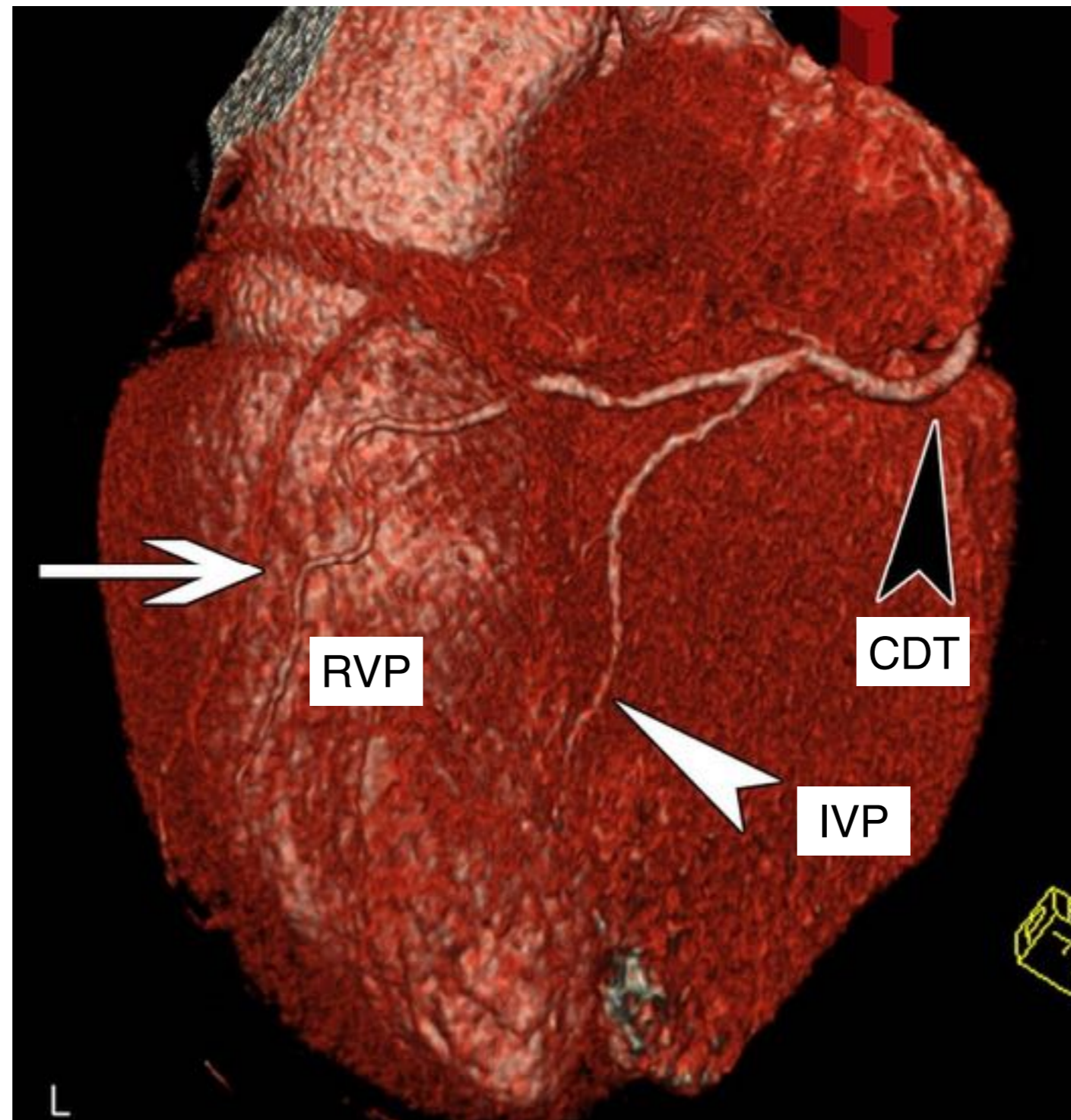
Artère du nœud sino-atrial



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

Radiographics

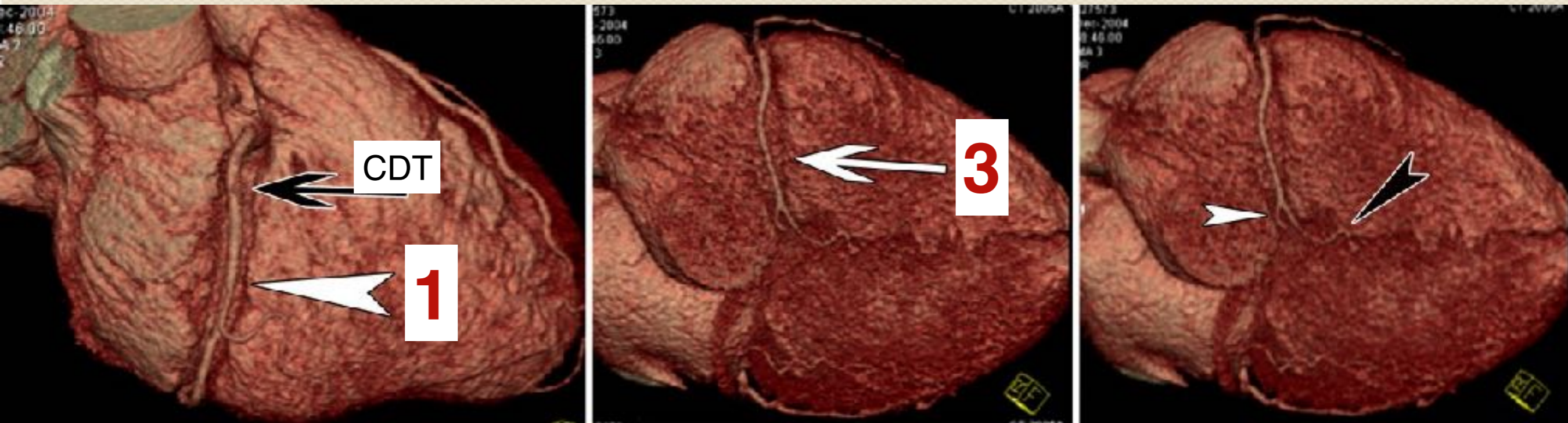
Dominance droite (85% des cas)



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

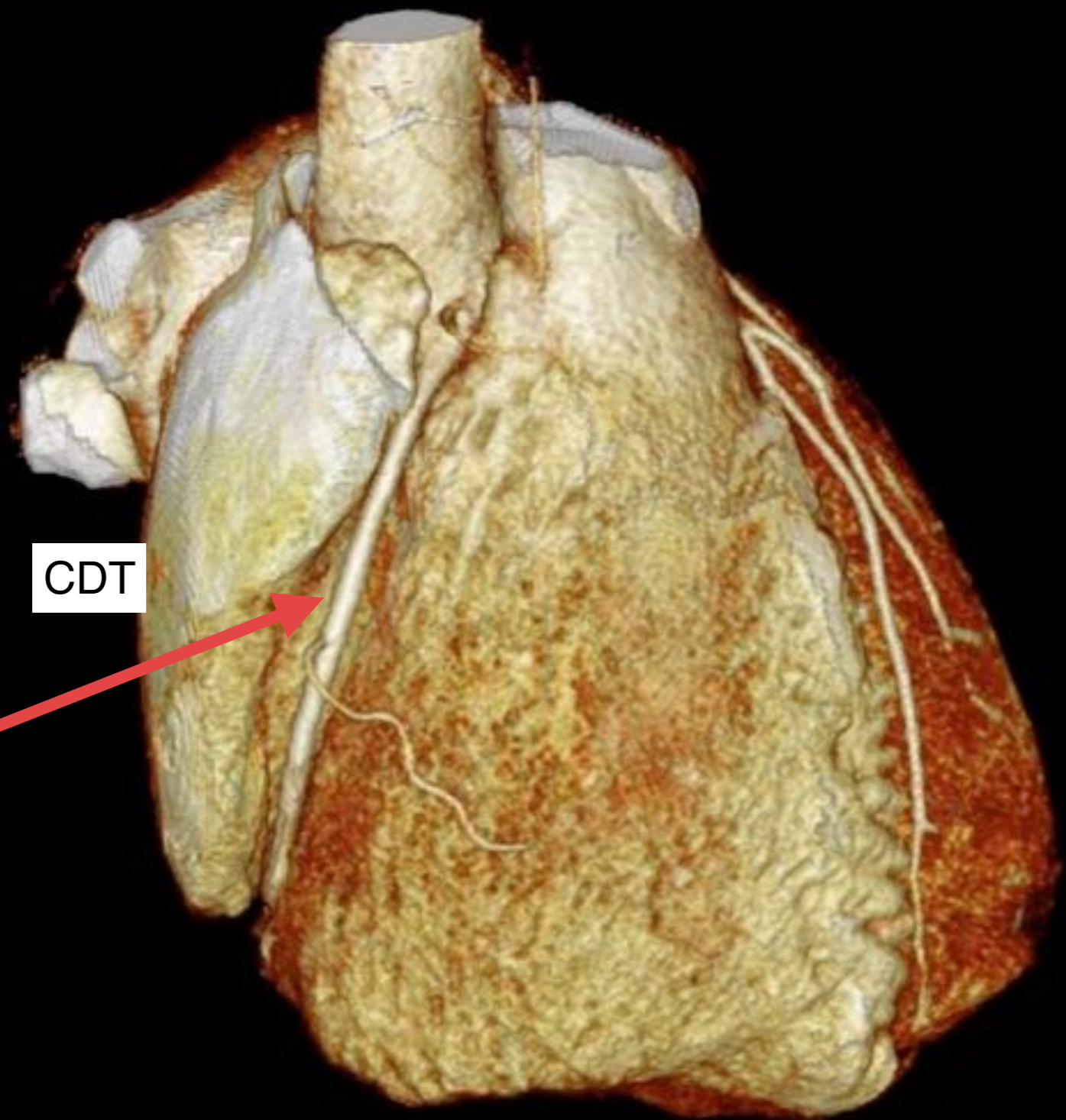
Radiographics

ARTÈRE CORONAIRE DROITE



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

Radiographics

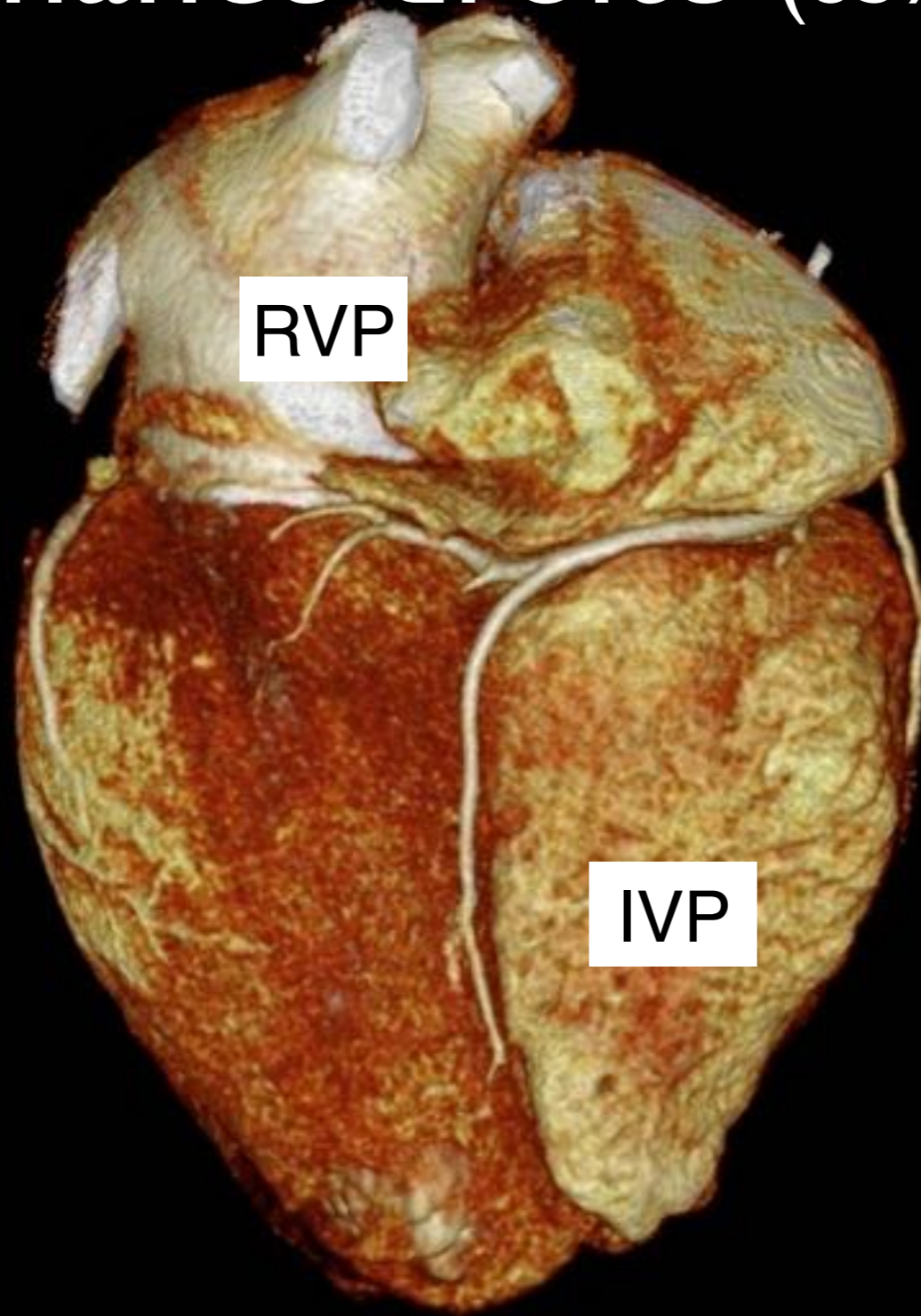


CDT

2



Dominance droite (85% des cas)



RVP

CDT

IVP



CDT



Dominance droite



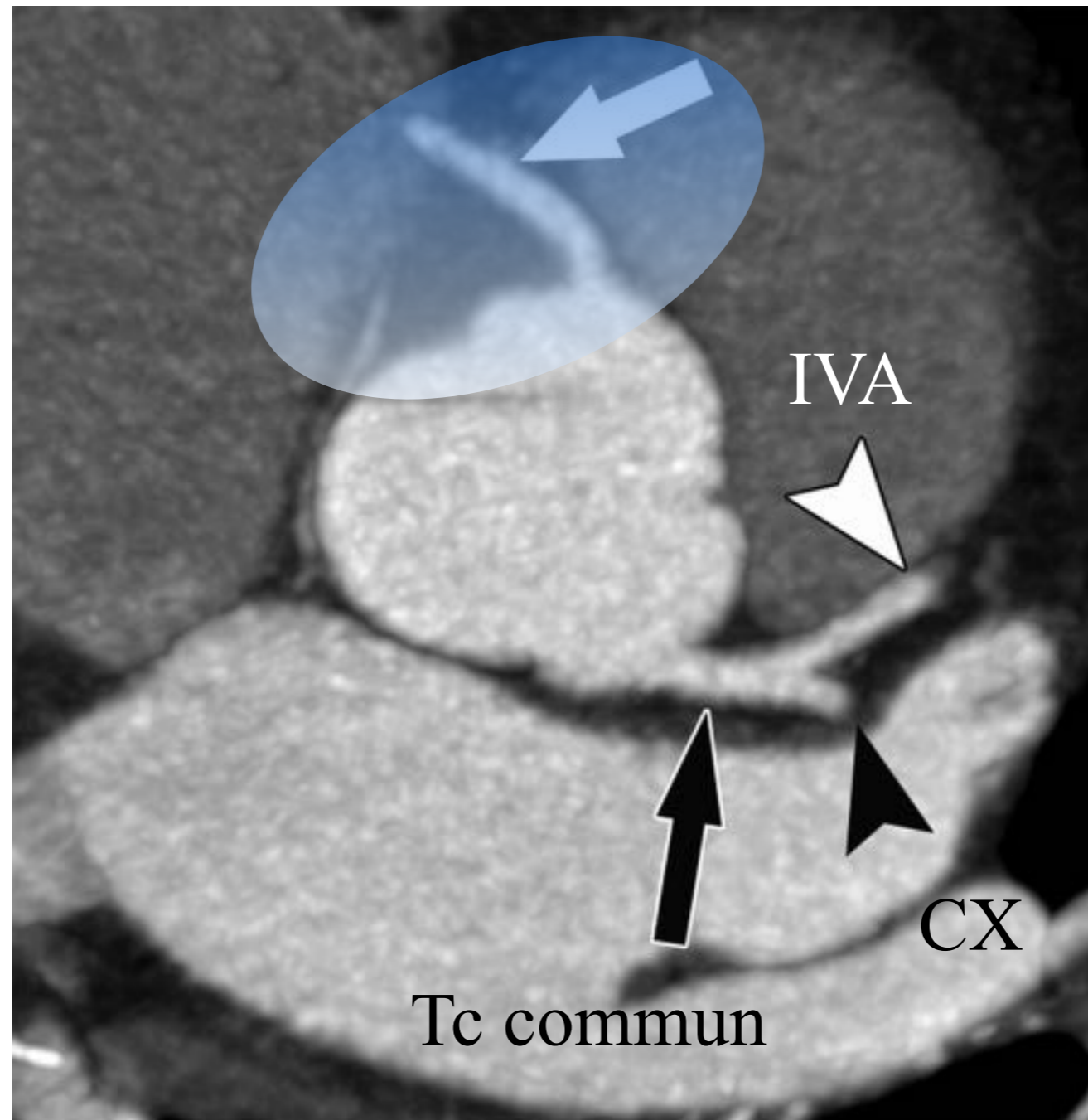
Dominance droite (85% des cas)



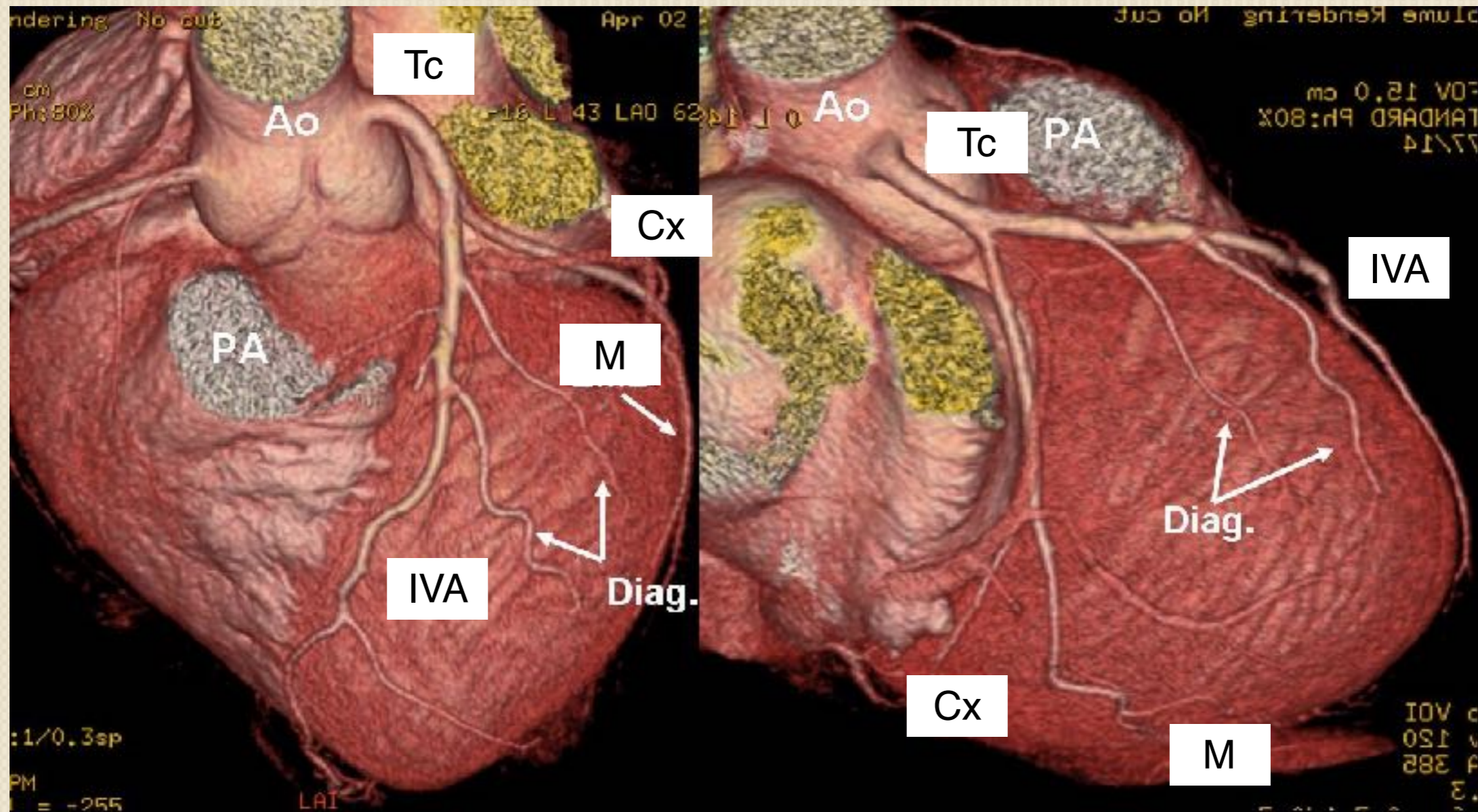
Dominance droite (85% des cas)



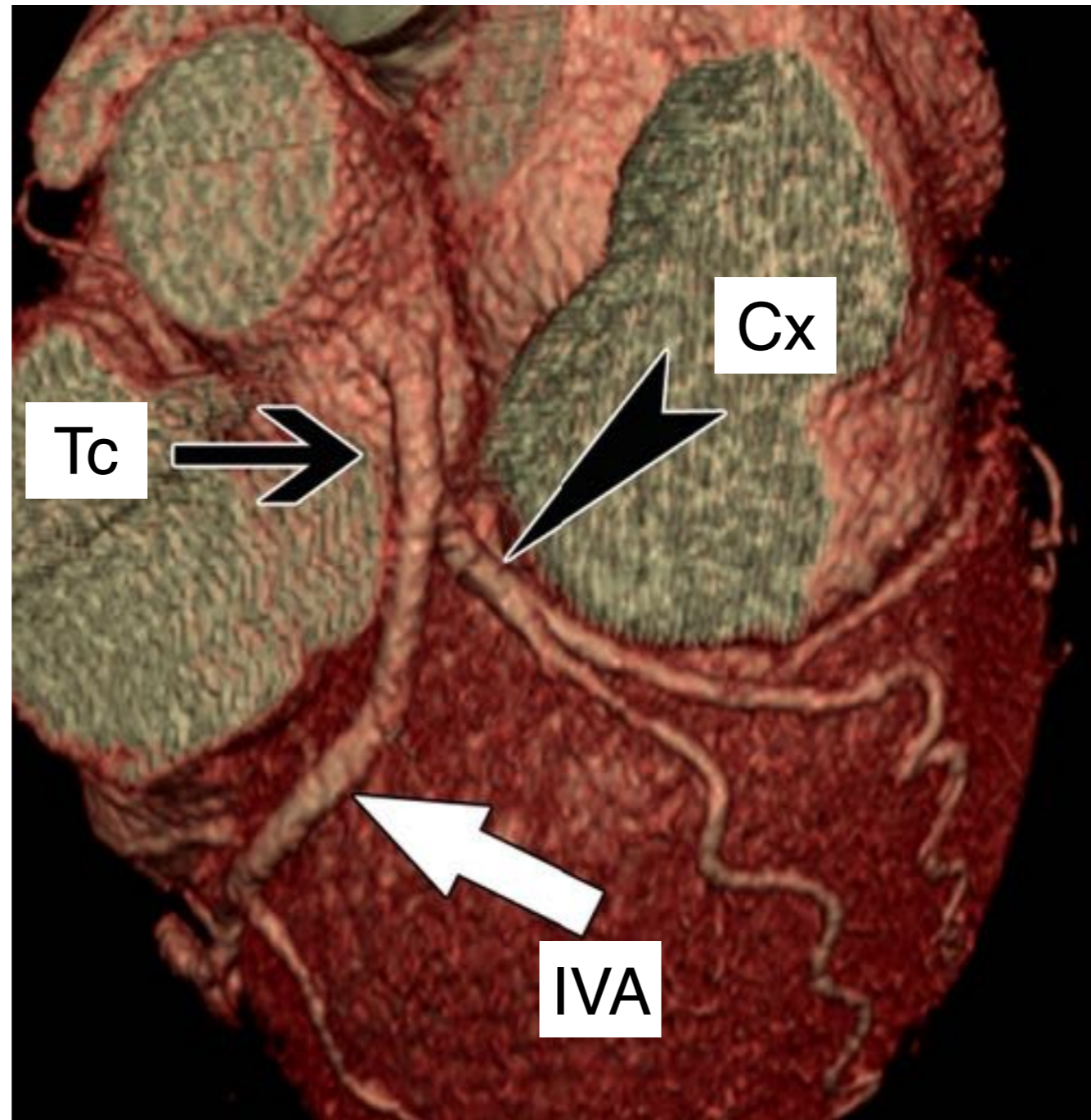
Réseau coronaire gauche



ANATOMIE CORONAIRE



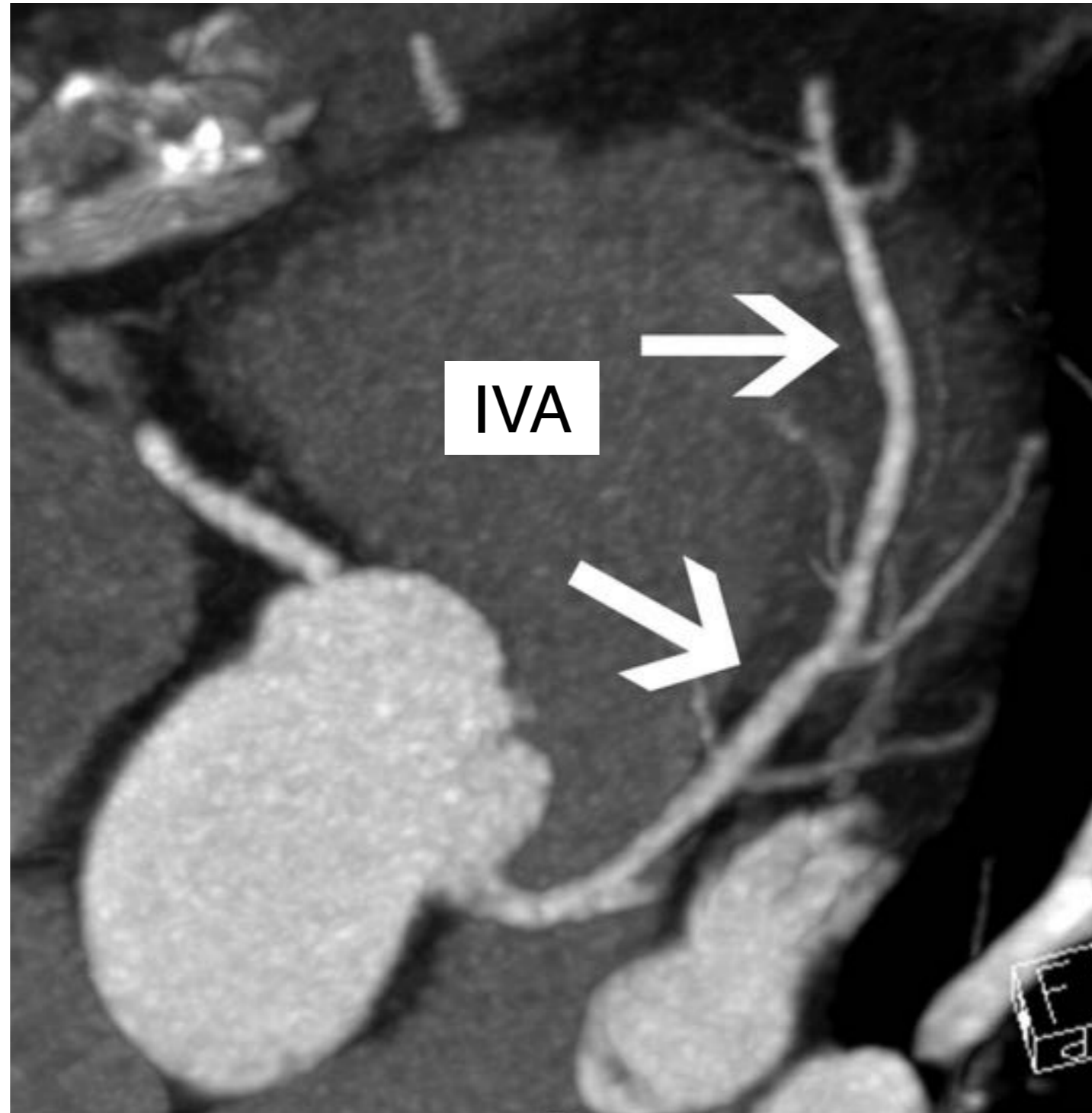
Tronc commun / IVA / CX



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

Radiographics

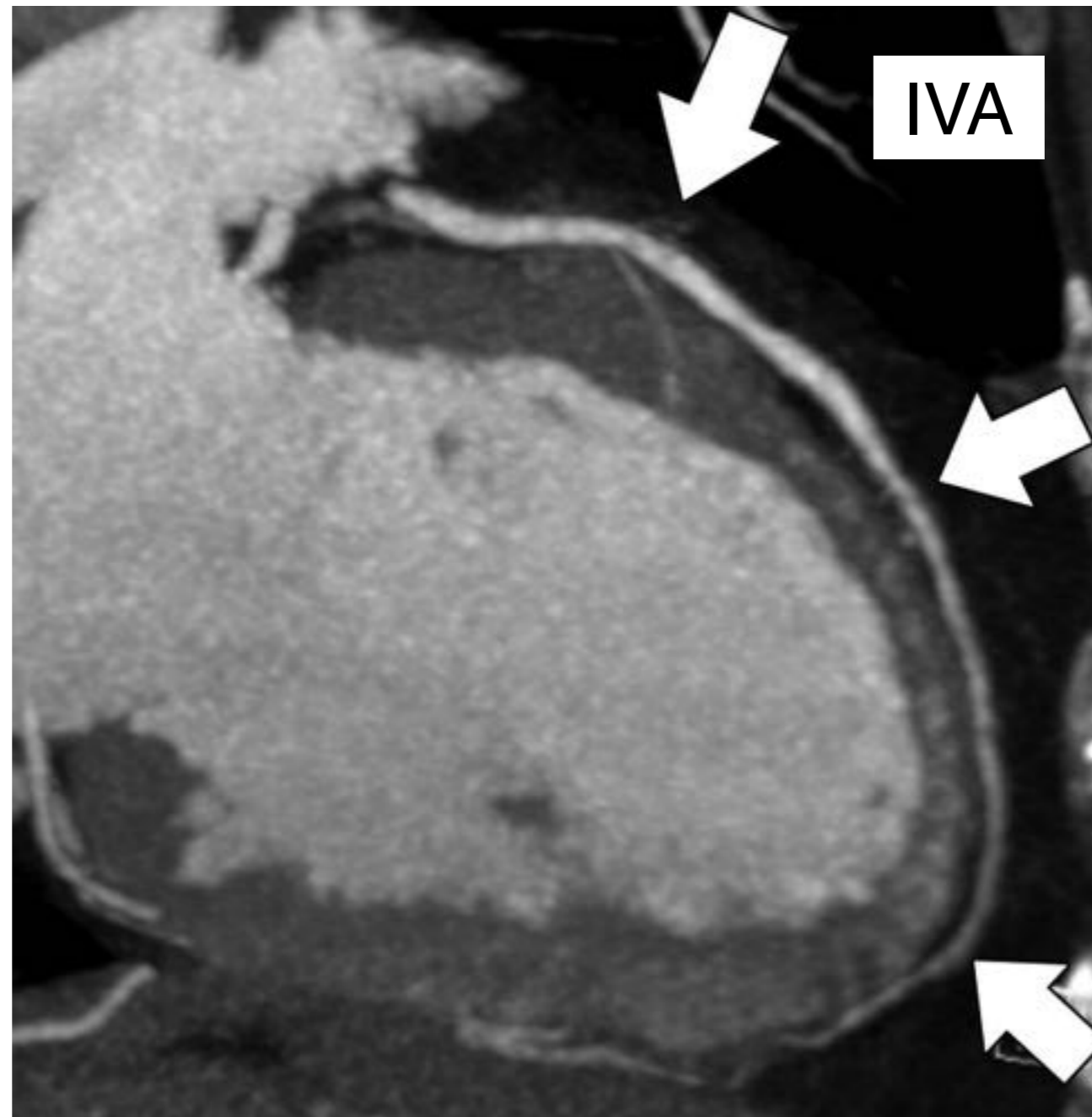
Artère Inter Ventriculaire Antérieure



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

RadiGraphics

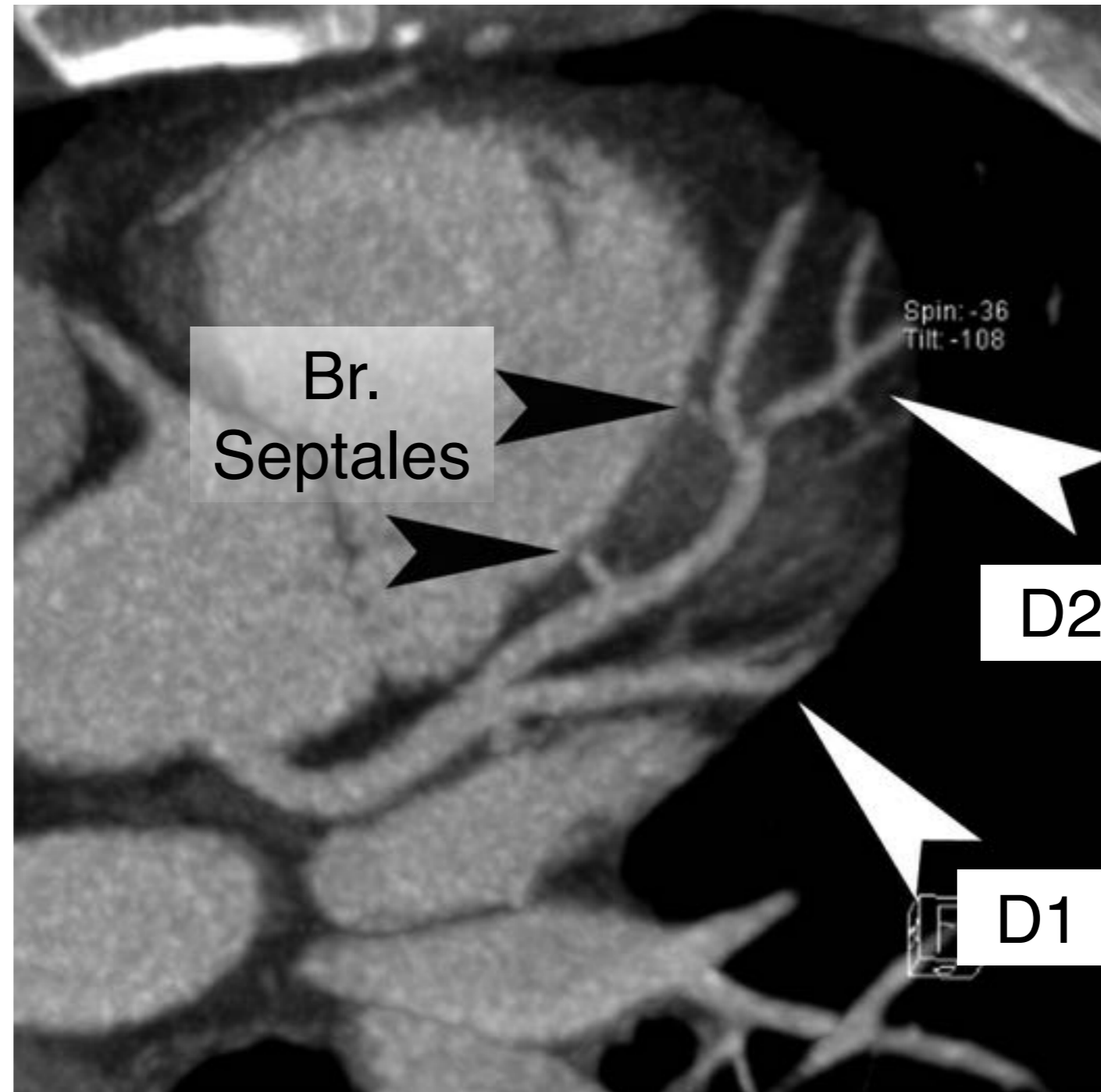
Artère Inter Ventriculaire Antérieure



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

Radiographics

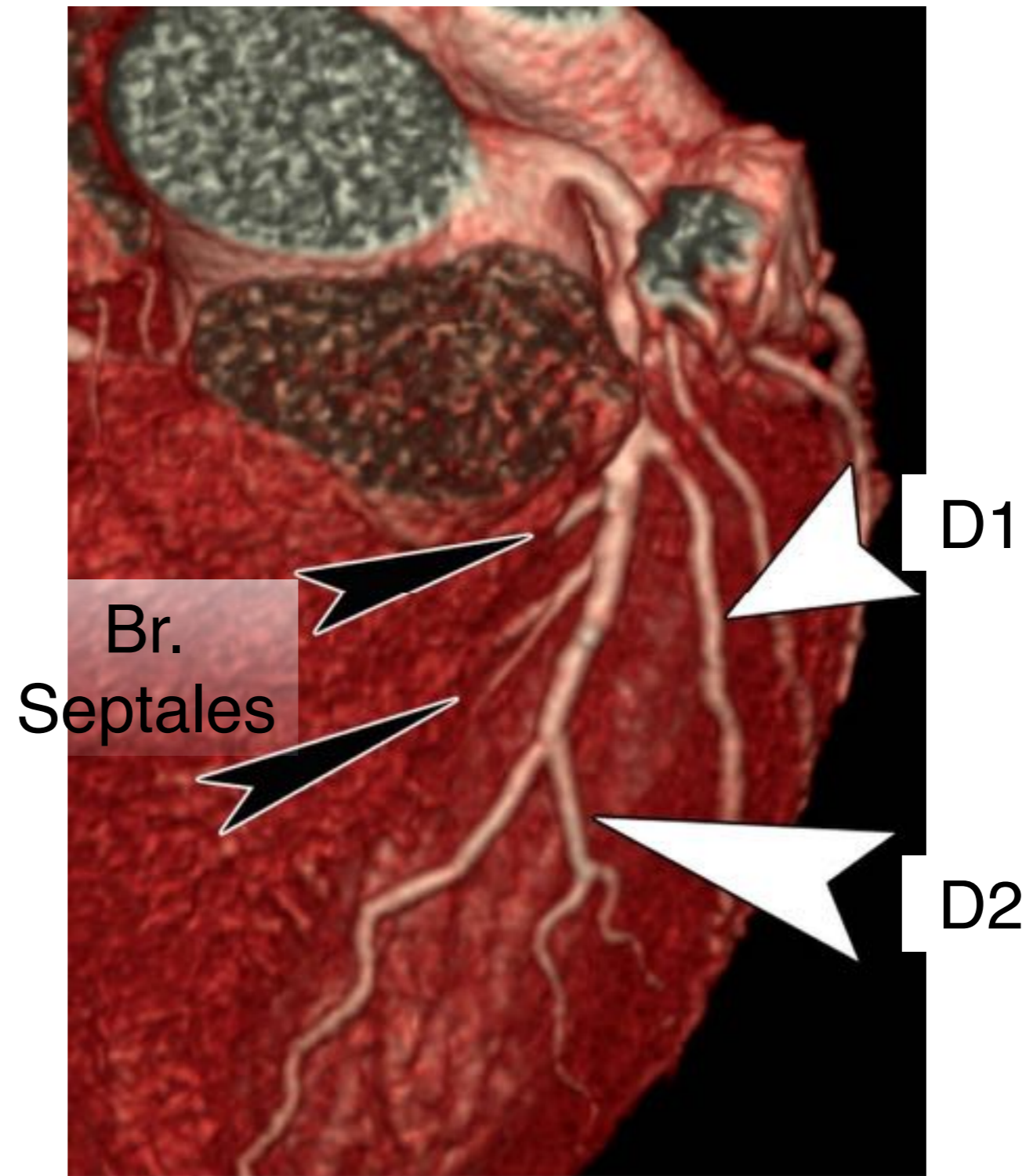
Artère Inter Ventriculaire Antérieure



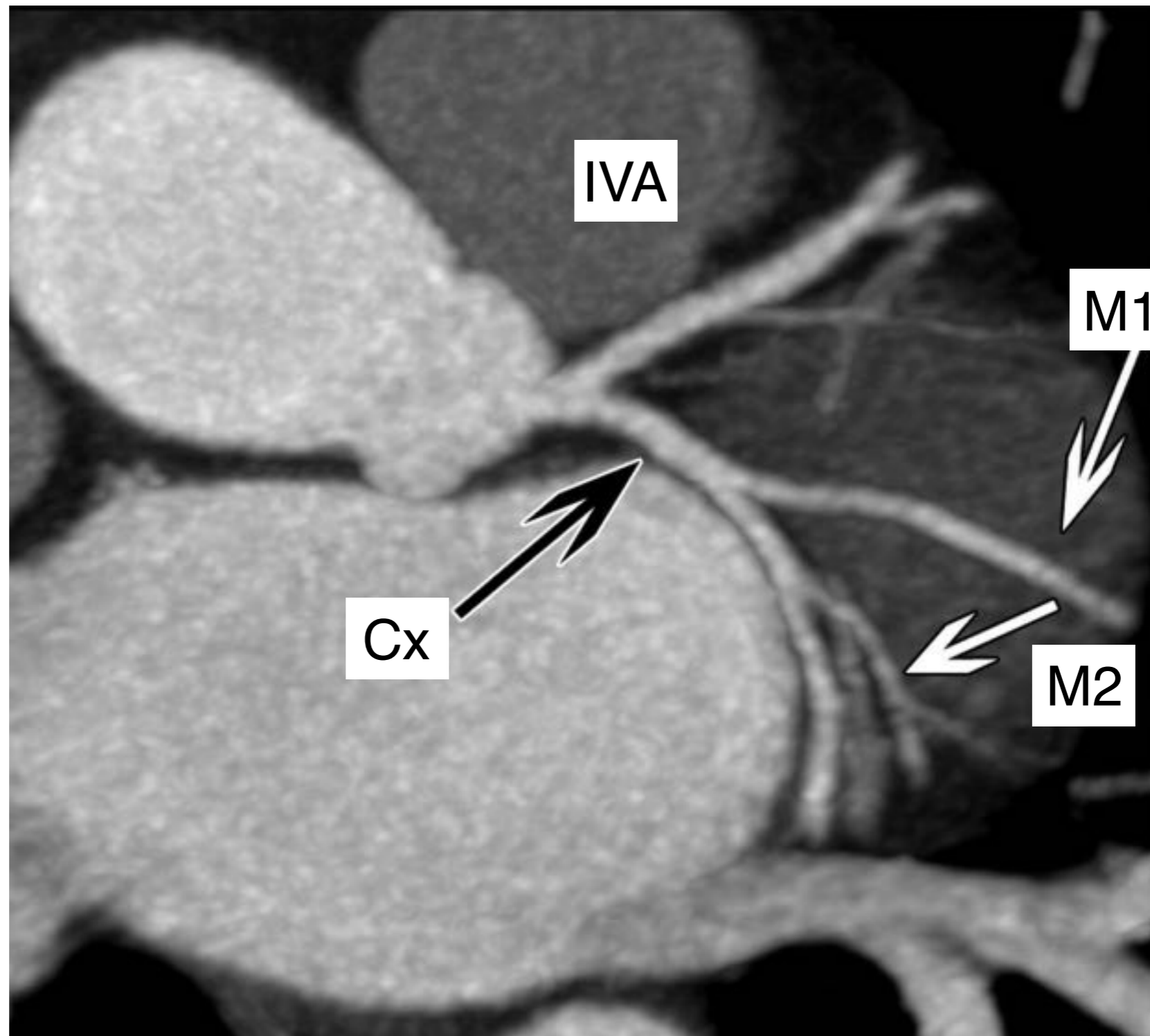
O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

RadiGraphics

Artère Inter Ventriculaire Antérieure



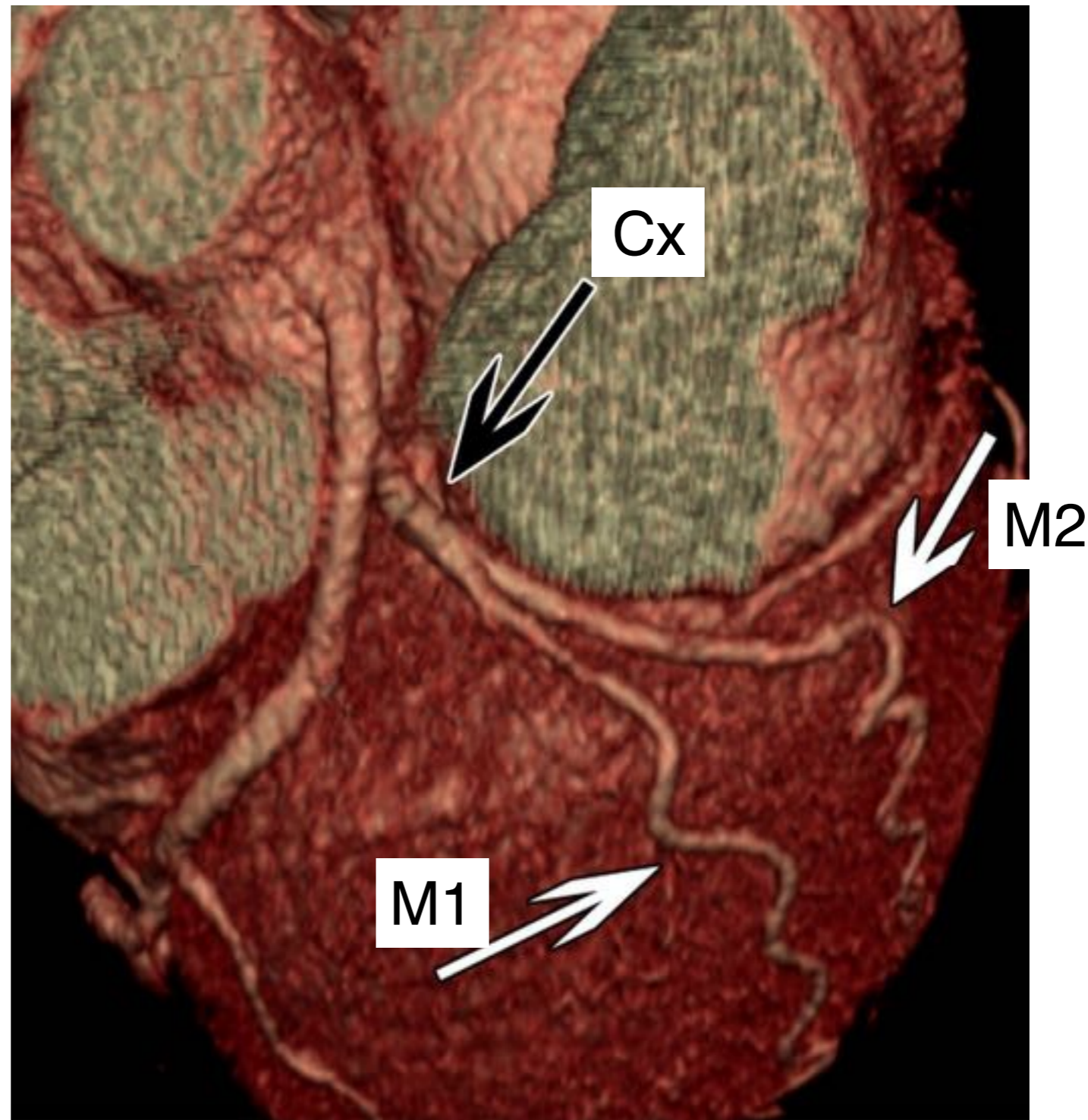
Artère circonflexe



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

Radiographics

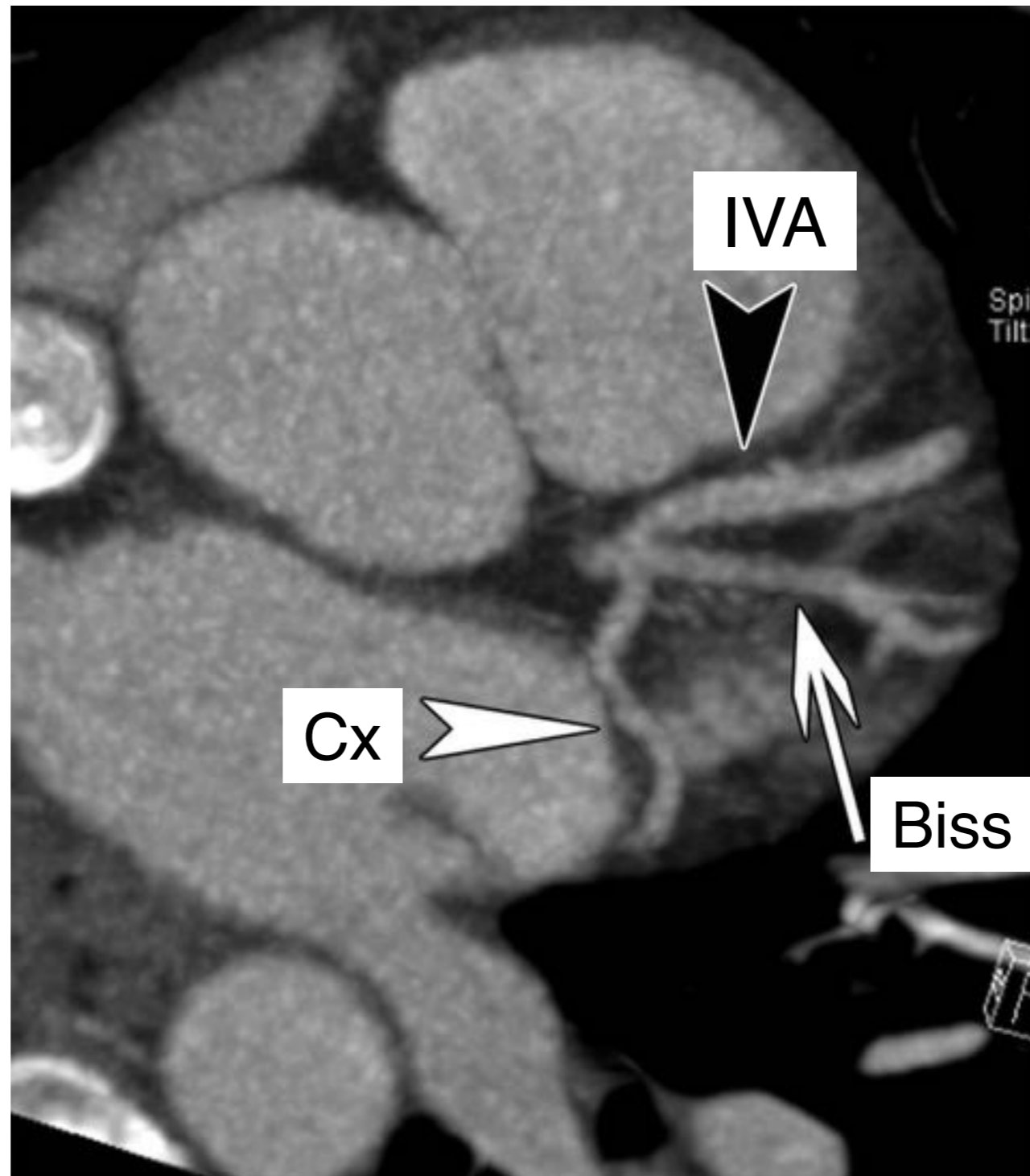
Artère circonflexe



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

Radiographics

Artère bissectrice (Biss.) (Angulaire)

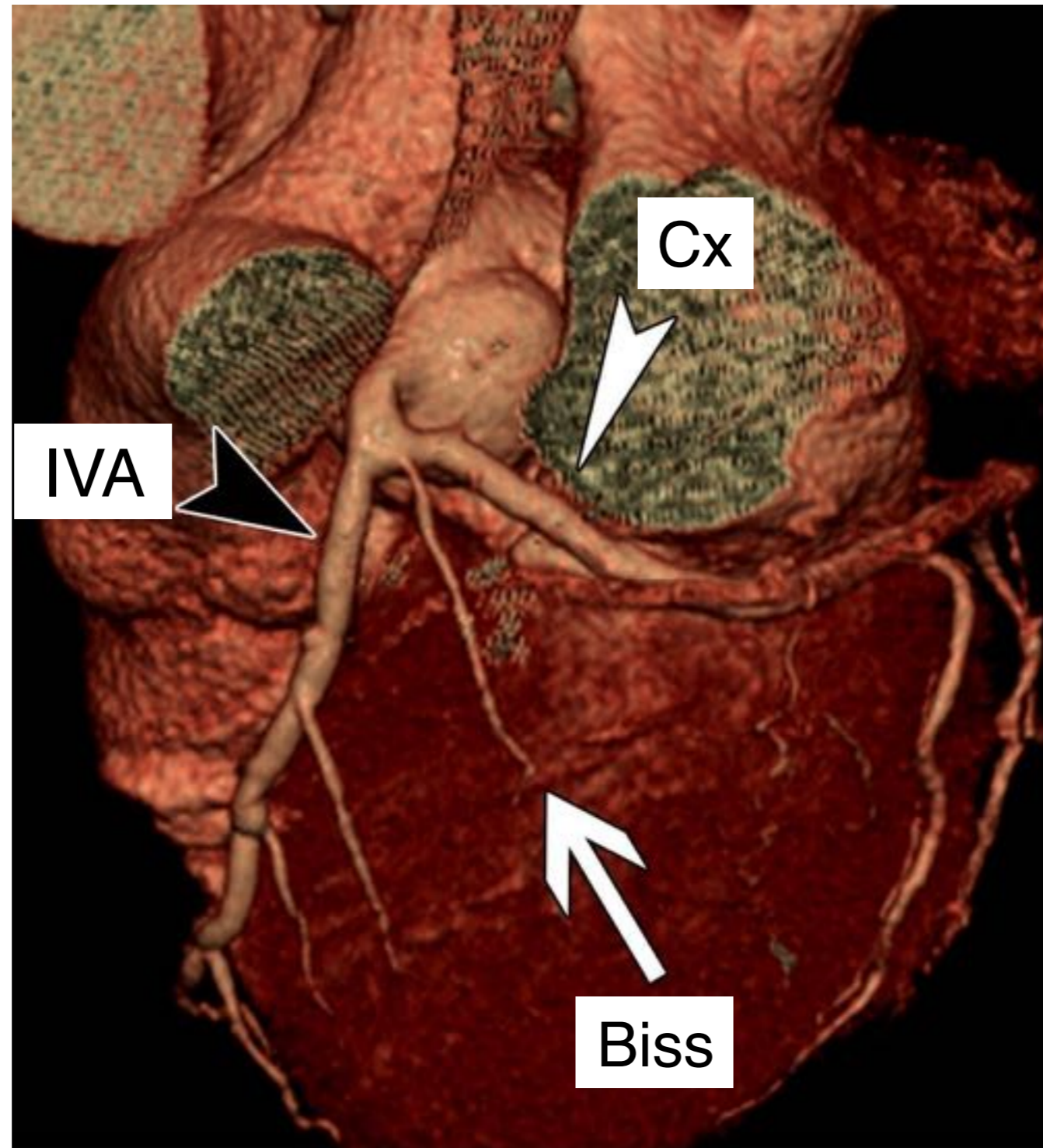


15% des patients

O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

RadiGraphics

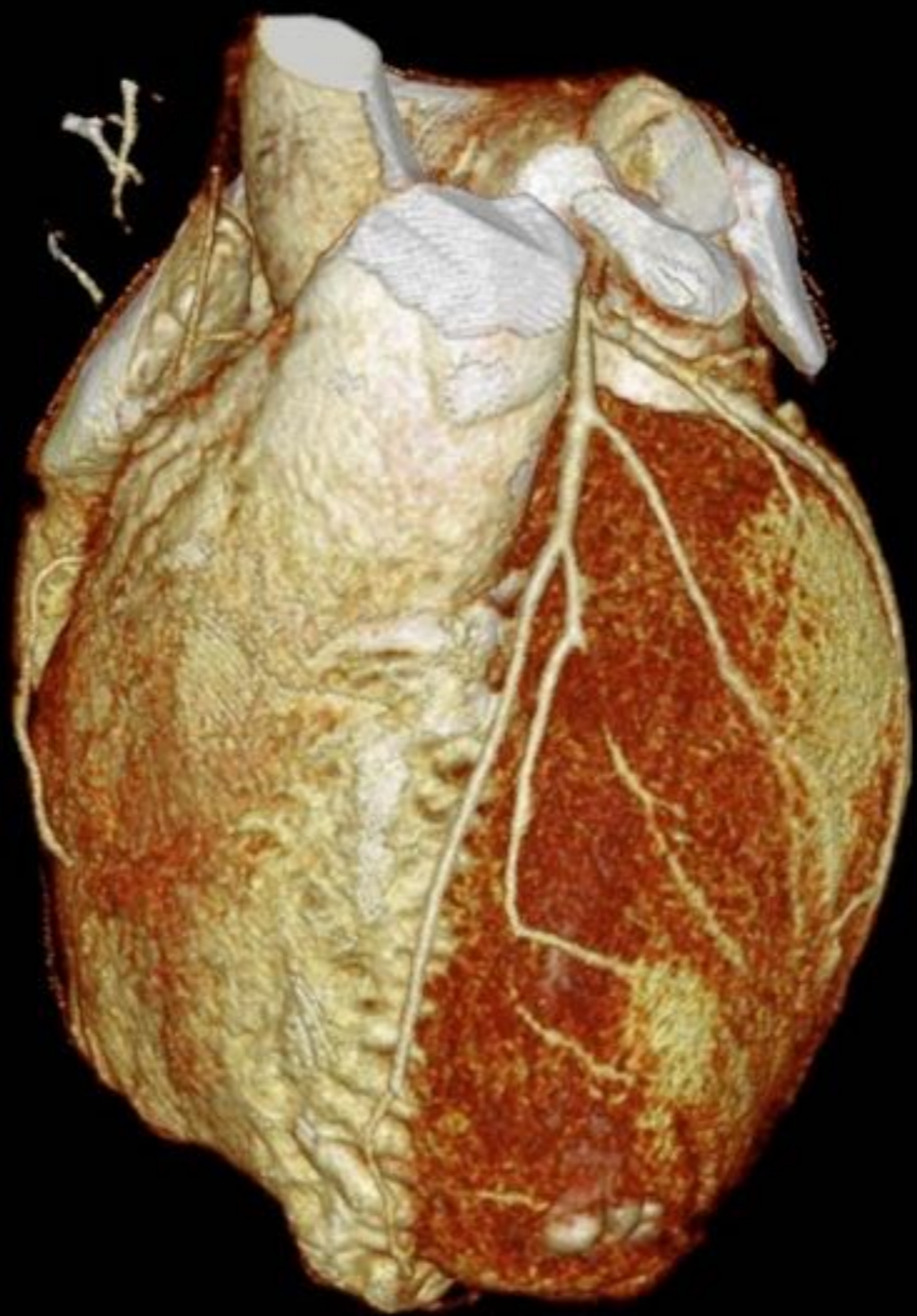
Artère bissectrice



15% des patients

O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

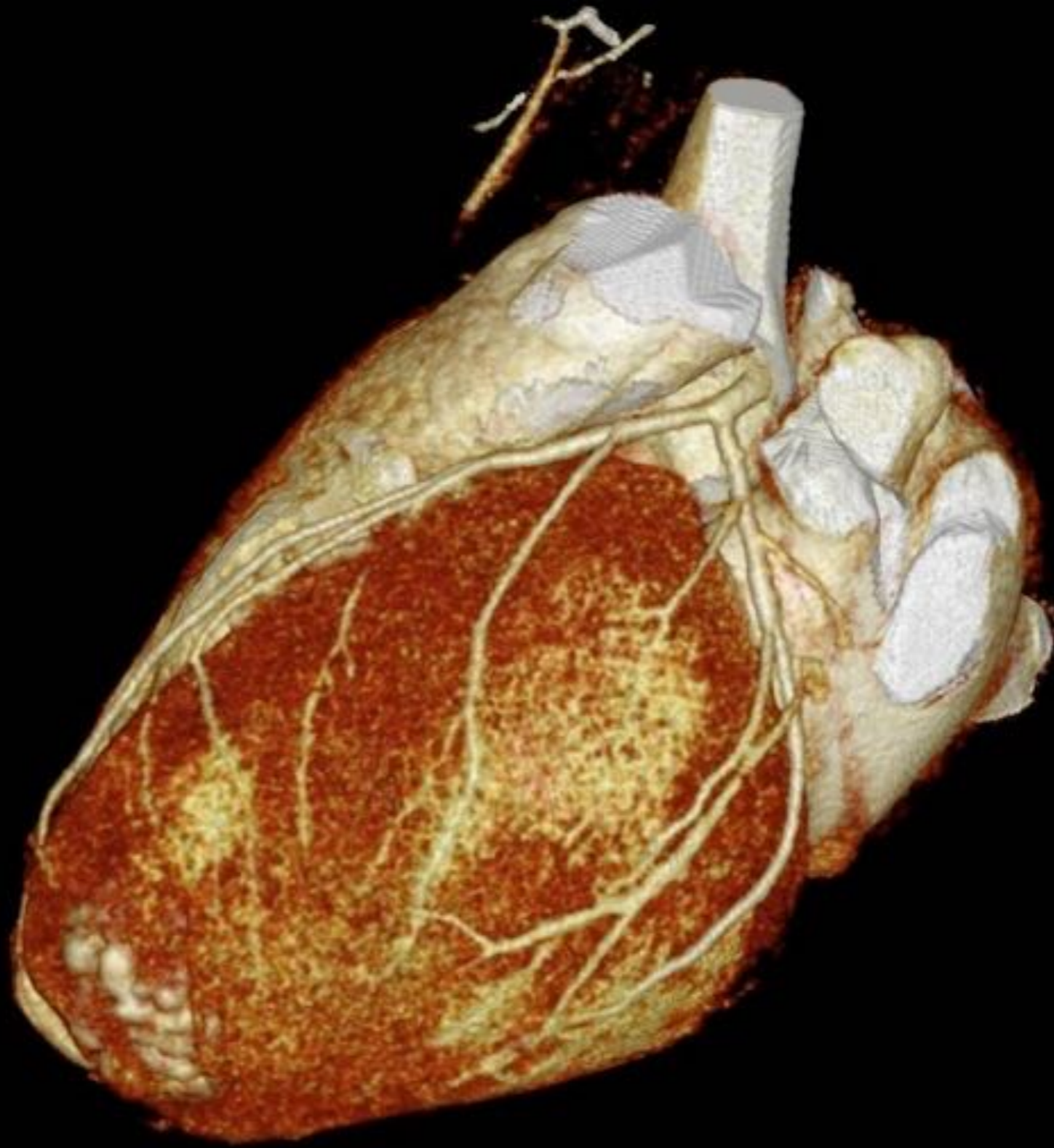
Radiographics

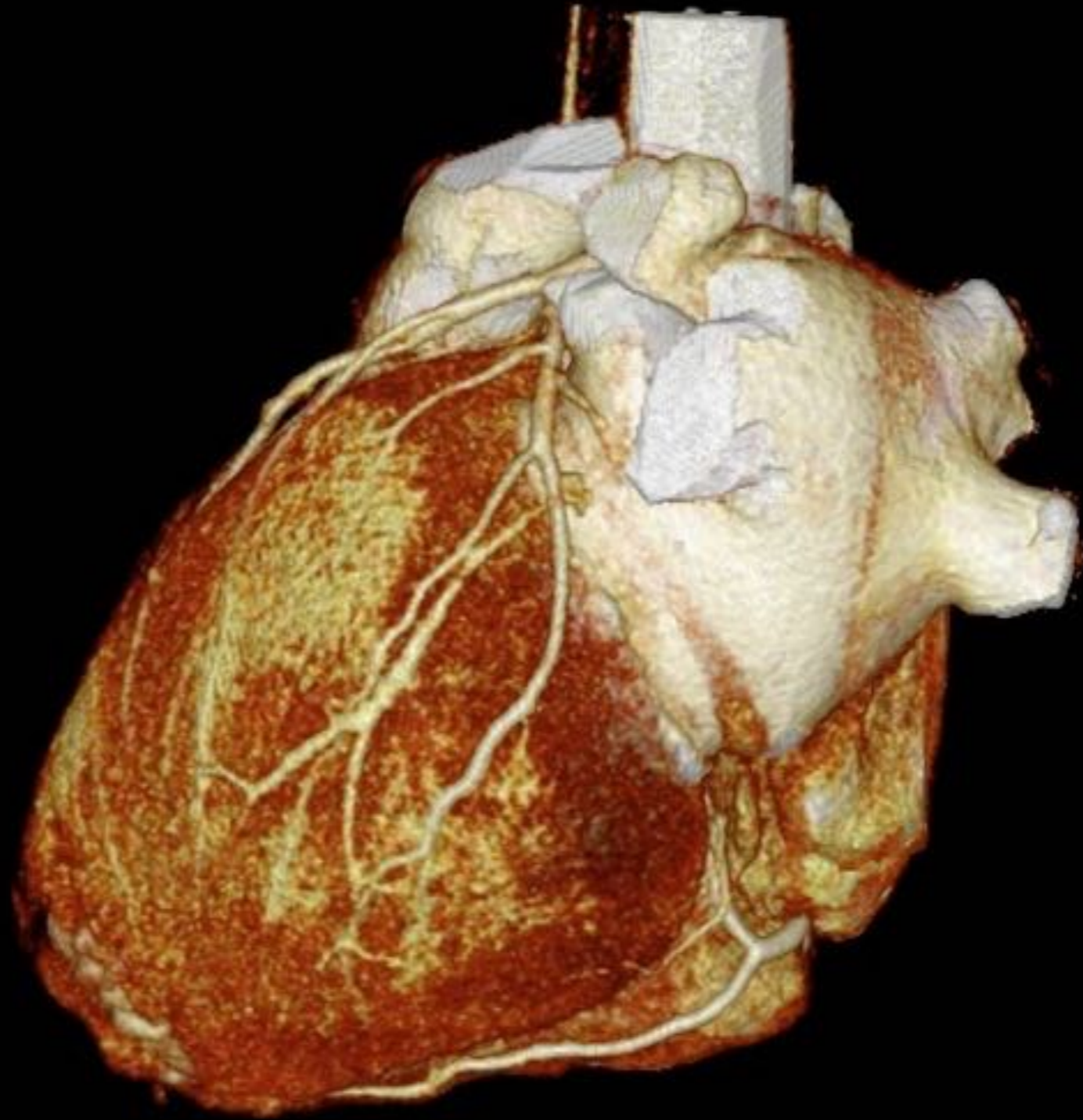


PHILIPS



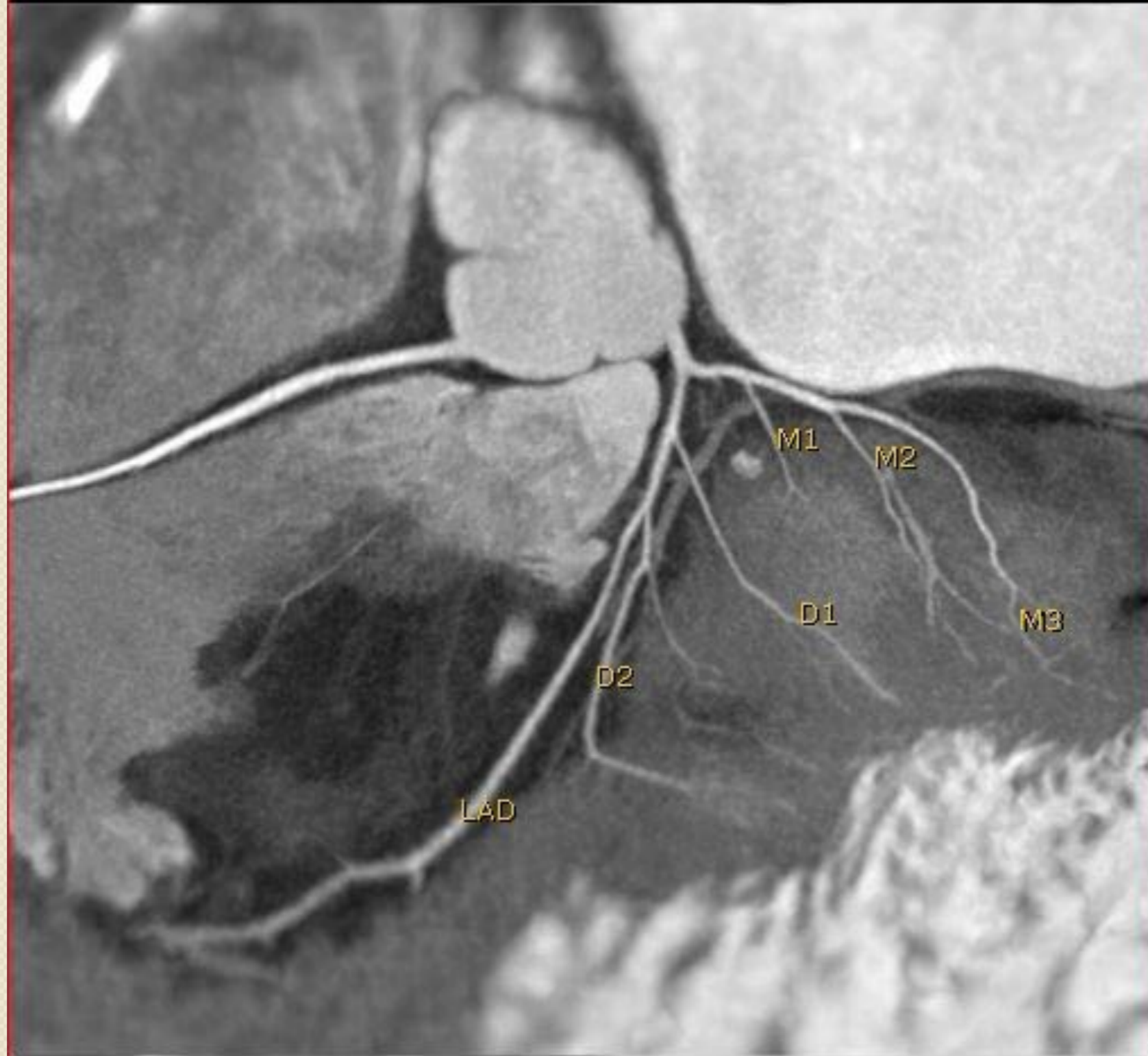
PHILIPS





PHILIPS

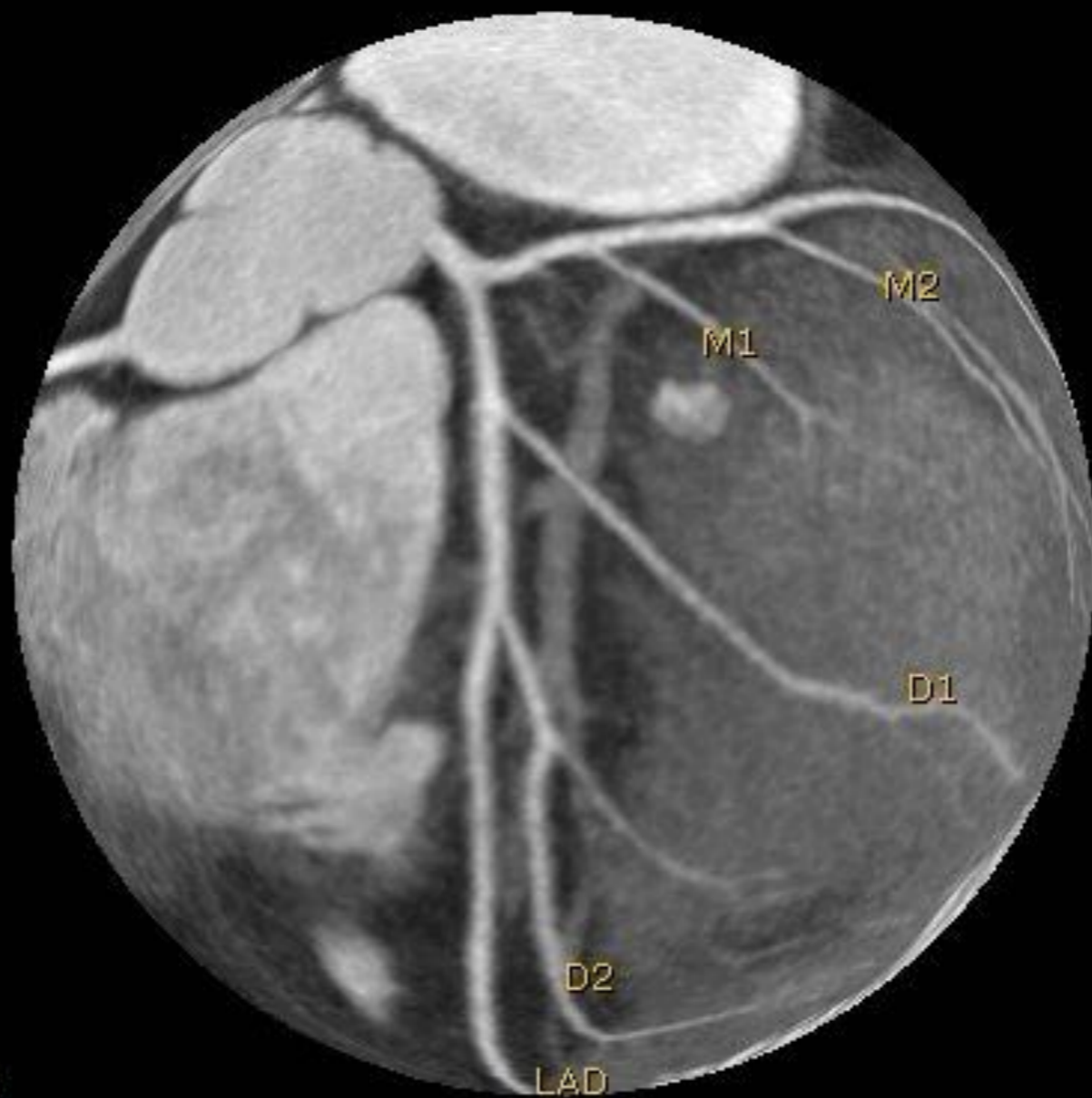










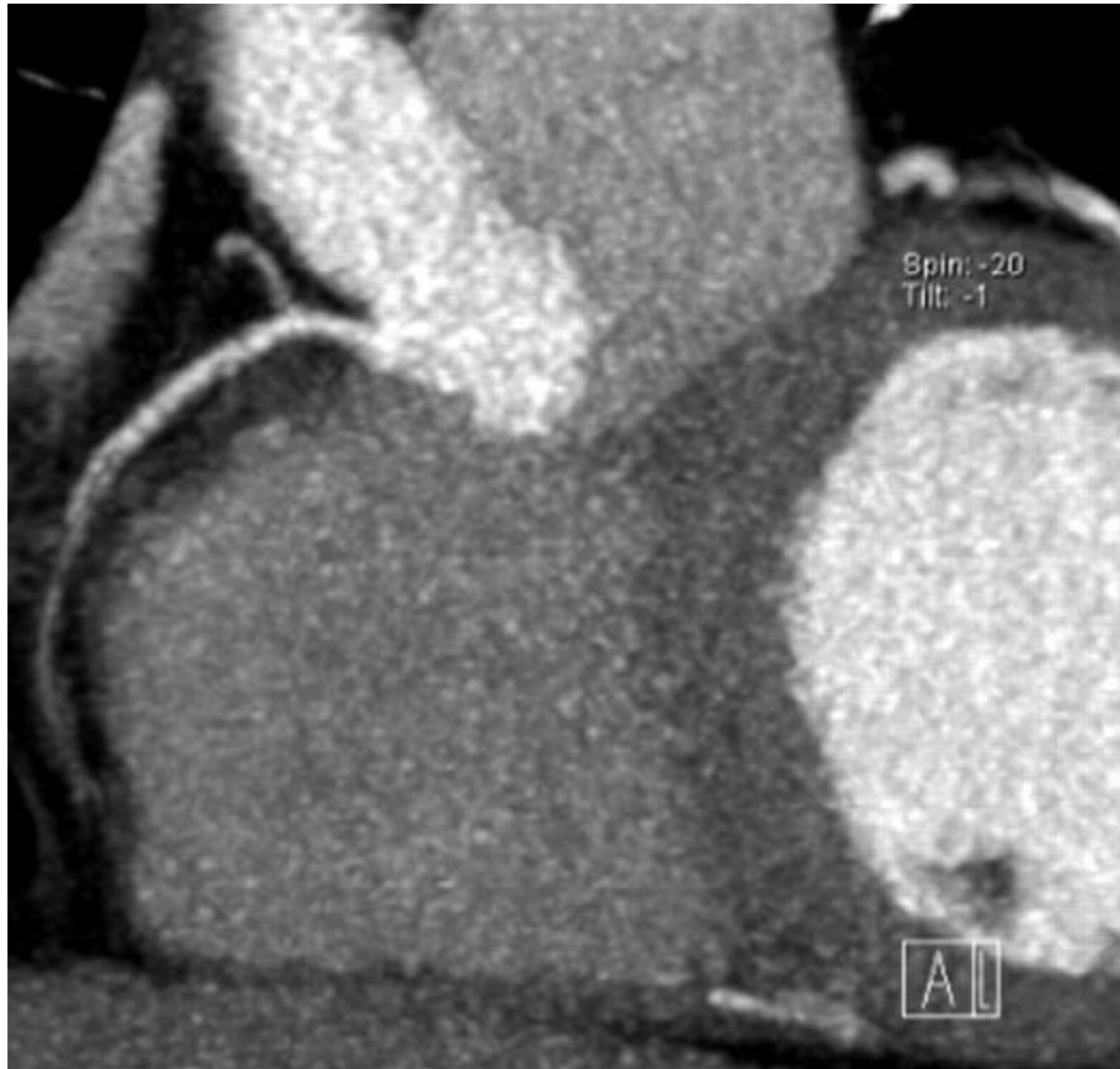




Dominance Gauche

Exemple

Dominance gauche



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

RadiGraphics

Dominance Gauche / Exemple



Dominance Gauche / Exemple

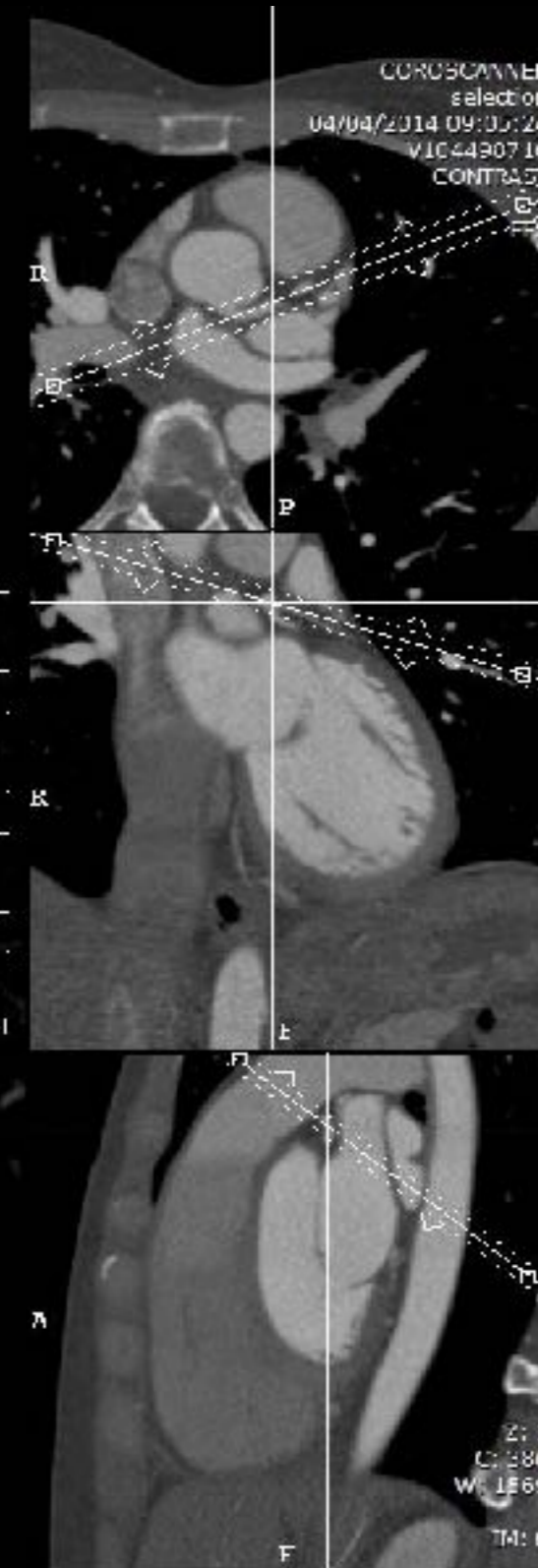
25/10/1982
31 ans
F



Page: figure 0

1-758

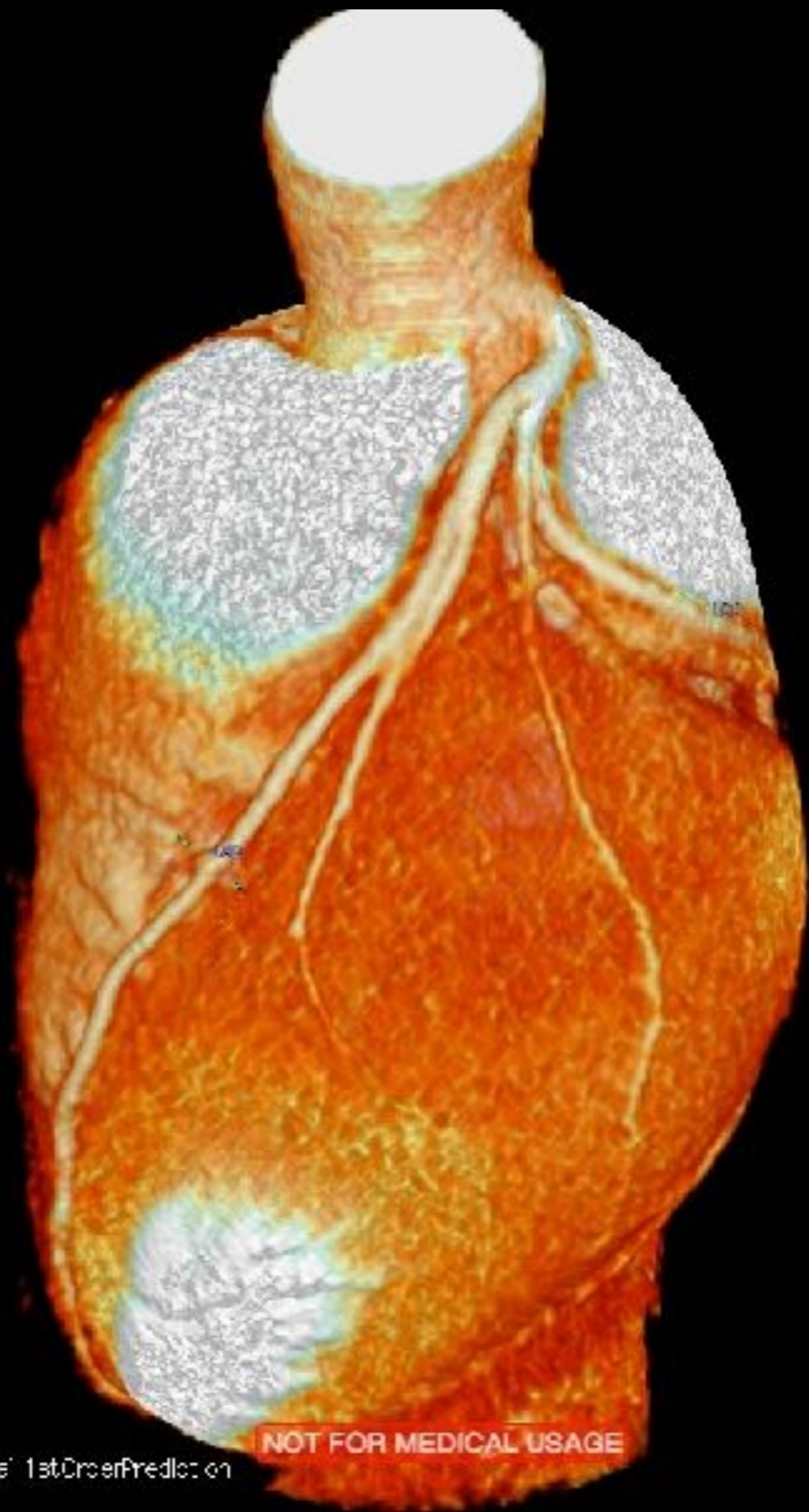
PF



Dominance Gauche / Exemple

height: 118 mm
width: 127 mm
depth: 127 mm

STEPHANE SPOUT SAU...
100



Zoom: 45% angle: 0
In: 175
JPEG Lossless: Non hierarchical 1stOrderPrediction
Position: FS

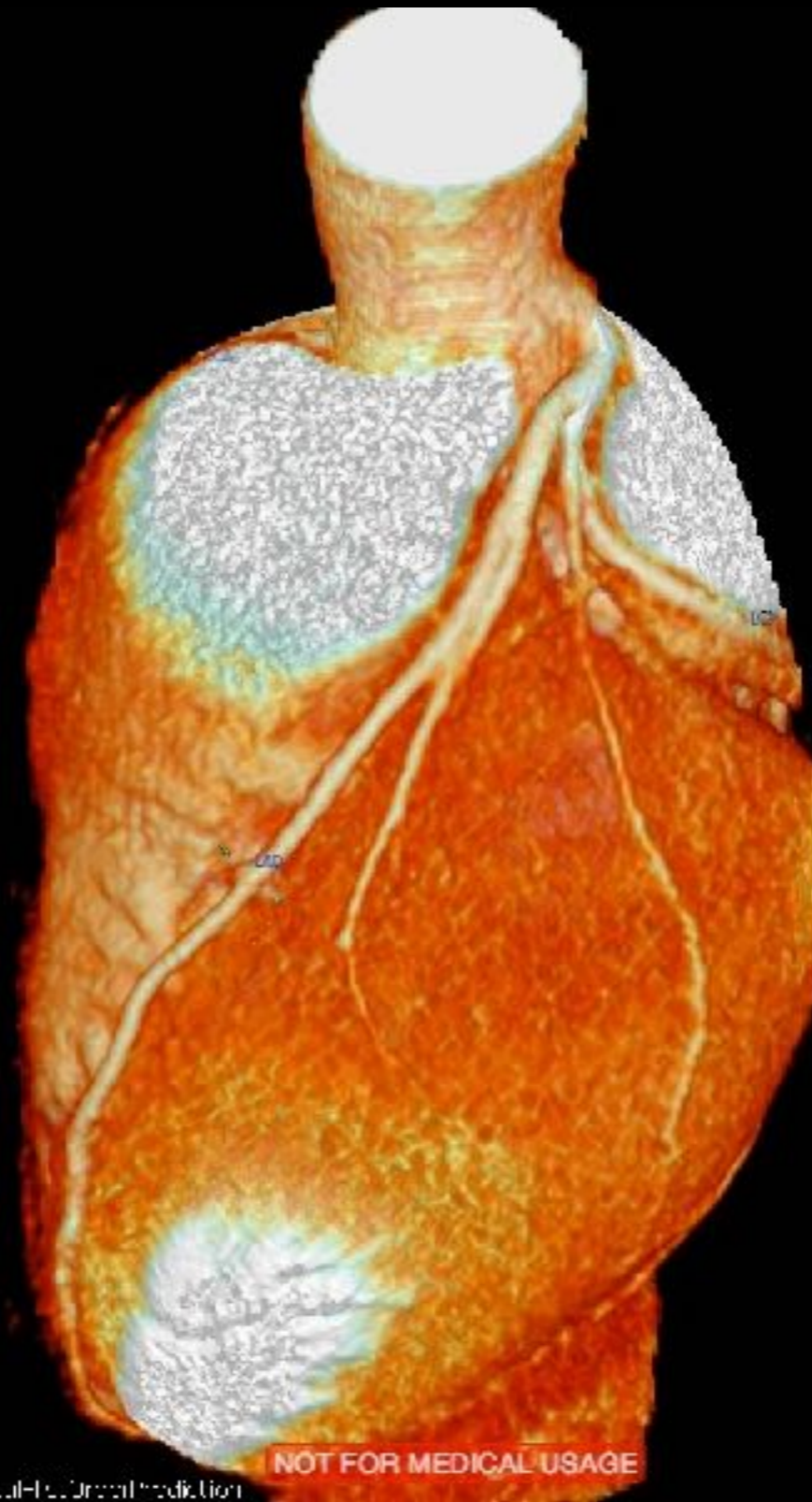
NOT FOR MEDICAL USAGE

04/04/2014 09:05:24
STEPHANE SPOUT SAU...
100

Dominance Gauche / Exemple

File: 20140101_001.mha
View size: 939 x 939
250 mac9127.49250
W: 97.0 X: 95.7

STEP AND SHOT CAT NO. 00000001
STEP AND SHOT CAT NO. 00000001
100



Zoom: 43% Angle: 0
In: 2/2
JHE Bioscience, Non-Inferential-HL-Dental Prediction

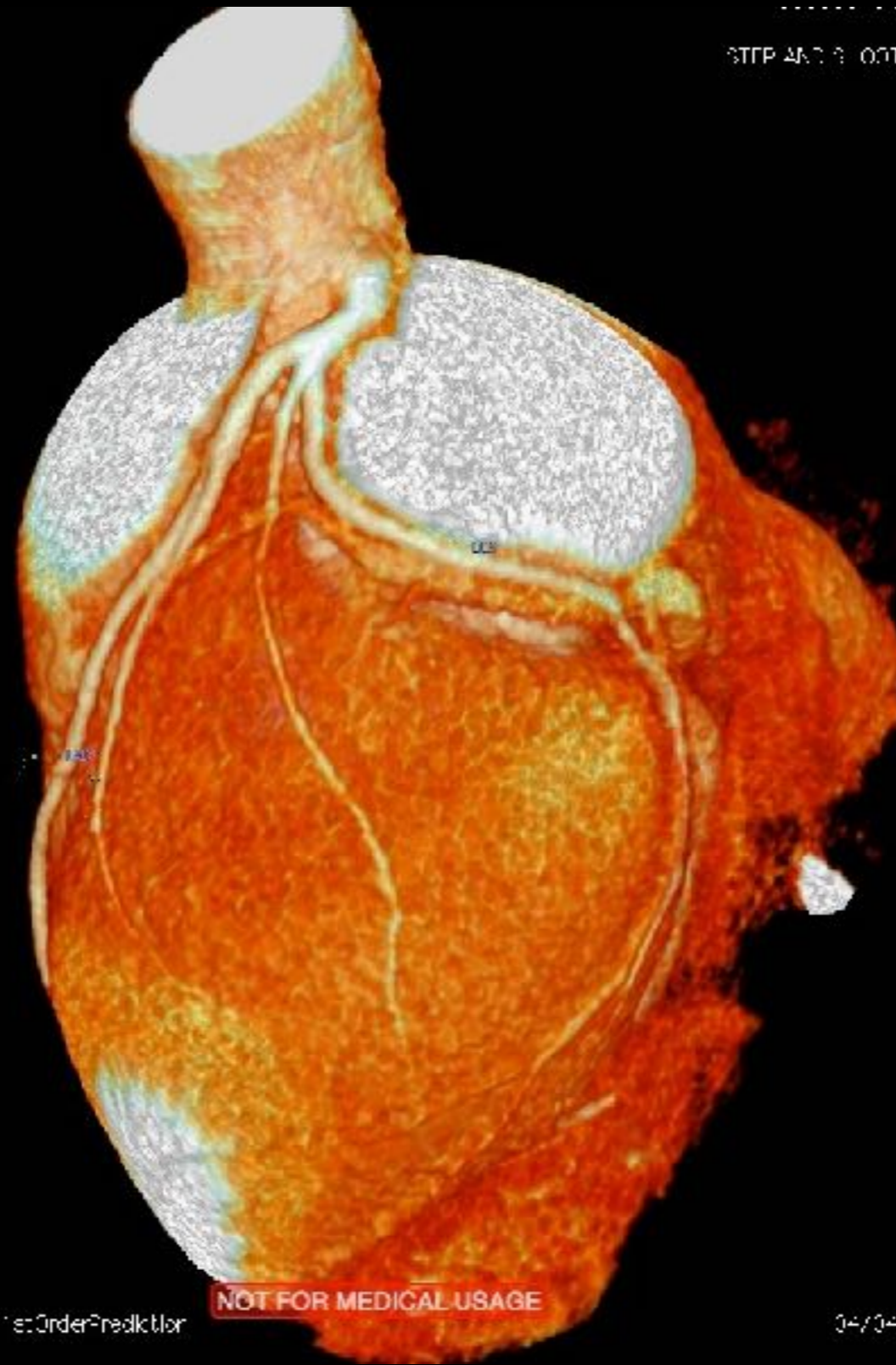
NOT FOR MEDICAL USAGE

100000
H
A
L
01/01/2014 09:05:24

Dominance Gauche / Exemple

PREMIER: 07/27/14 11:11:11
MIP: 1.20: 939 x 339
250 mm (0.187 mm)
R: 1.27 W: 255

STEP AND S: OUT CATIN: 0.45382
100



Zoom: 48% Angle: 0
In: 5/5
JPEG Lossless: Non-hierarchical Order Predictor
Position: FFS

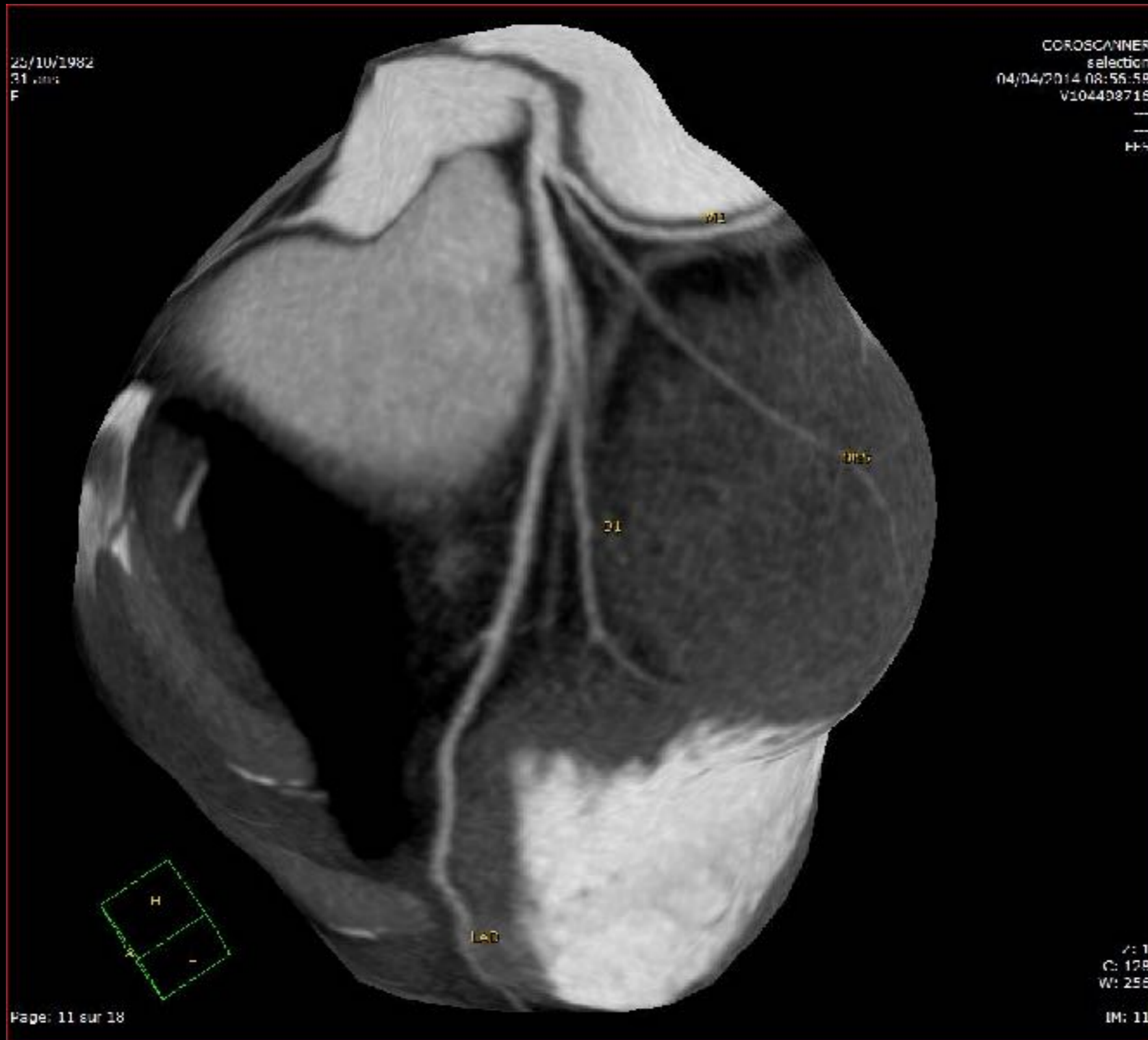
NOT FOR MEDICAL USAGE

10 mm
04/04/2014 09:05:24
AEO: 140 050 030
1.20: 939 x 339

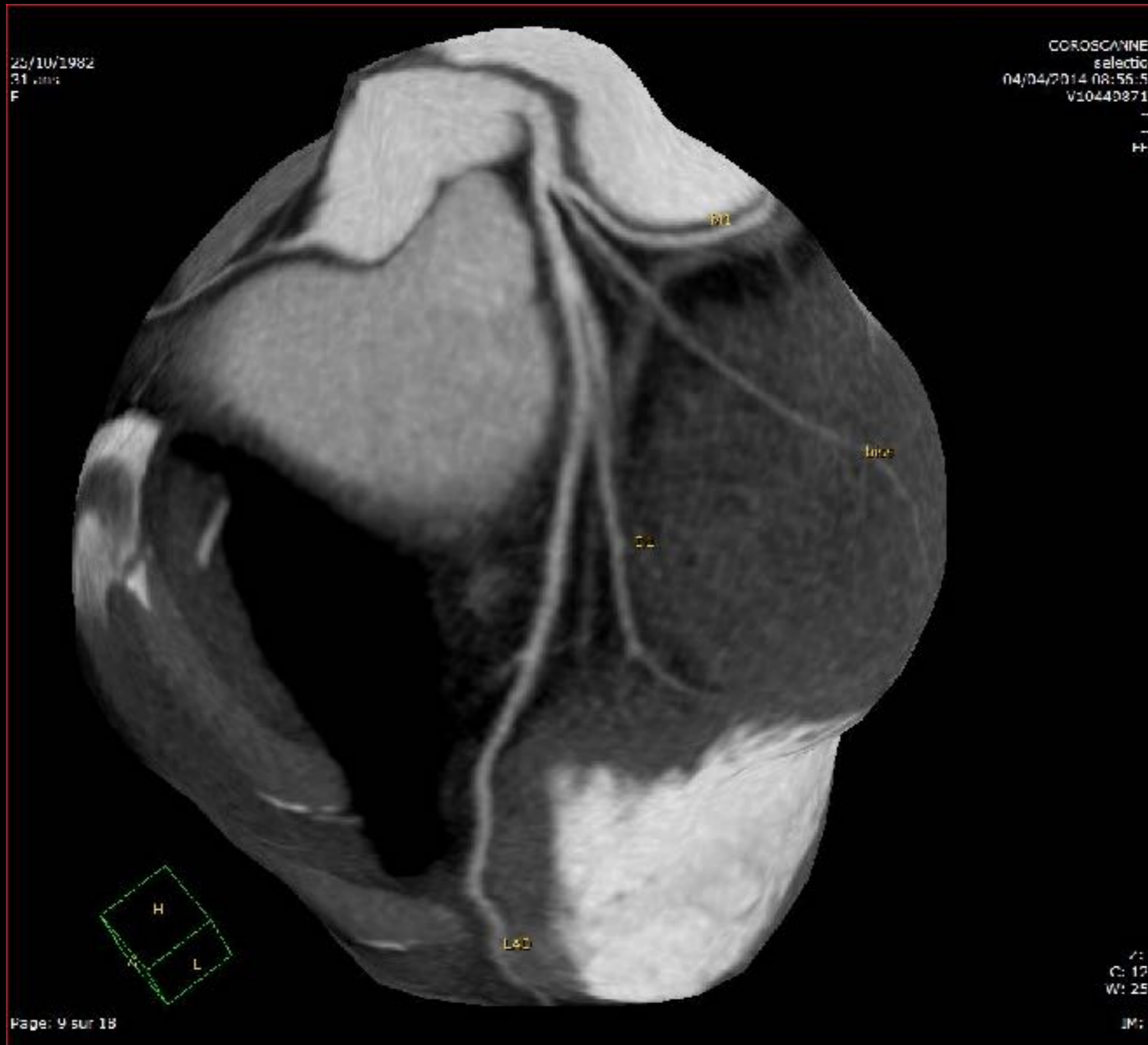
Dominance Gauche / Exemple



Dominance Gauche / Exemple



Dominance Gauche / Exemple



Dominance Gauche / Exemple



Dominance Gauche / Exemple



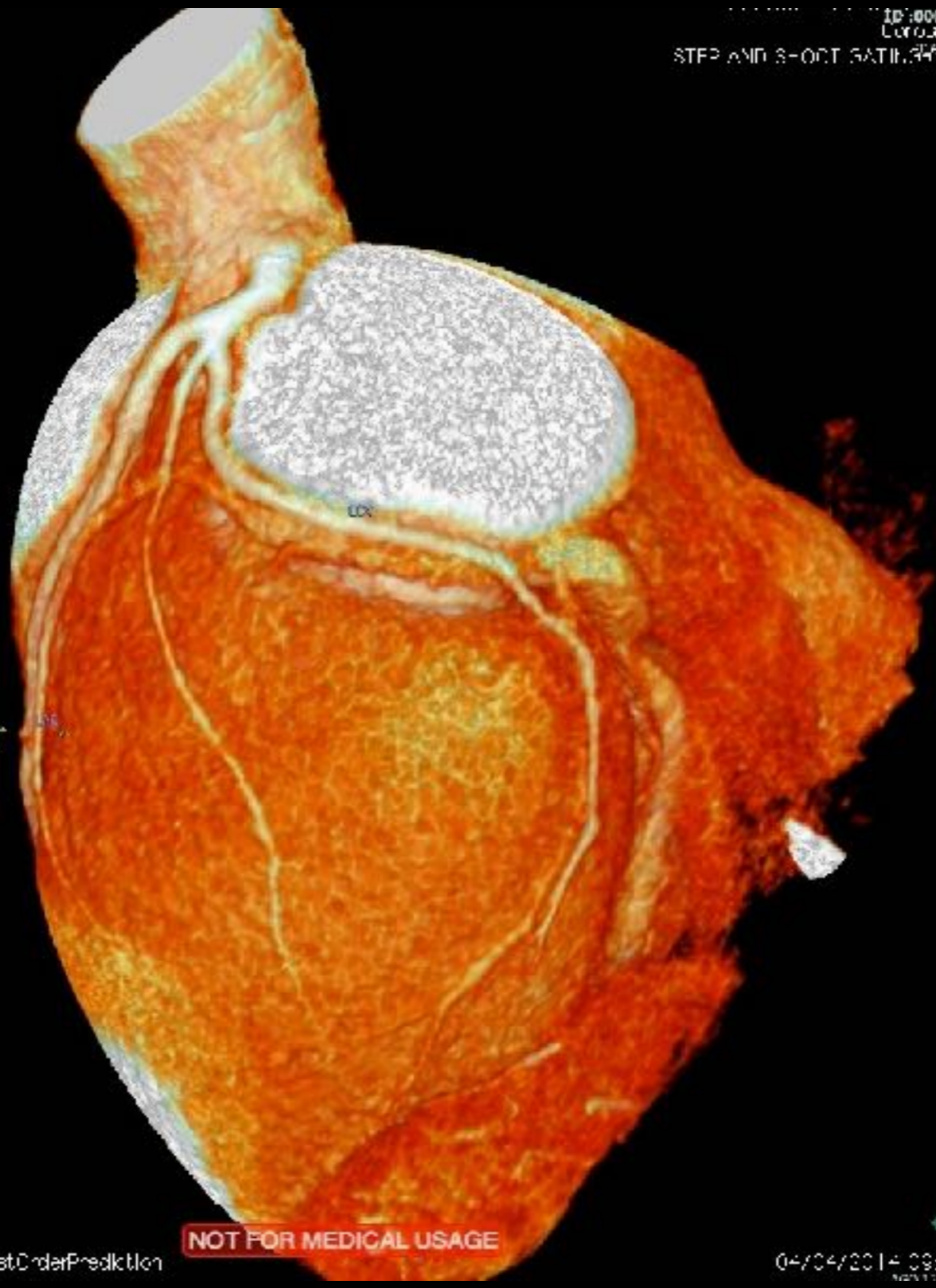
Dominance Gauche / Exemple



Dominance Gauche / Exemple

04/04/2014 09:05:24
Zoom: 46% Angle: 0
Imp: 4/5
JPEG Lossless: Non hierarchical 1stOrderPrediction

STEP AND SHOOT GATE: 34.9mm
100



04/04/2014 09:05:24

Dominance Gauche / Exemple



Dominance Gauche / Exemple

View: 959 x 957
252 mm (9.92 in) W 275

STEP AND SHOT CAT NO 080308



Zoom: 46% Angle: 0
Int: 2/5
J.E.S. et al. / 2011 / 09 / 05 / 21

NOT FOR MEDICAL USAGE

10 mm
H
01/01/2011 09 05:21

25/10/1982
31 ans
F

COROSCANNER
selection
04/04/2014 08:55:58
V104408716
—
—
FHS



Dominance Gauche / Exemple



Dominance Gauche / Exemple



Dominance Gauche / Exemple



Dominance Gauche / Exemple



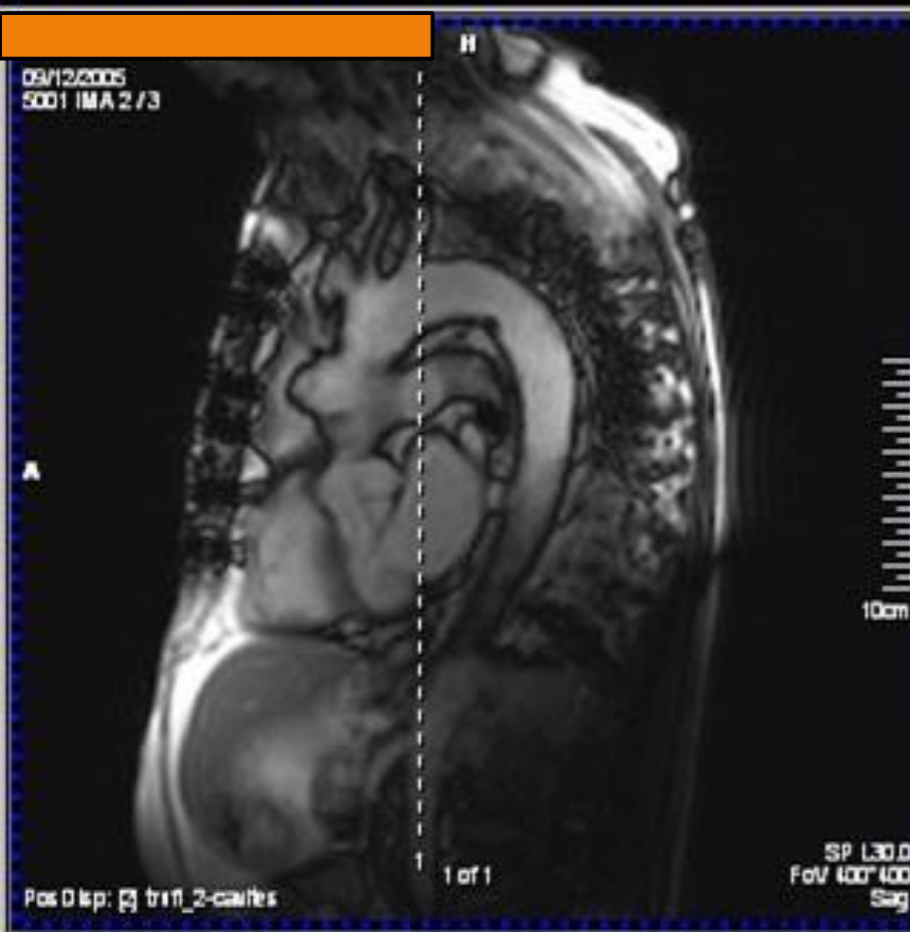
Plans de coupes
spécifiques du coeur

Plans de coupe

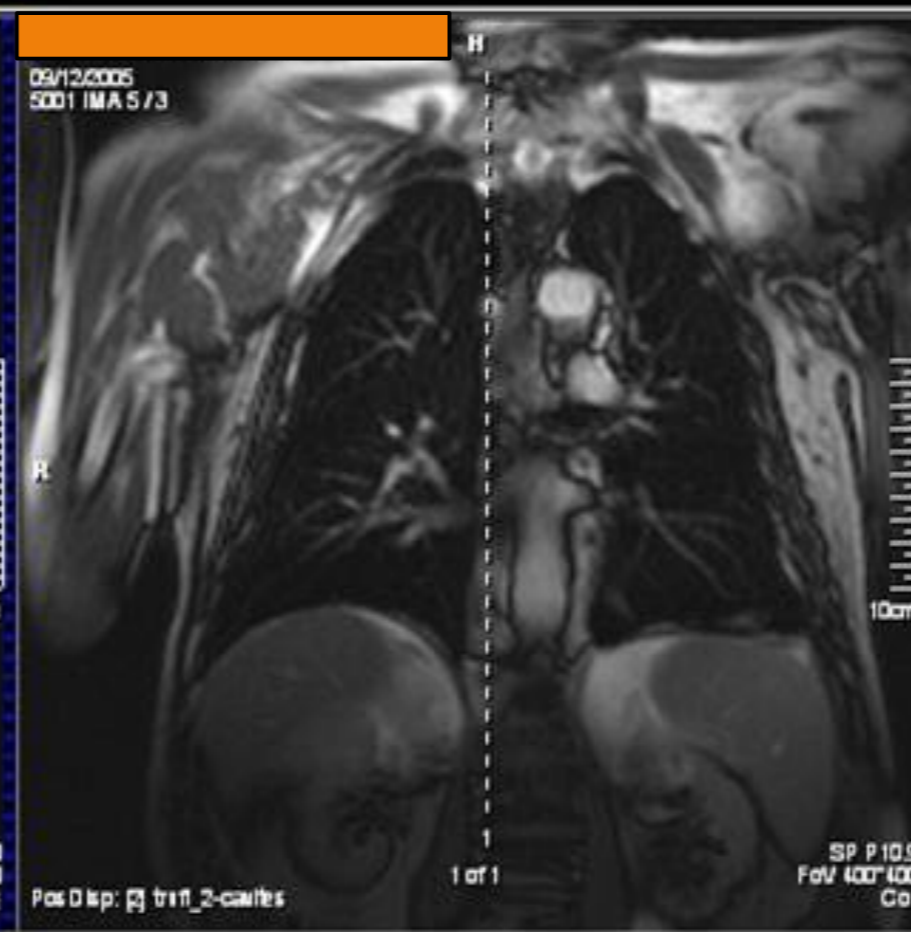
- L'analyse des images se fonde sur les plans de coupe suivants :
- 4 cavités
- Grand axe VG
- Petit axe VG

Localisateur de démarrage

Coupes strictes



SAGITTALE

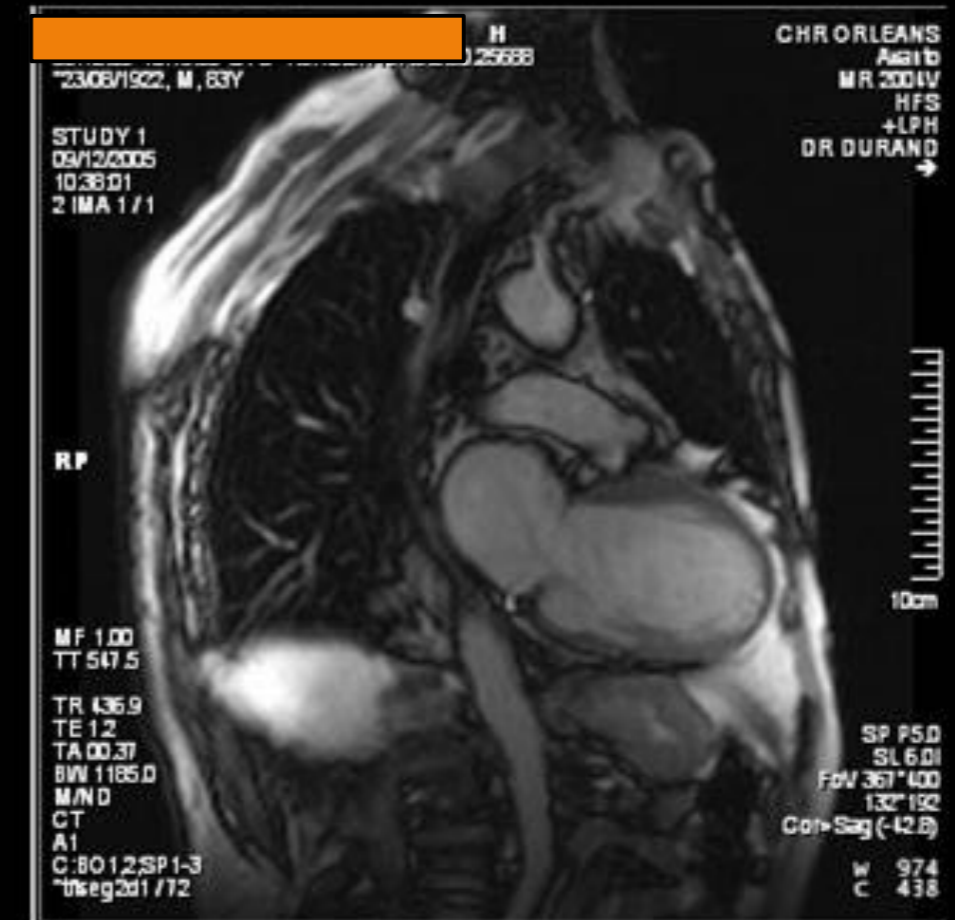
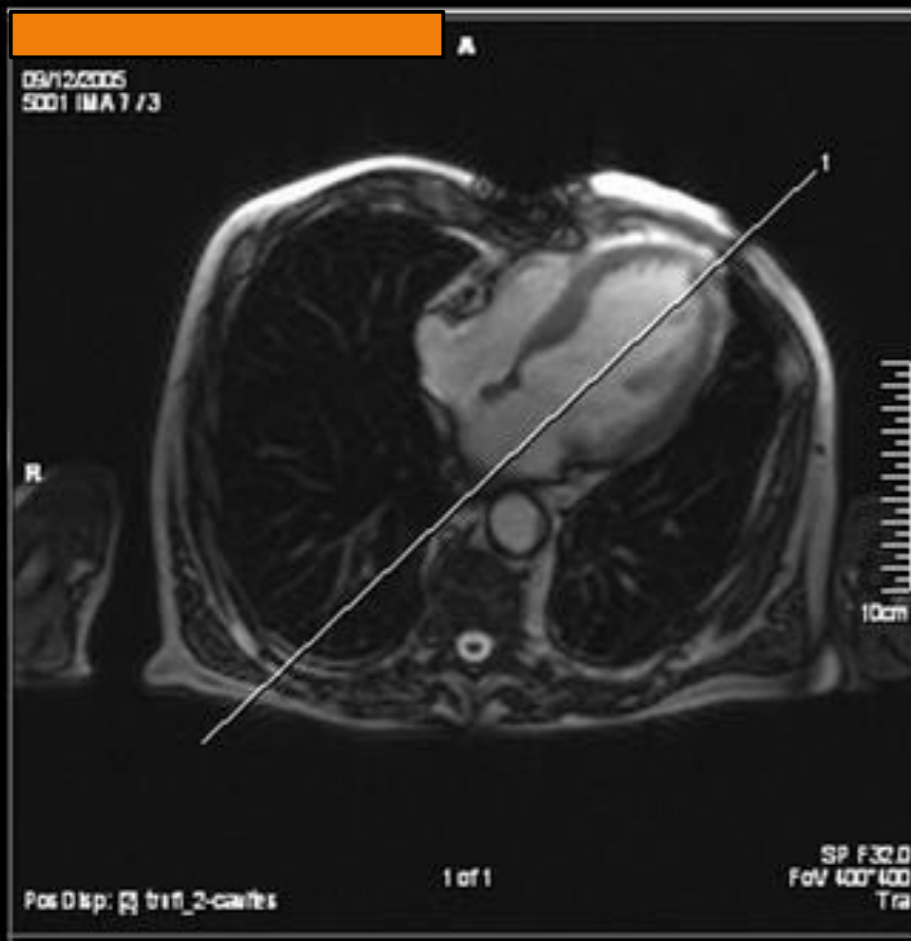


CORONALE



AXIALE

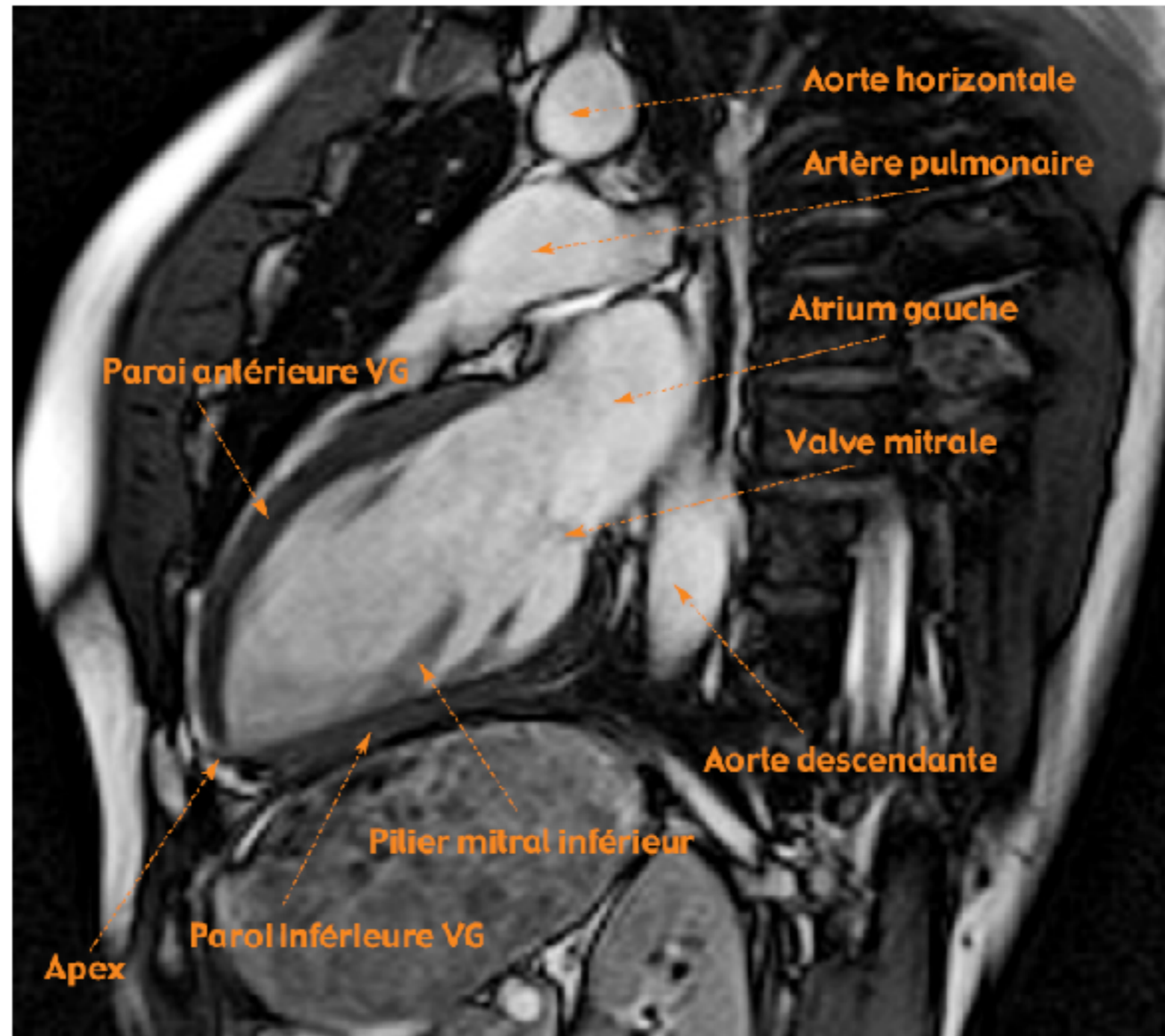
Coupes Strictes → Grand axe 2 cavités



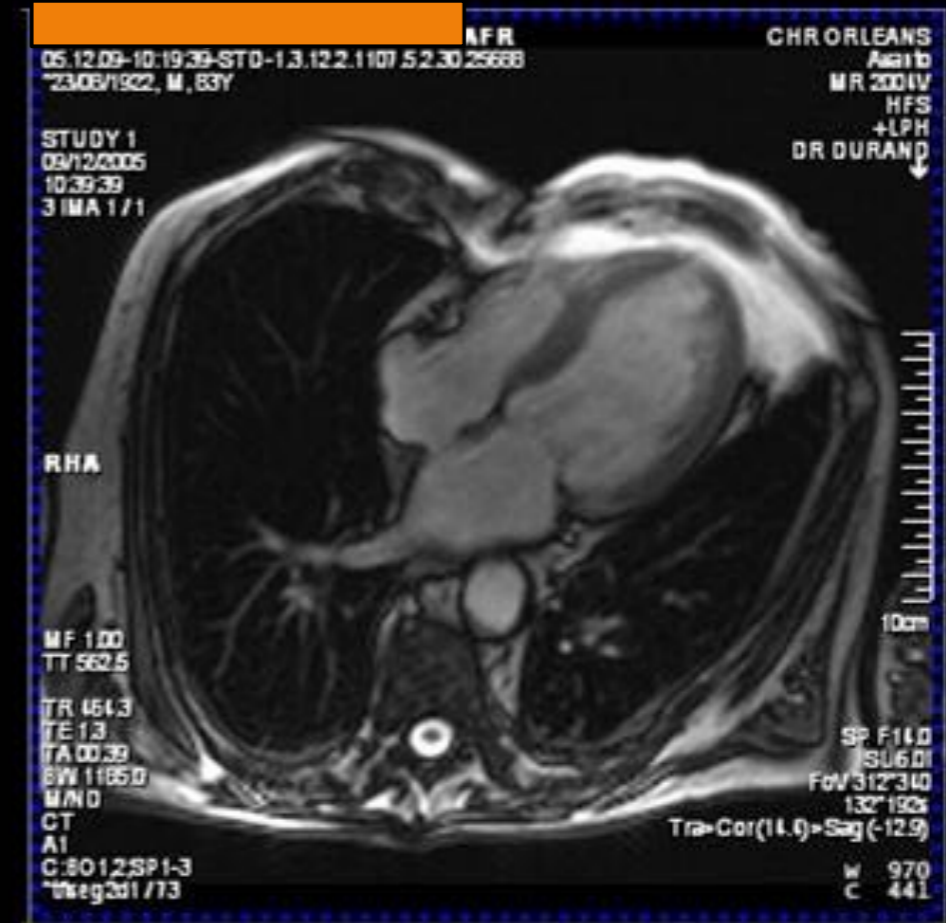
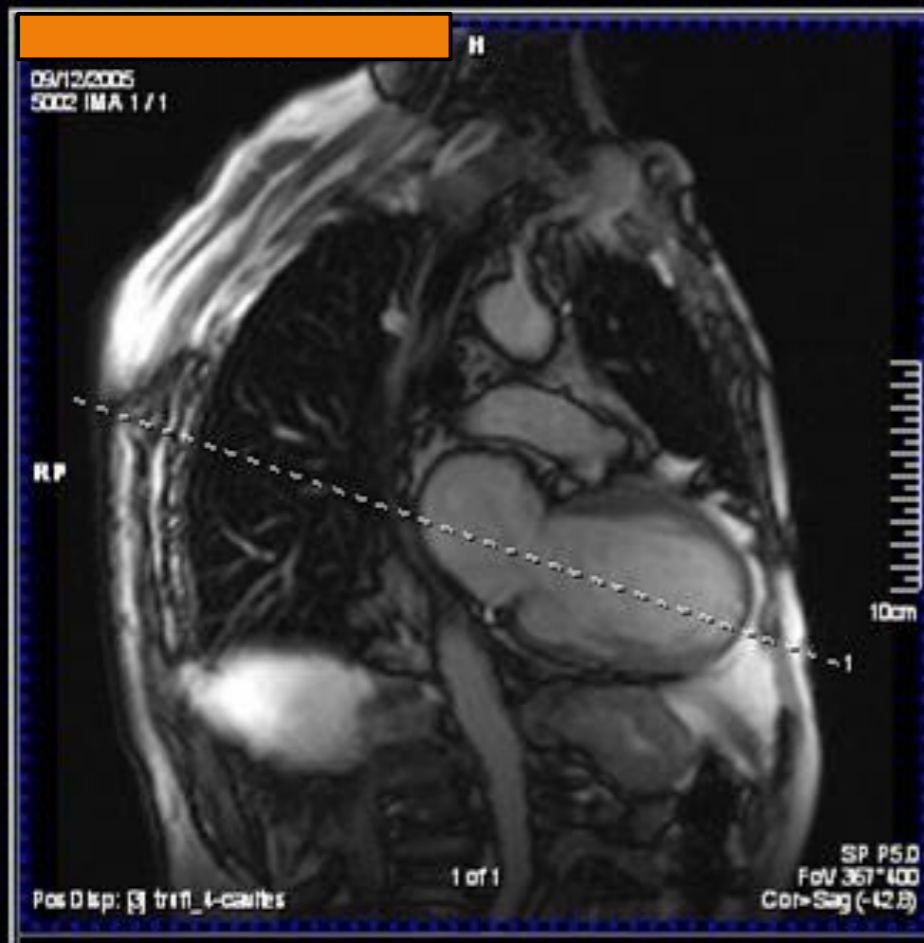
Coupe verticale dans l'axe du ventricule gauche,
parallèle au septum inter ventriculaire

ANATOMIE

Long axe VG 2 cavités

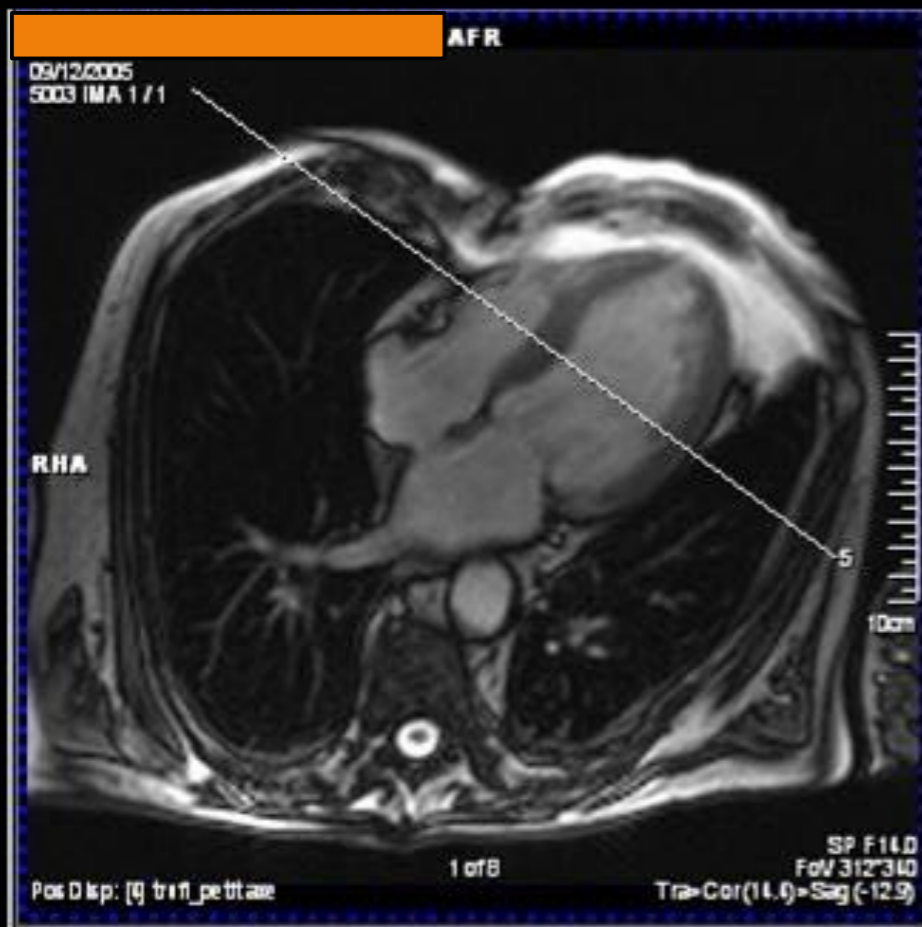


Grand axe 2 cavités → Grand axe Pseudo 4 cavités



Coupe axiale oblique dans le grand axe horizontal du VG, selon une ligne allant du centre de l'anneau mitral et l'apex du VG

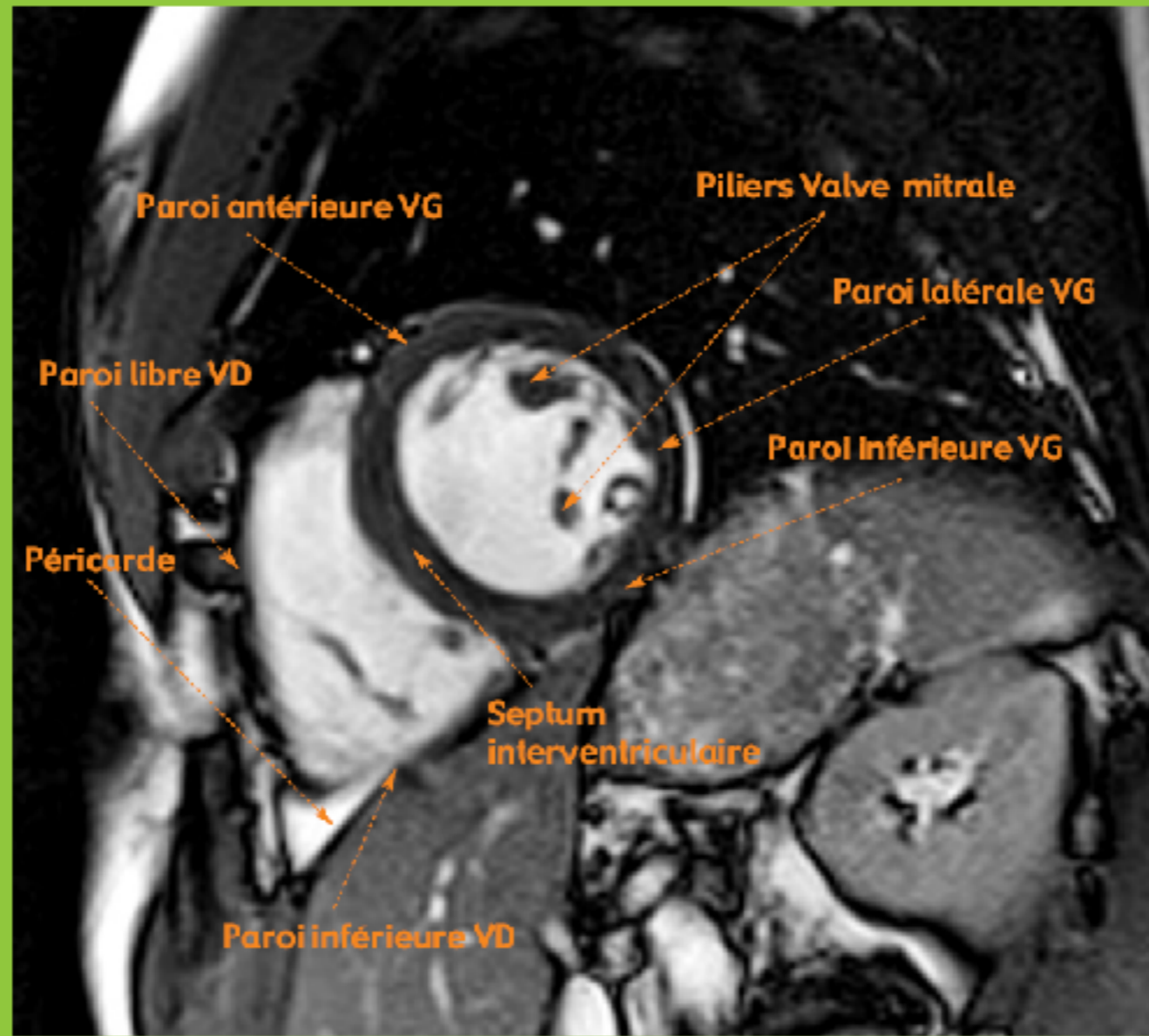
Grand axe Pseudo 4 cavités → Petit axe



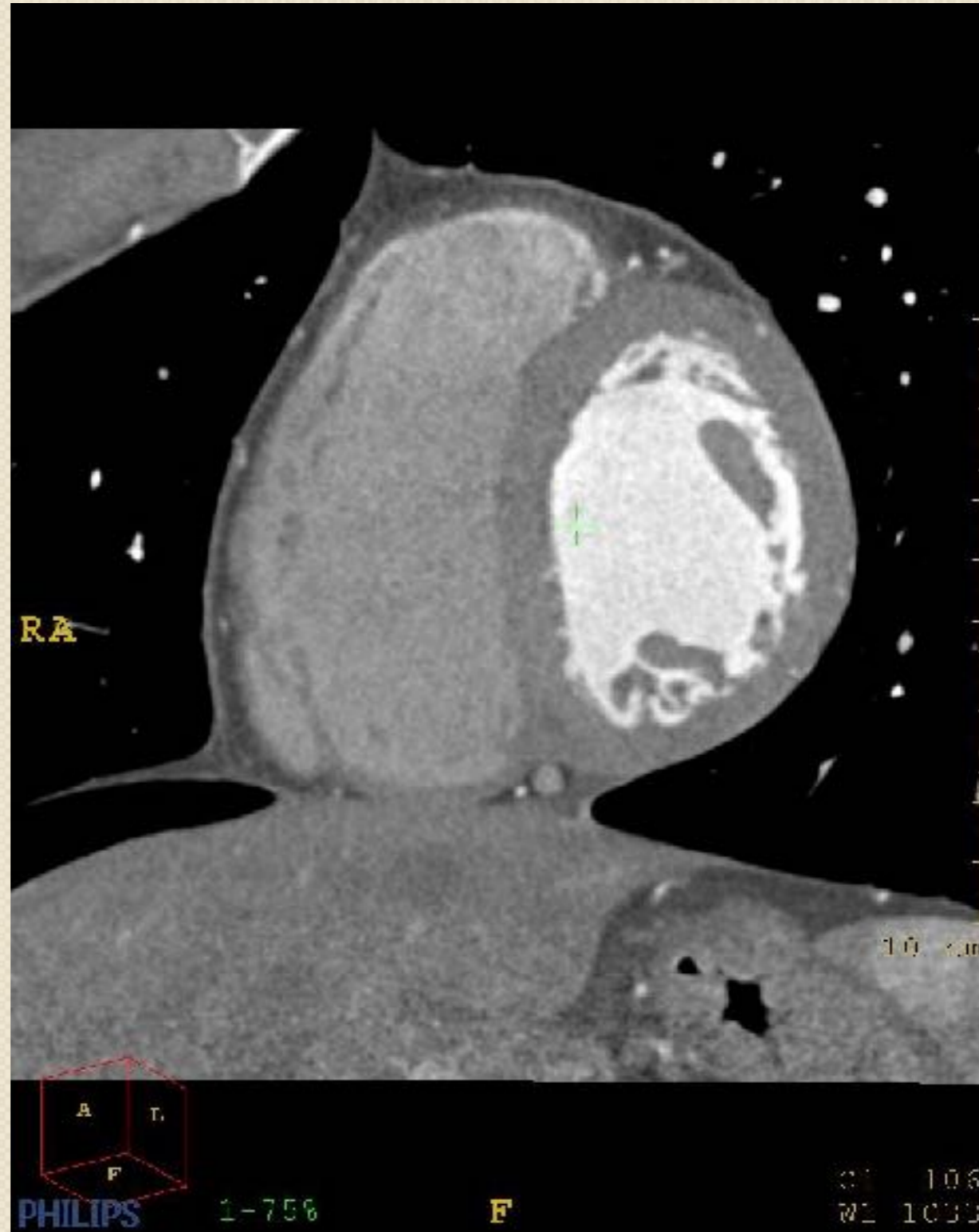
Coupe perpendiculaire à la bissectrice apex/mitral
Permet de calculer la fraction d'éjection

ANATOMIE

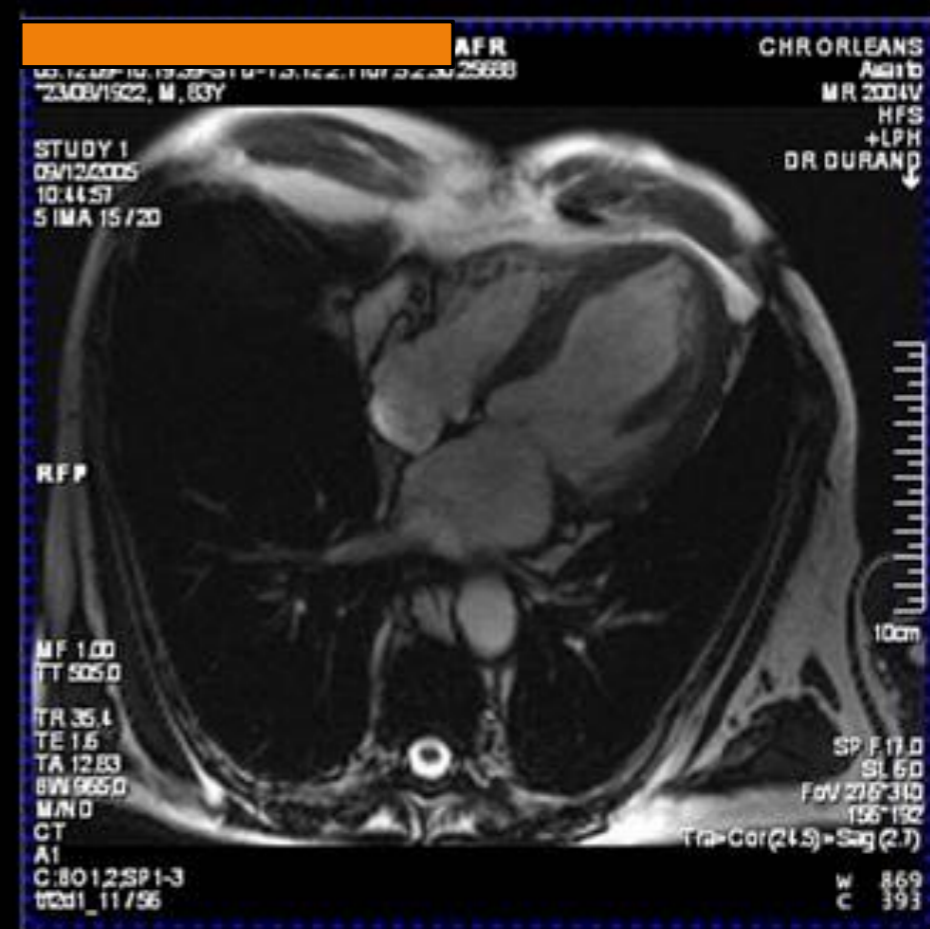
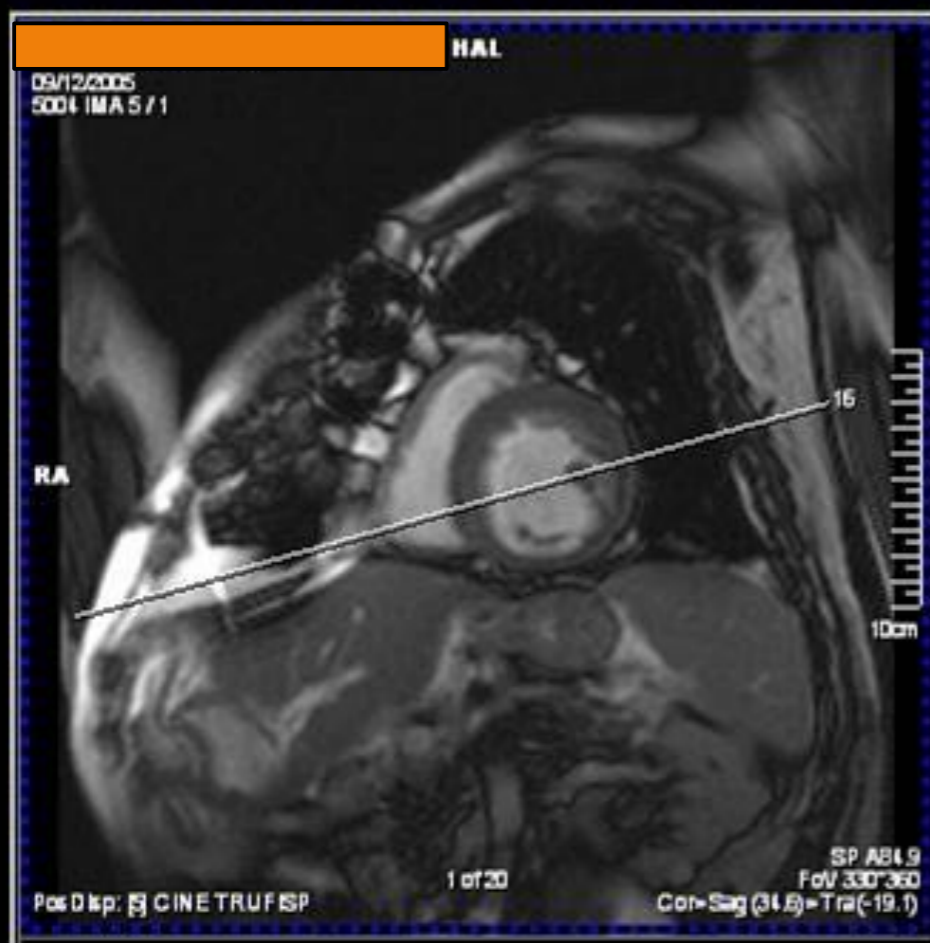
Petit axe ventriculaire



Coupe Petit Axe

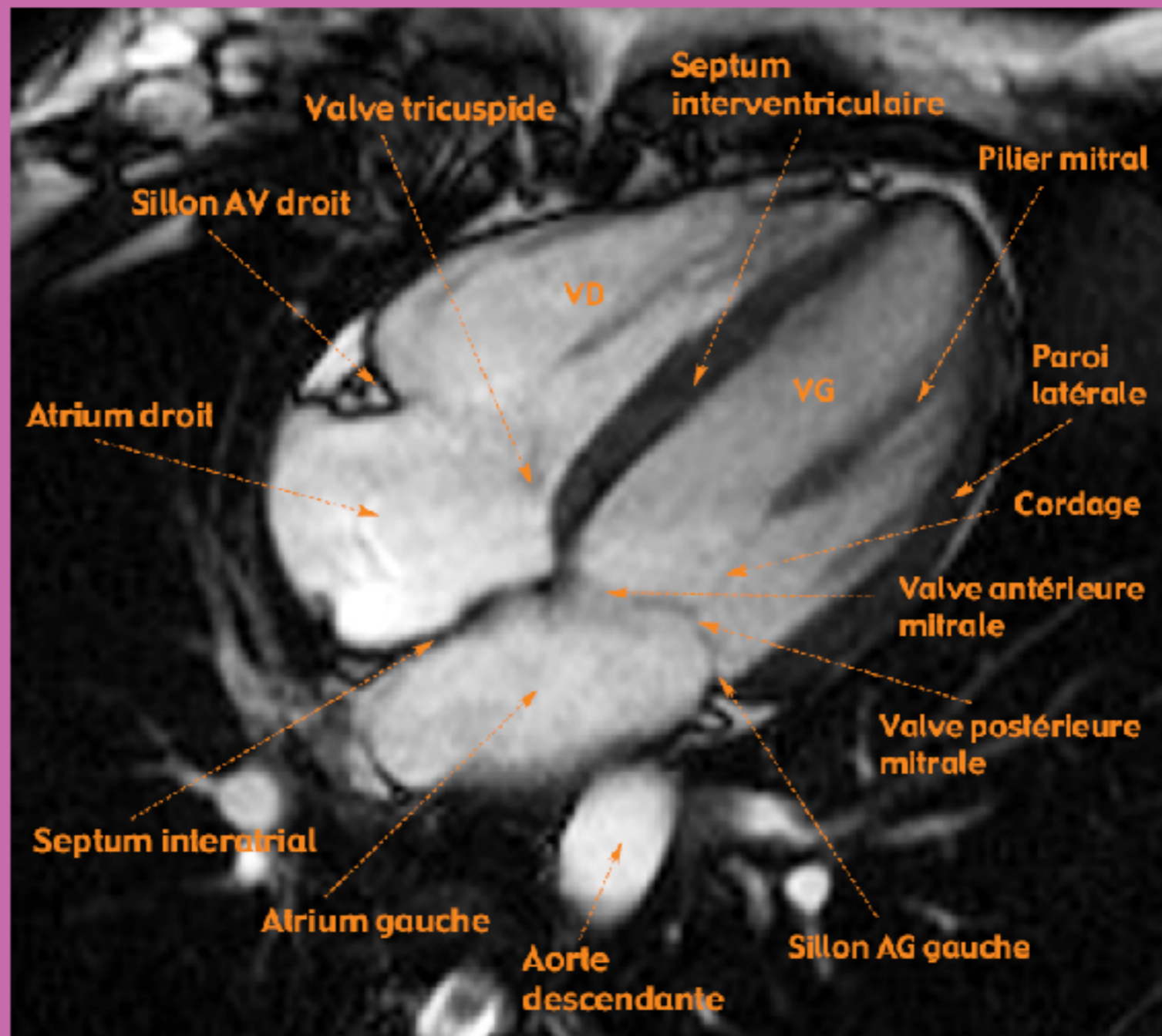


Petit axe → Grand axe 4 cavités Strict

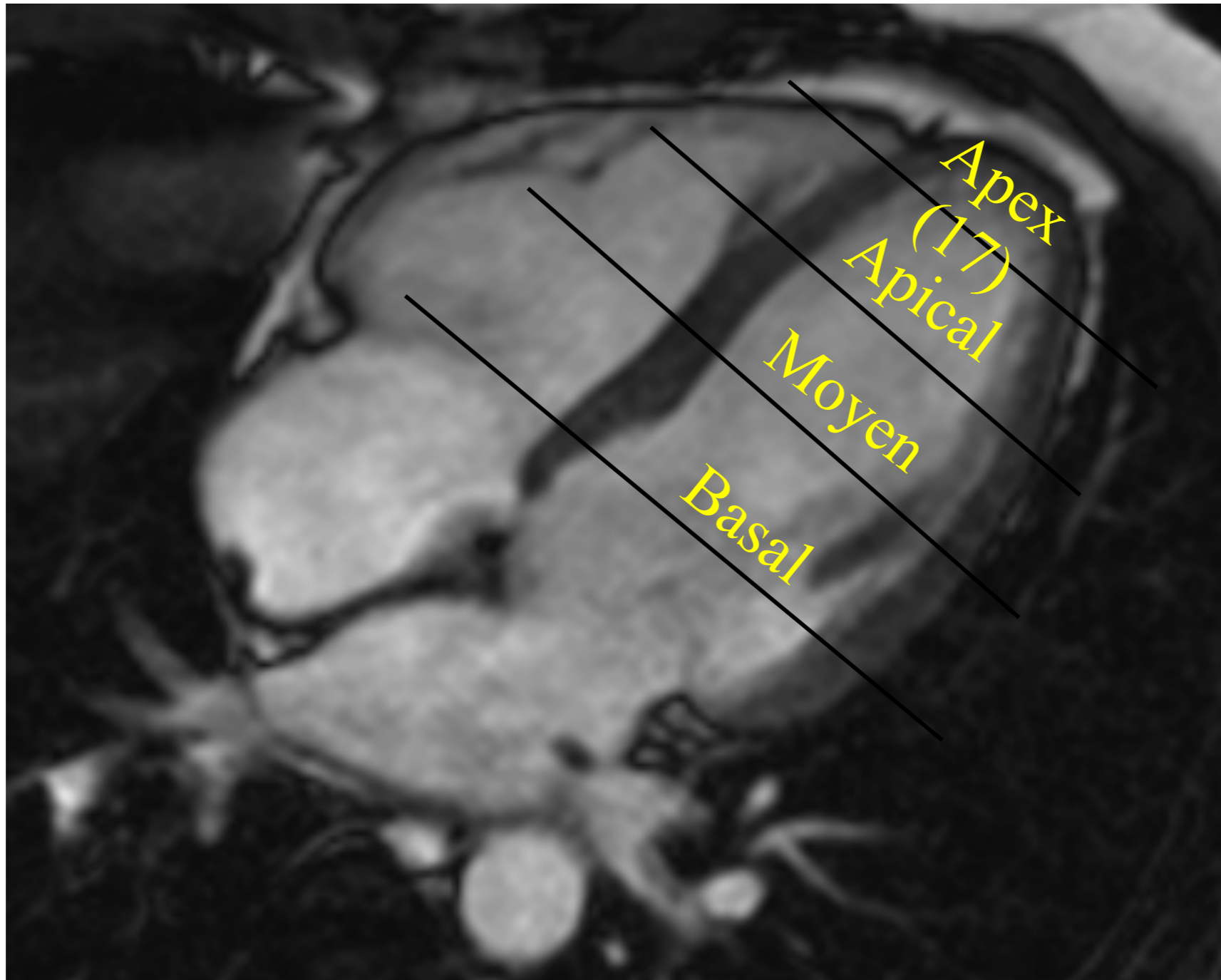


ANATOMIE

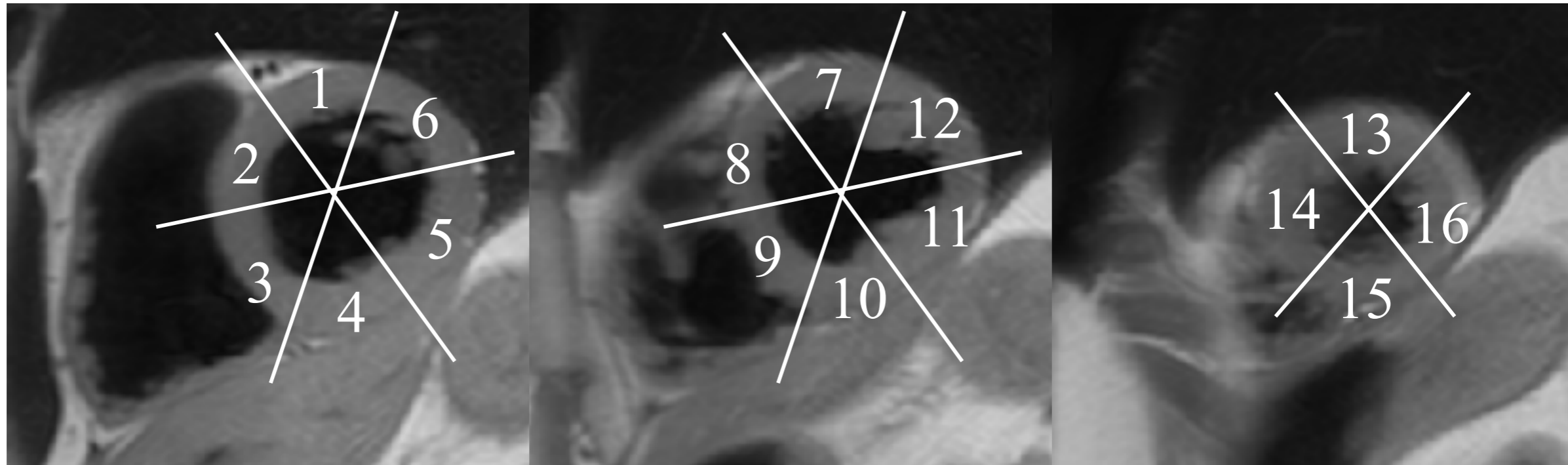
Long axe 4 cavités



Segmentation du Ventricule gauche



Segmentation du Ventricule gauche



1,7 anterieur

2,8 anteroseptal

3,9 inferoseptal

4,10 inferieur

5,11 inferolateral

6,12 anterolateral

13 anterieur

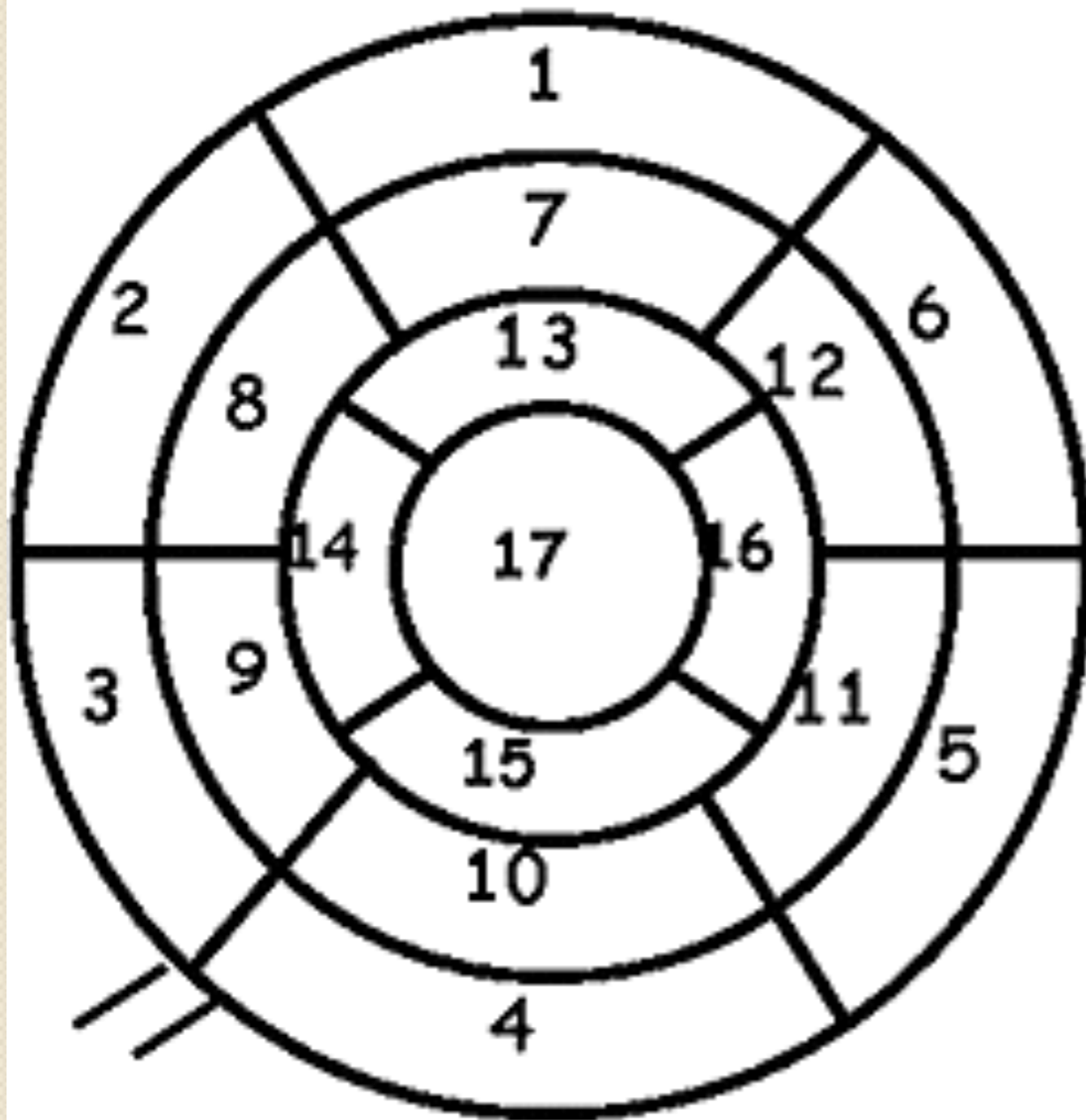
14 septal

15 inferieur

16 lateral

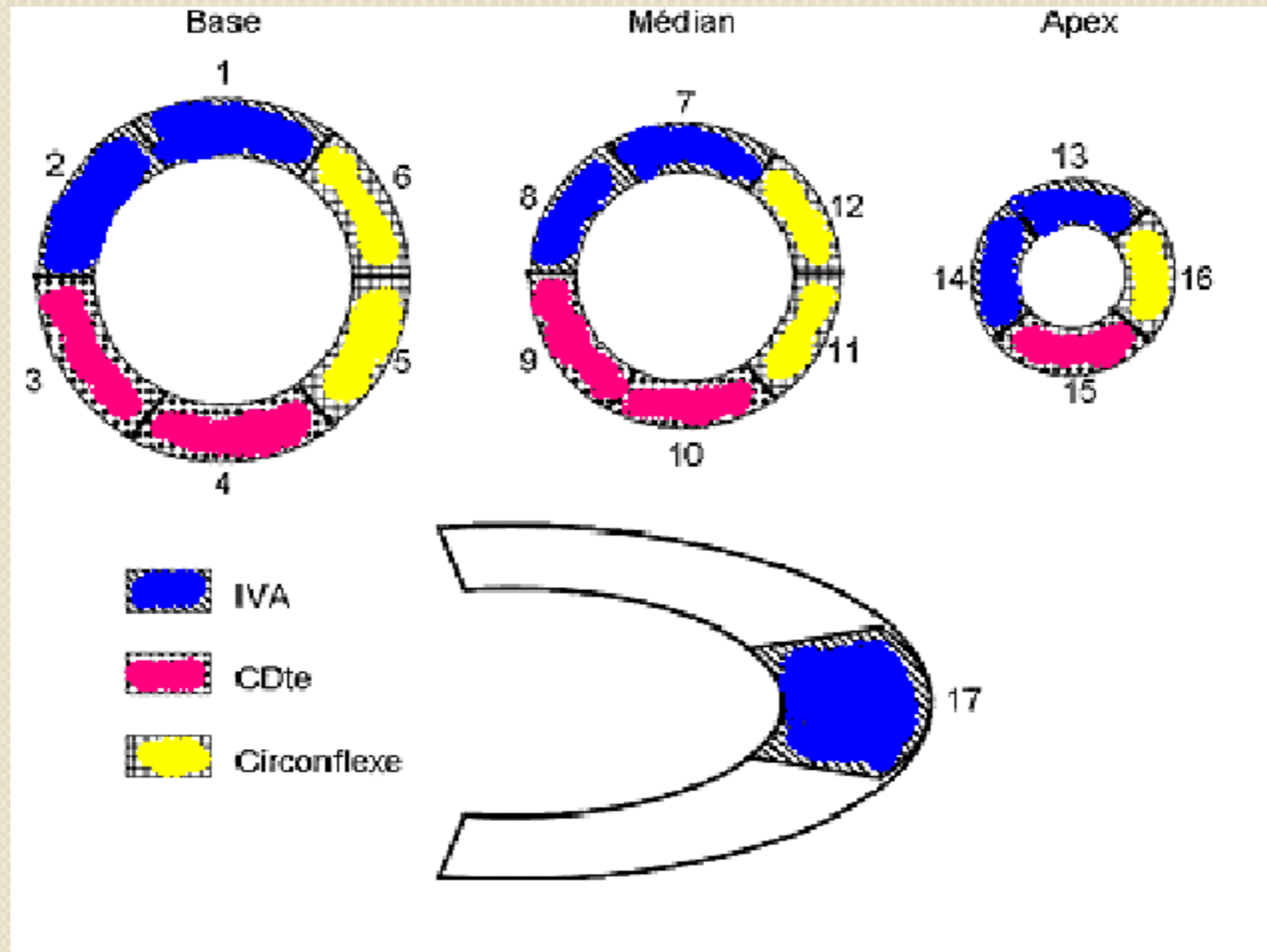
(17 apex)

SEGMENTATION DU CŒUR

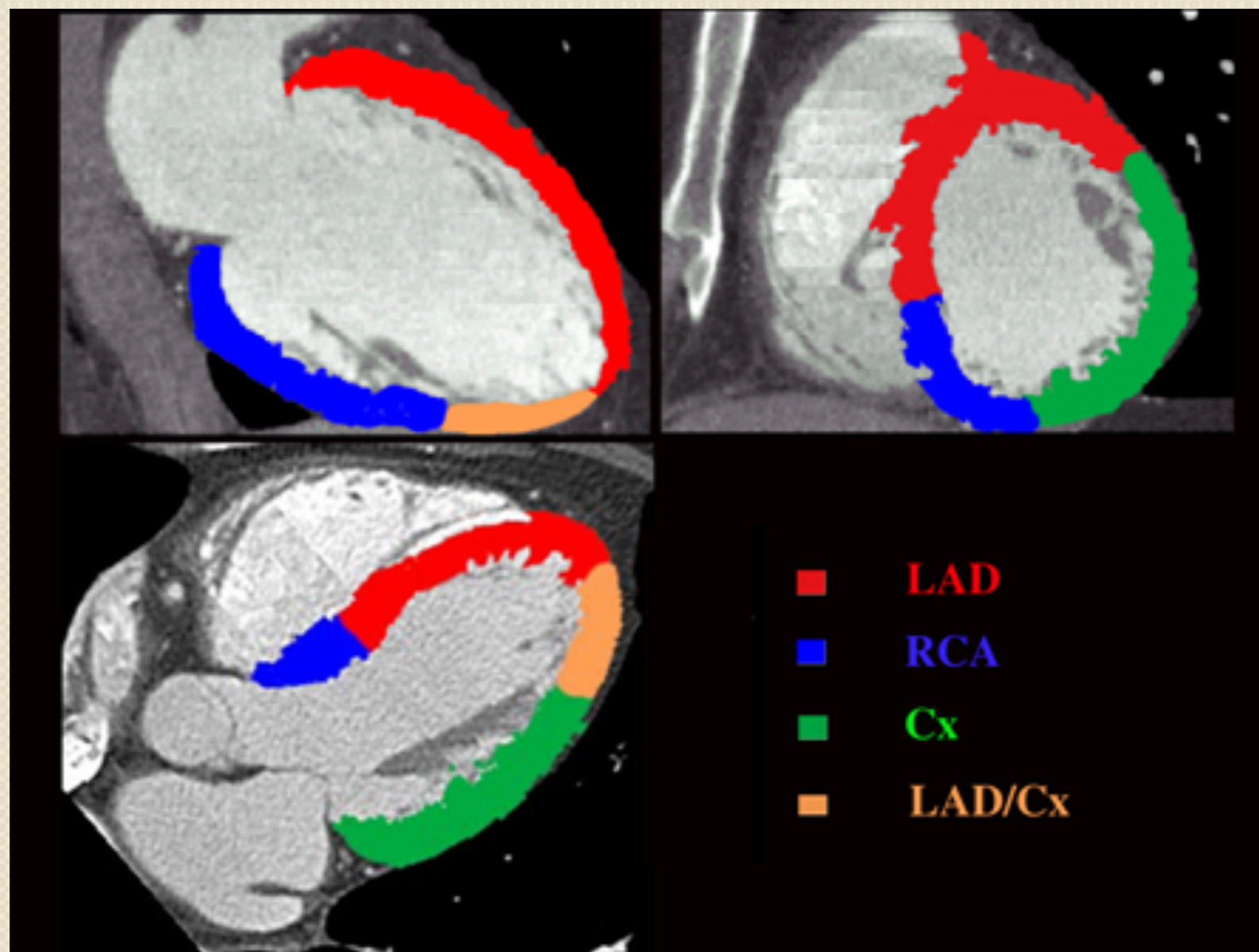


1. Antéro-basal
2. Antérosepto-basal
3. Inférosepto-basal
4. Inféro-basal
5. Inférolatéro-basal
6. Antérolatéro-basal
7. Antéro-médial
8. Antérosepto-médial
9. Inférosepto-médial
10. Inféro-médial
11. Inférolatéro-médial
12. Antérolatéro-médial
13. Antéro-apical
14. Septo-apical
15. Inféro-apical
16. Latéro-apical
17. Apex

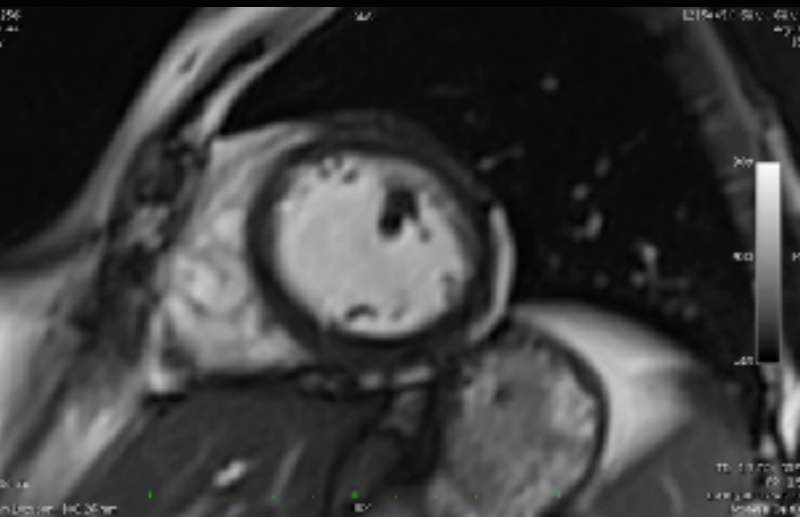
SEGMENTATION DU VENTRICULE GAUCHE



TERRITOIRES CORONAIRES



Analyse de la cinétique segmentaire



Bu IsEye Plugin

Export...

Presets

Name: Wall Motion

Add Delete

Selected Preset

Name: Wall Motion

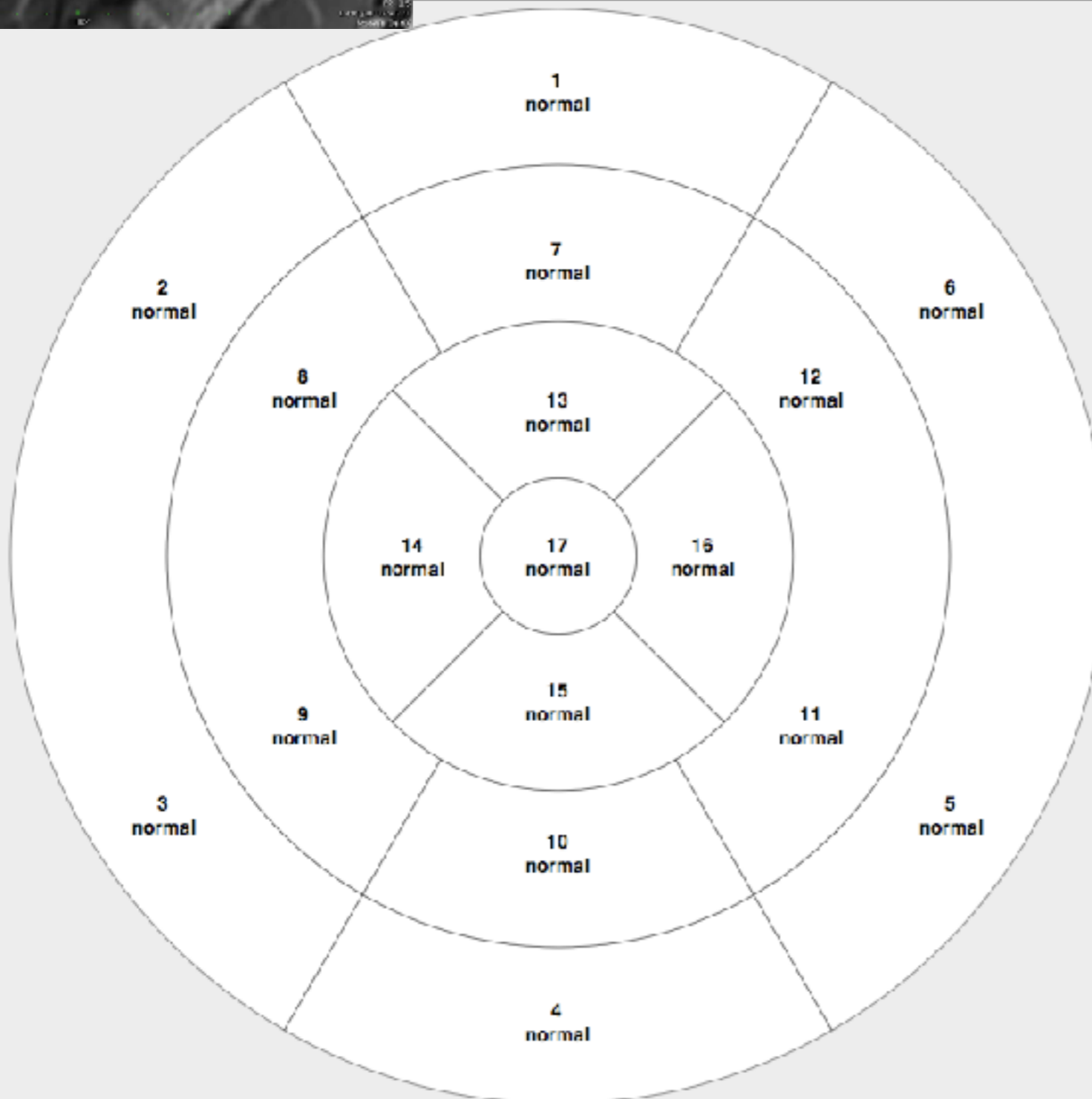
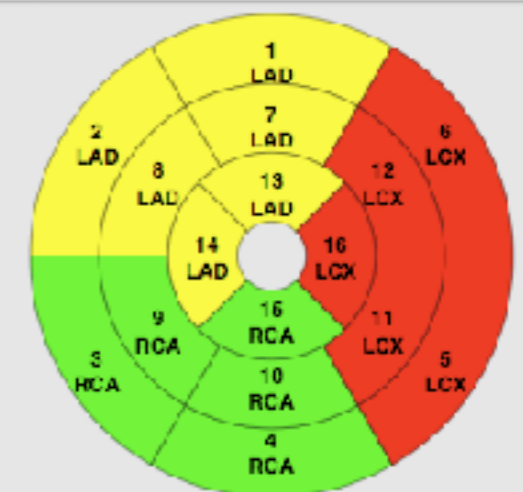
State	Color	Score
normal		0
hypokinesia		1
akinesia		2
dyskinesia		3

Add Delete

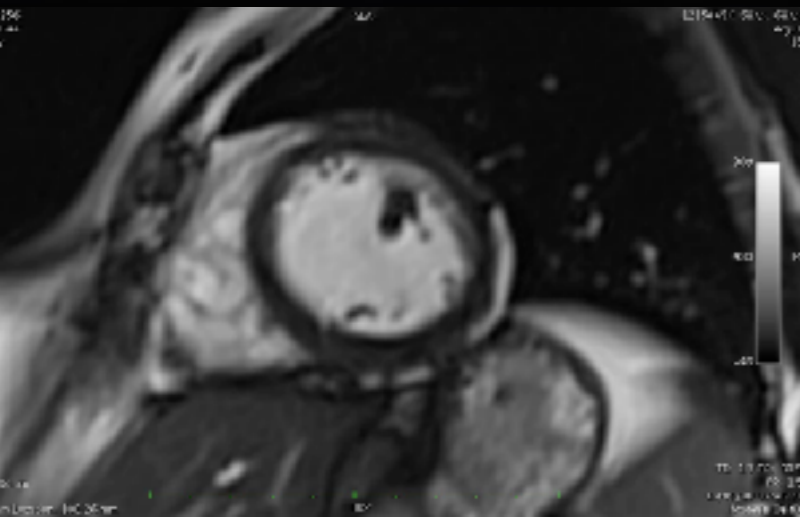
Decorations

- Segments Number
- Segments State Text
- Segment 17
- Segments Score
- Score Sum

Coronary Arterial Distribution

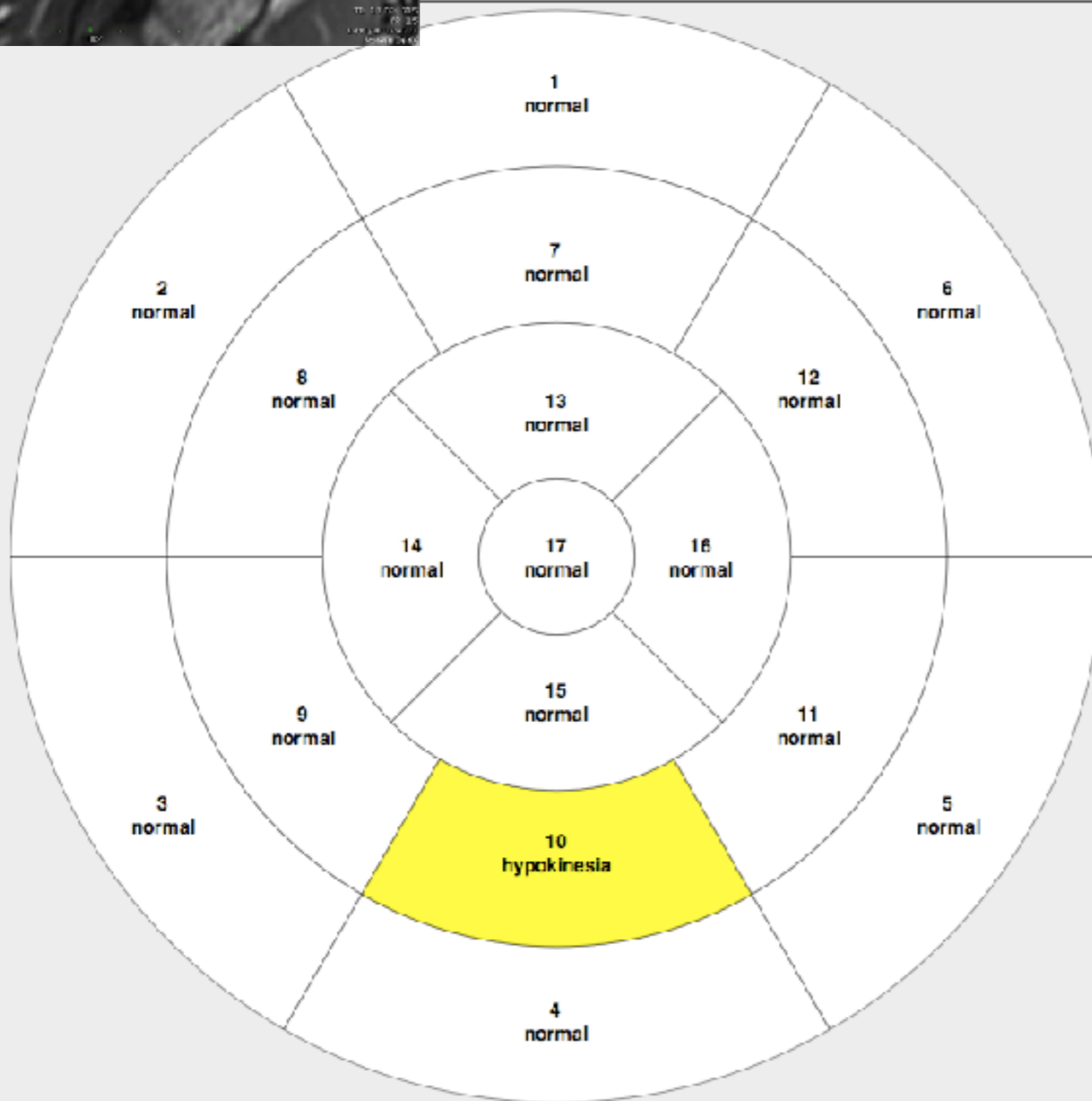


Analyse de la cinétique segmentaire



BullsEye Plugin

Export...



Presets

Name: Well Motion

Add Delete

Selected Preset

Name: Well Motion

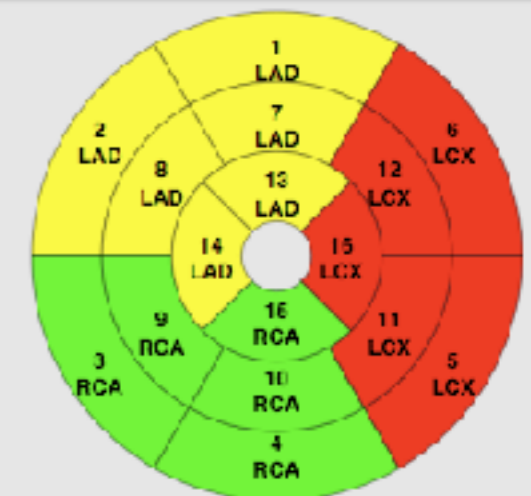
State	Color	Score
normal		0
hypokinesia		1
akinesia		2
dyskinesia		3

Add Delete

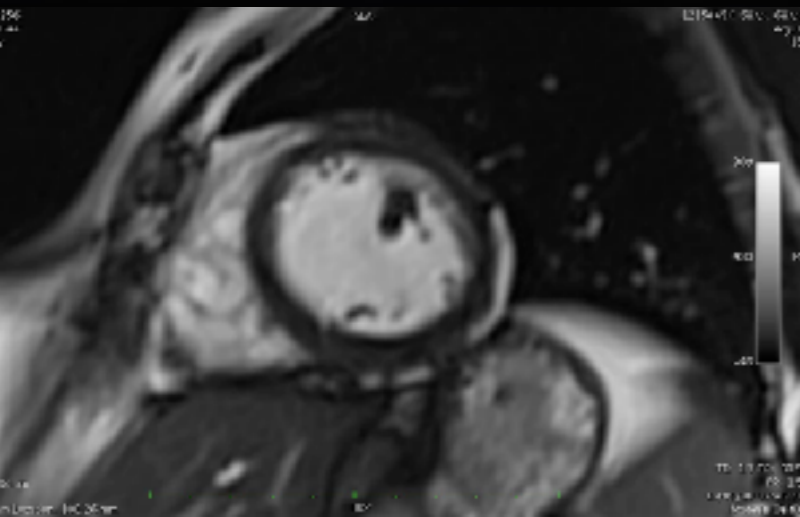
Decorations

- Segments Number
- Segments State Text
- Segment 17
- Segments Score
- Score Sum

Coronary Arterial Distribution

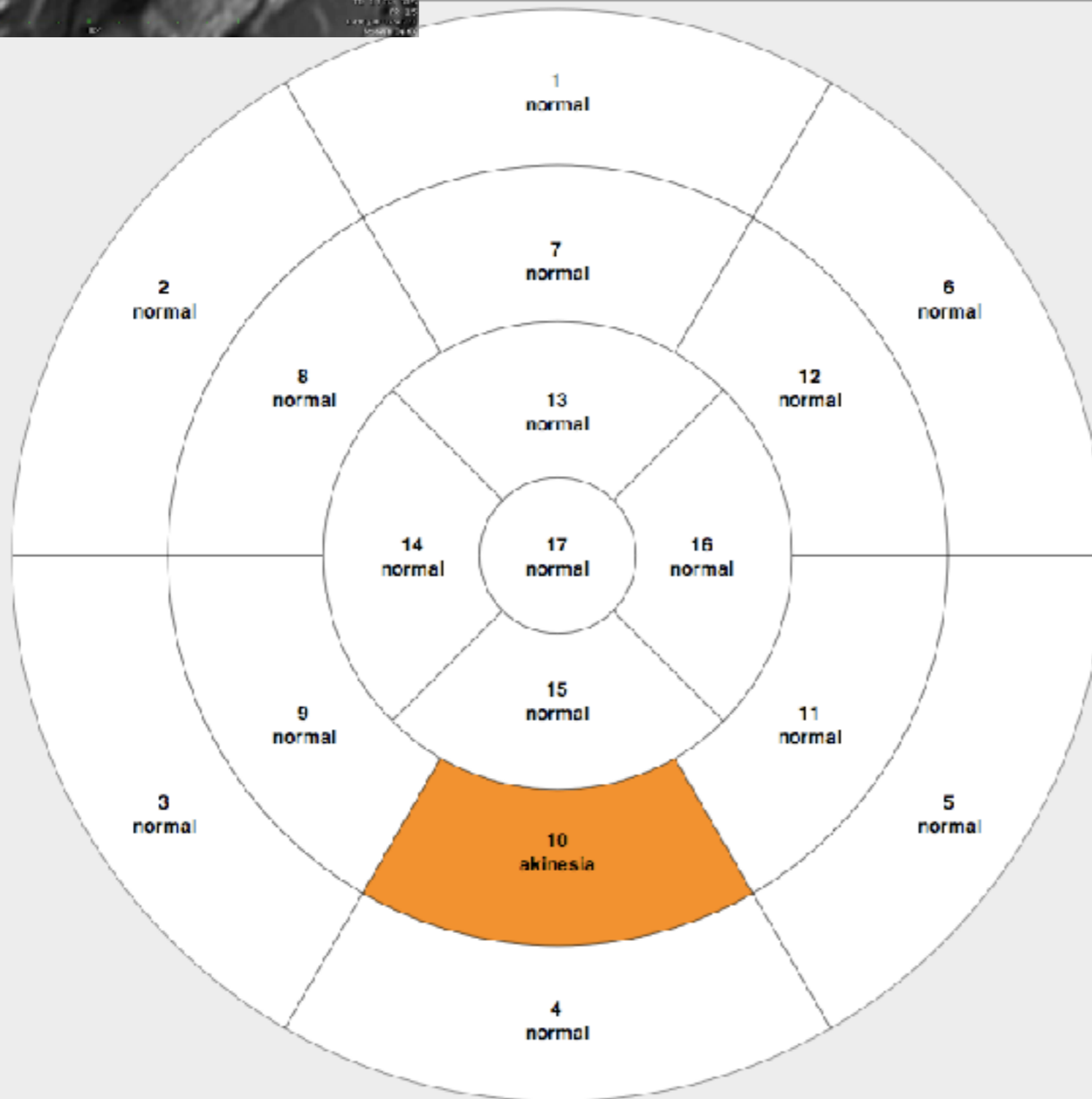


Analyse de la cinétique segmentaire



Bullseye Plugin

Export...



Presets

Name: Wall Motion

Add Delete

Selected Preset

Name: Wall Motion

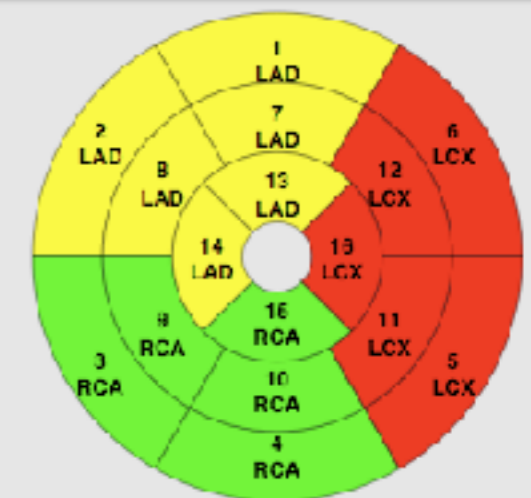
State	Color	Score
normal	White	0
hypokinesia	Yellow	1
akinesia	Orange	2
dyskinesia	Red	3

Add Delete

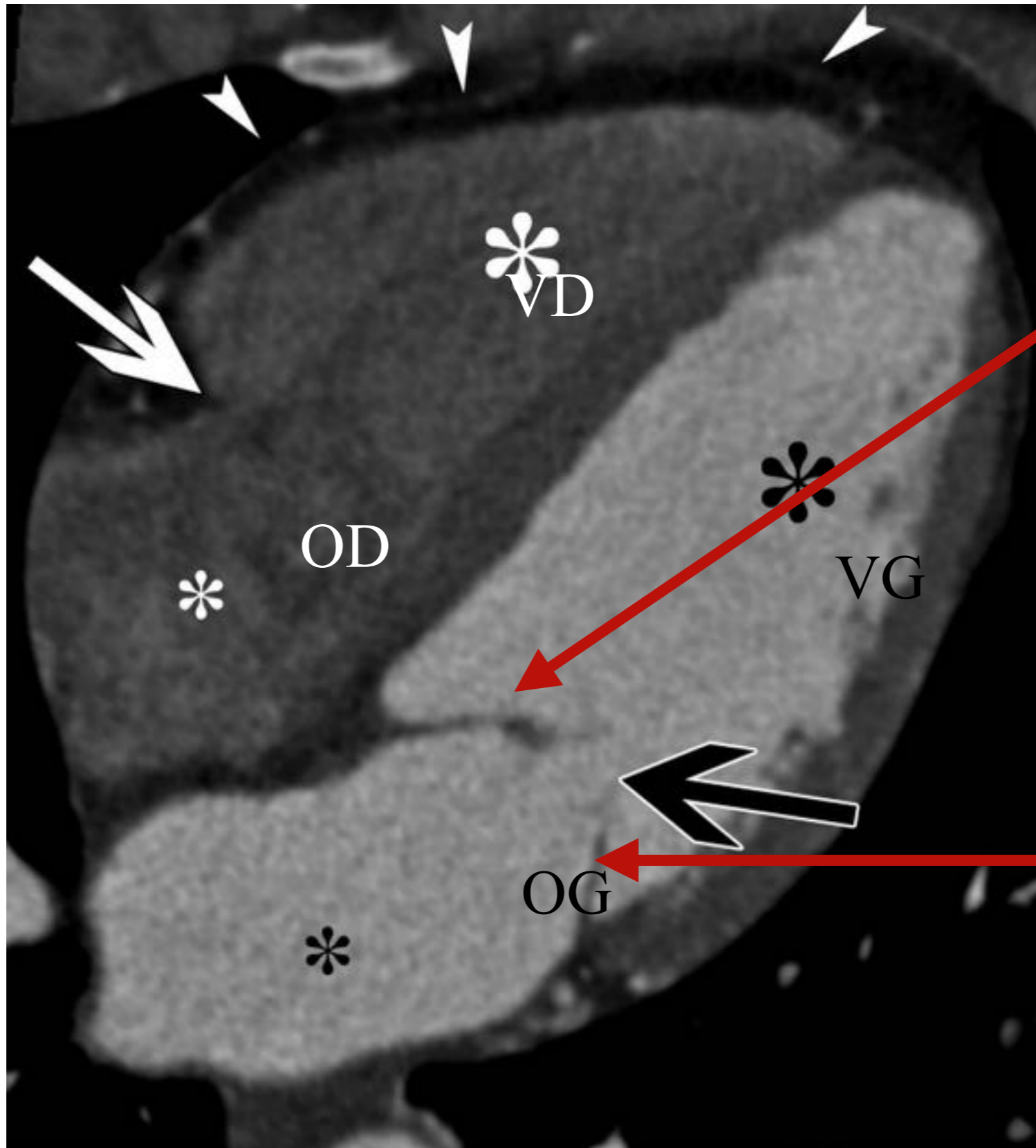
Decorations

- Segments Number
- Segments State Text
- Segment: 17
- Segments score
- Score Sum

Coronary Arterial Distribution



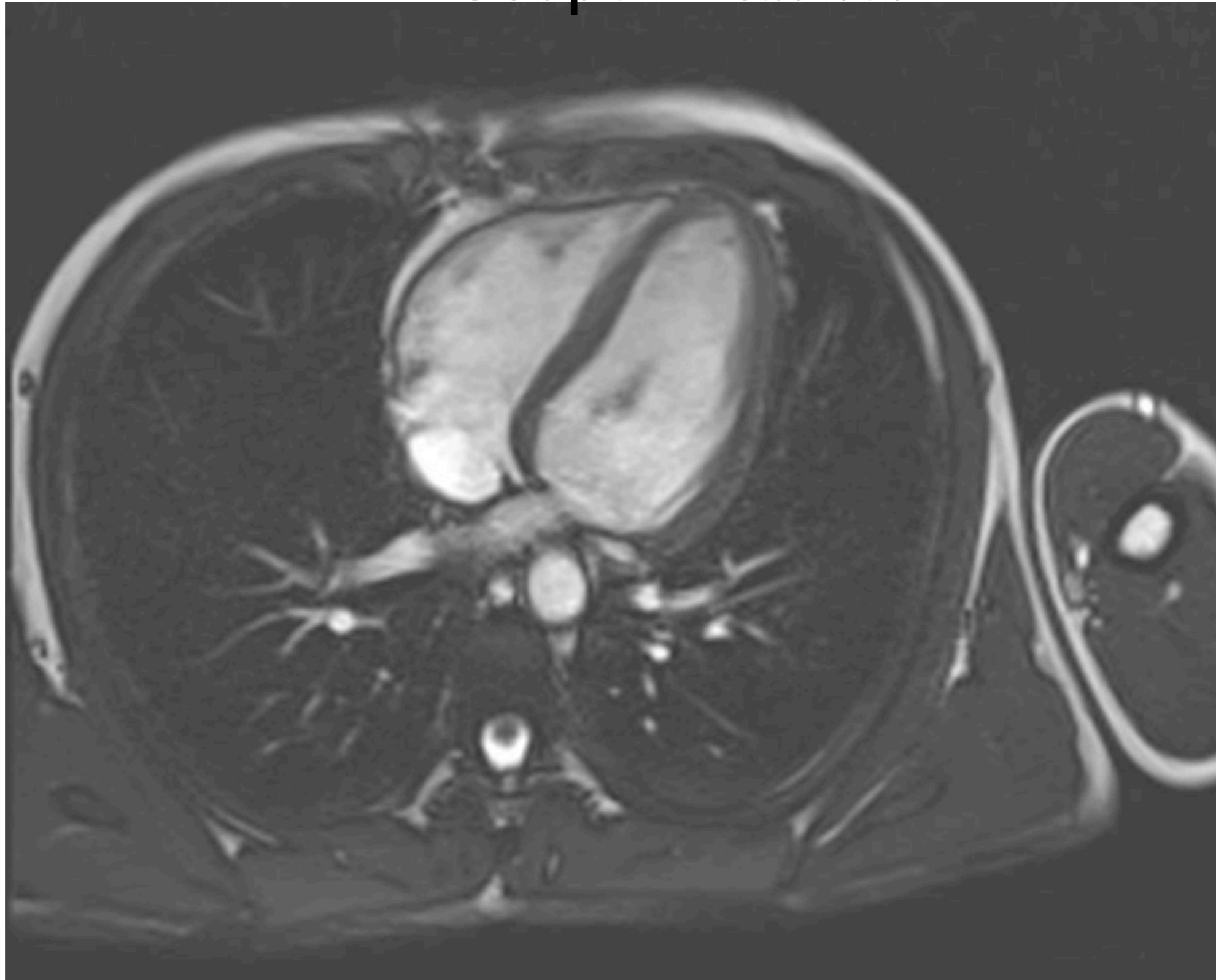
Péricarde



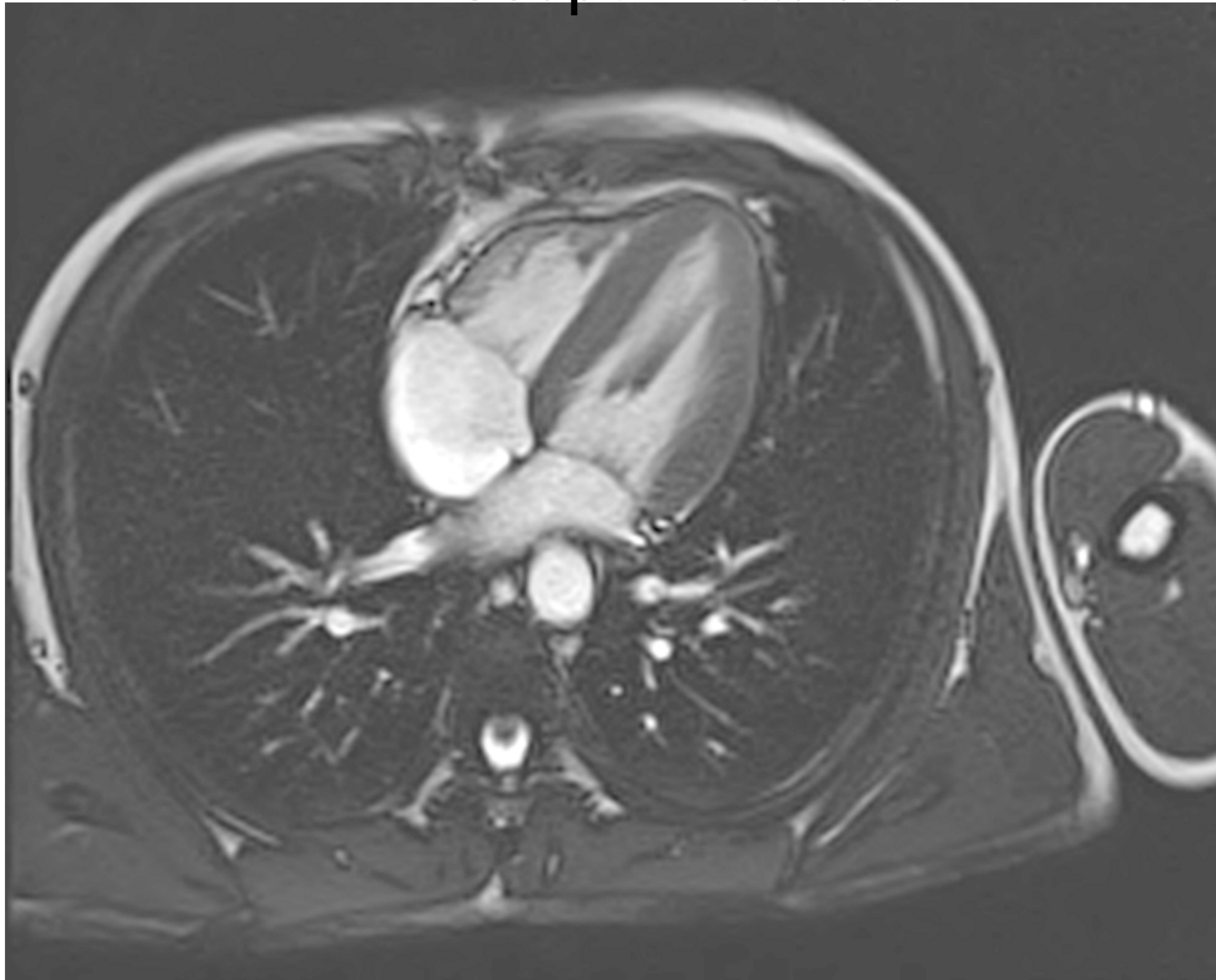
Feuillelet antérieur de la valve mitrale

Feuillelet postérieur de la valve mitrale

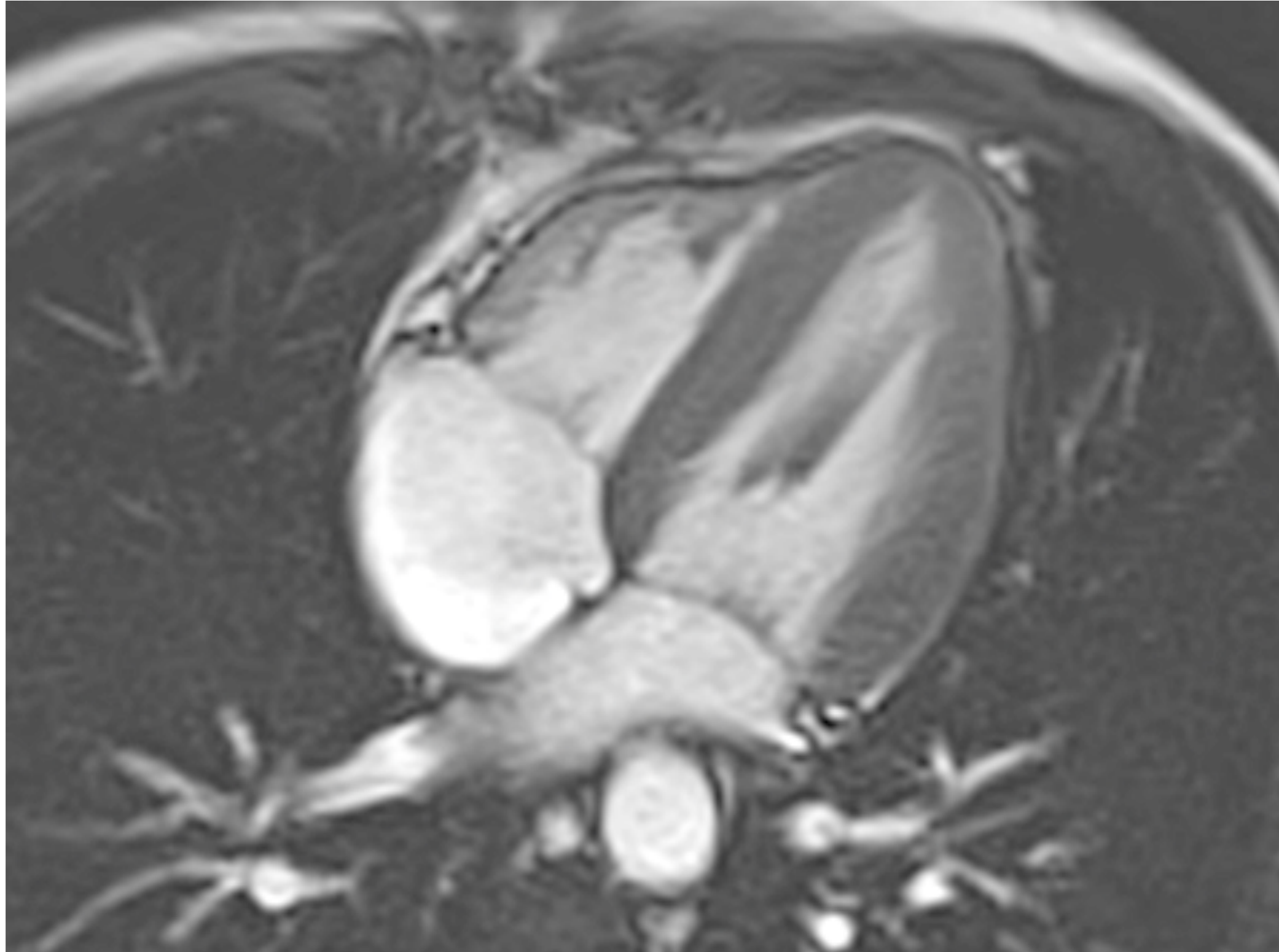
IRM Coupe 4 cavités



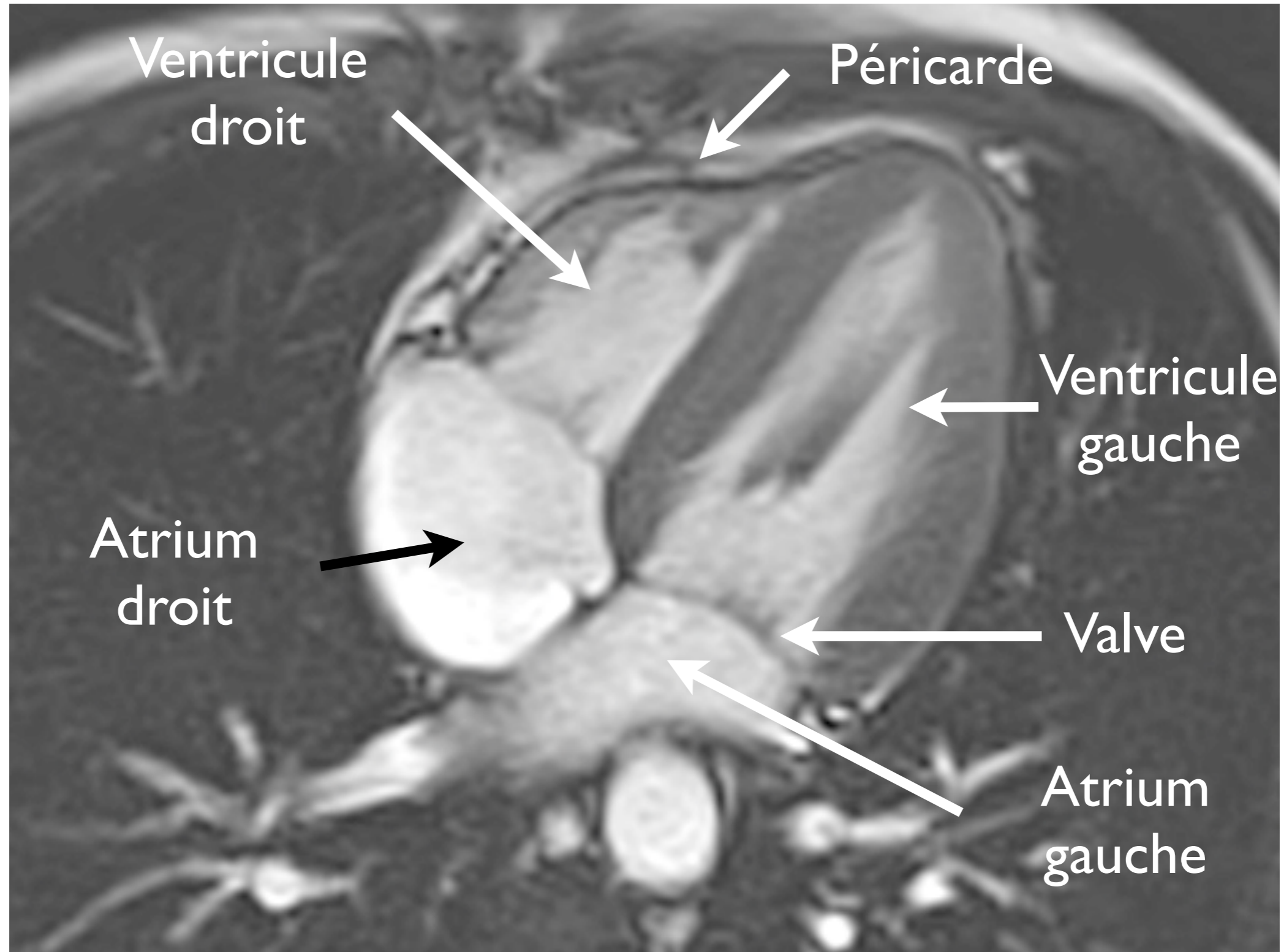
IRM Coupe 4 cavités



IRM Coupe 4 cavités

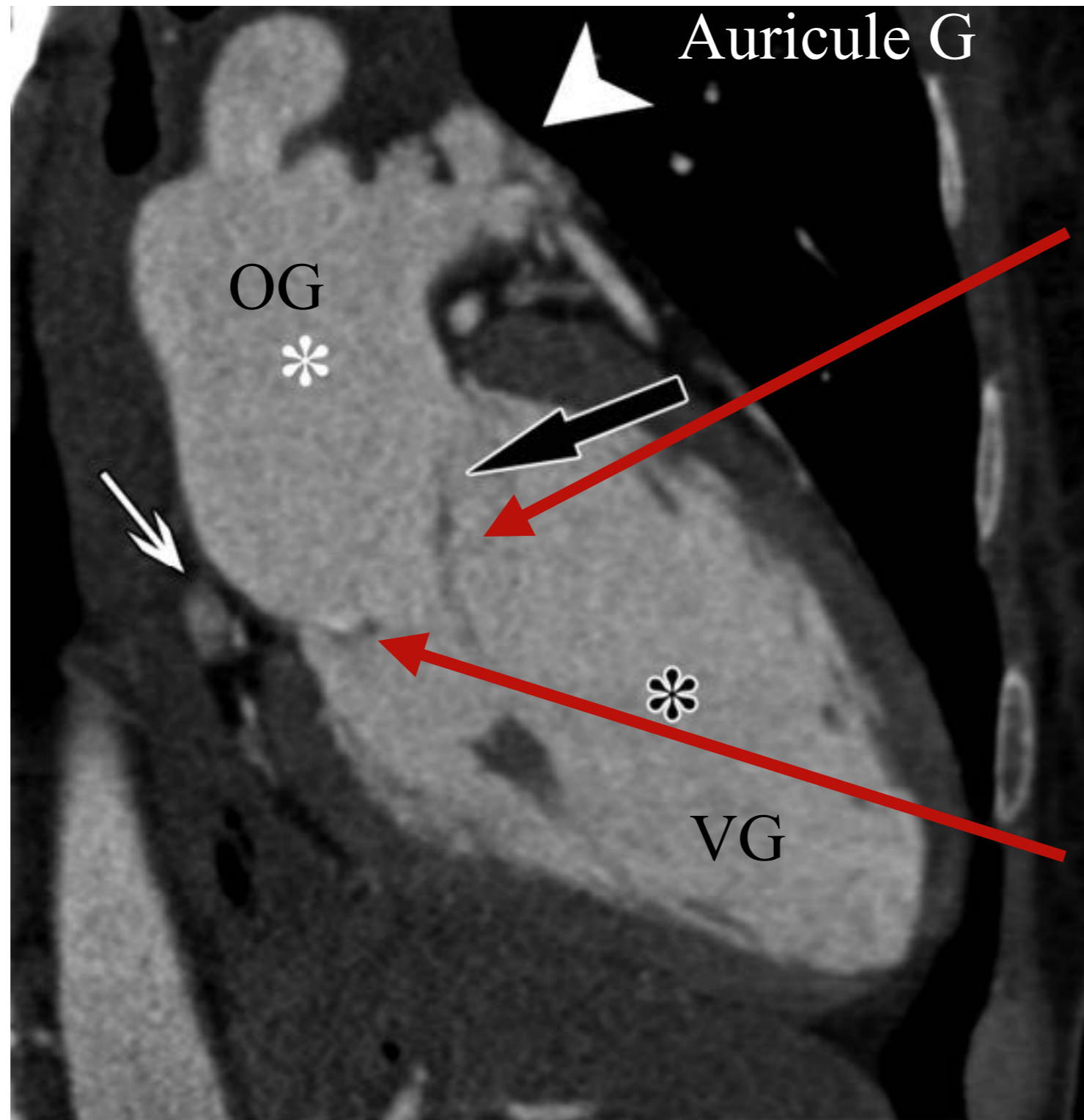


IRM Coupe 4 cavités



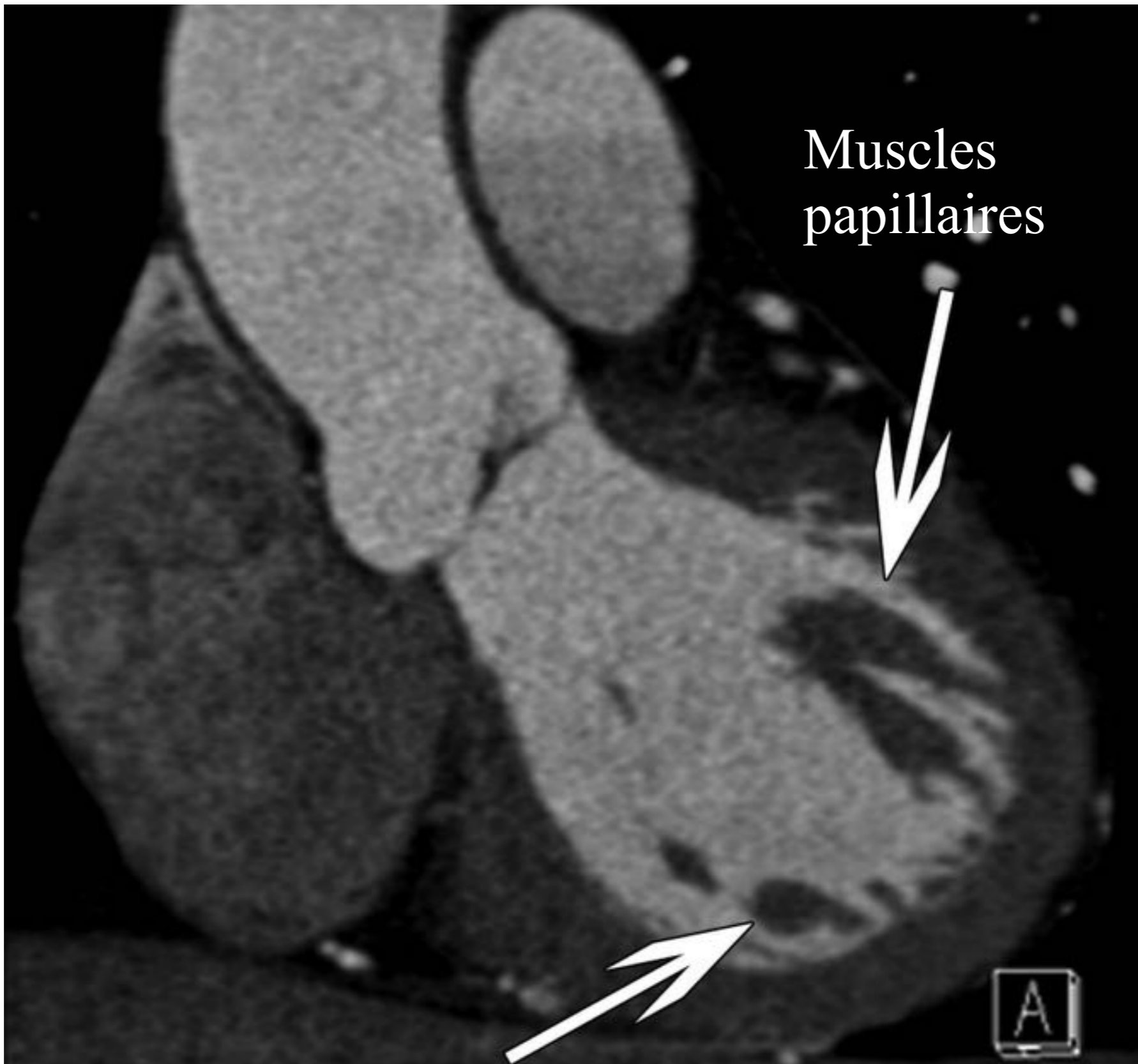
Dt

Coupe long axe du Ventricule G

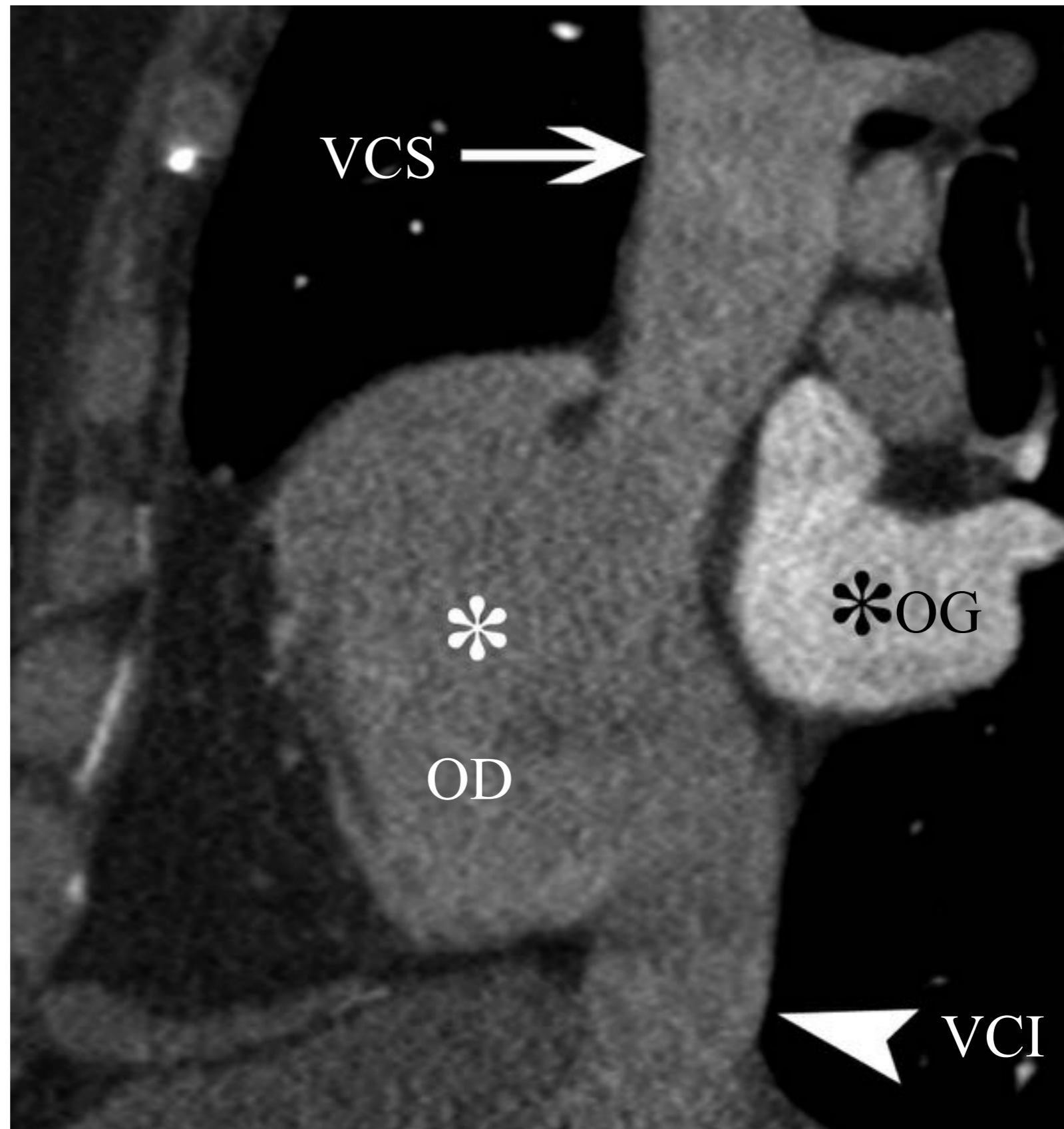


Feuillet
antérieur de la
valve mitrale

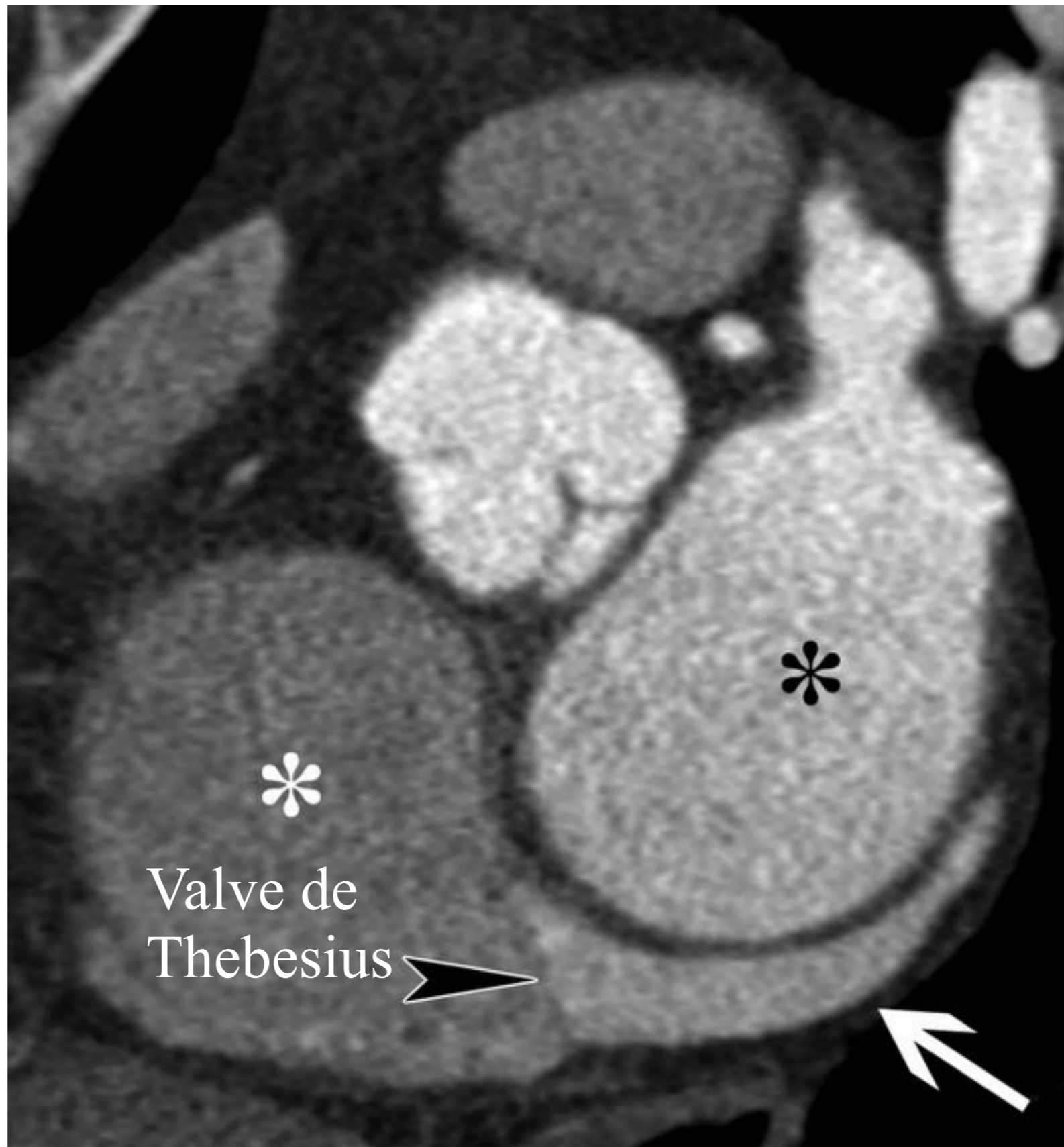
Feuillet
postérieur de
la valve mitrale



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582



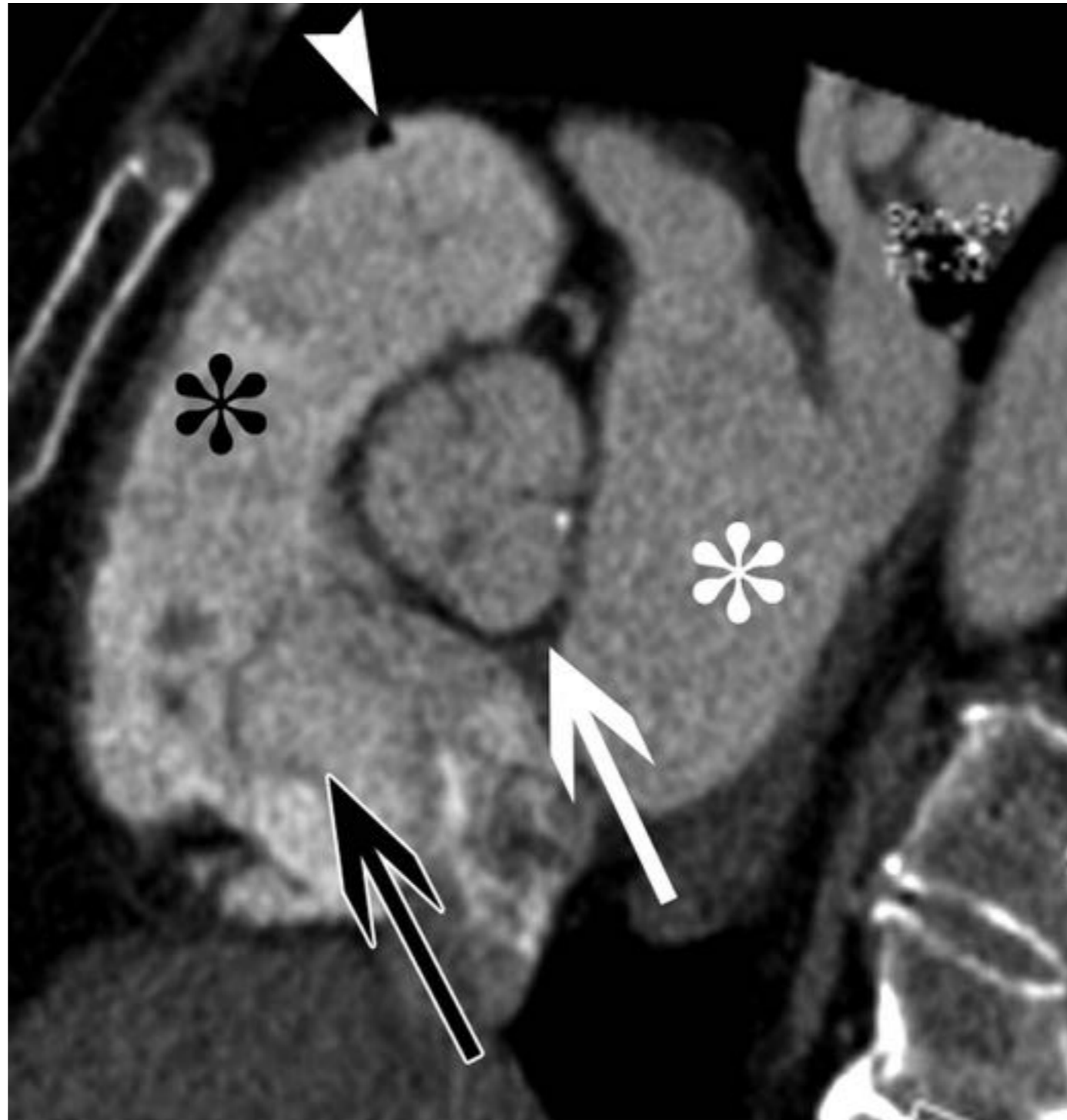
O'Brien, J. P. et al. Radiographics 2007;27:1569-1582



Valve de
Thebesius

Sinus
coronaire

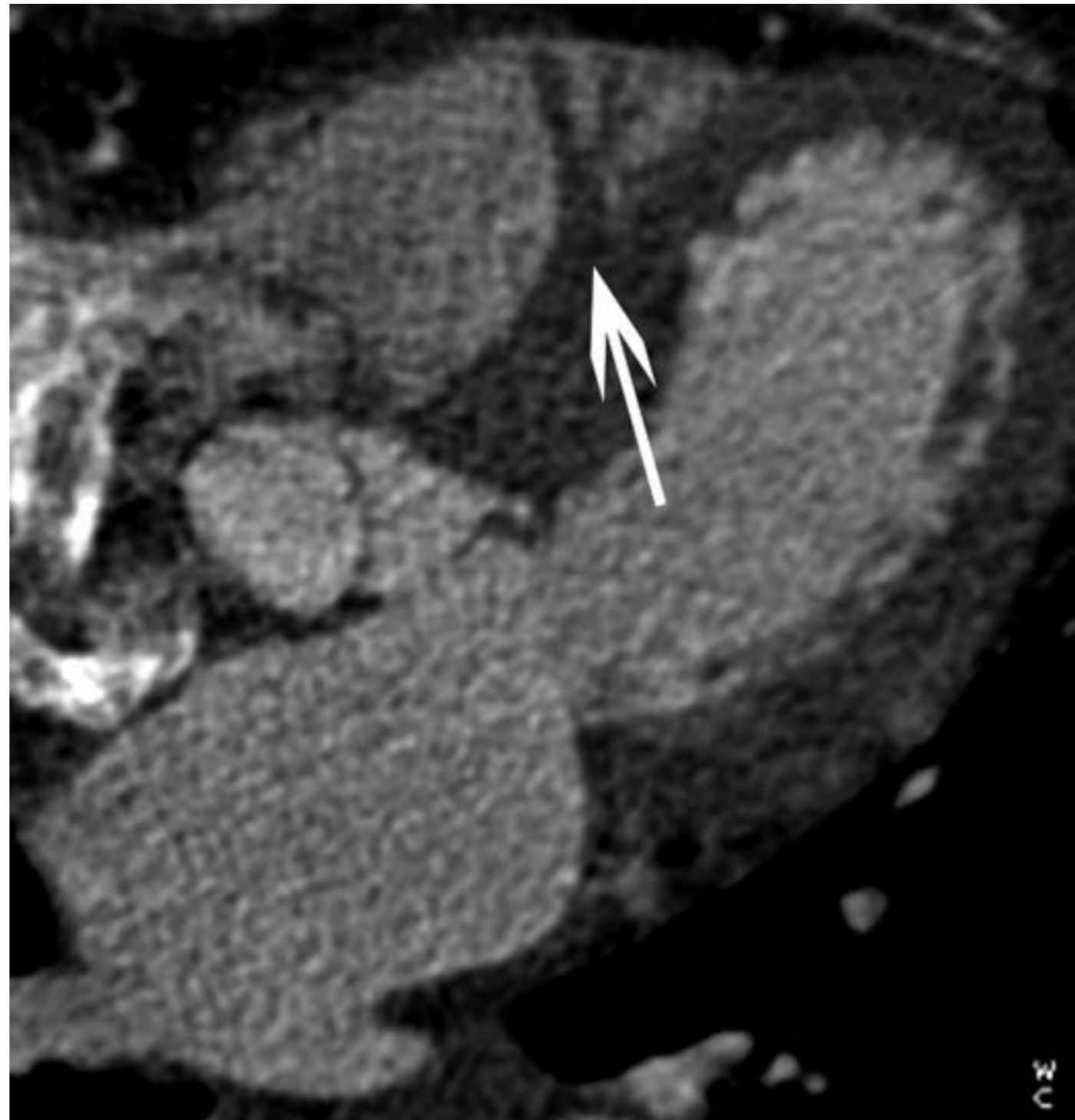
Valve Pulmonaire



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

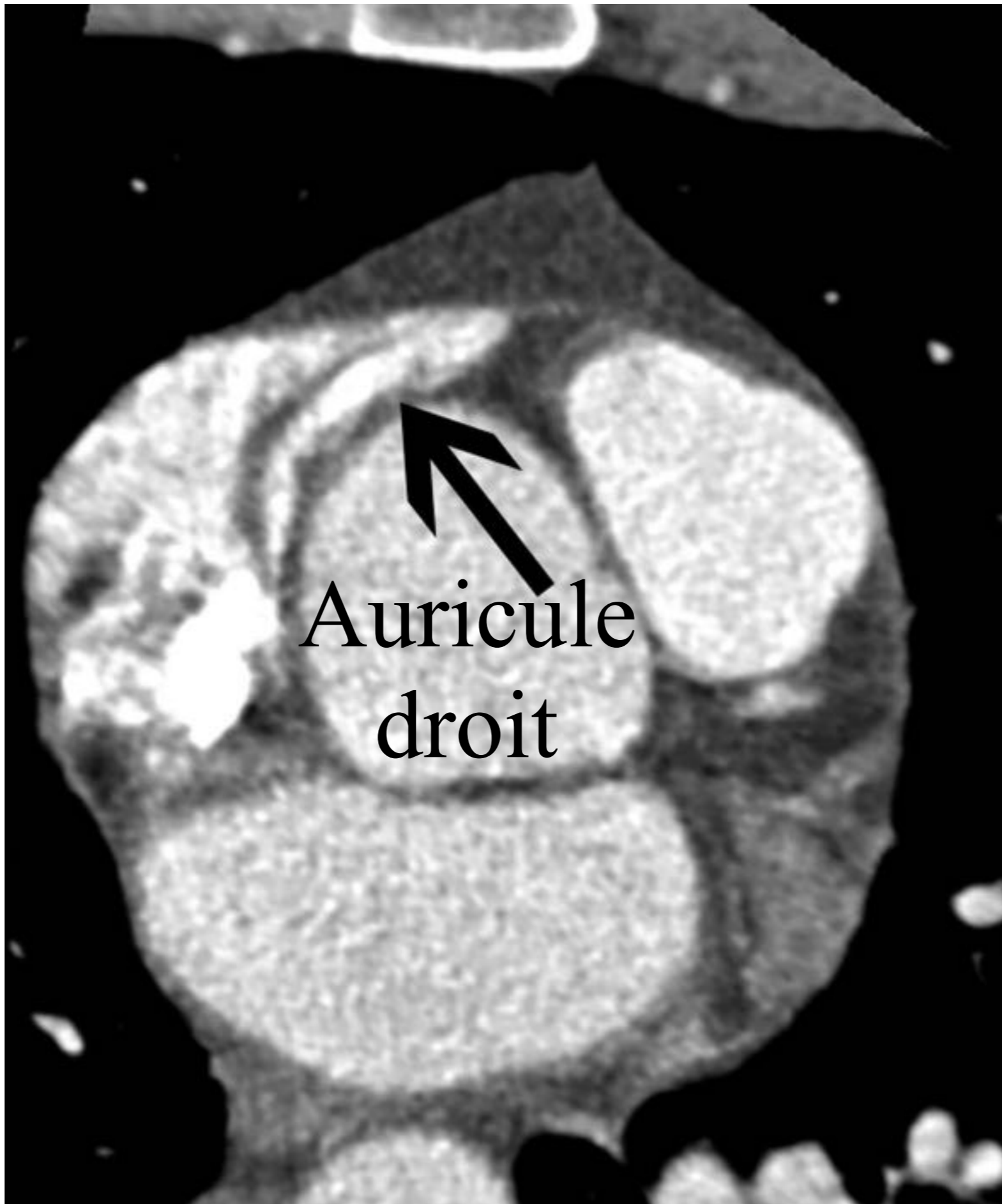
Radiographics

Bandelette modératrice



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

Radiographics

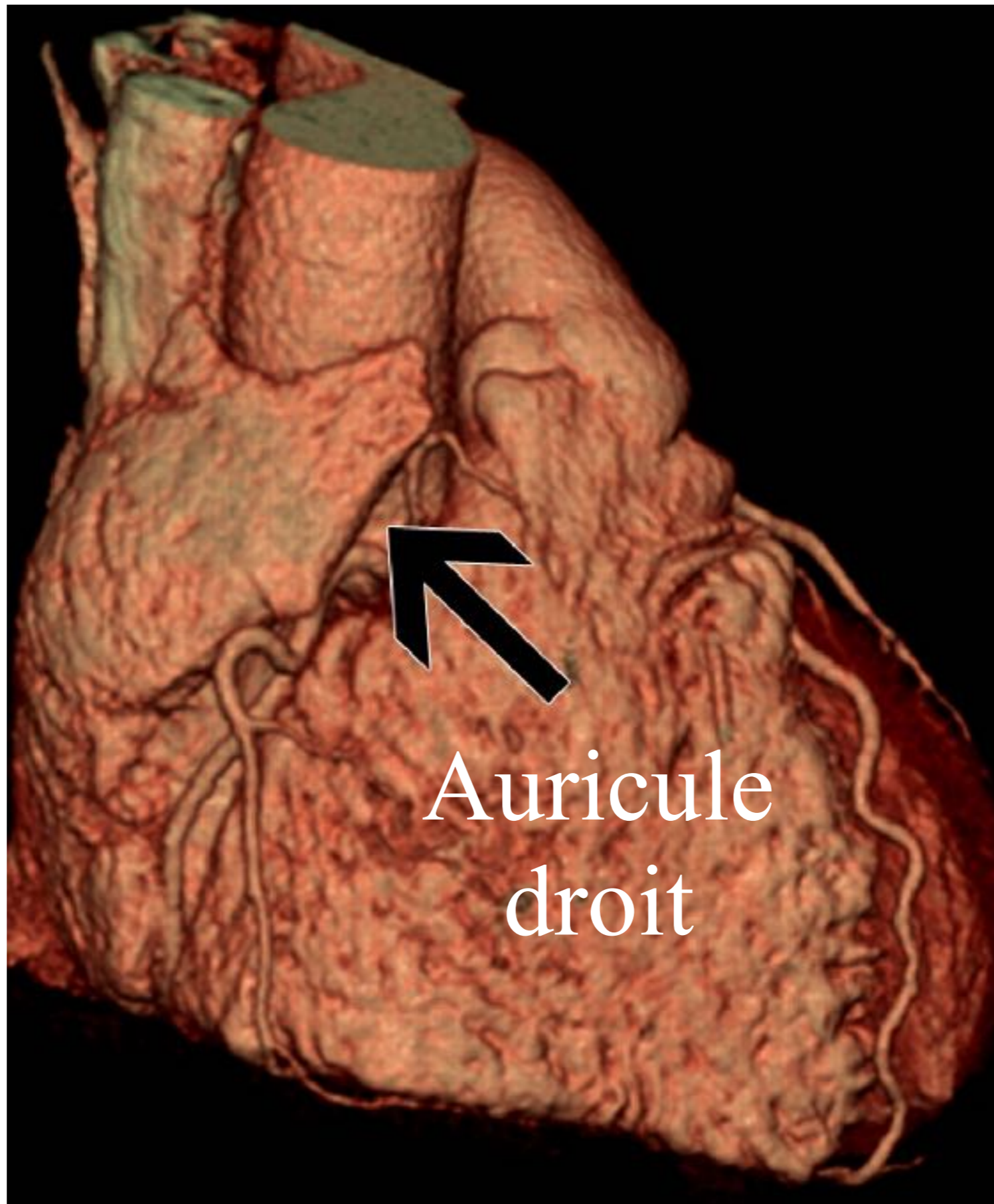


Auricule
droit

Radiographics

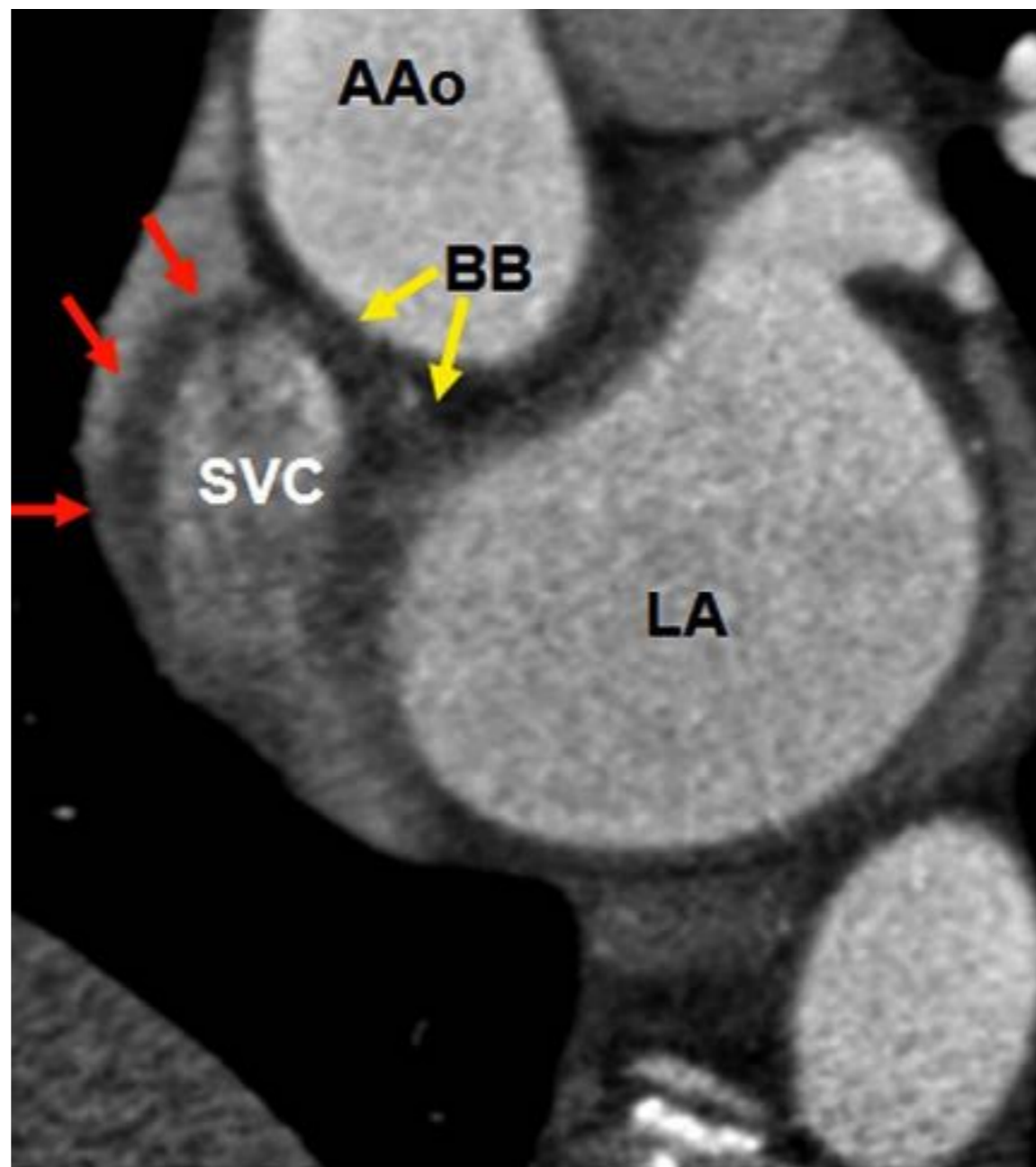
O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

Copyright ©Radiological Society of North America, 2007



Auricule
droit

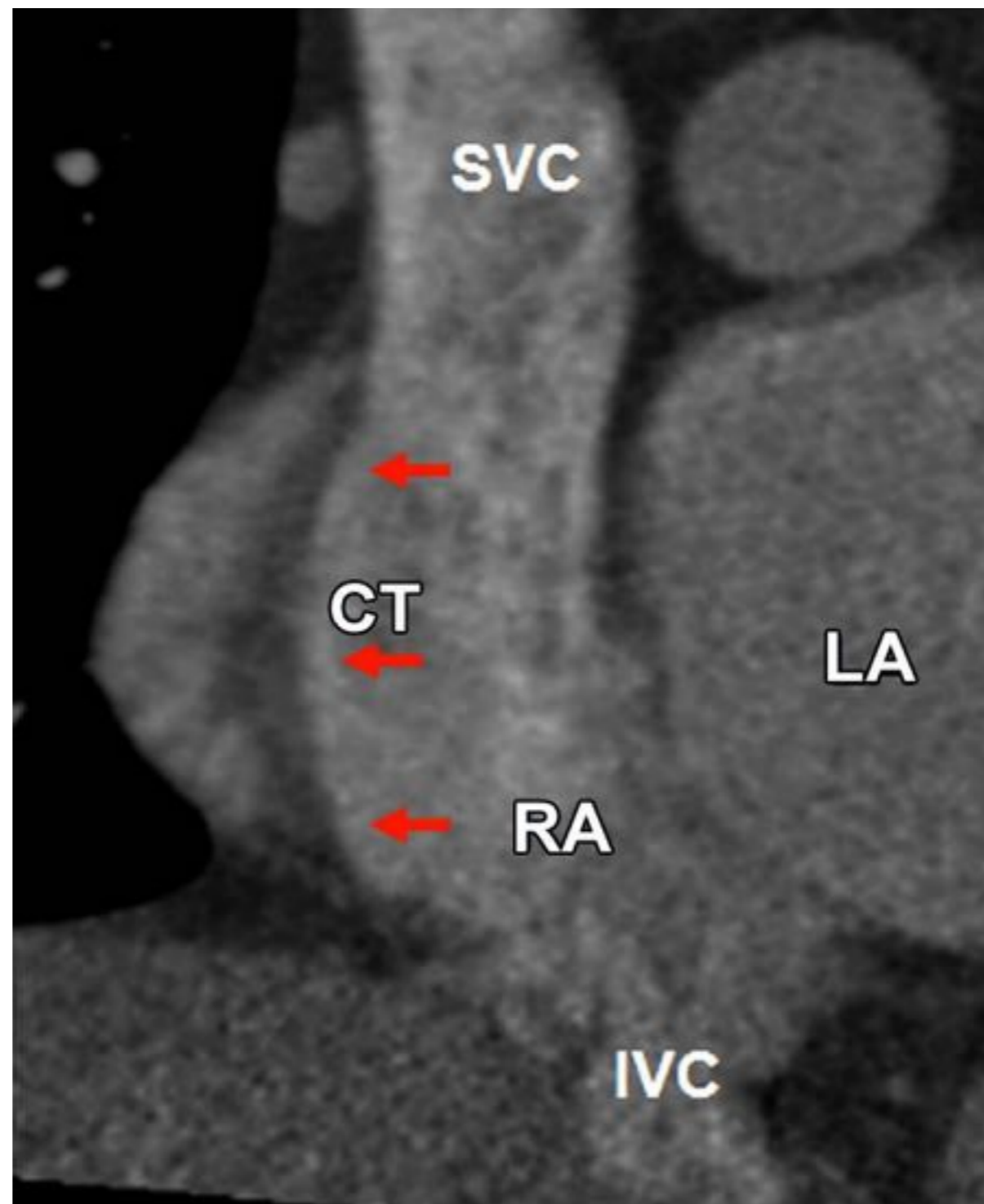
Crista terminalis



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

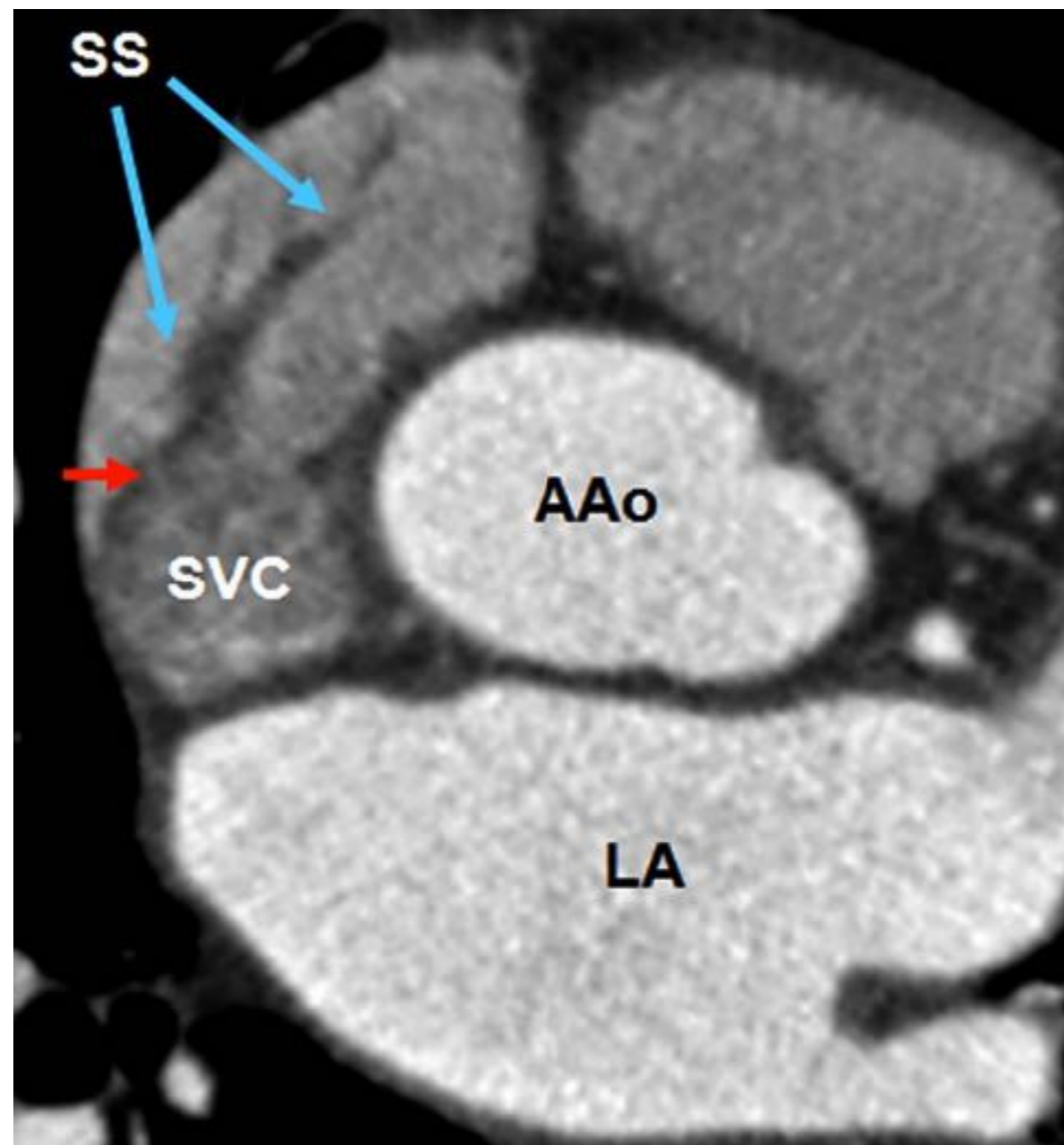
Crista terminalis



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

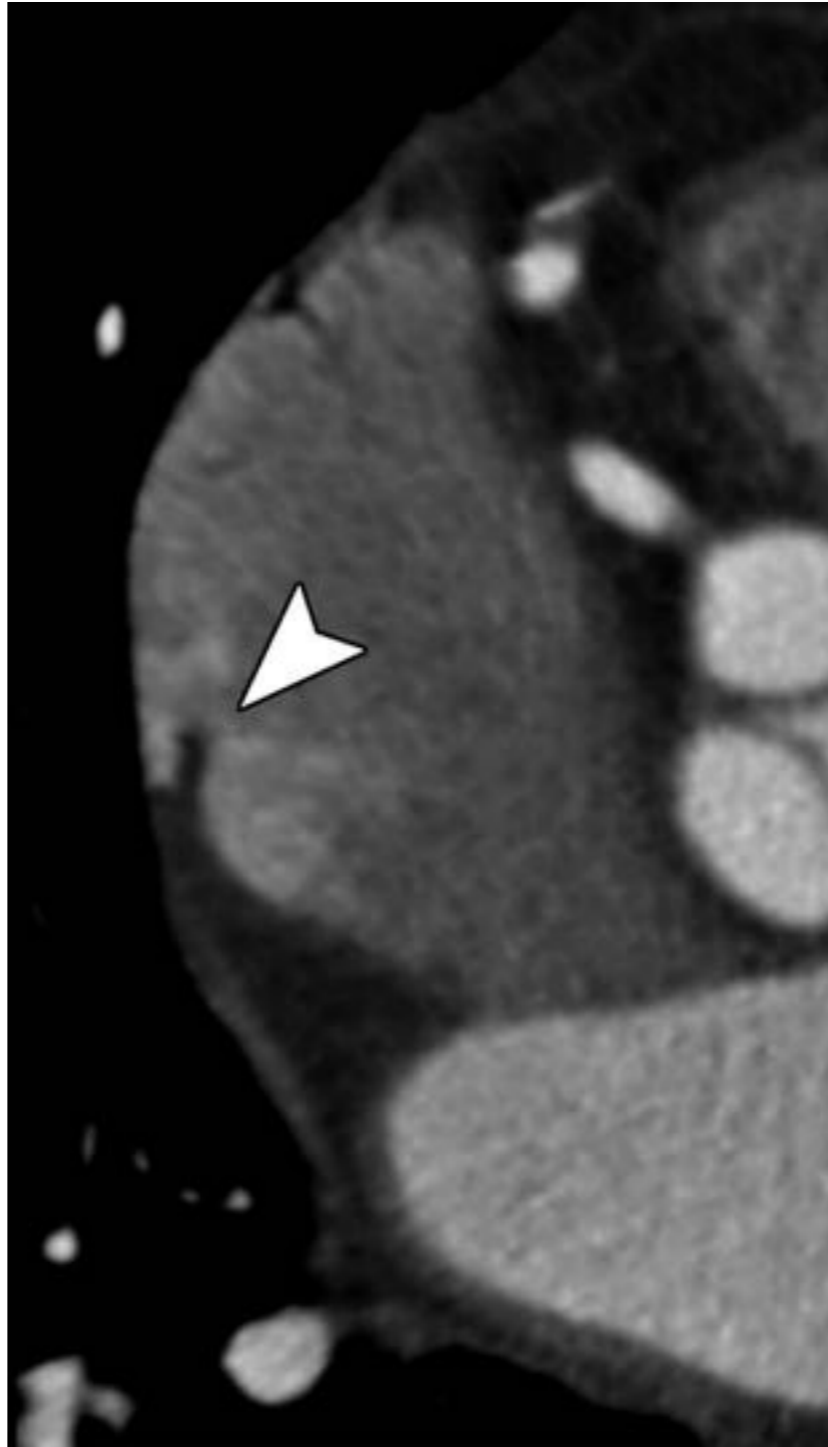
Crista terminalis



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

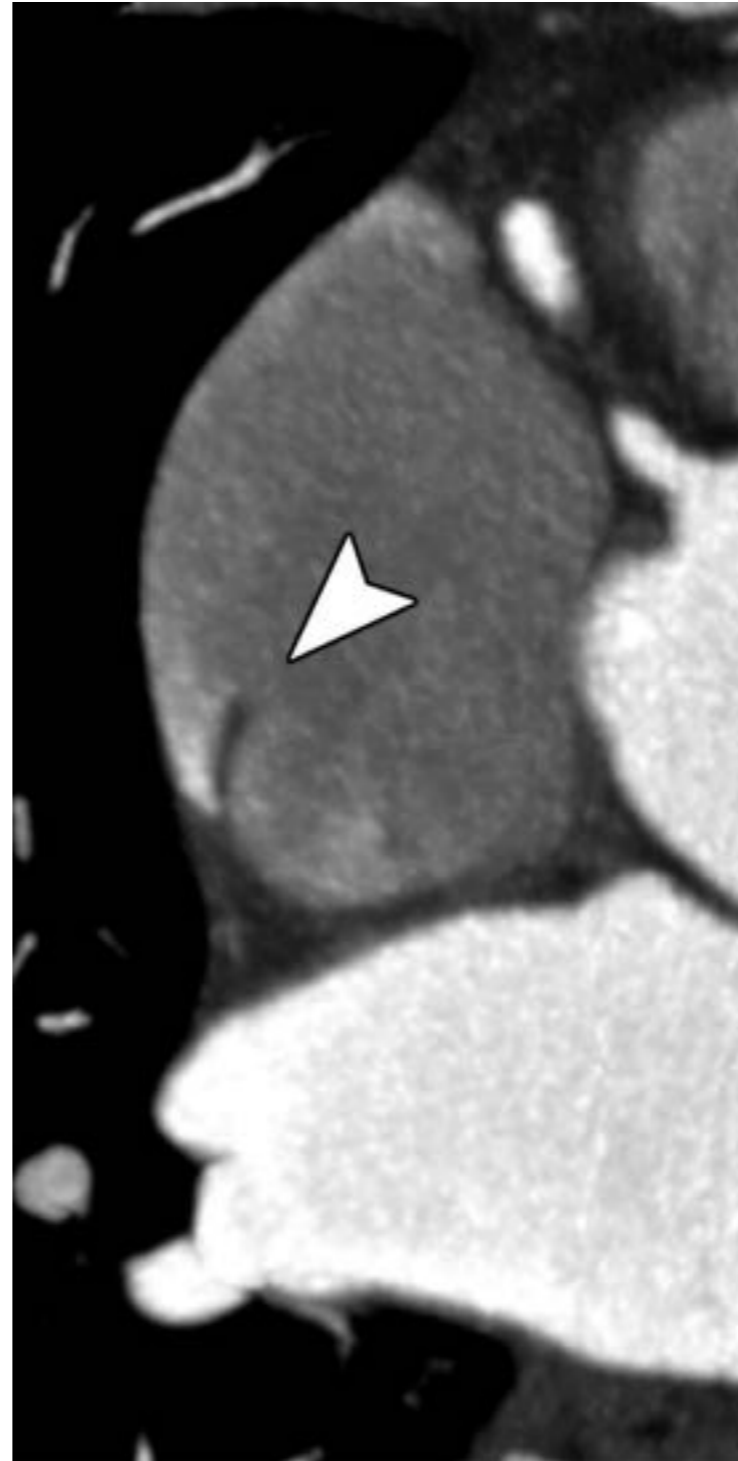
Crista terminalis



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

Crista terminalis



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

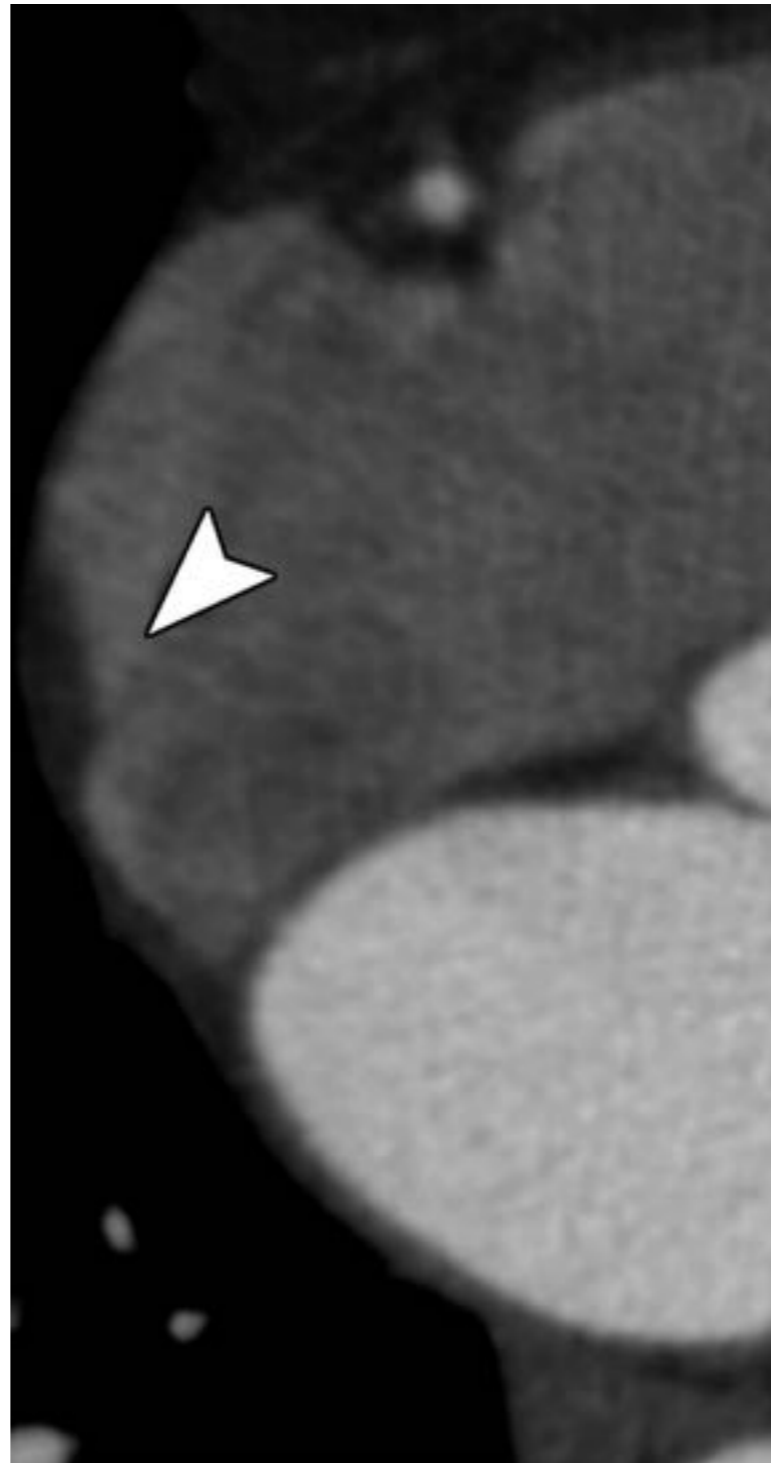
Crista terminalis



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

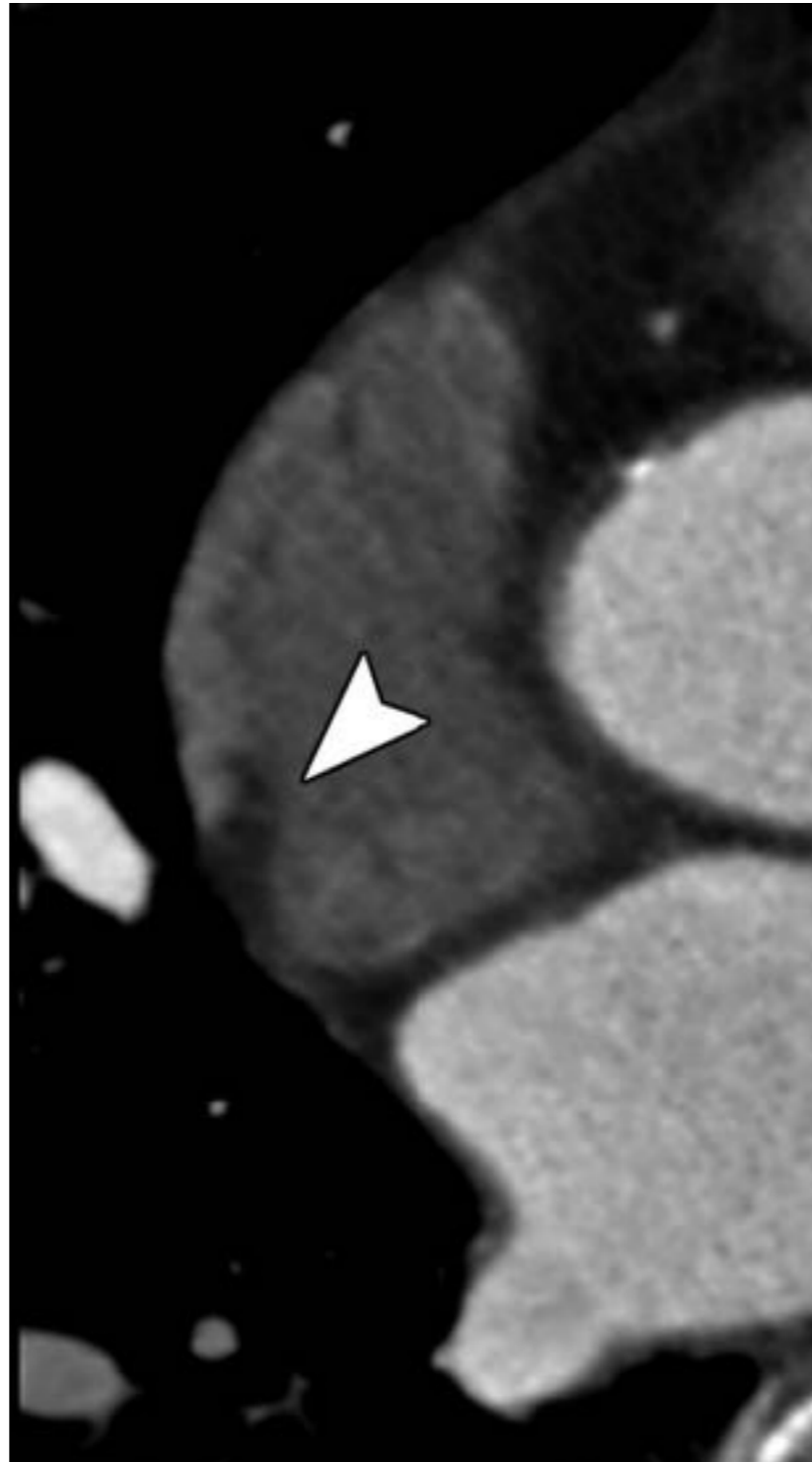
Crista terminalis



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

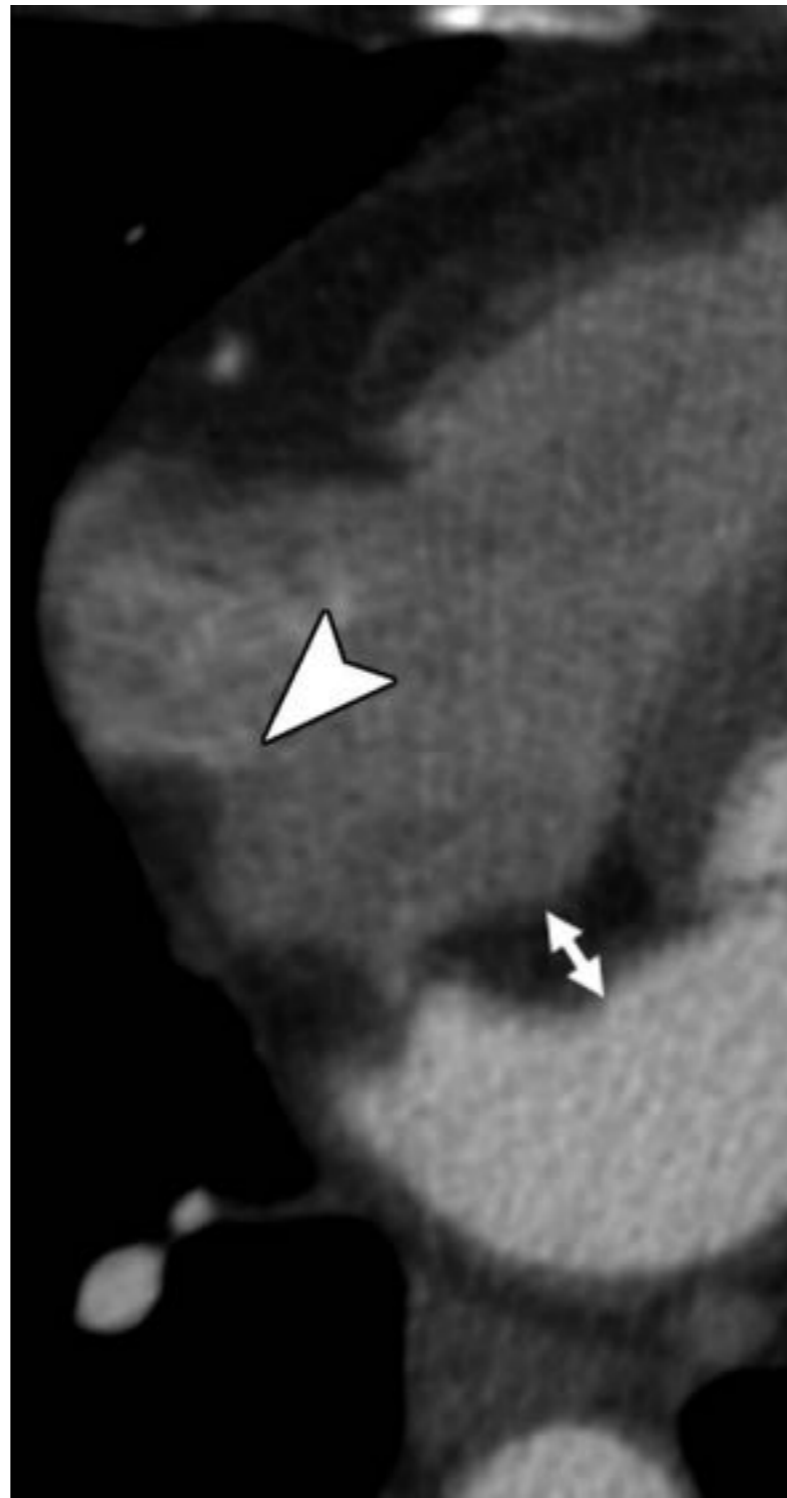
Crista terminalis



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

Crista terminalis



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

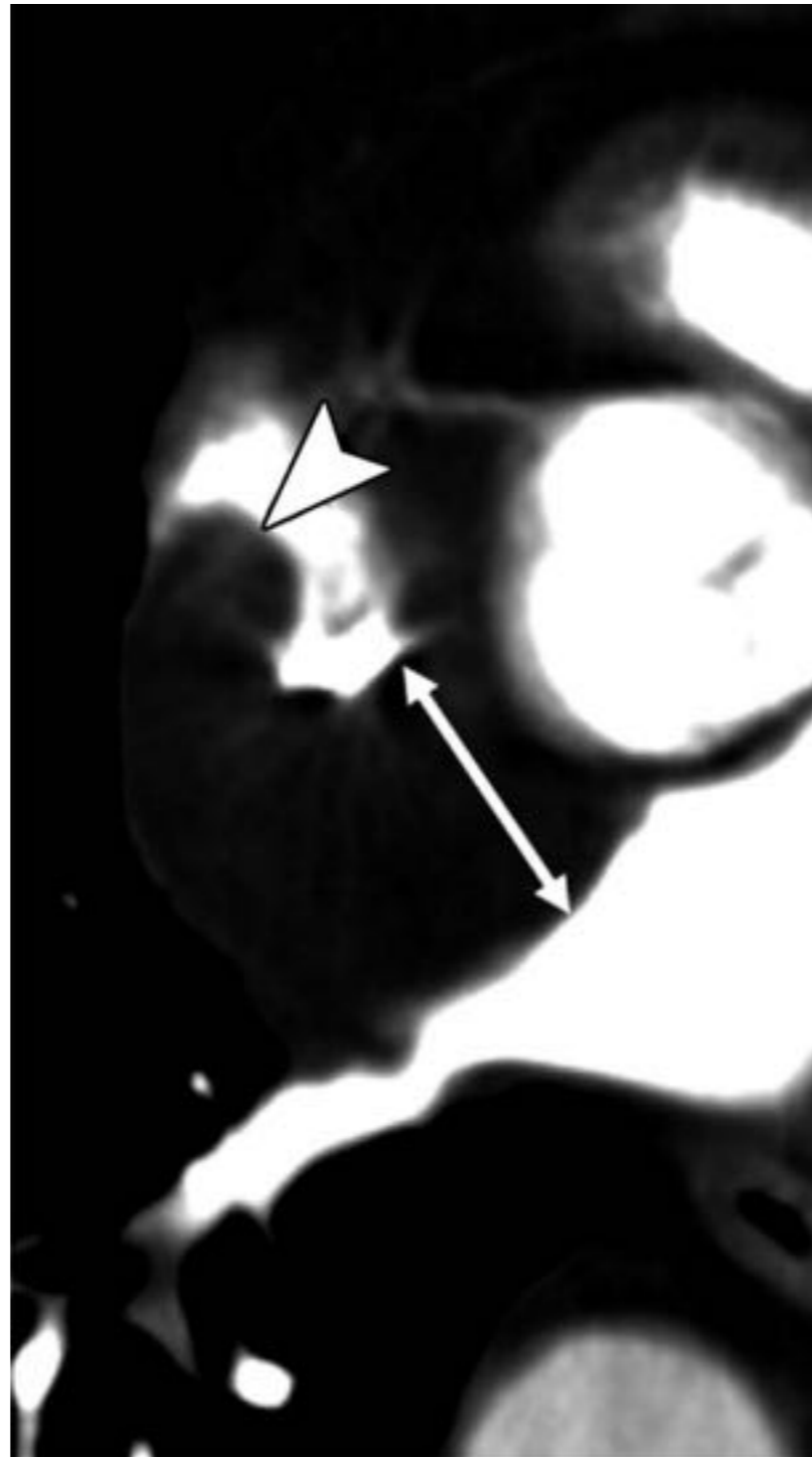
Crista terminalis



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

Crista terminalis



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

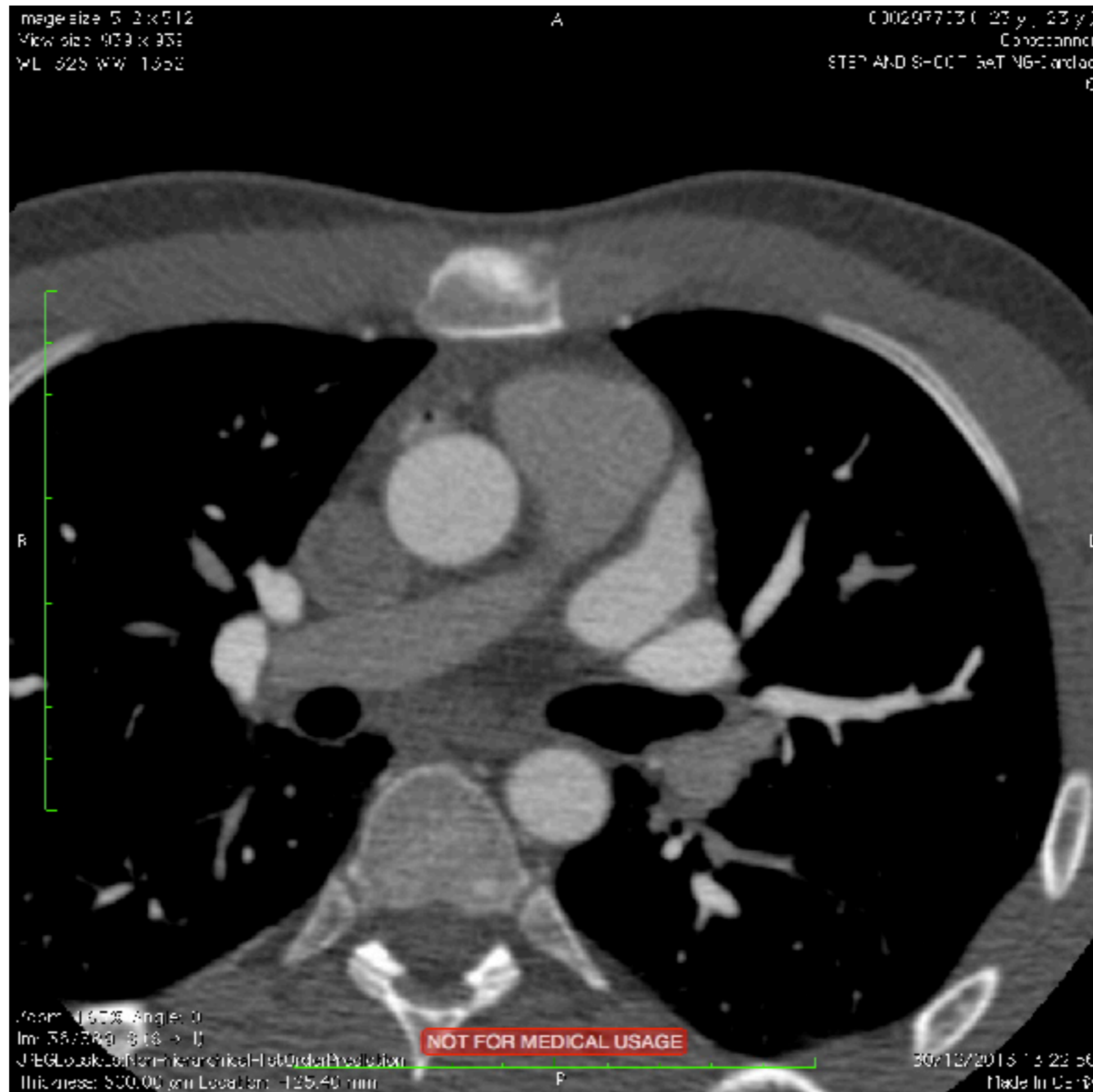


Auricule
gauche

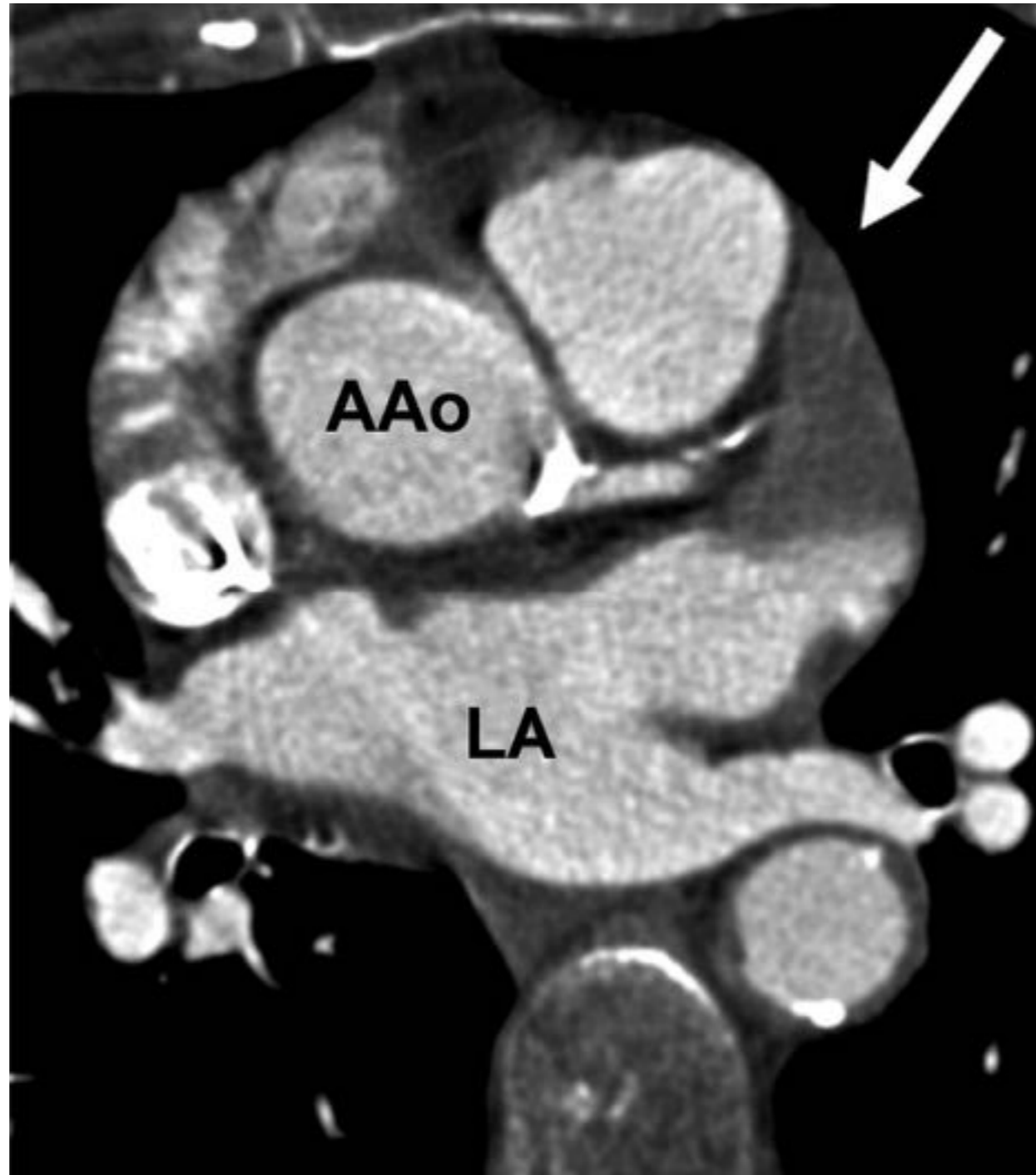
O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

Radiographics

Auricule gauche



Auricule gauche



Saremi, F. et al. Radiographics 2007;27:1539-1565

Radiographics

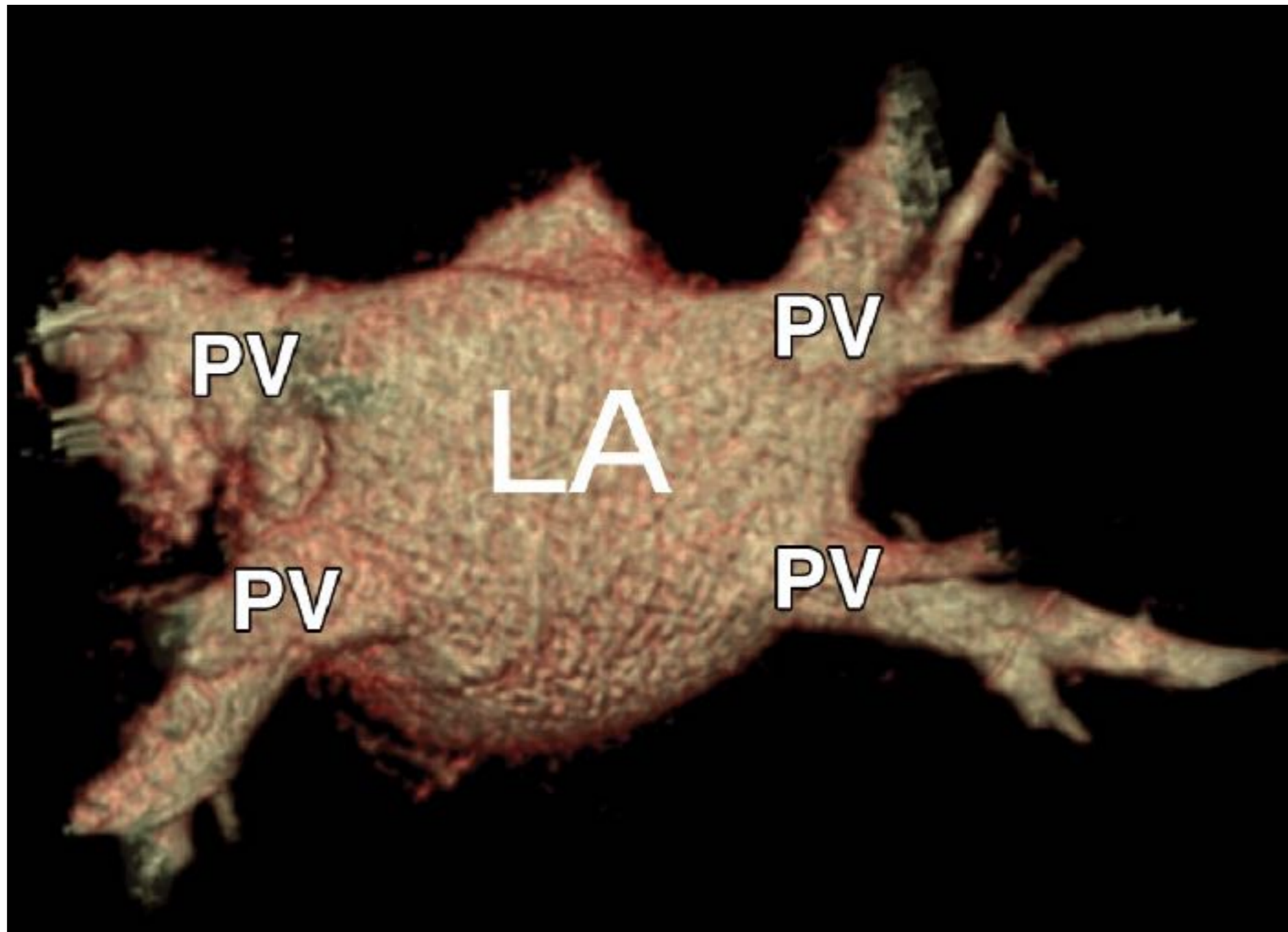
Auricule gauche



Saremi, F. et al. Radiographics 2007;27:1539-1565

RadiGraphics

Oreillette Gauche / Veines Pulmonaires



O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

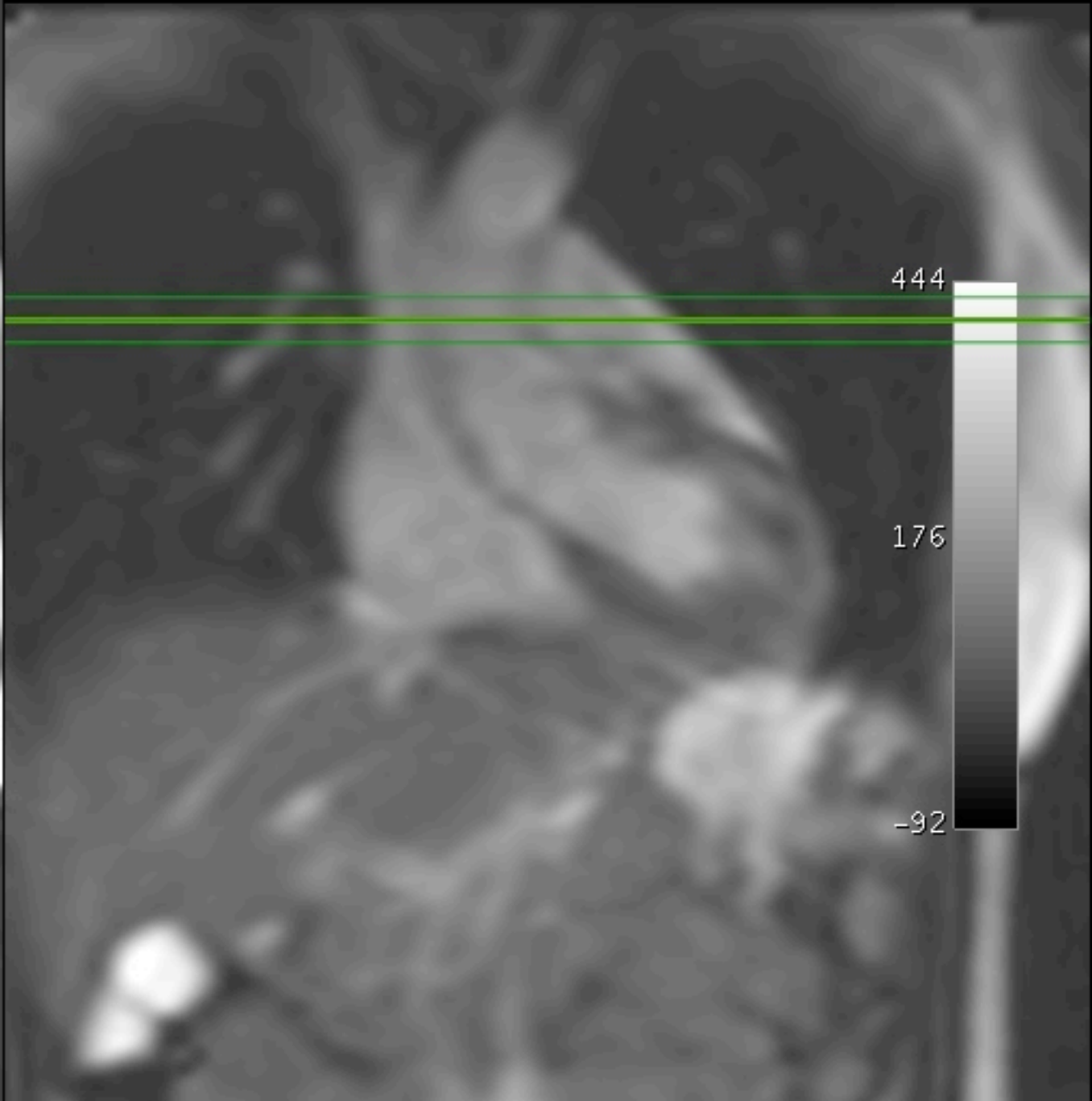
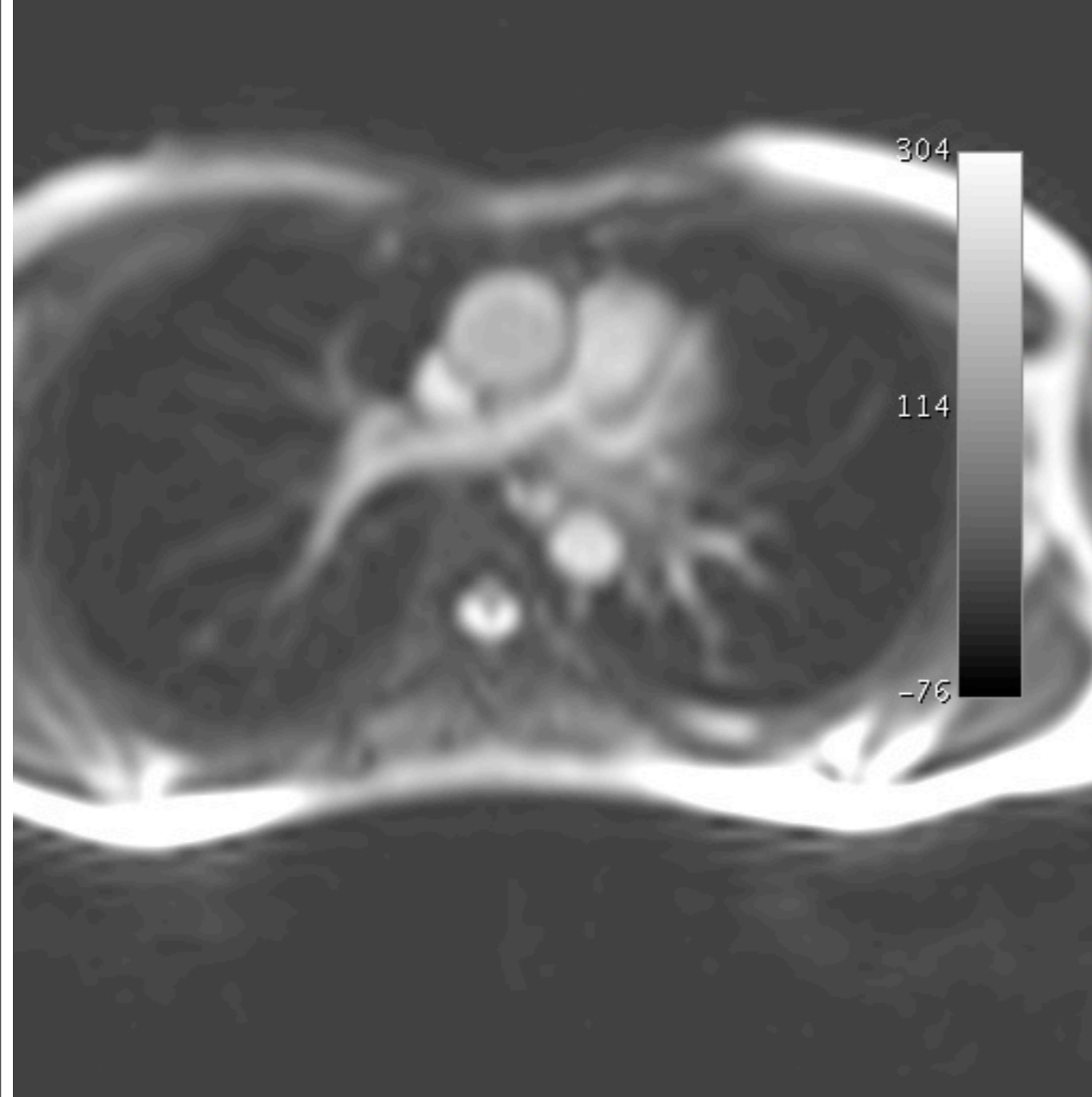
Radiographics



Aorte thoracique

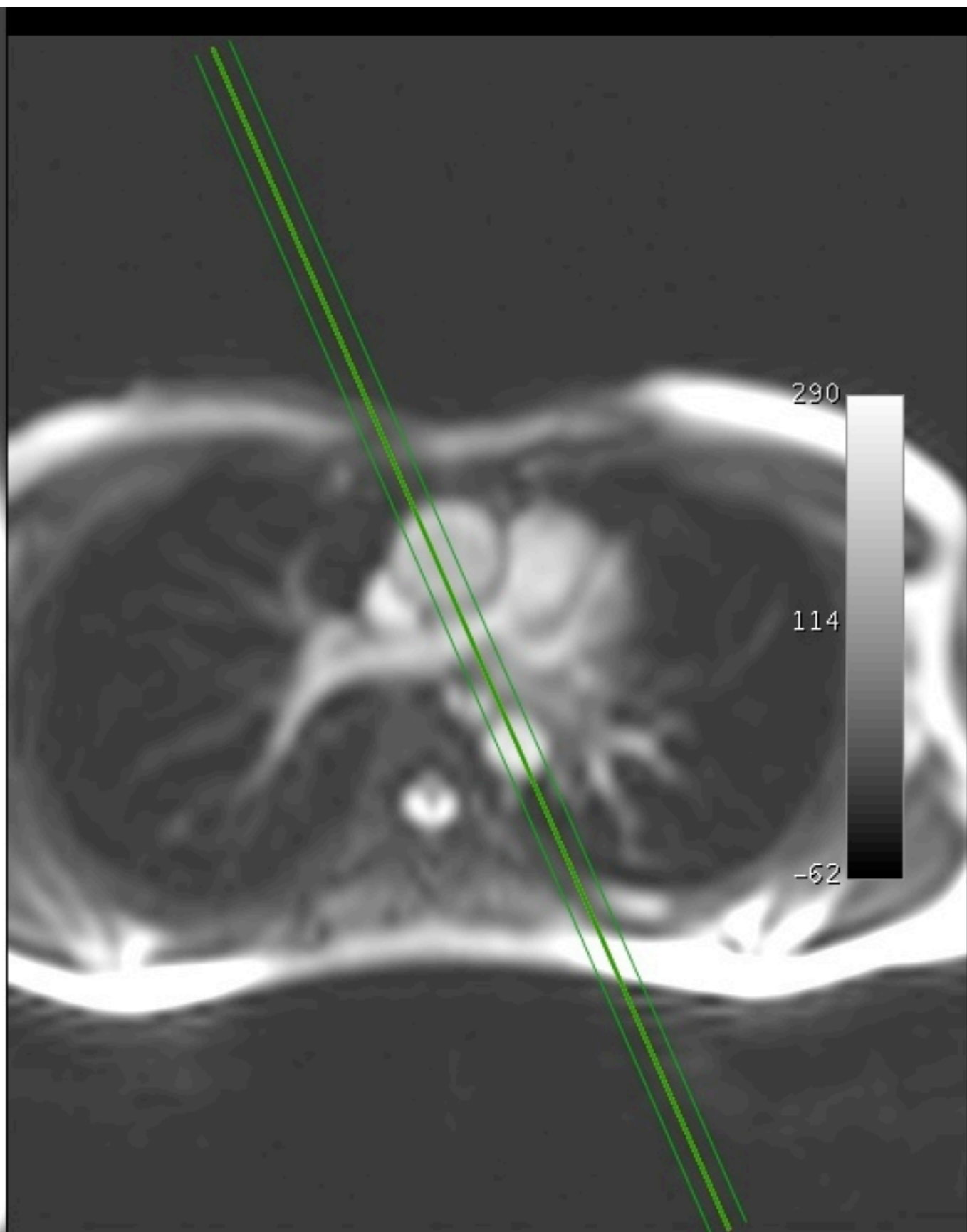
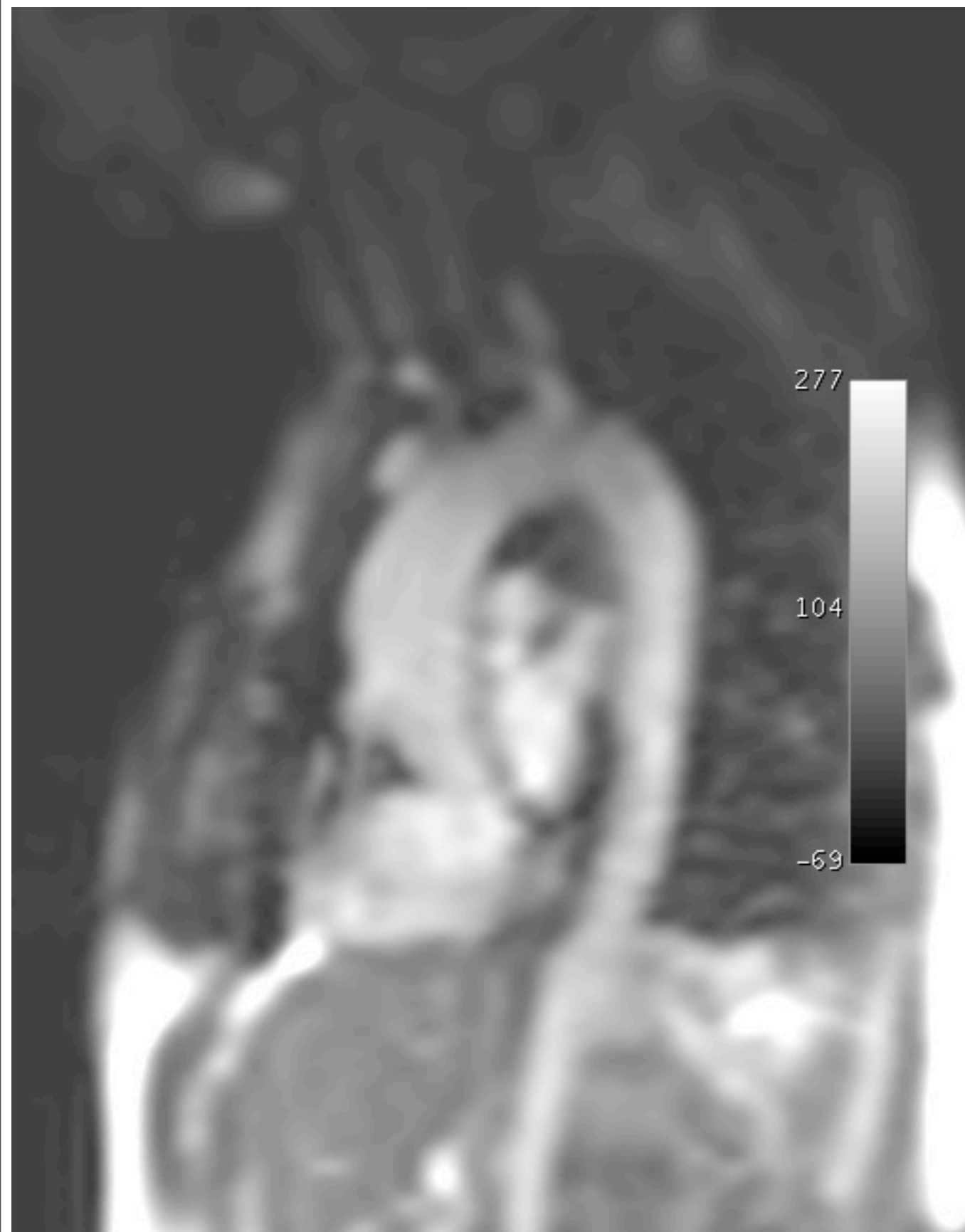
Plan axial
transverse

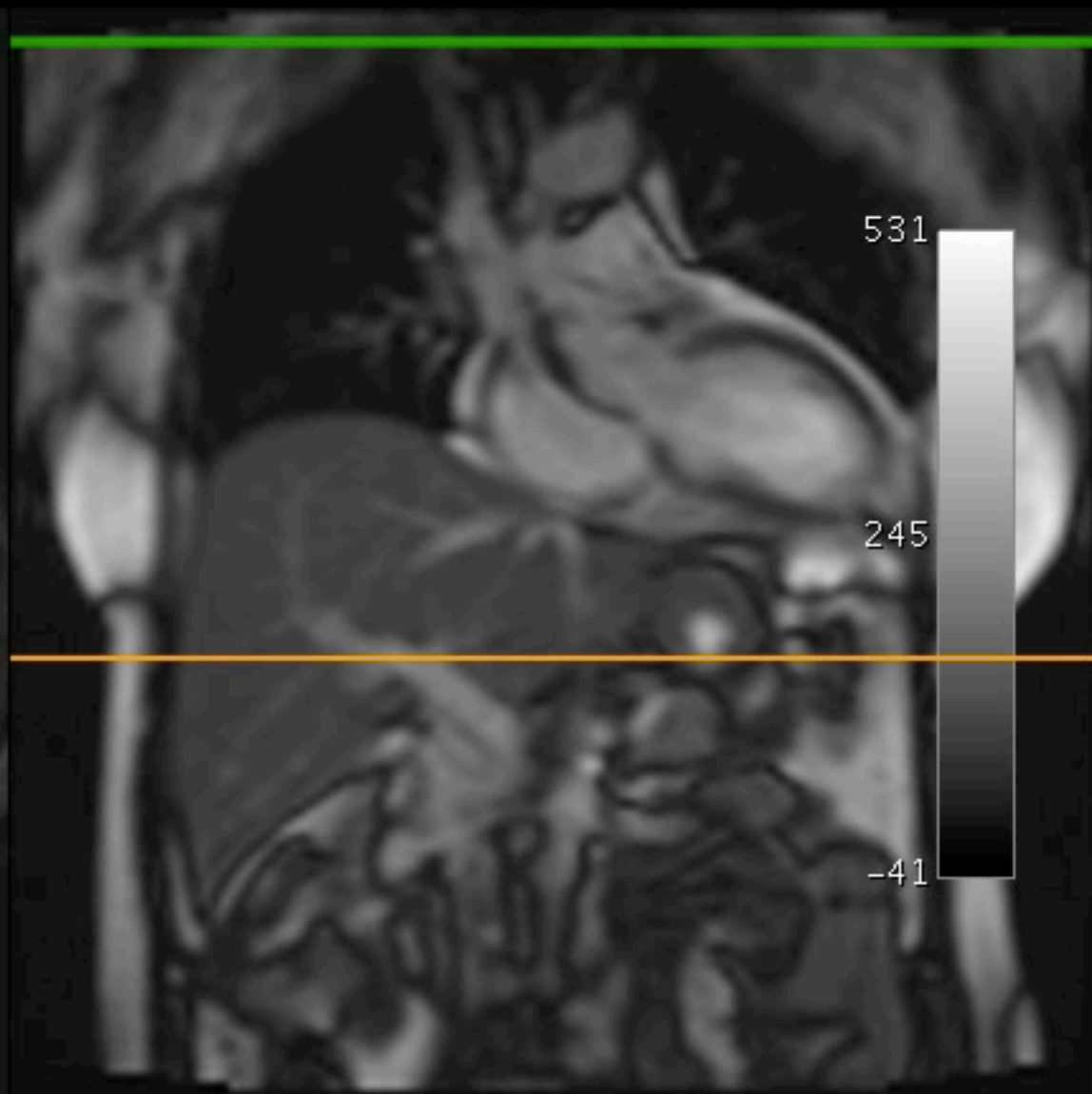
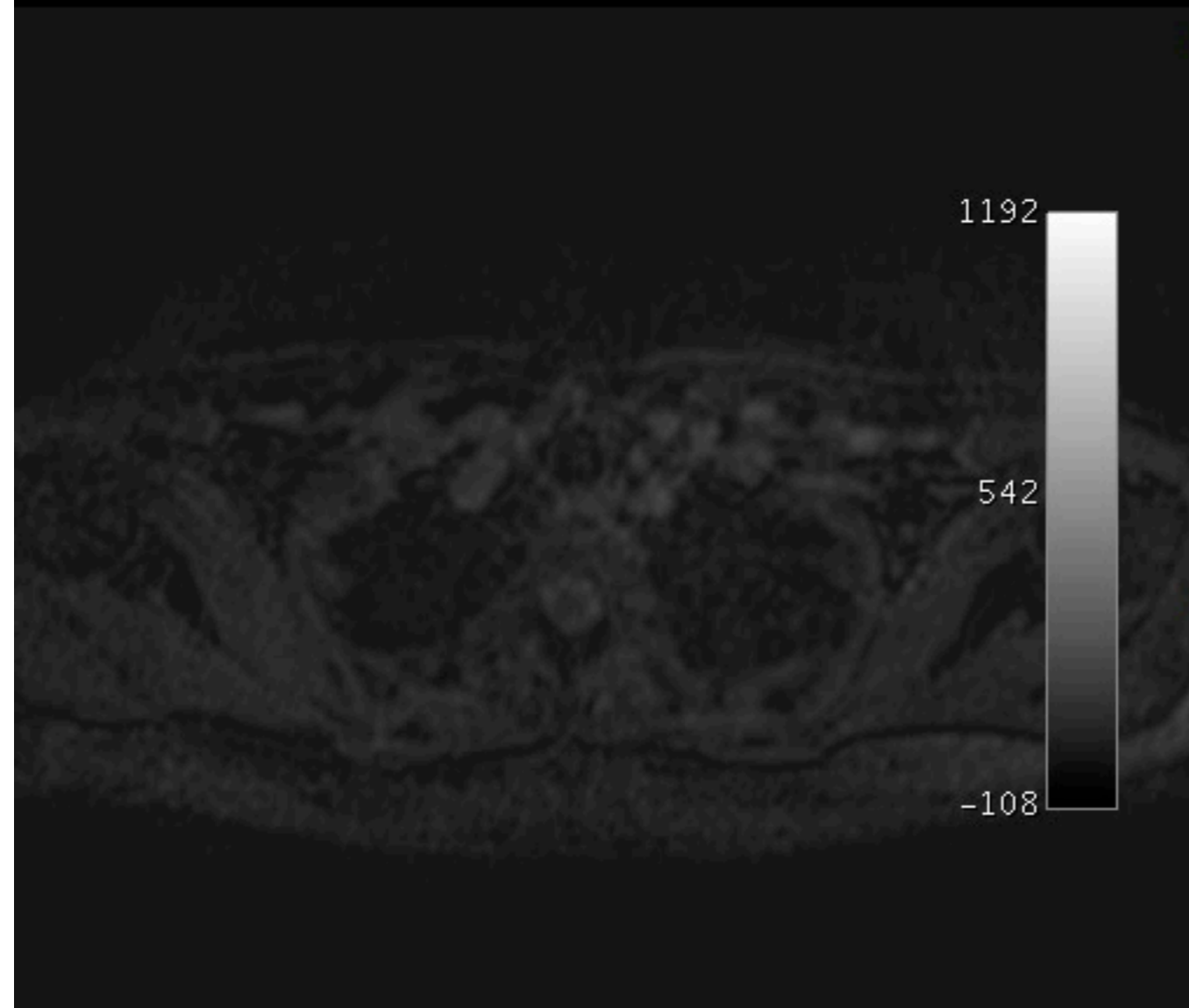
Plan frontal

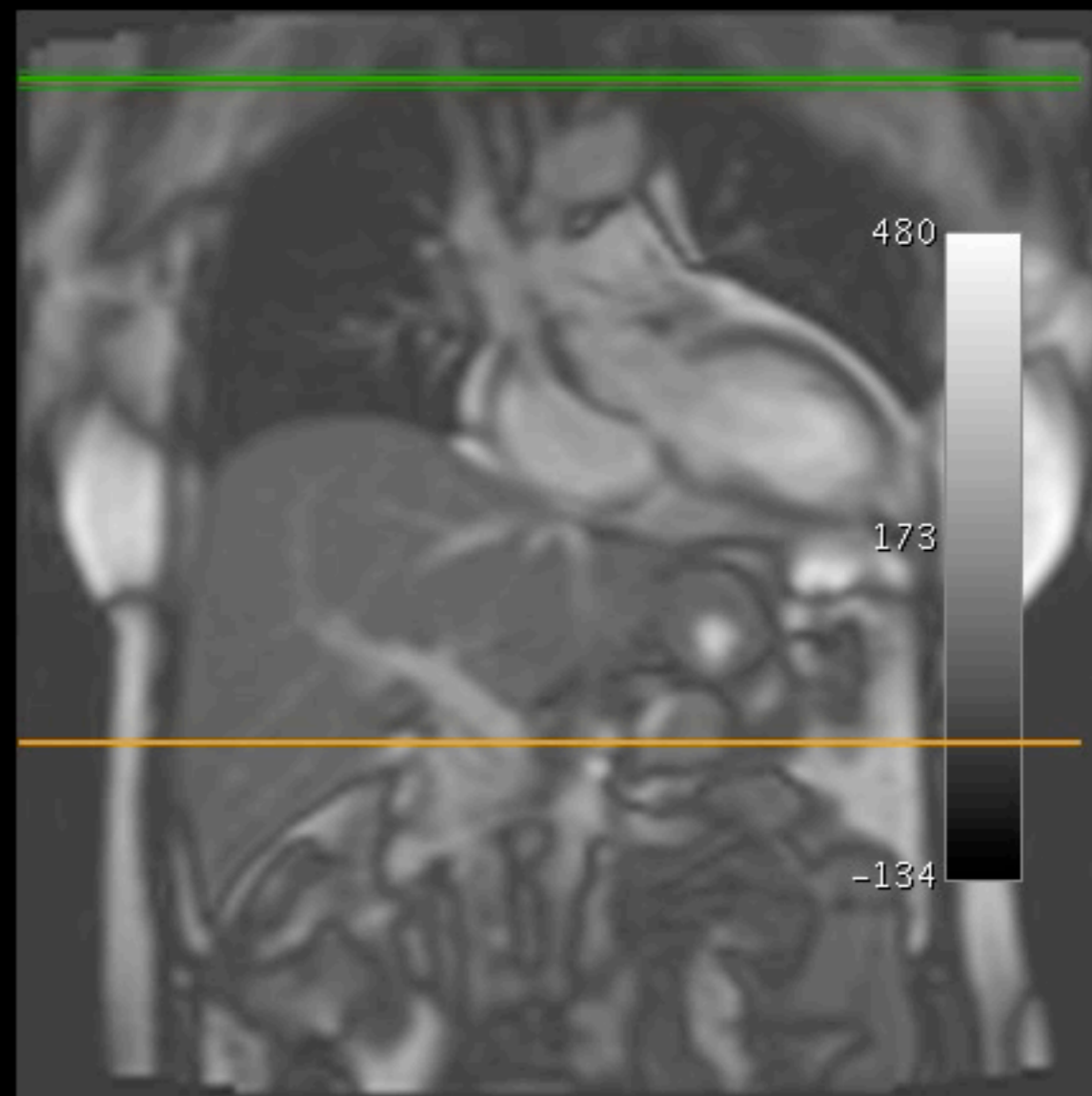
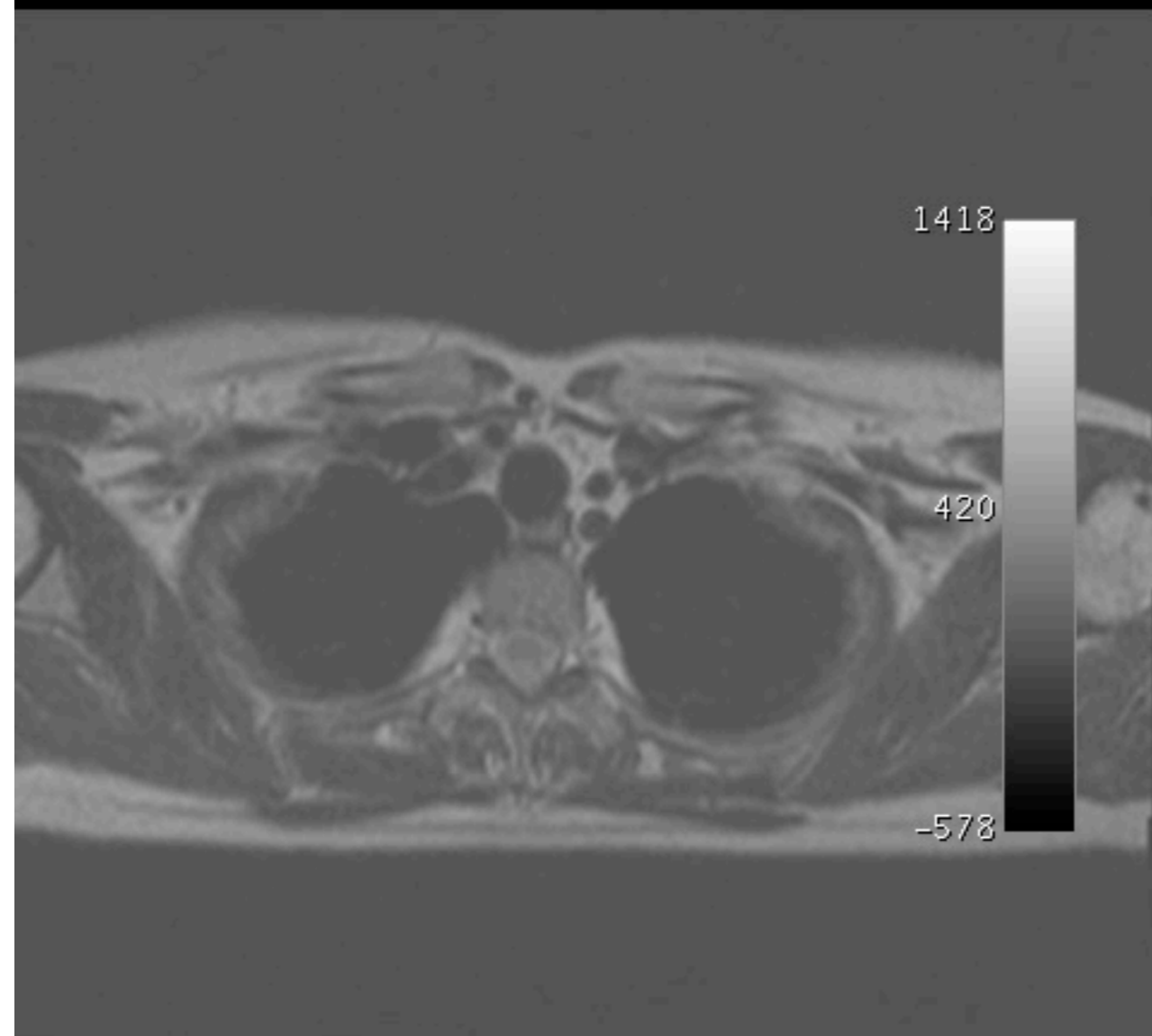


Plan de la crosse aortique

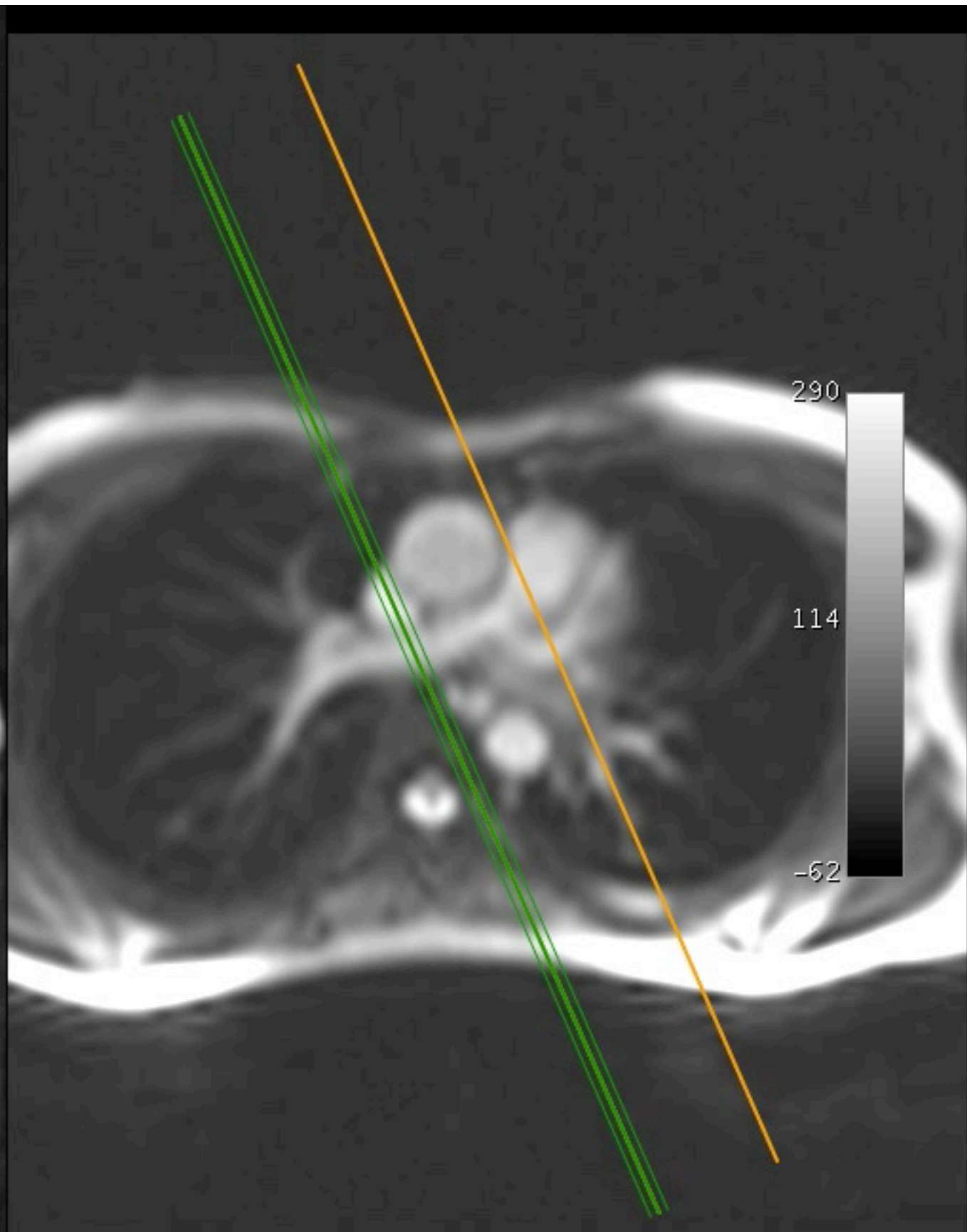
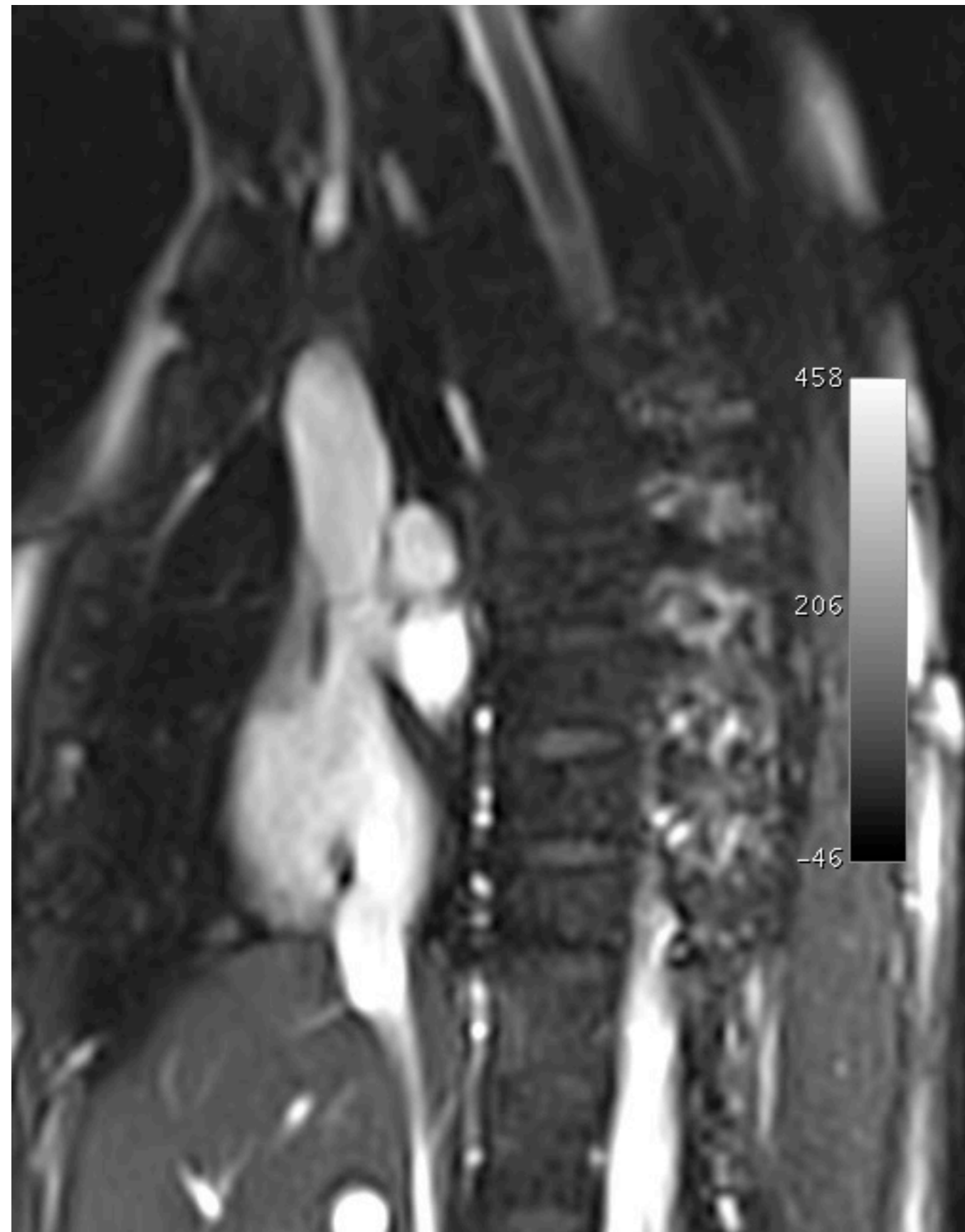
IRM







Plan de la crosse aortique

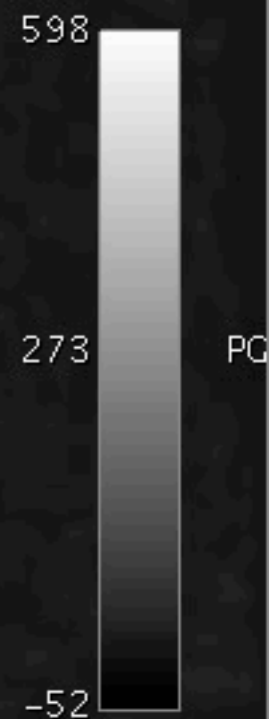


Plan de la crosse aortique

l'image : 208 x 256
la vue : 1083 x 647
LF : 651

879630 (29 y, 29 y)
CINE TrueFisp retro PLAN DE LA CROSSE
7

550% Angle : 0
/200
r : 5.00 mm Position : 3.87 mm

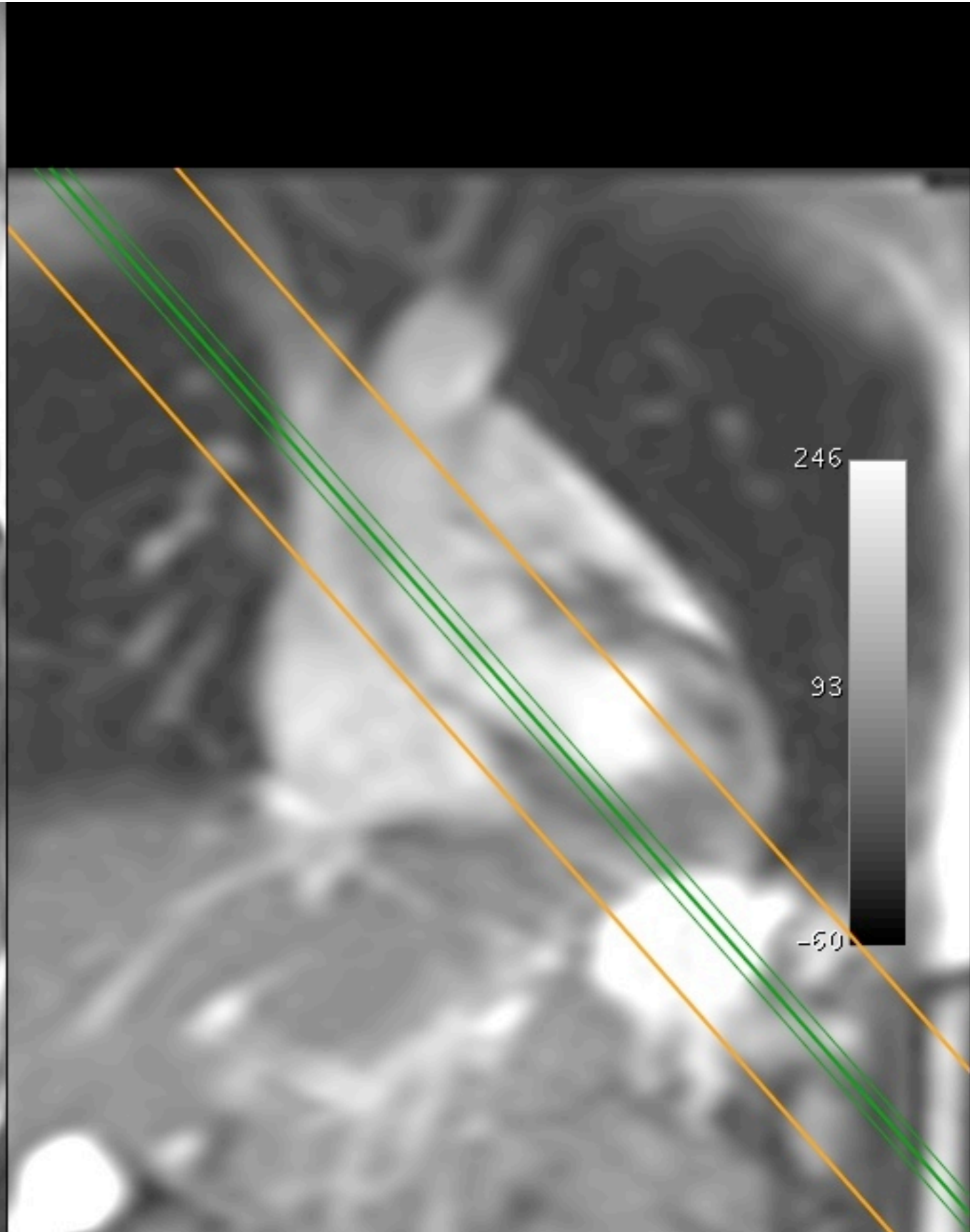
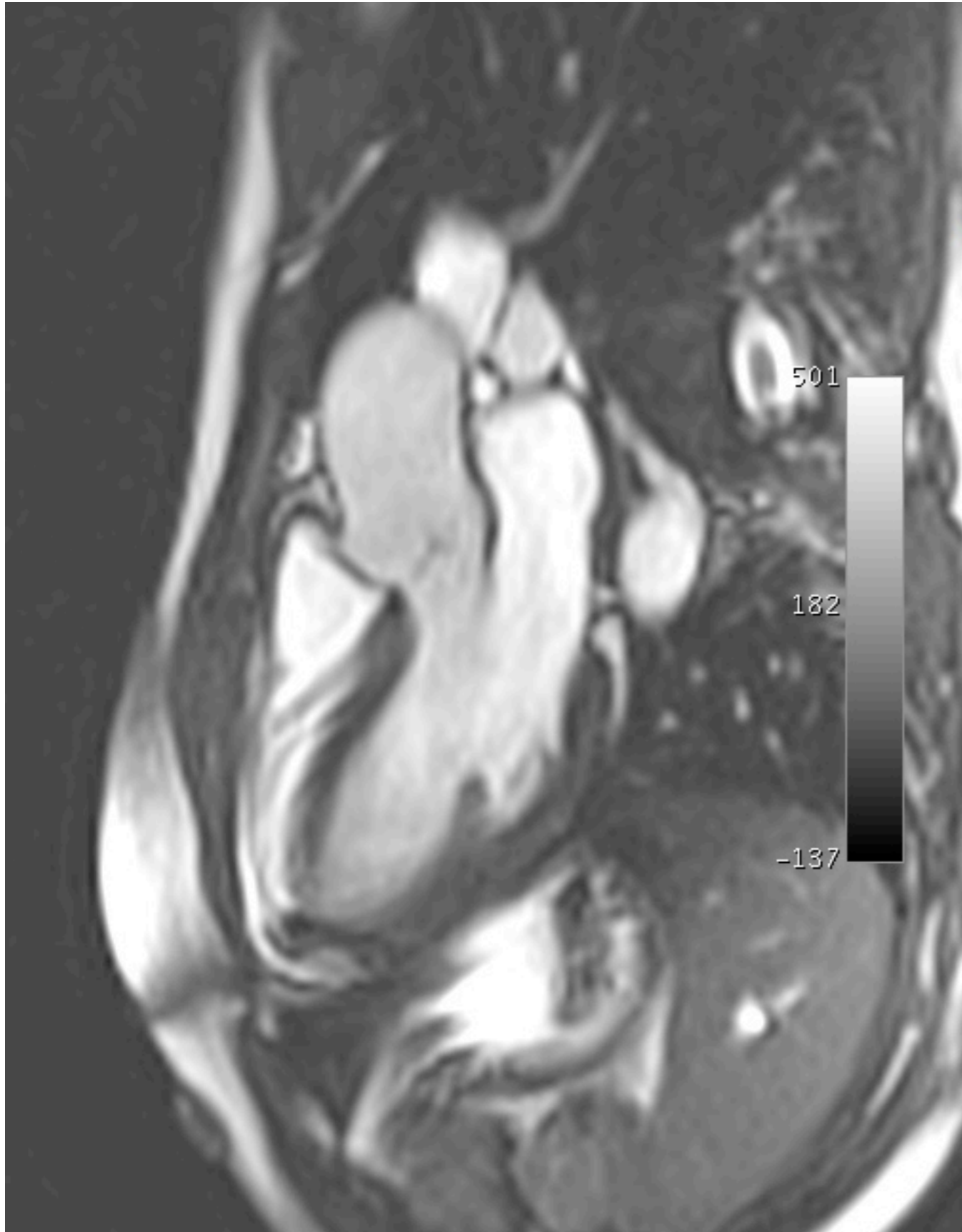


TE: 1.33 TR: 31.9
FS: 1.5
16/06/11 12:44:57
Made In OsiriX

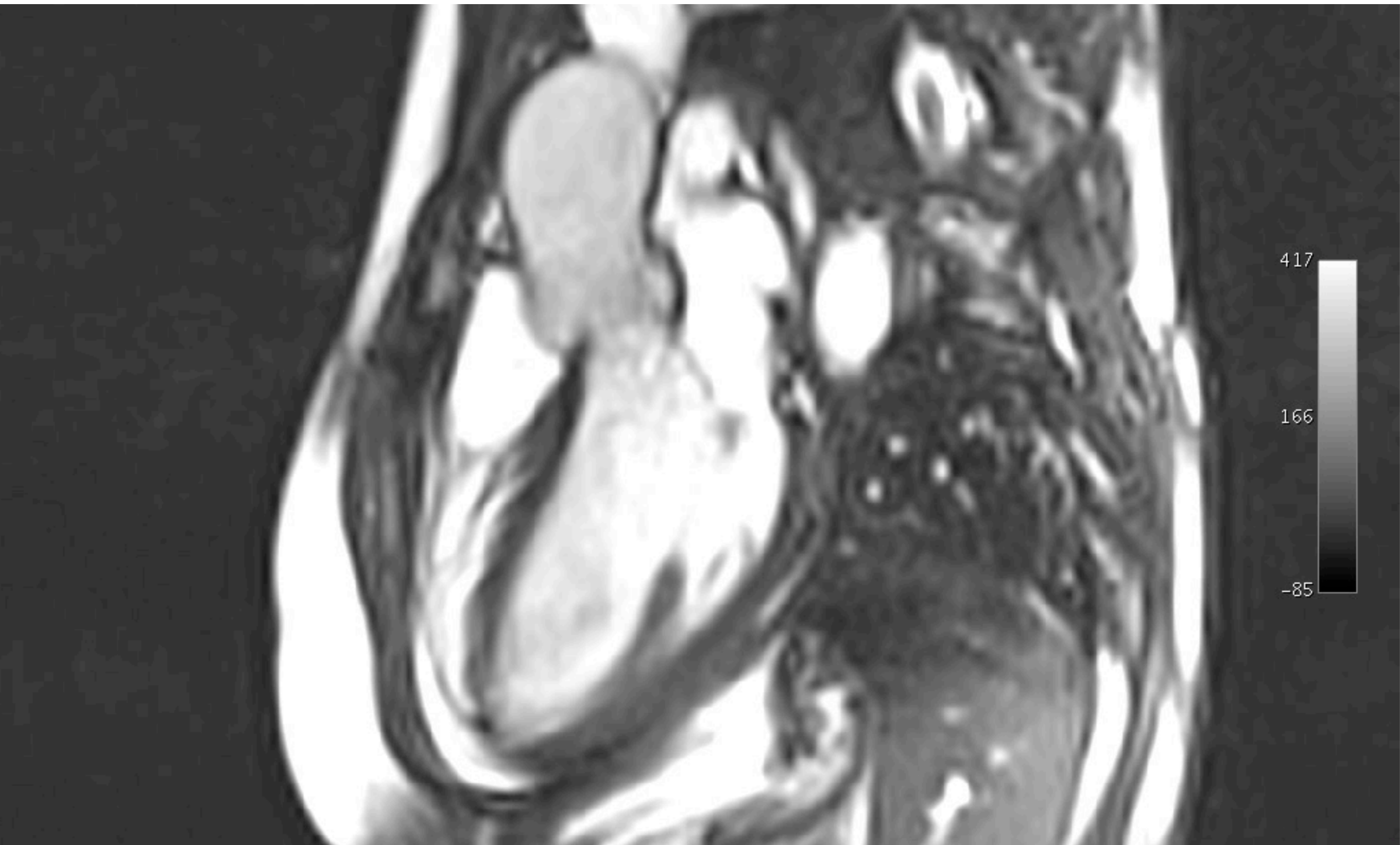


Coupe «3 cavités»

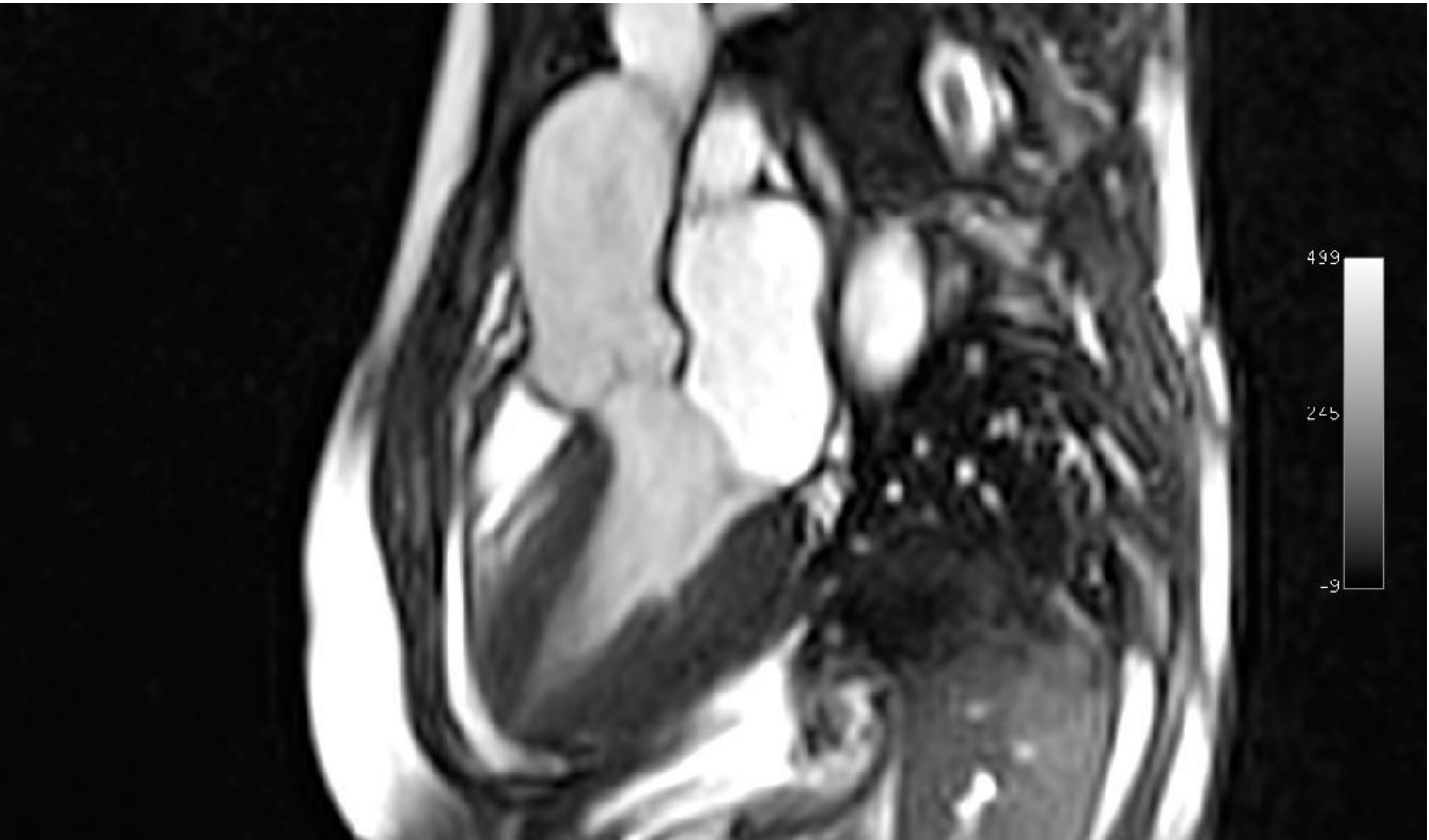
IRM



Coupe «3 cavités»

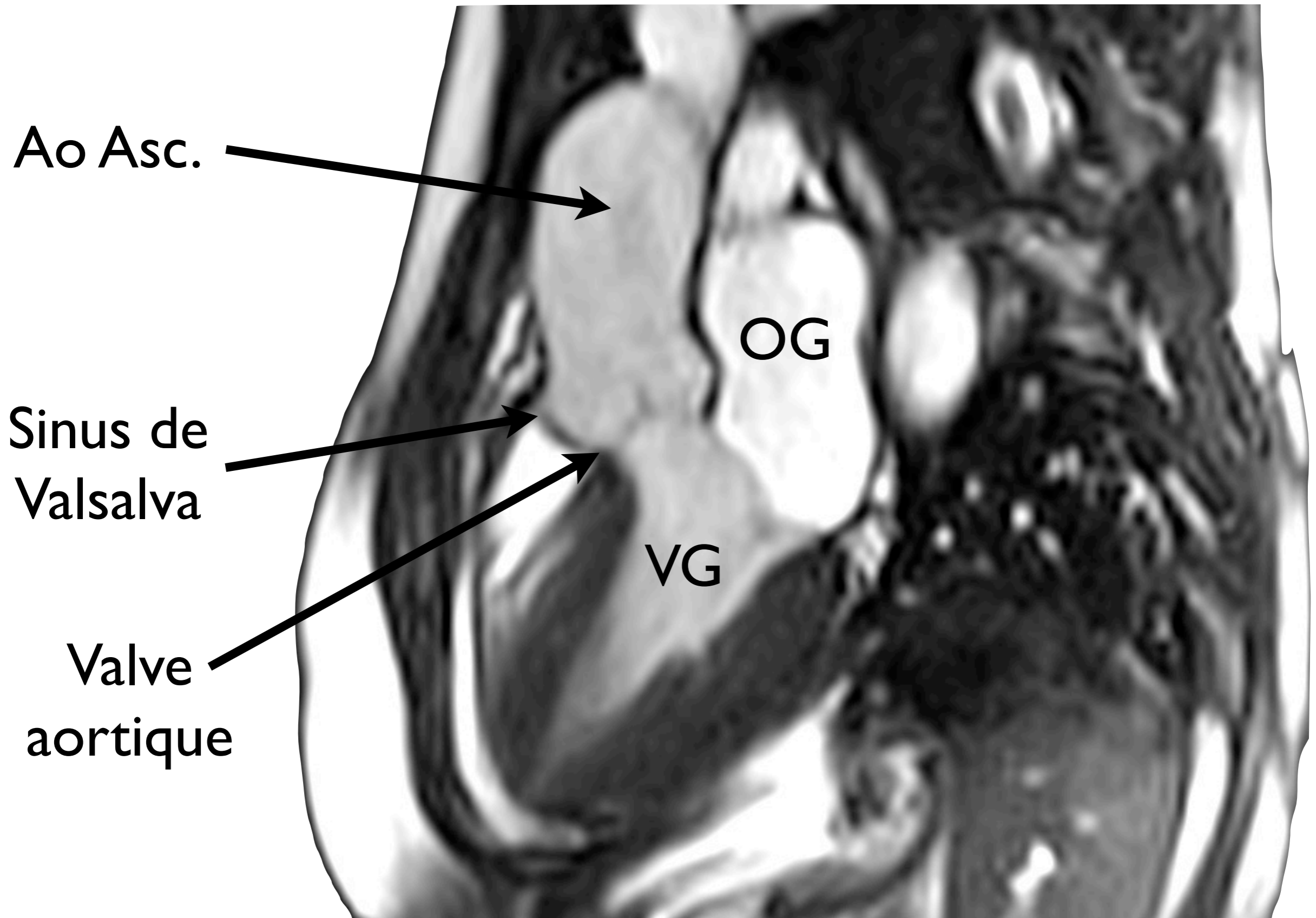


Coupe «3 cavités»

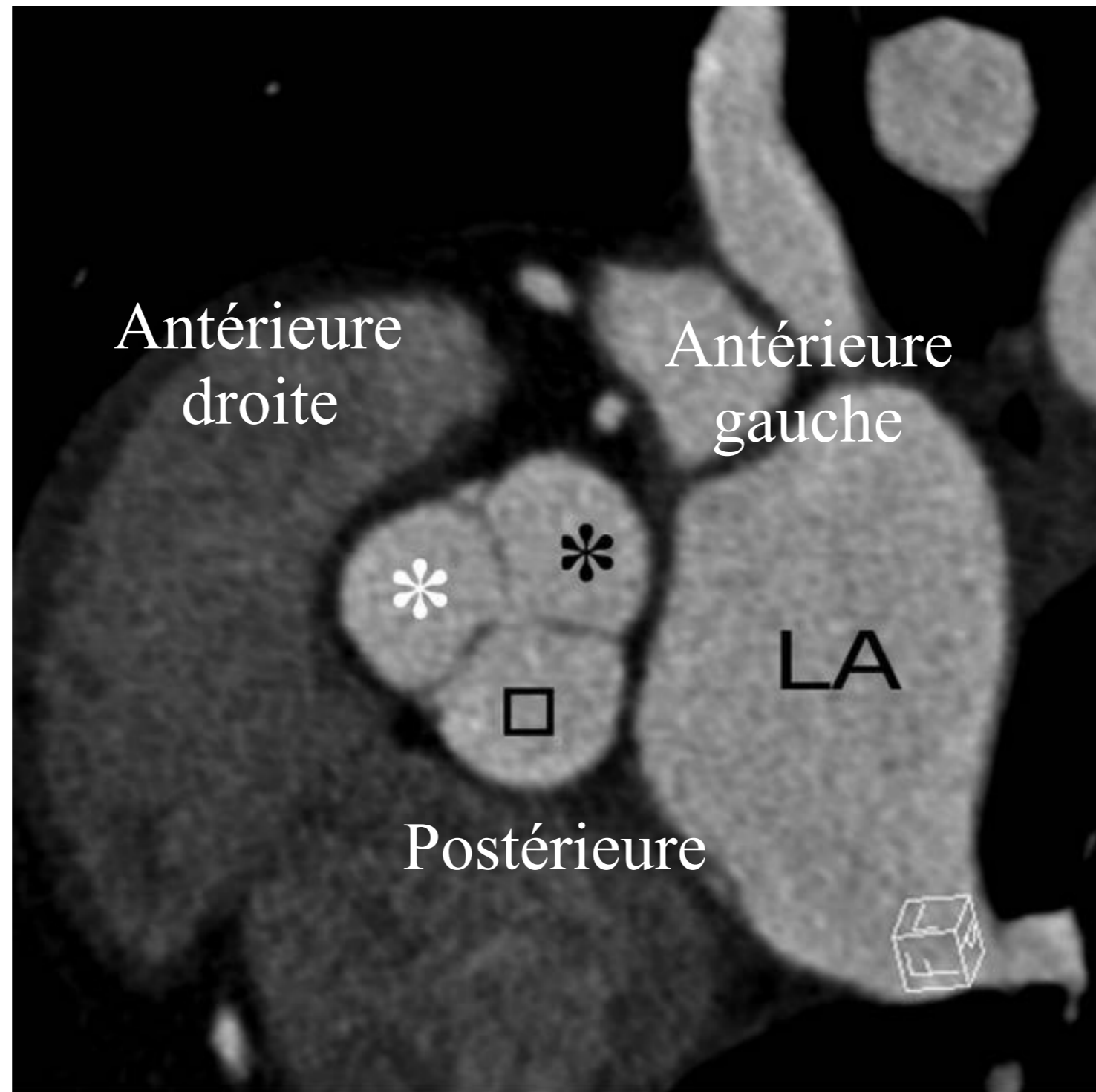


Coupe «3 cavités»

IRM



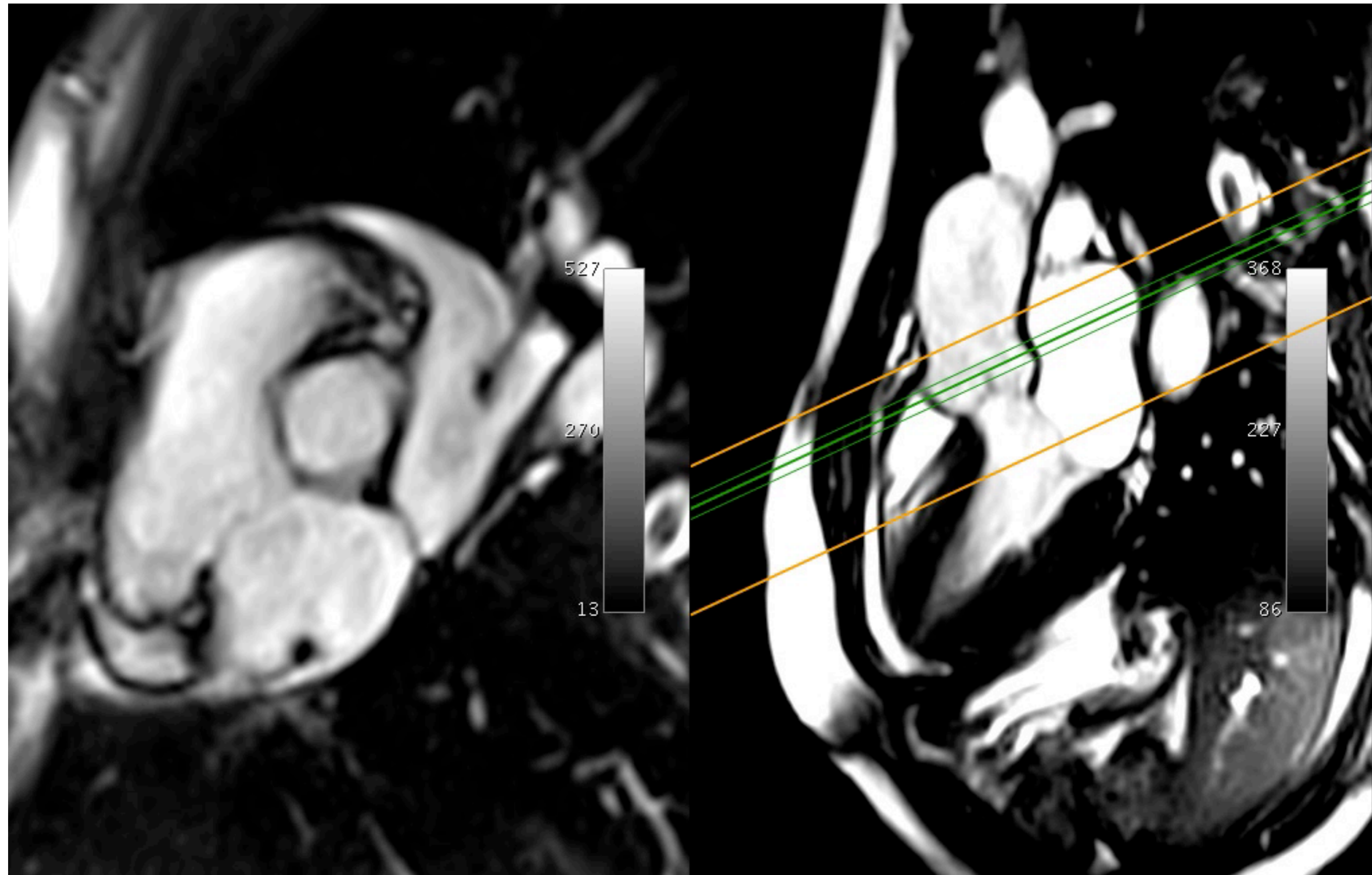
Valve Aortique



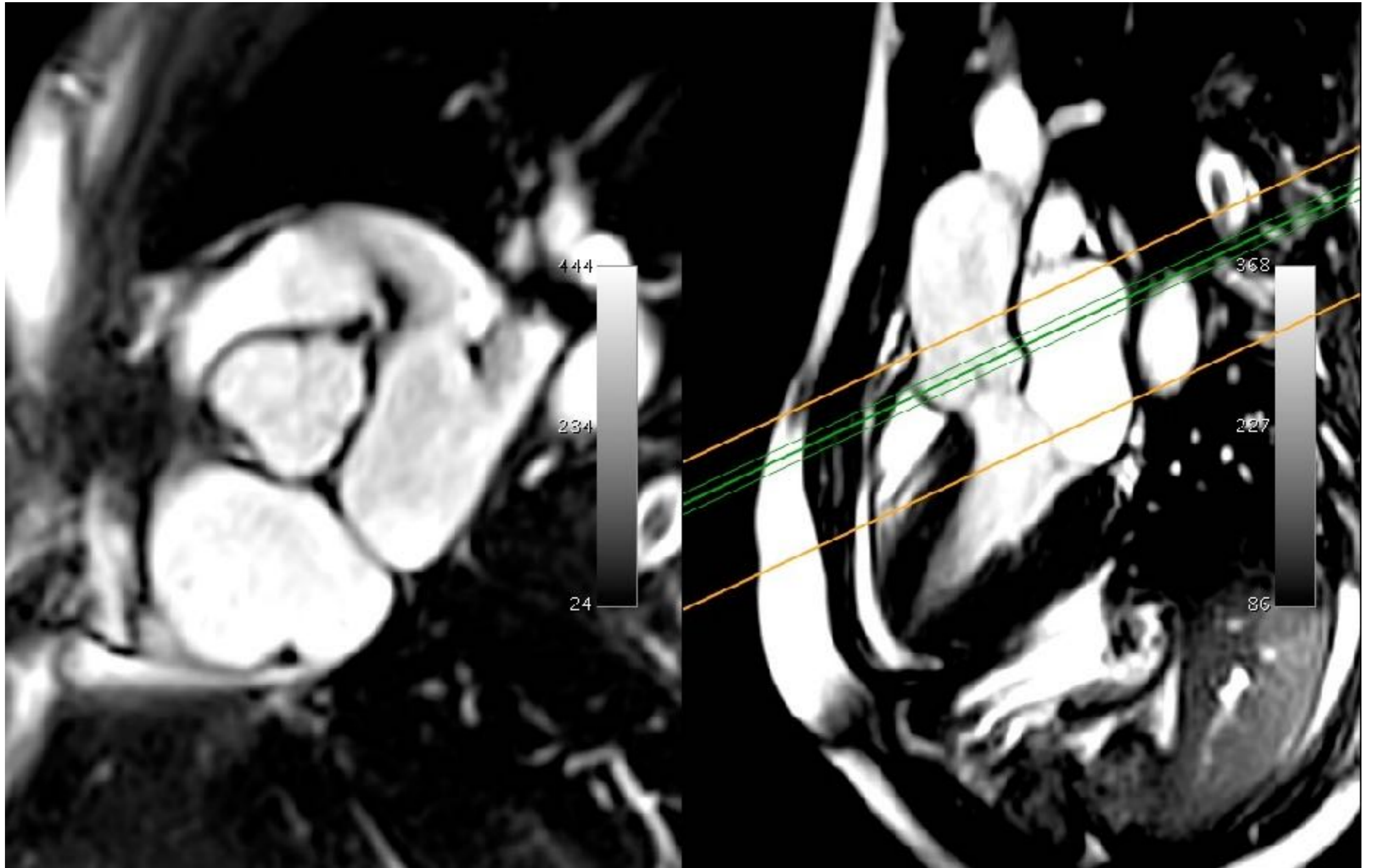
O'Brien, J. P. et al. Radiographics 2007;27:1569-1582

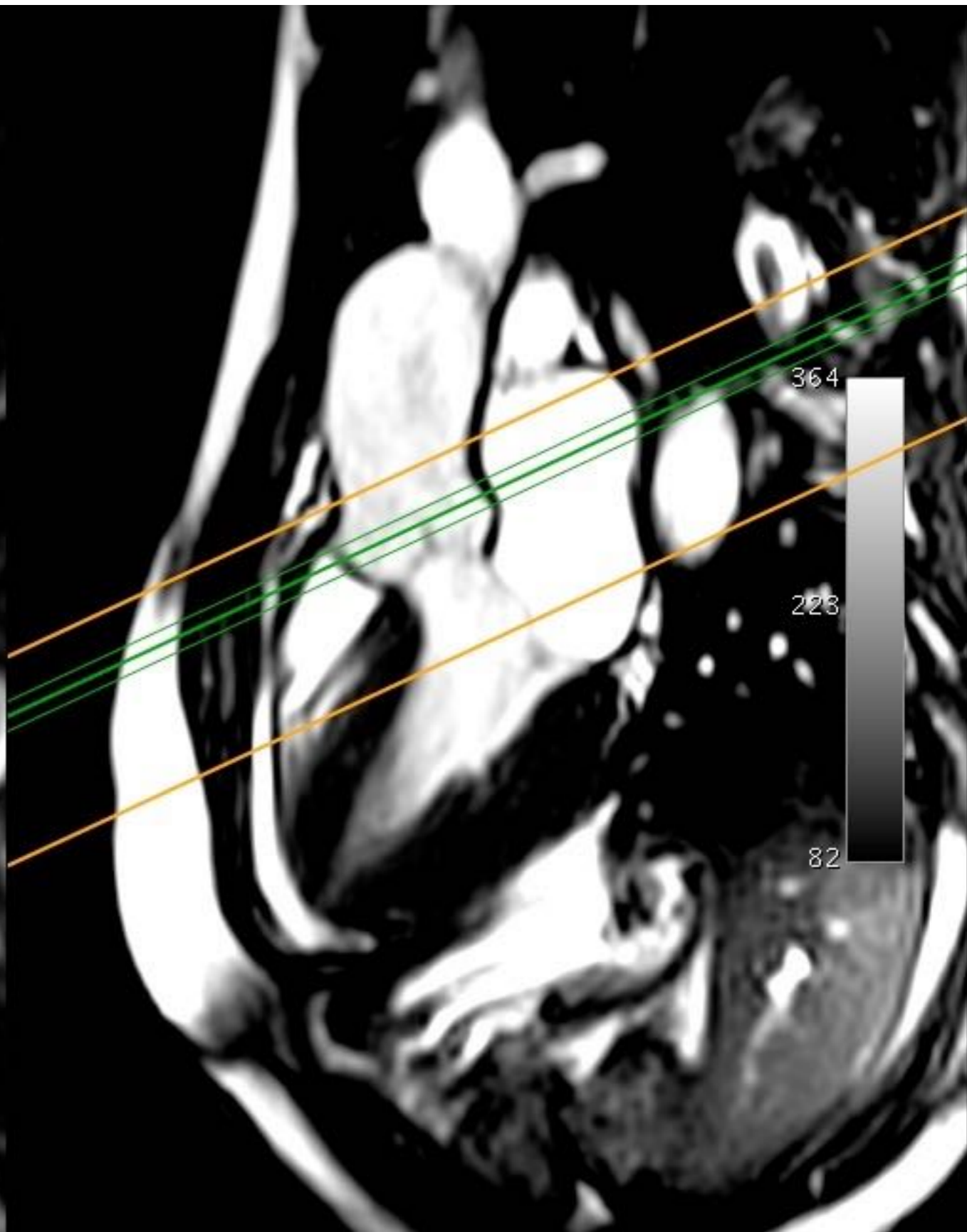
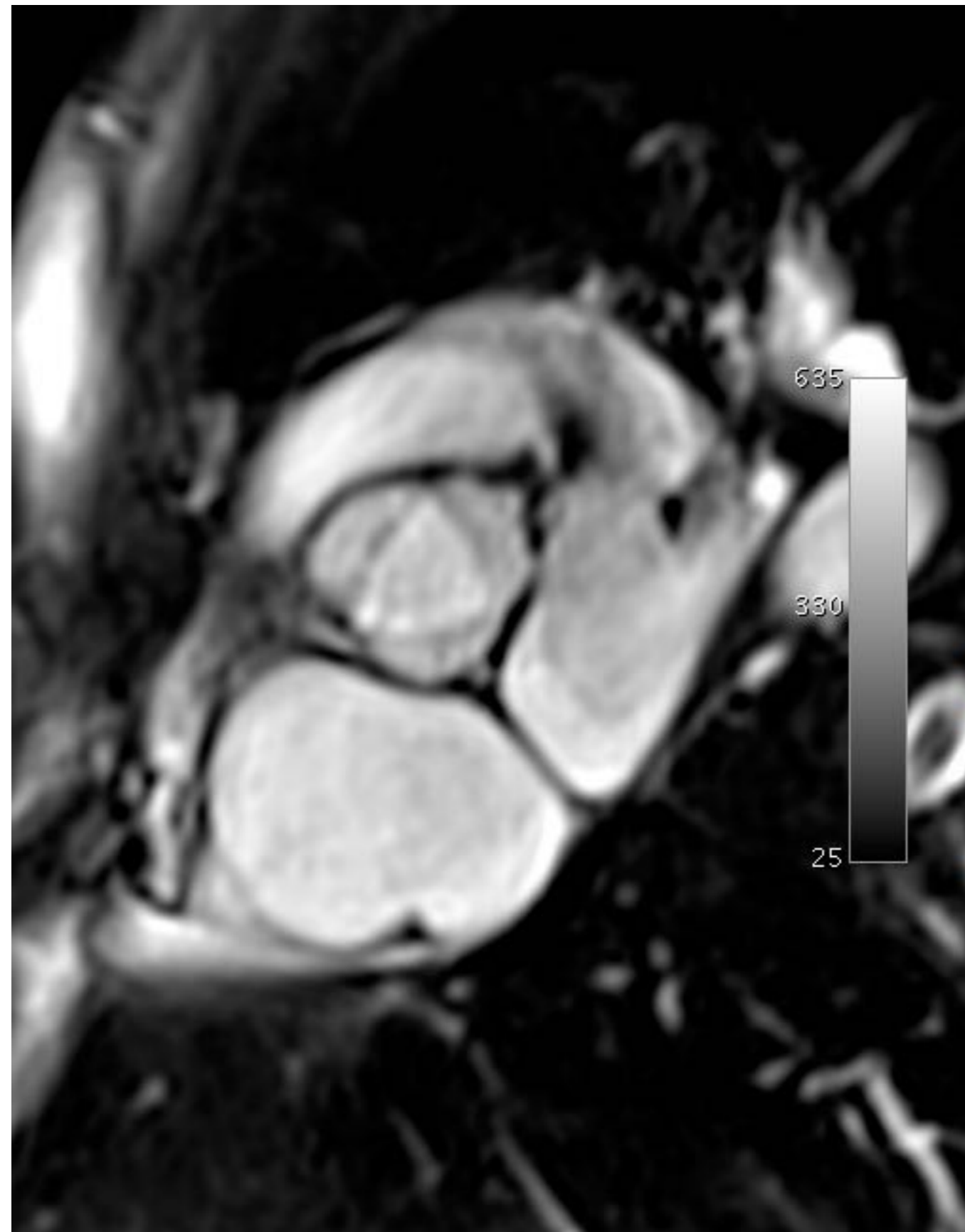
Radiographics

Plan de la Valve Aortique

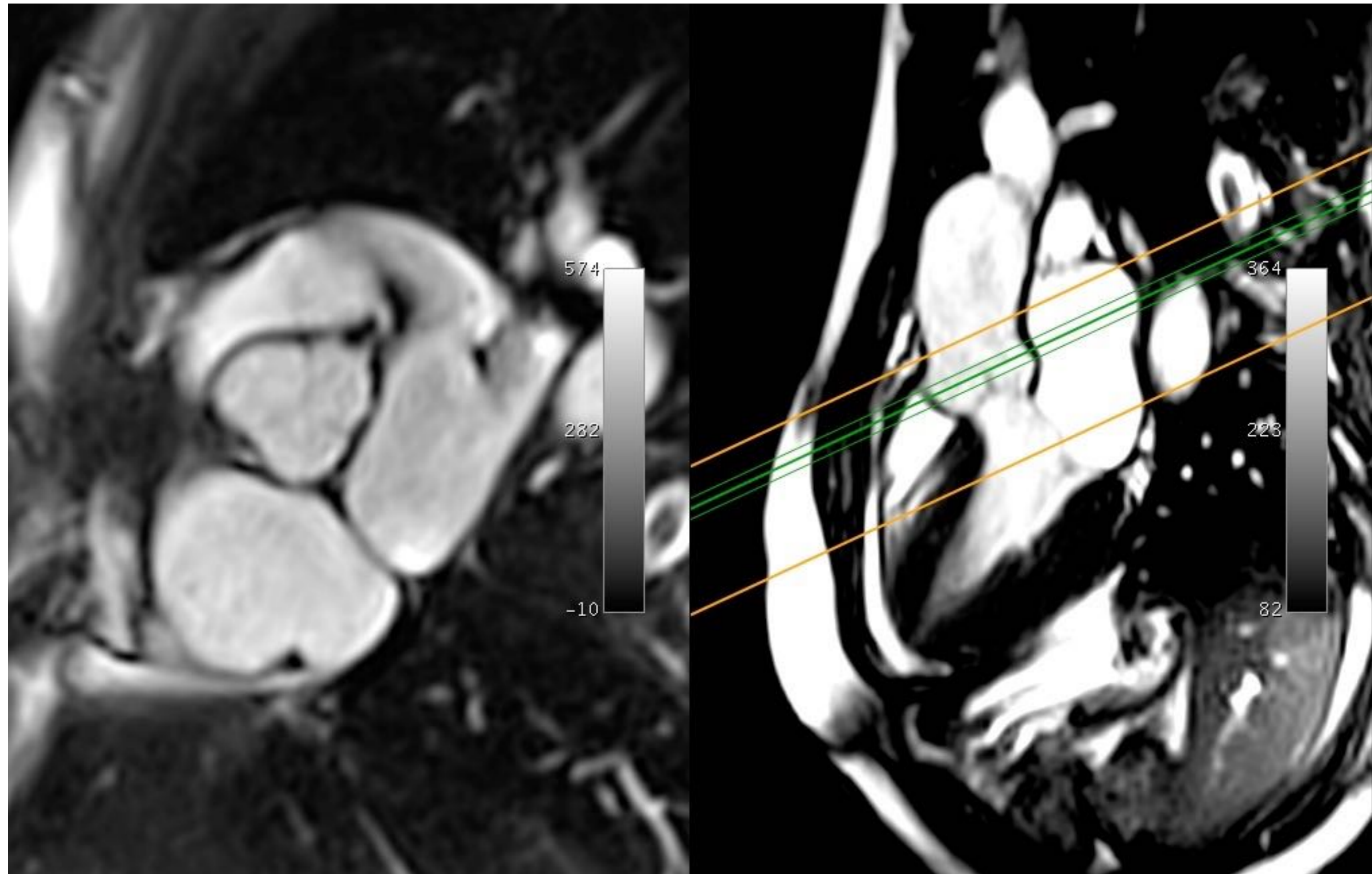


Plan de la Valve Aortique

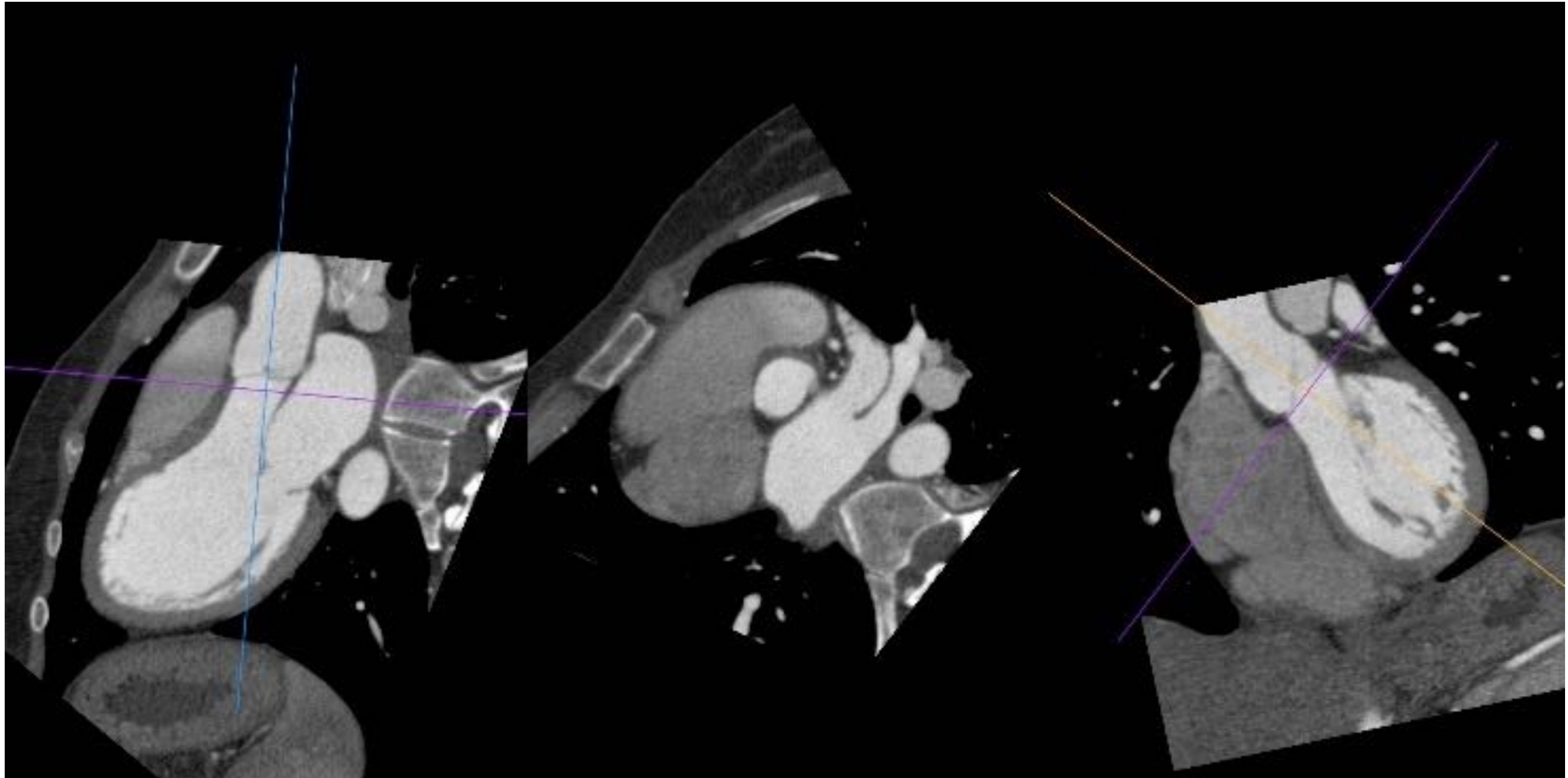




Plan de la Valve Aortique



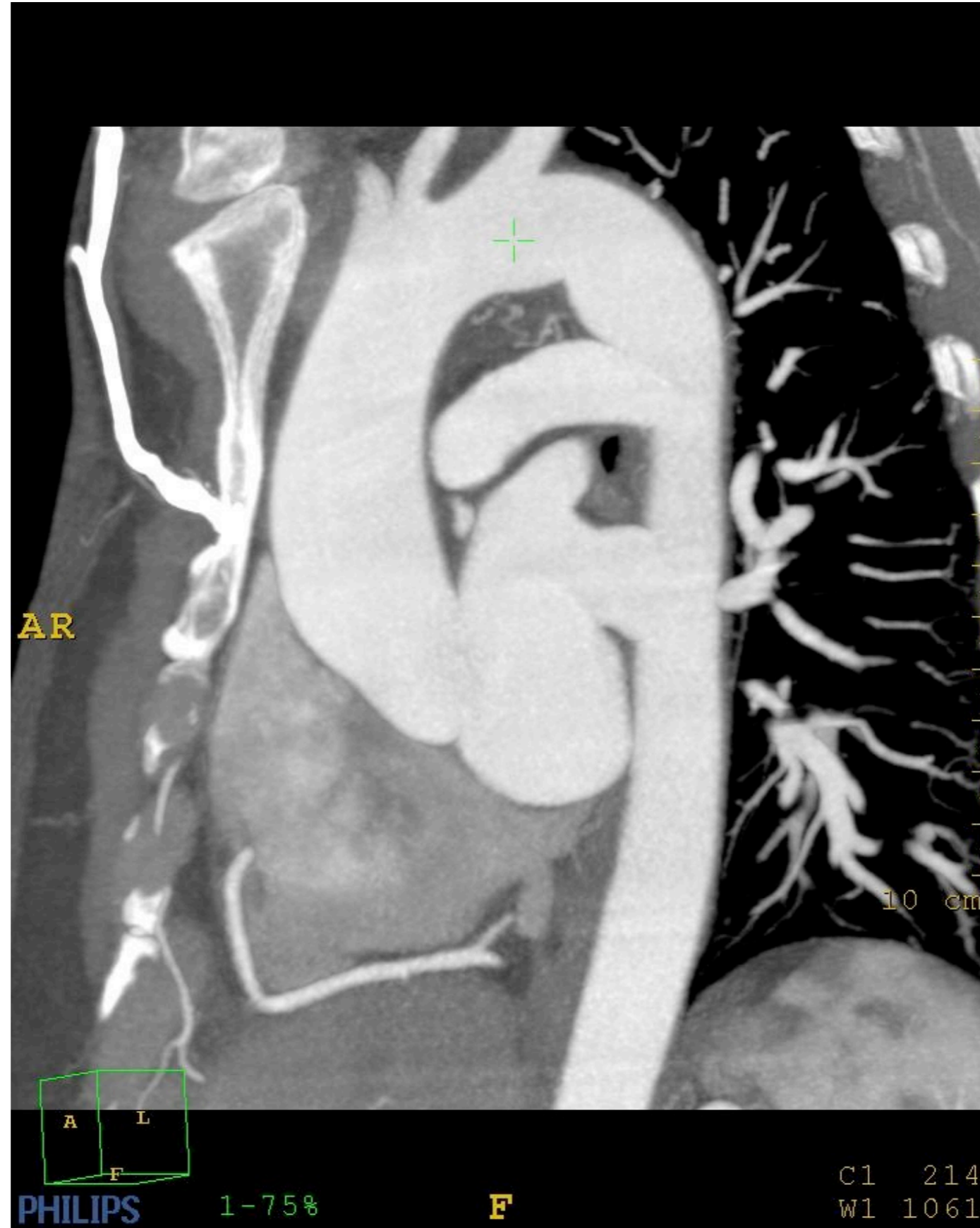
Anneau aortique



Plan perpendiculaire à la chambre de chasse du VG, passant par les points d'insertion les plus bas de chacune des trois cusps

Plan de la crosse aortique

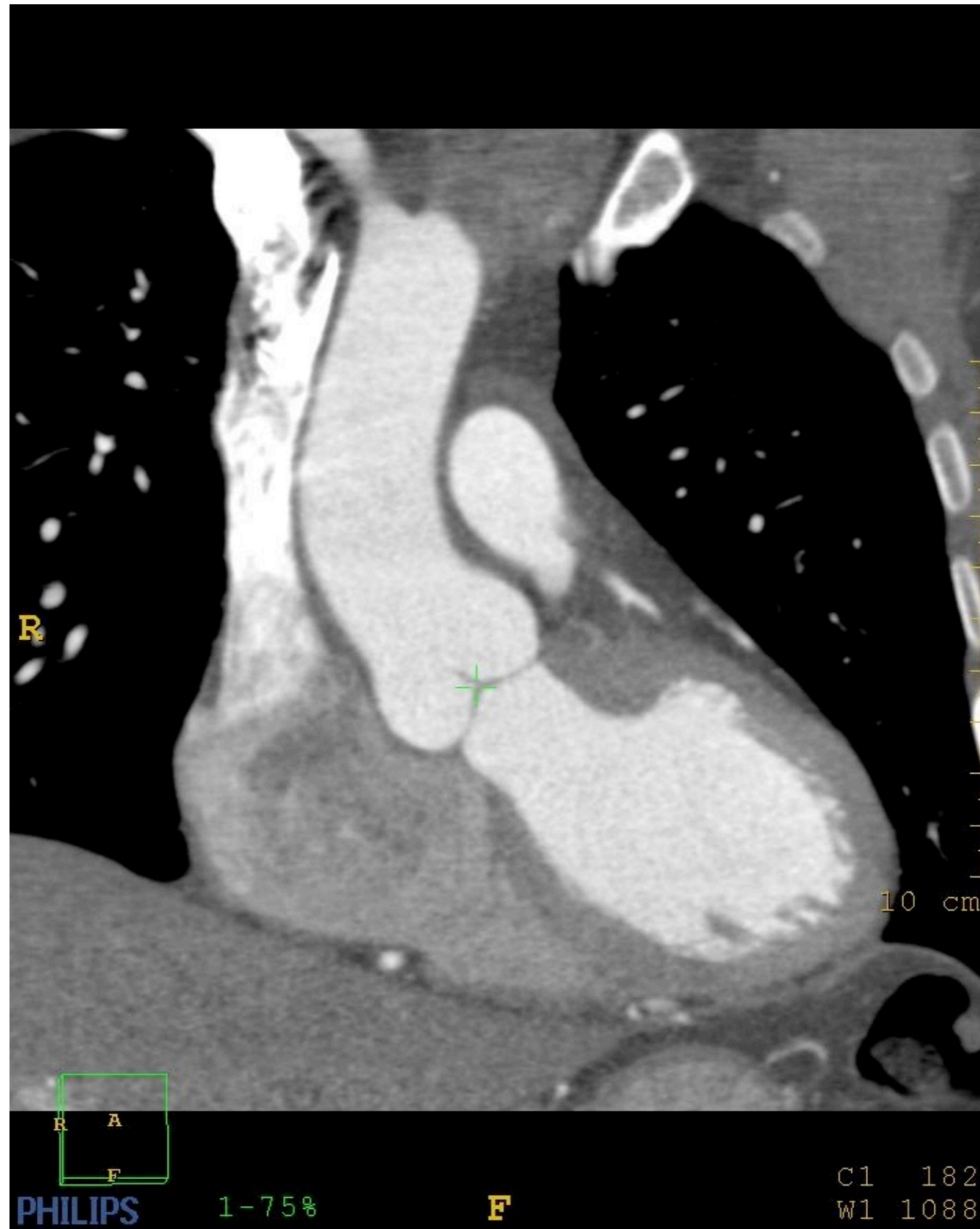
TDM



Plan frontal

TDM

Dt

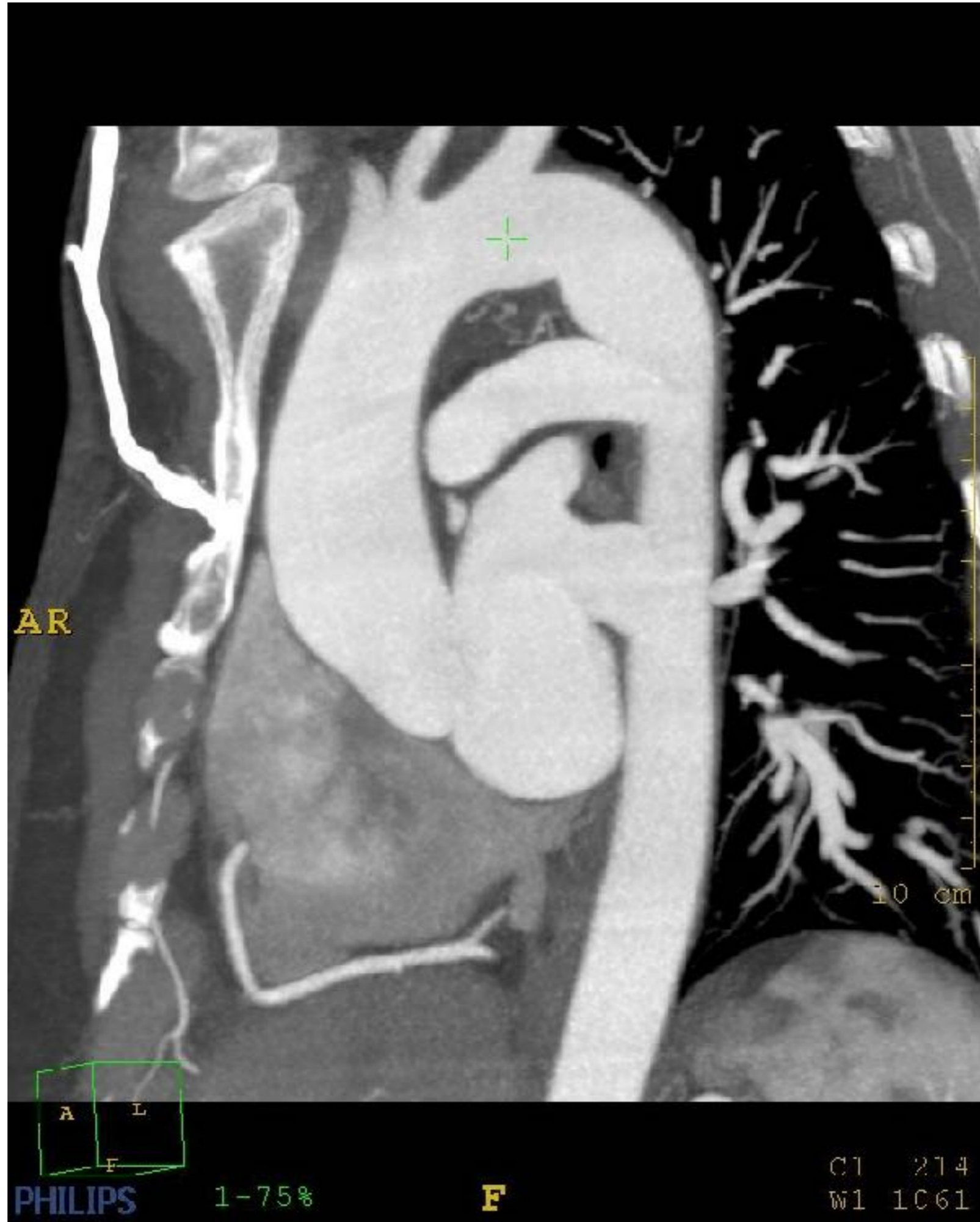


Plan frontal

TDM

Dt







Anatomie Cardiaque

- Examens d'imagerie spécifiques pour l'étude cardiaque
- Coeur dans le champ d'exploration d'un examen réalisé dans un autre but