

Anatomie radiologique des vaisseaux

Bac 13

Etienne Danse,



Objectifs

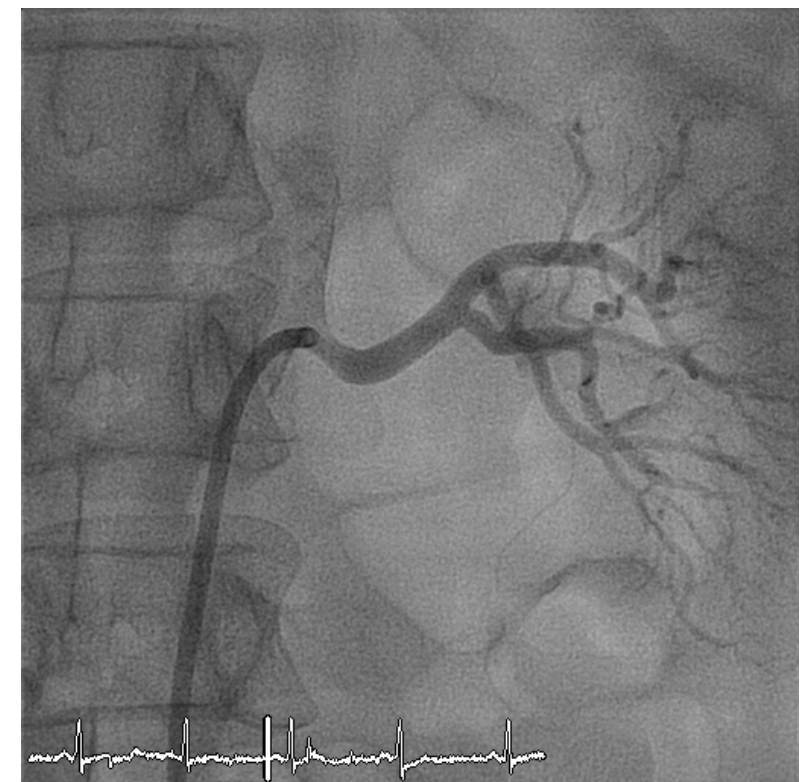
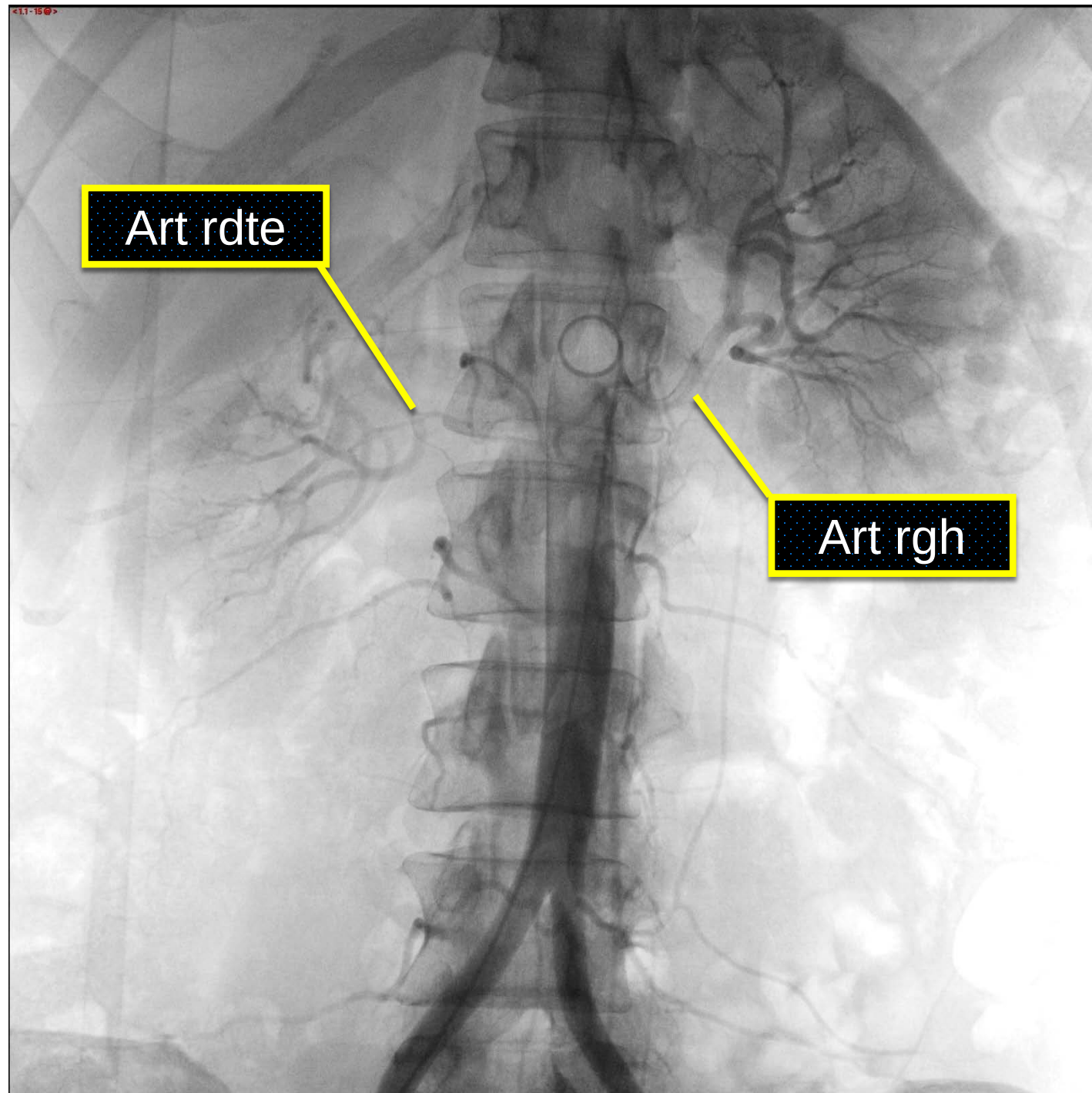
- vaisseaux =>
 - A. artères
 - B. veines
 - C. voies lymphatiques
- techniques
- radioanatomie simplifiée



Techniques

- Radiologie conventionnelle
 - A. sans contraste
 - B. avec contraste
- Echographie
 - A. mode B
 - B. Doppler couleur
- Scanner
- IRM





Aorte et ses branches

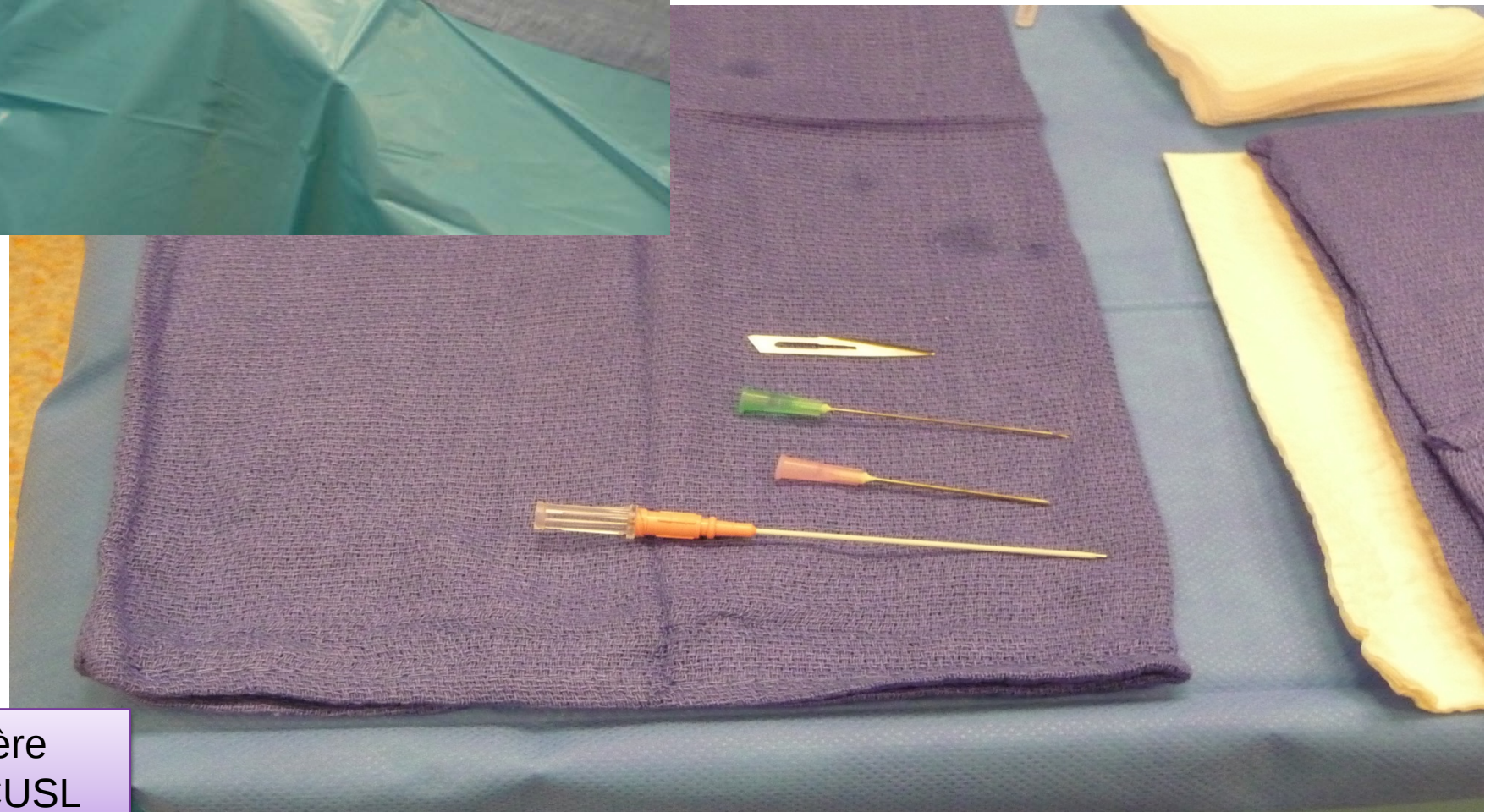
Salle RX interventionnelle



Courtoisie Mme Ch Preat, infirmière
responsable RX interventionnelle CUSL



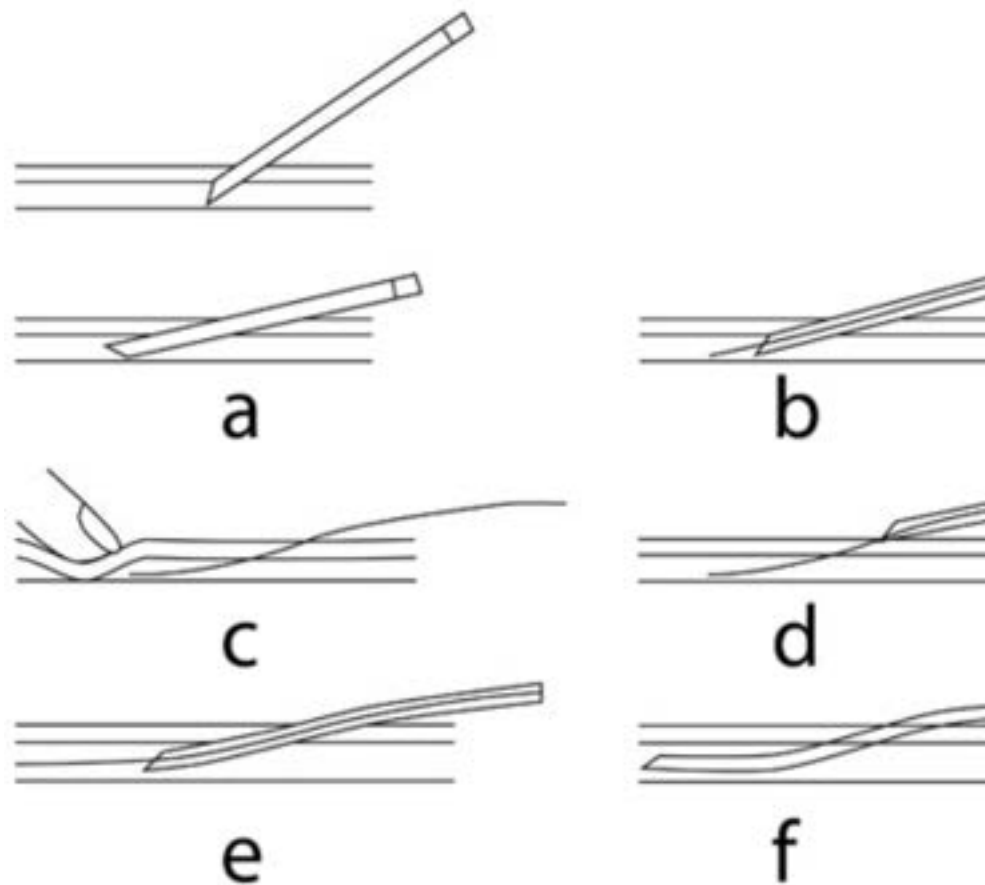
Point-Aiguille de ponction



Courtoisie Mme Ch Preat, infirmière
responsable RX interventionnelle CUSL

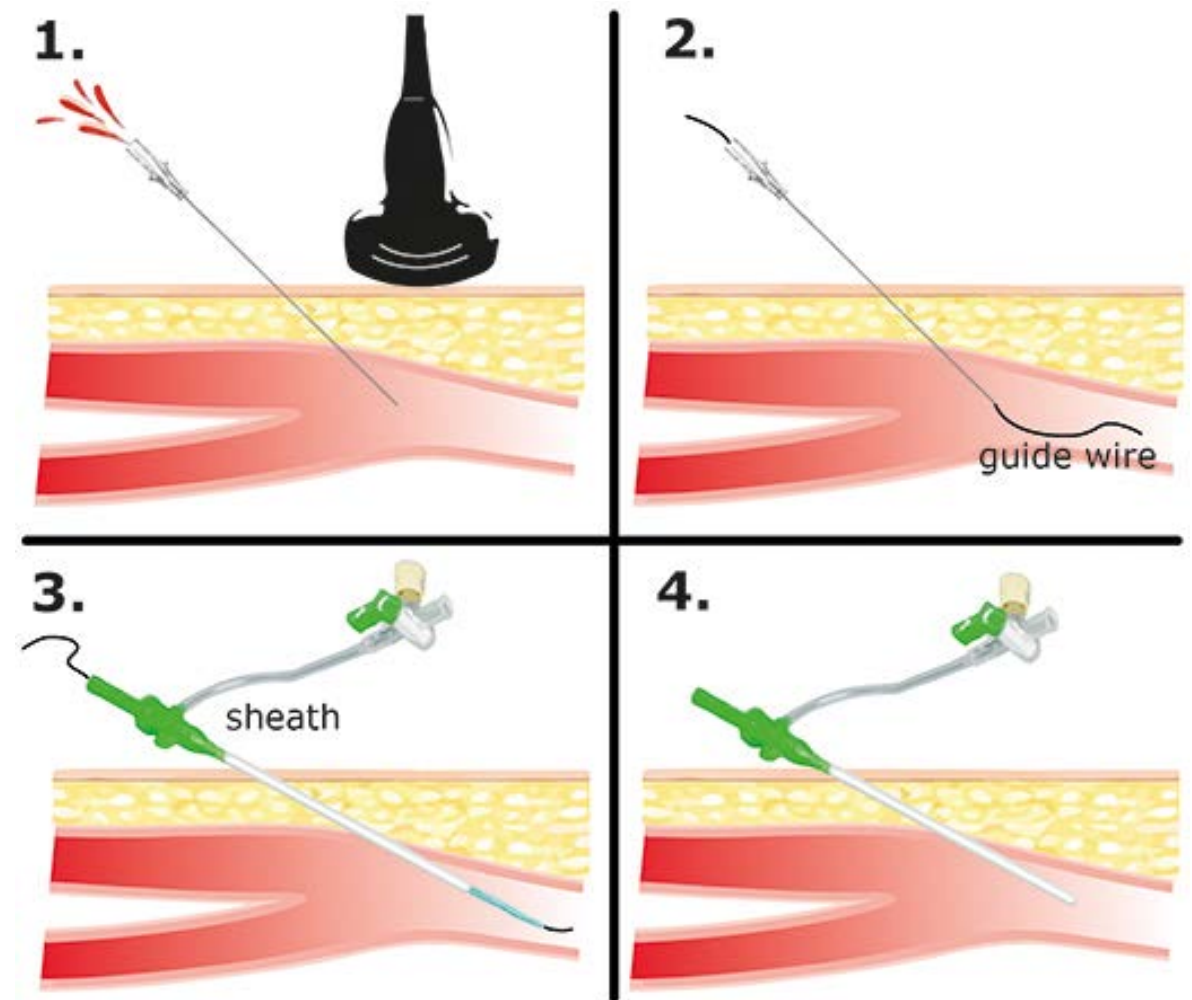
Technique de Seldinger

With thanks to Professors Lars Lönn and Ulf Nyman for their ins

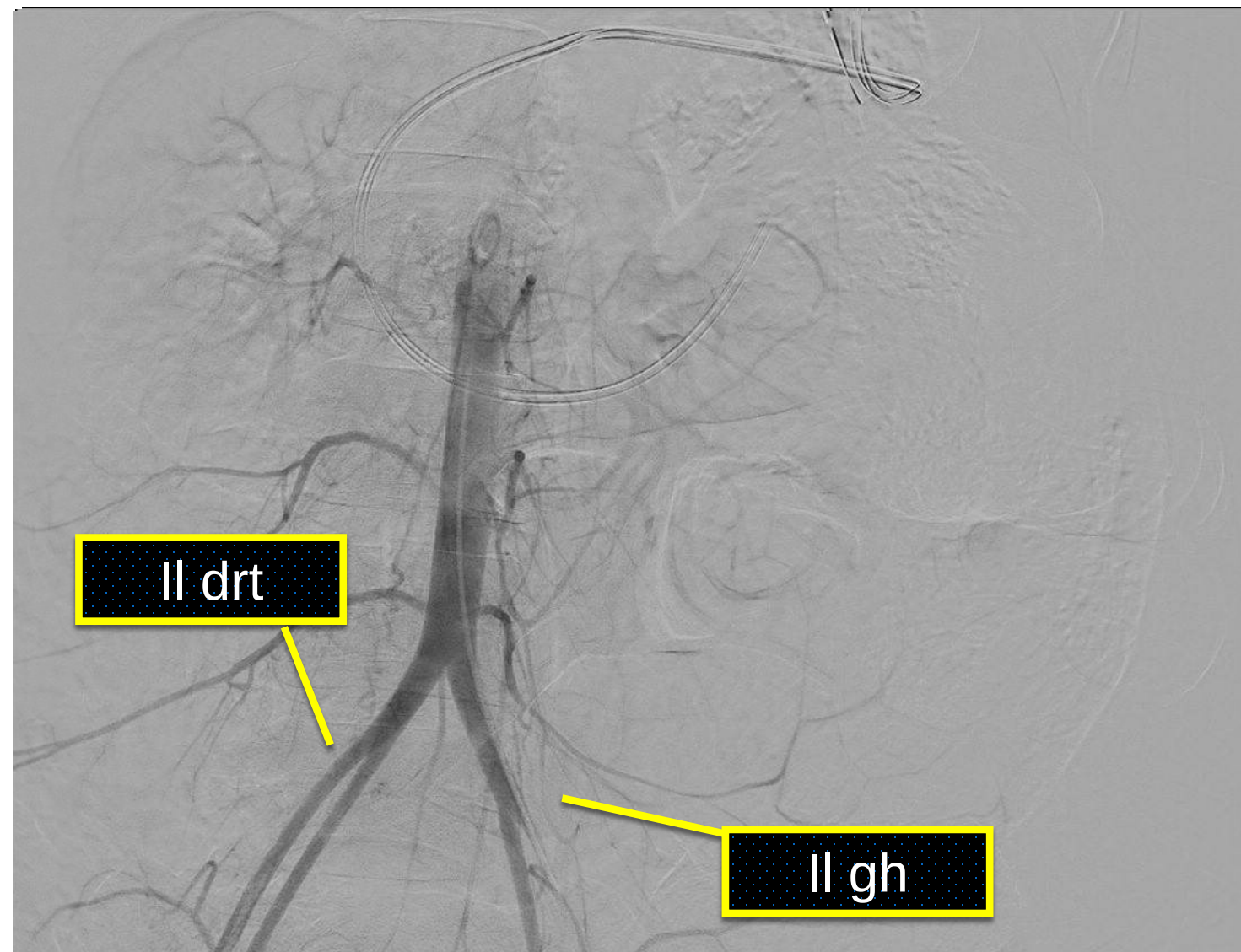
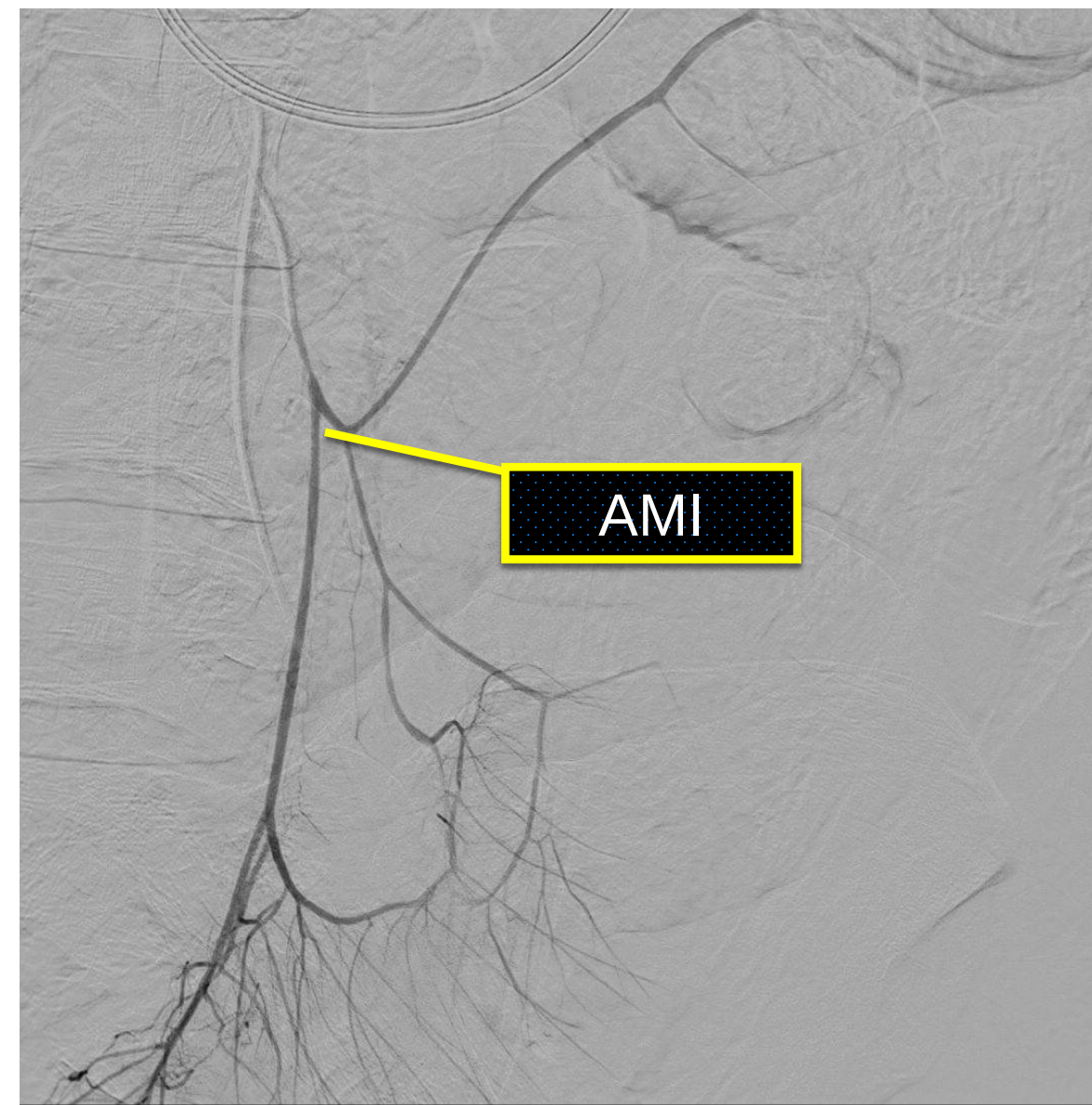


Reproduction of the illustration contained in the original manuscript
Seldinger, Sven Ivar (1953) 'Catheter Replacement of the Needle
Percutaneous Arteriography: A new technique', Acta Radiologica
[Series]

<http://informahealthcare.com/loi/ard>

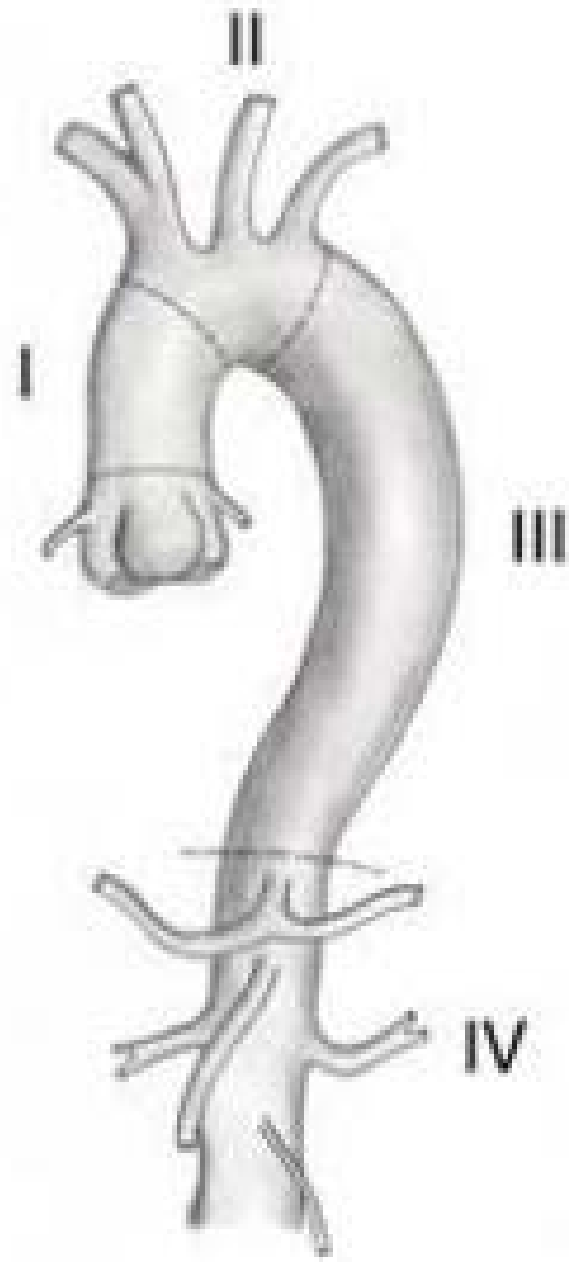




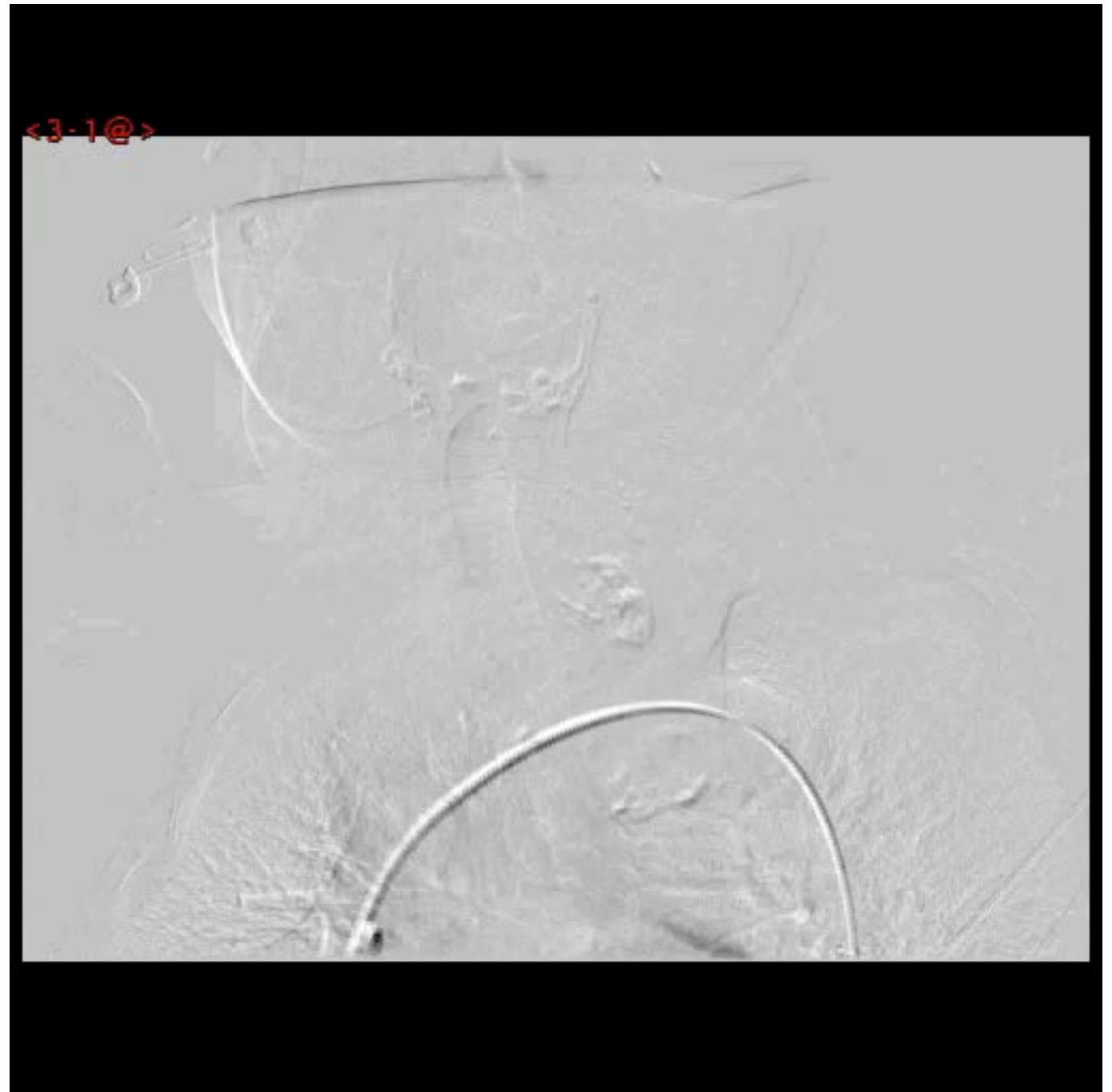


Aorte et ses branches en radiologie conventionnelle
=> angiographie numérisée avec soustraction

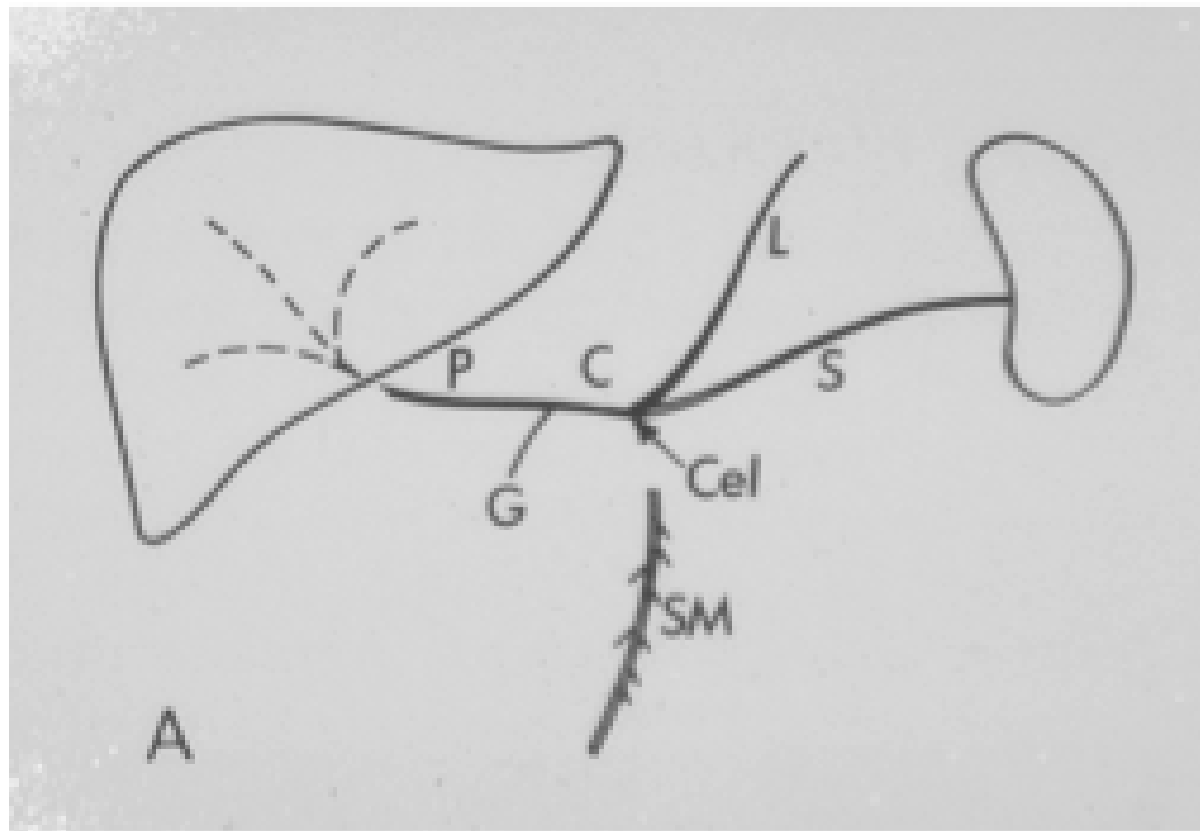
Radiologie conventionnelle



<http://www.vasculaire.com/fr/Maladies/Aneurismes-Aortiques-Thoraco-Abdominaux/I-Qu-est-ce-qu-un-aneurisme-de-l-aorte-thoraco-abdominale>

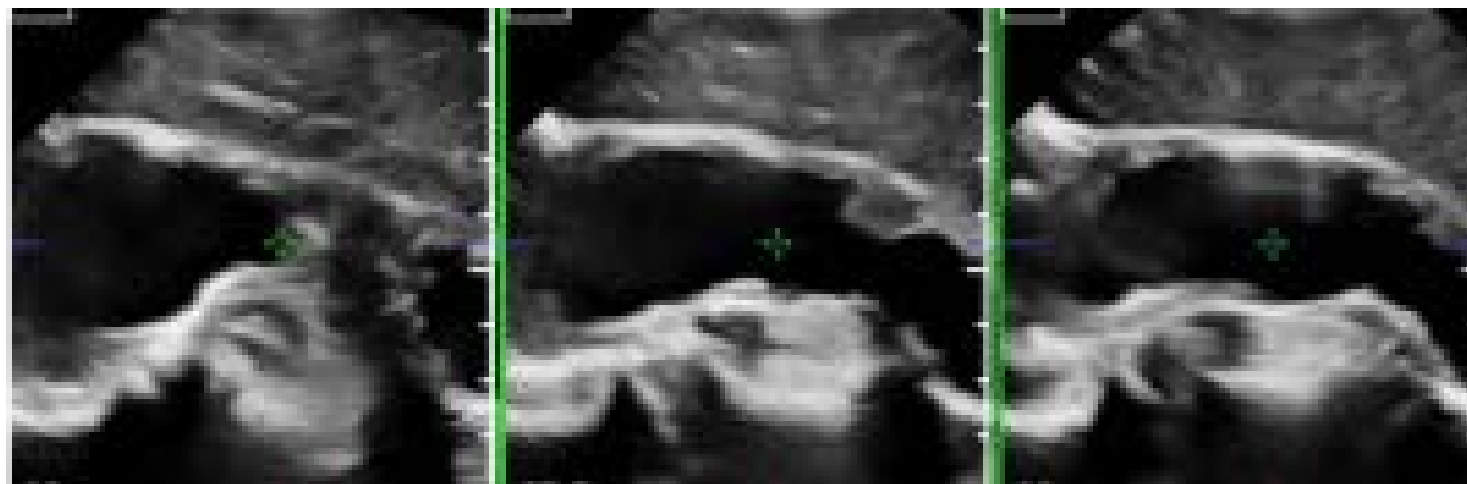
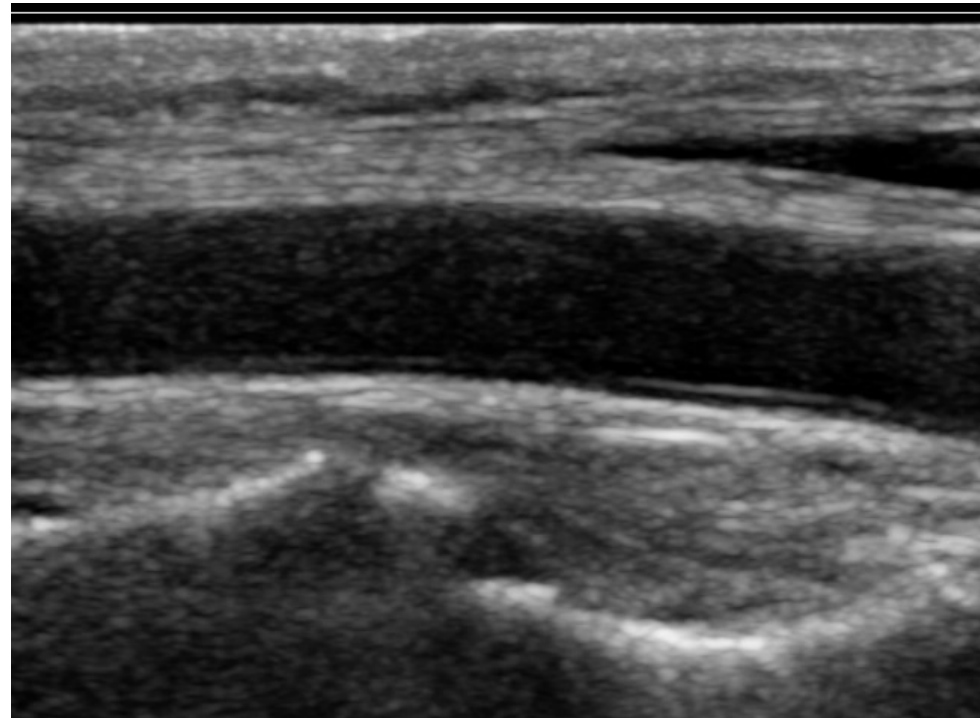


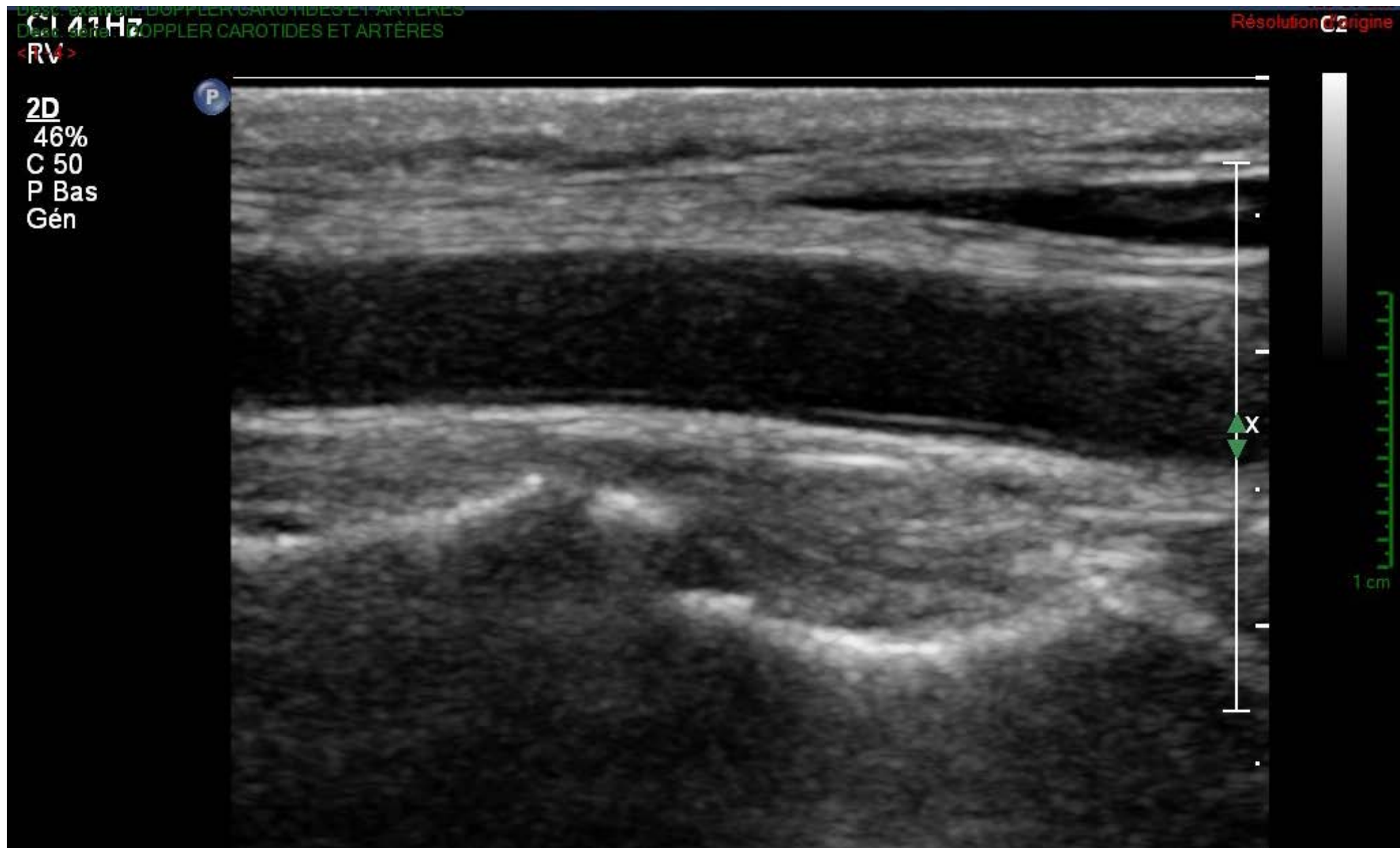
Radiologie conventionnelle



Echographie

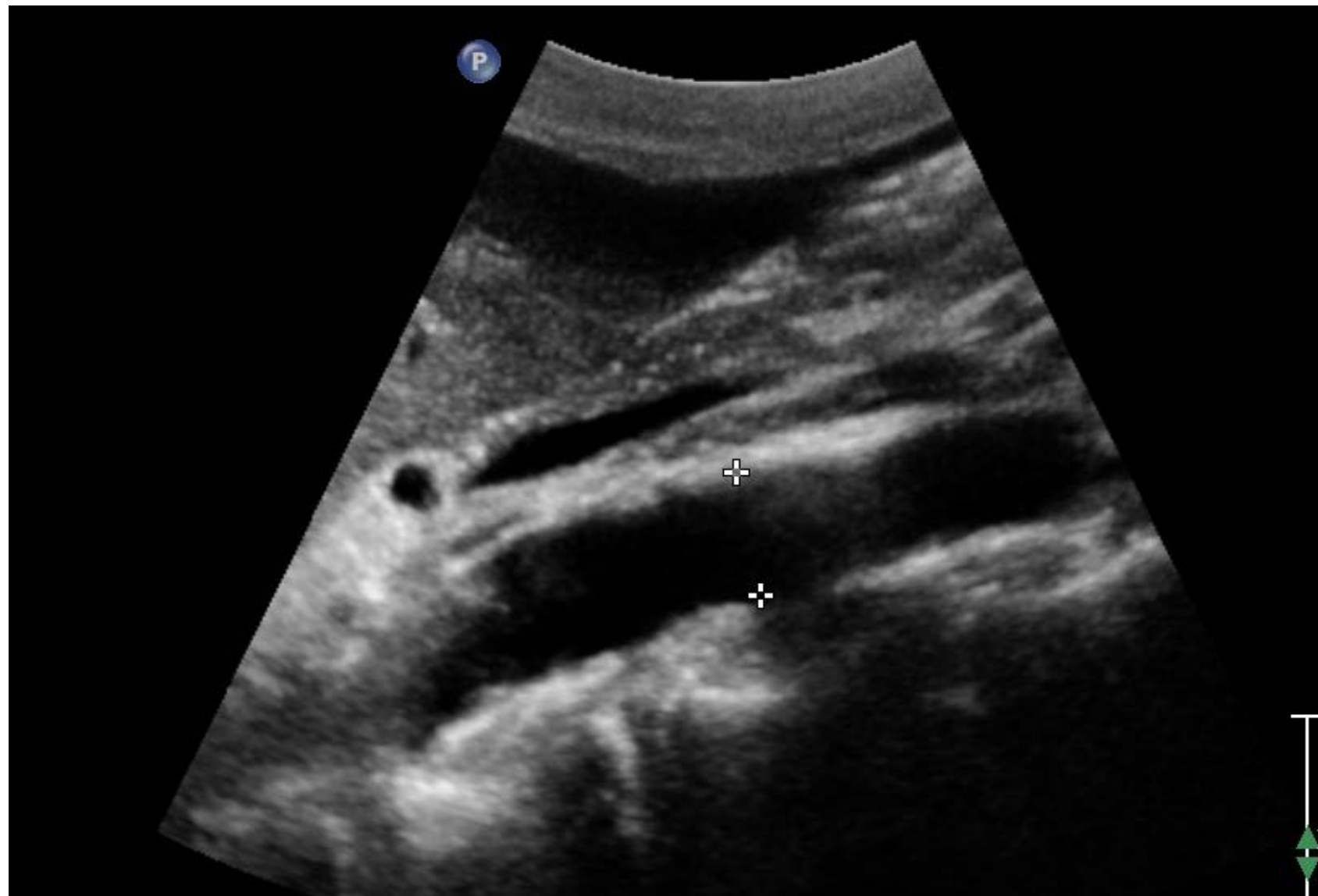
- mode B





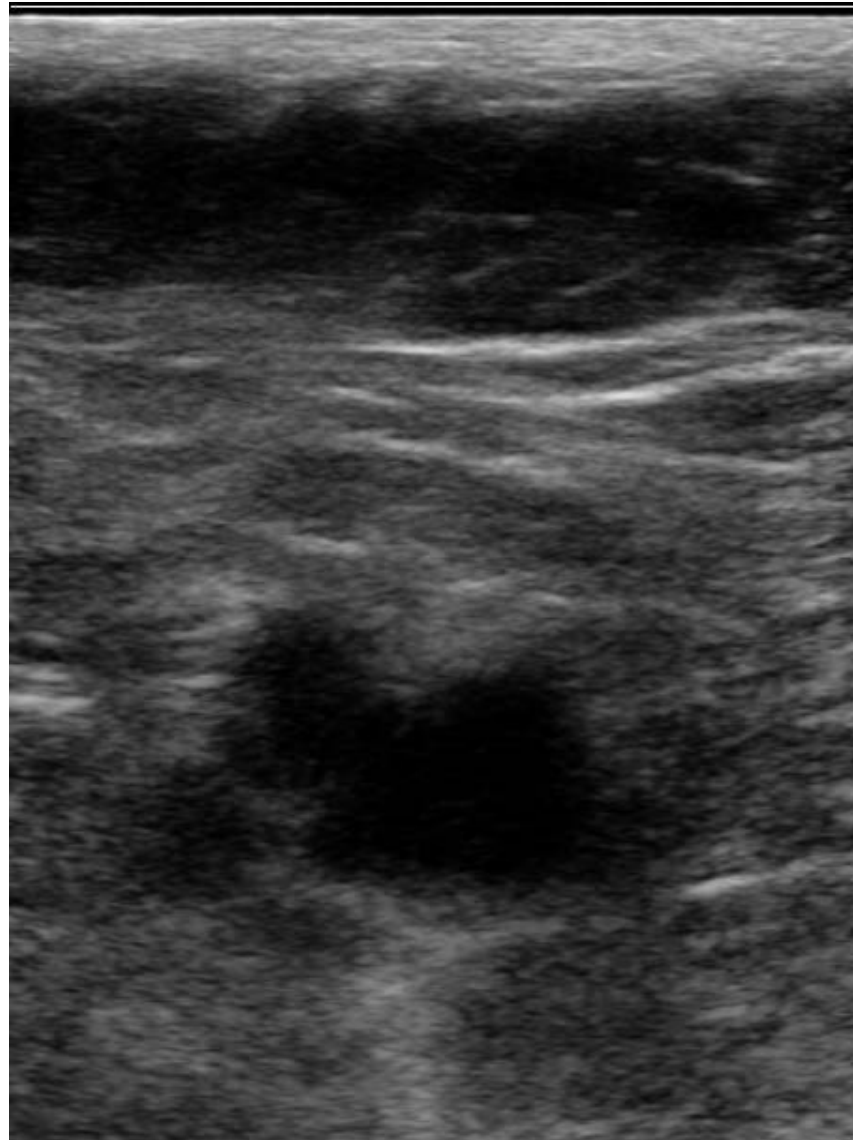
Complexe intima-media

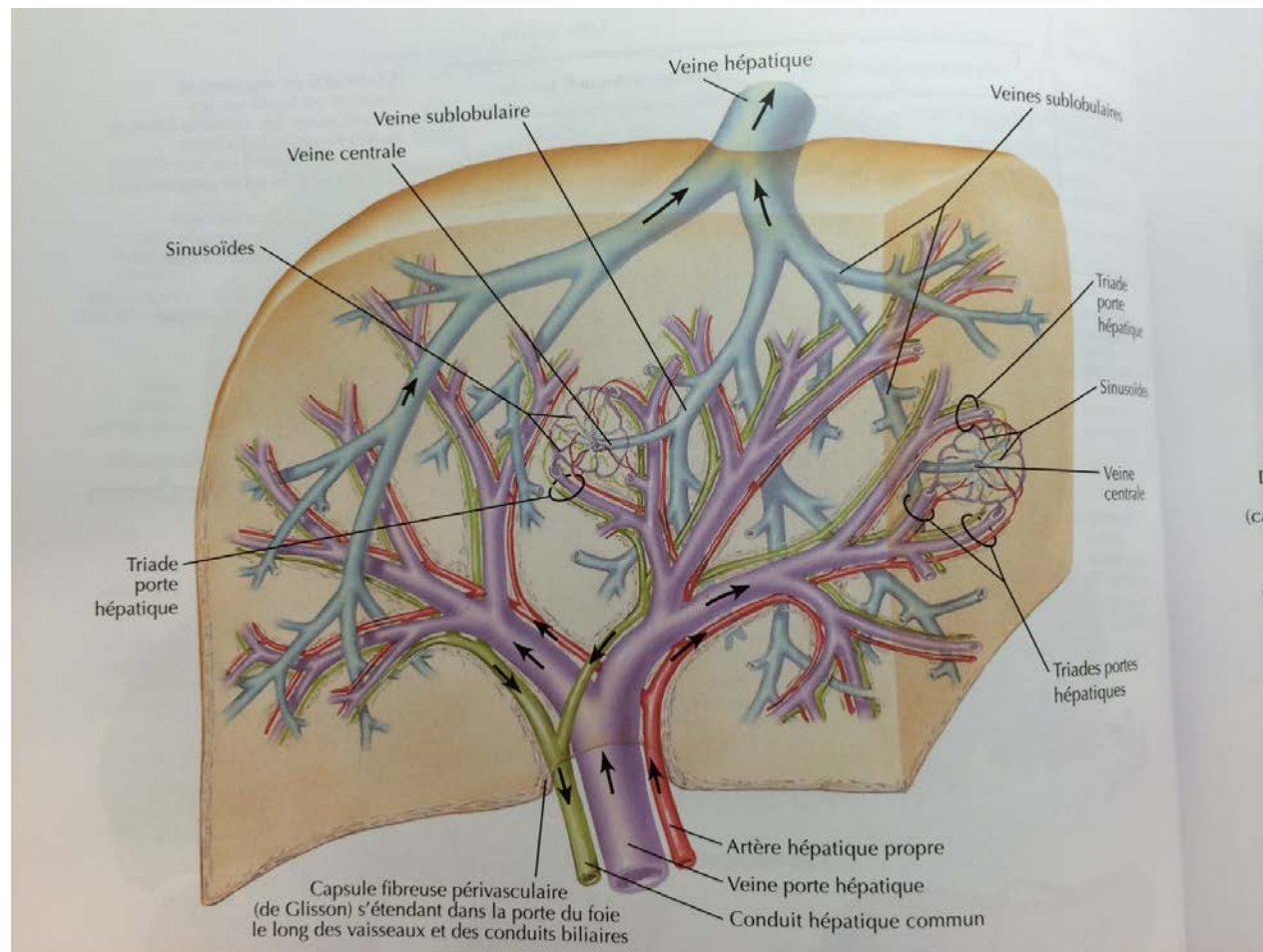
En histologie : intima-media-adventice
< 0,8 mm aorte abdominale , afc et < 1 mm CC



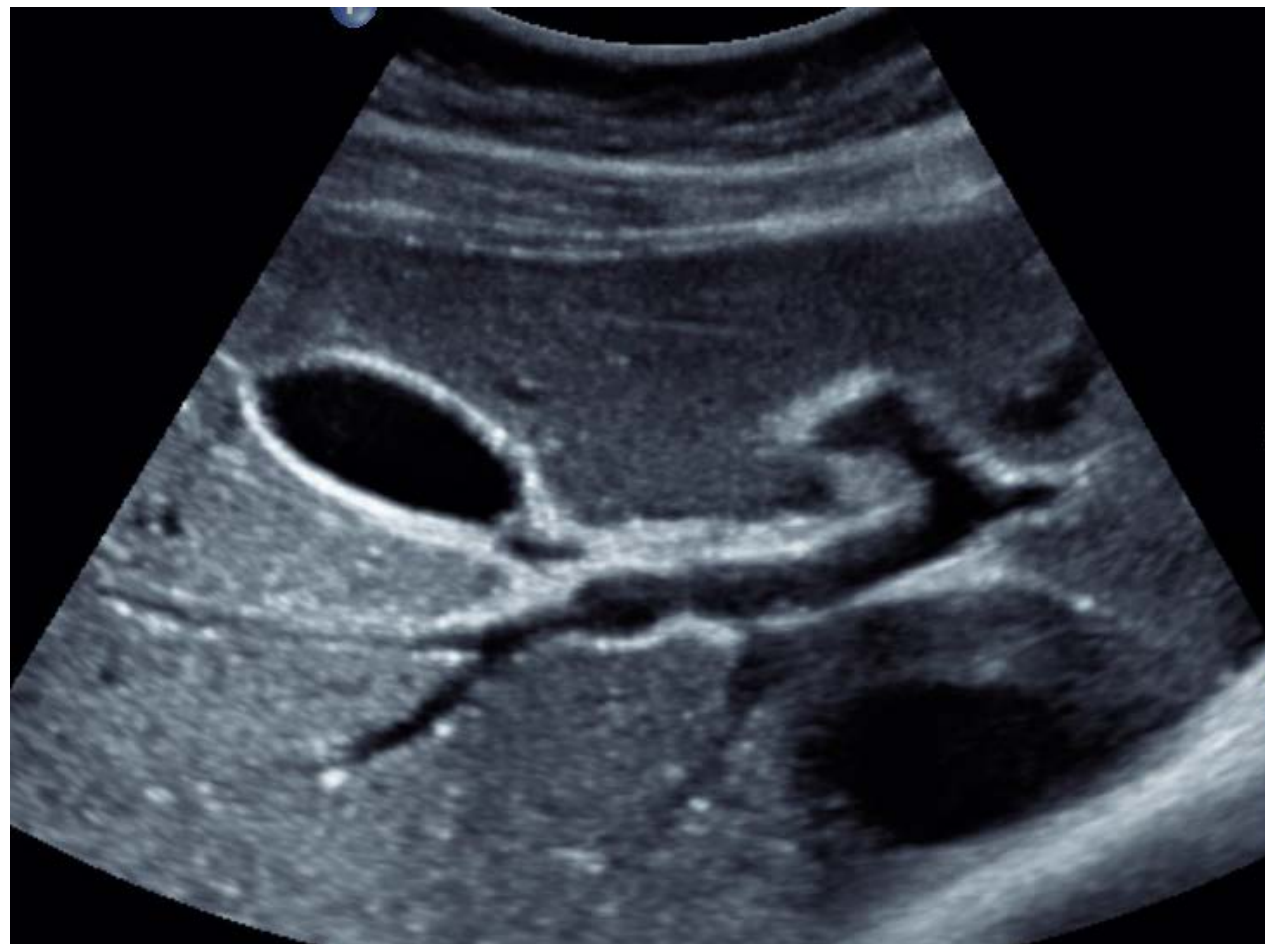
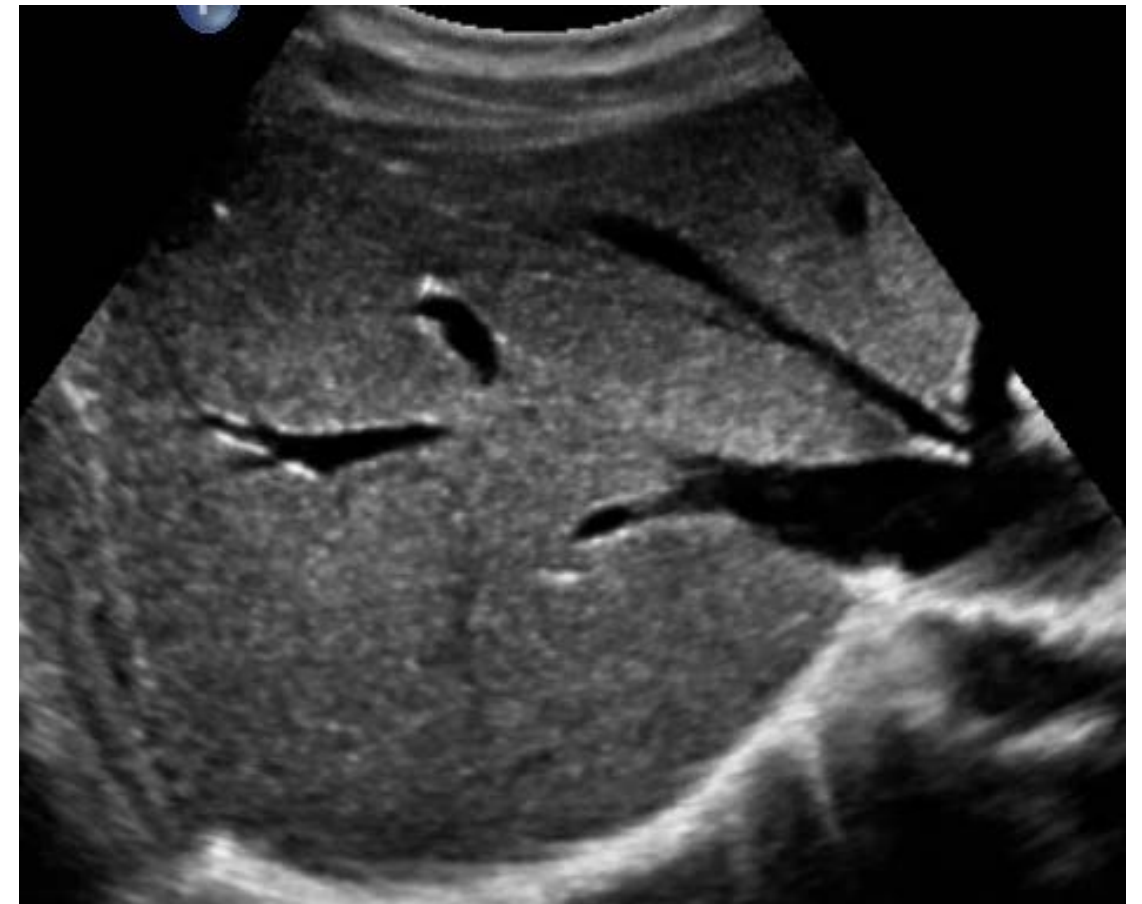
Veines

< 0,9 mm

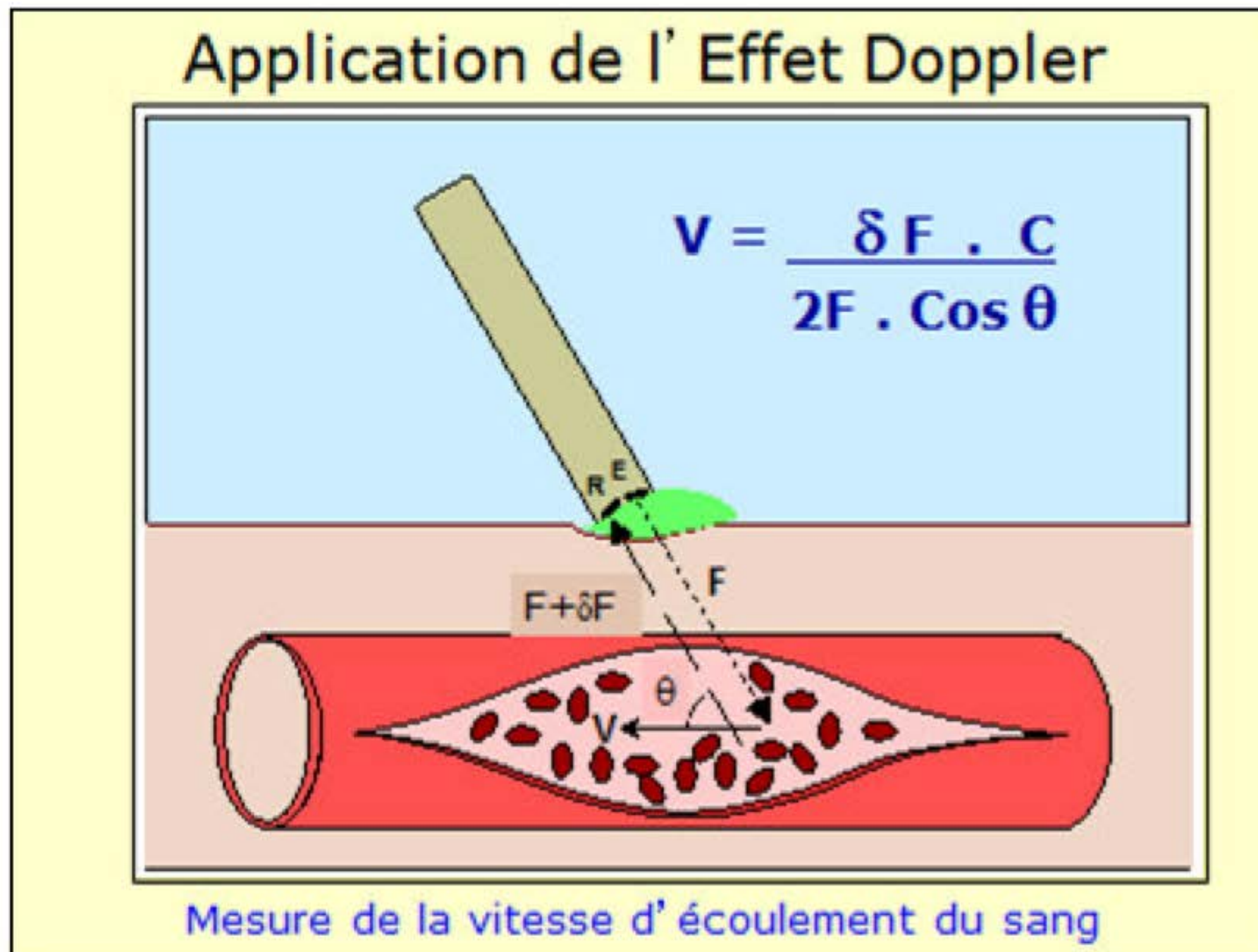


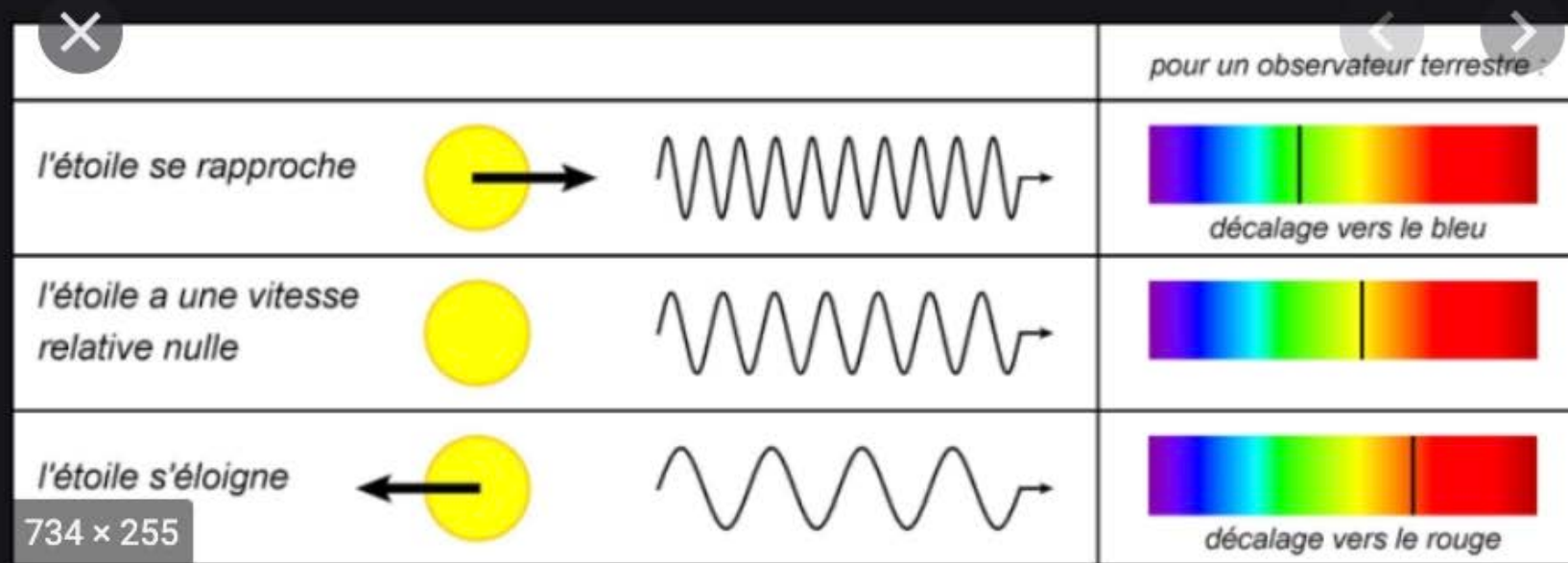


In Netter, Atlas d'anatomie humaine, 4^{ème} édition, 2007



Les Techniques
Ultrasonographiques d'Etude du
Flux Sanguin





Maxicours

734 × 255

([Salzbourg](#), [29 novembre 1803](#)
- [Venise](#), [17 mars 1853](#))



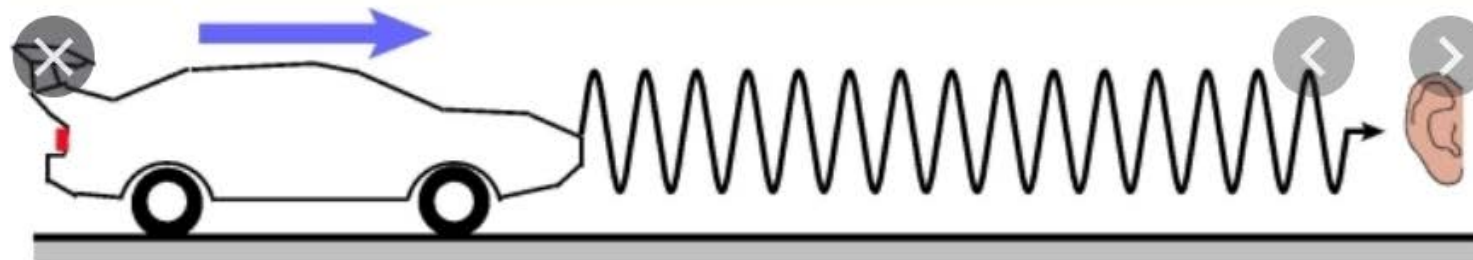
220 × 277



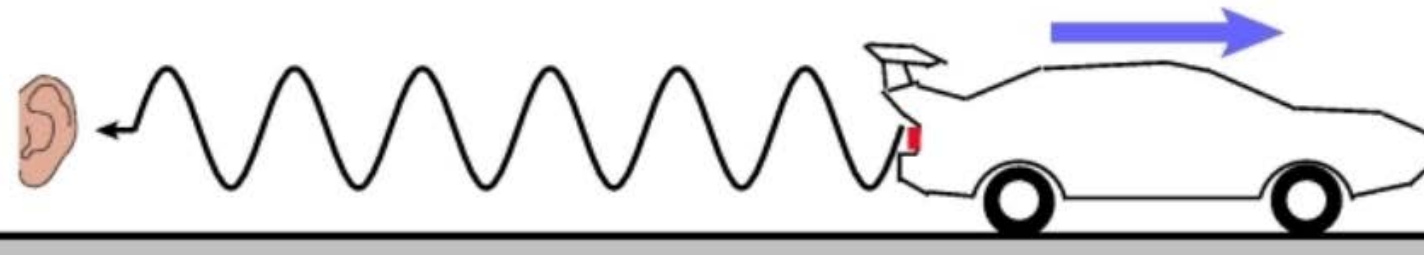
Wikipédia

Christian Doppler — Wikipédia





Le véhicule se rapproche : le son est perçu plus aigu



Le véhicule s'éloigne : le son est perçu plus grave



Maxicours

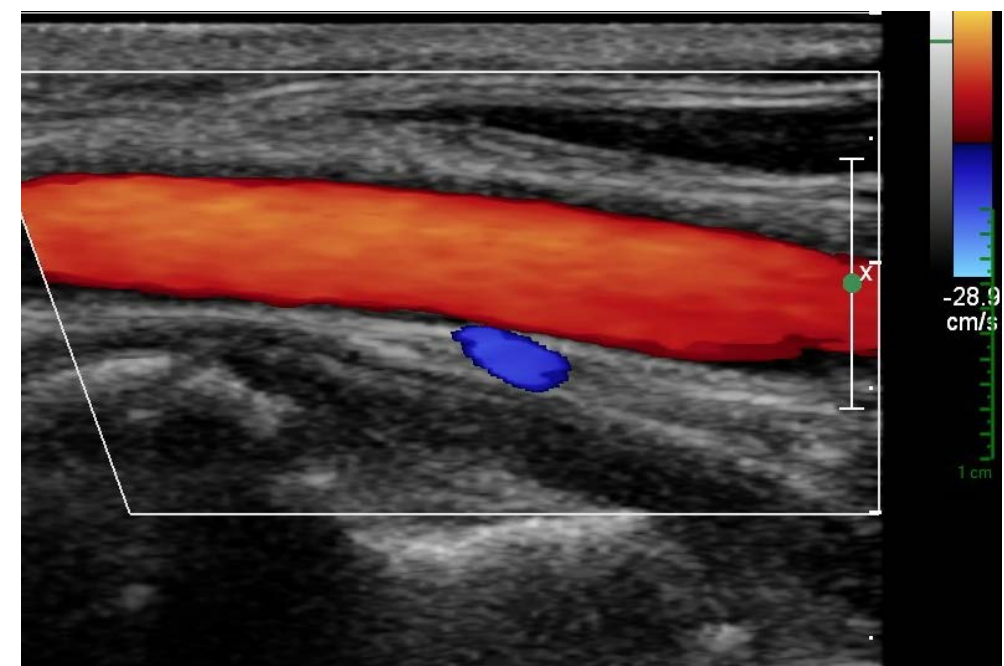
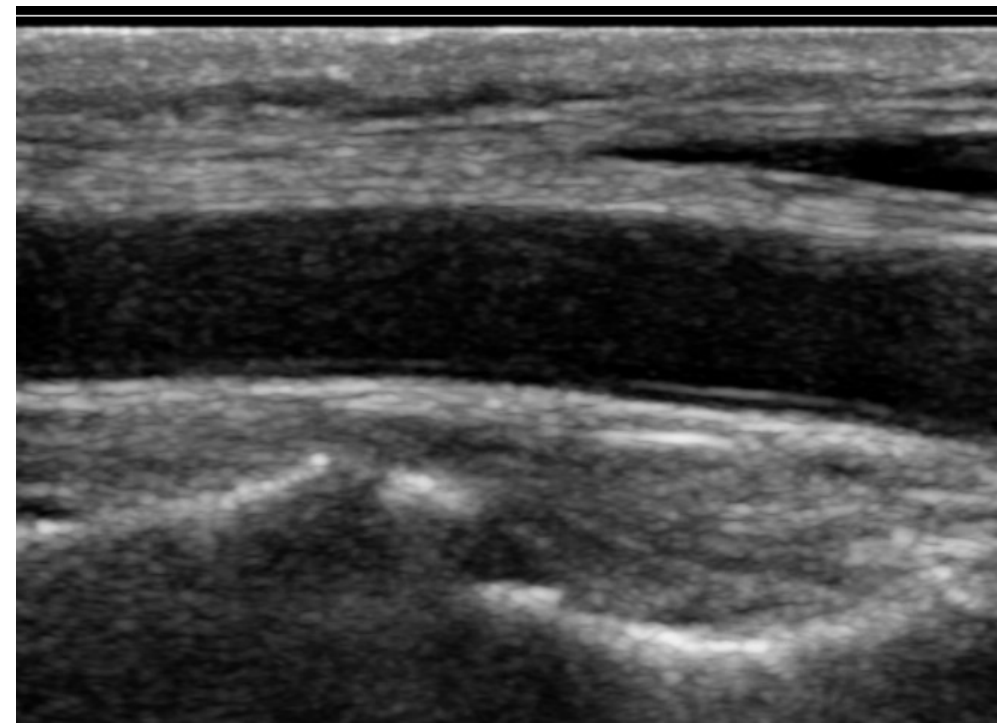


Echographie

- mode B
- Doppler couleur

=> formule de l'effet Doppler

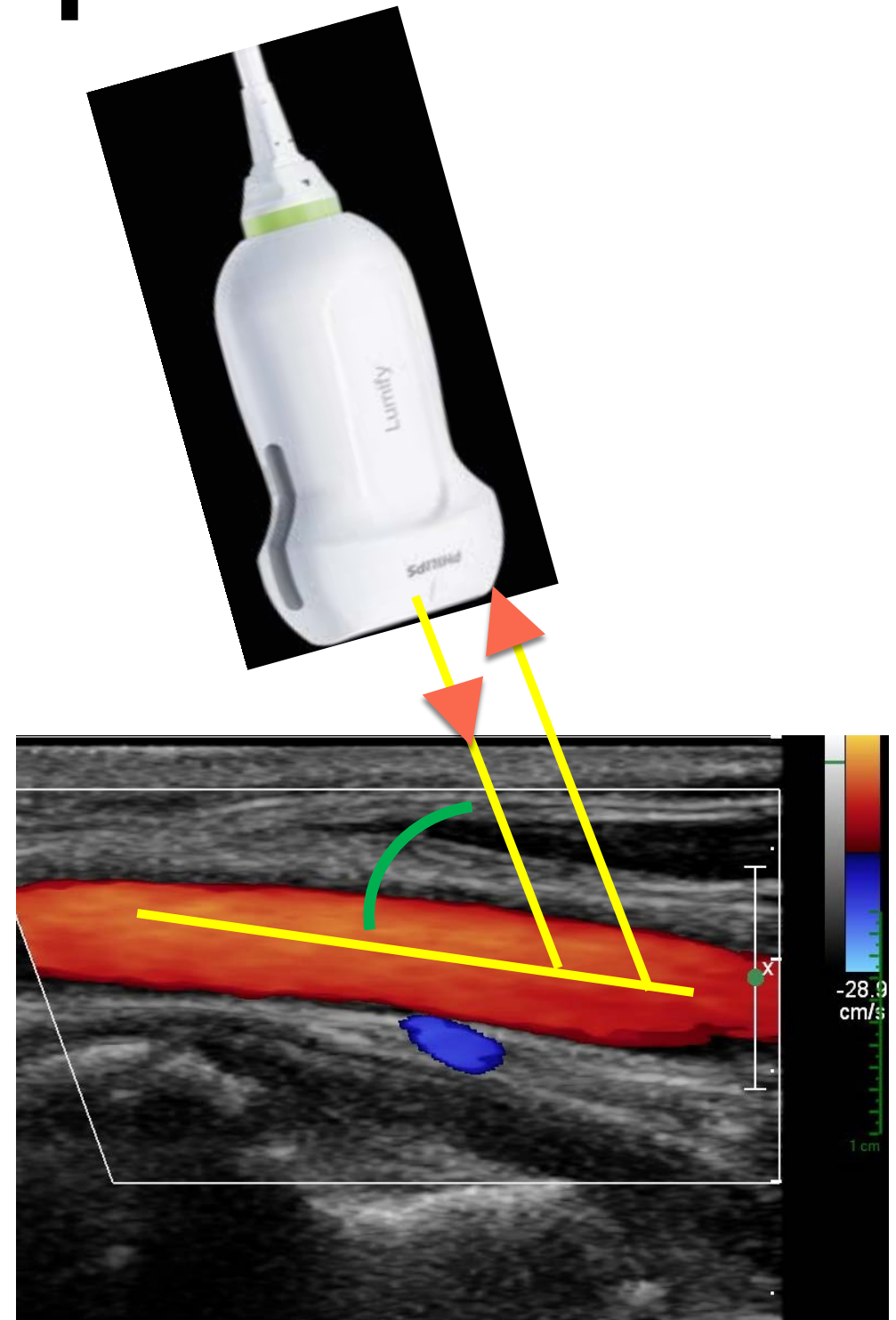
$$\Delta F = 2V \cdot F_0 \cdot \cos \Theta / c$$

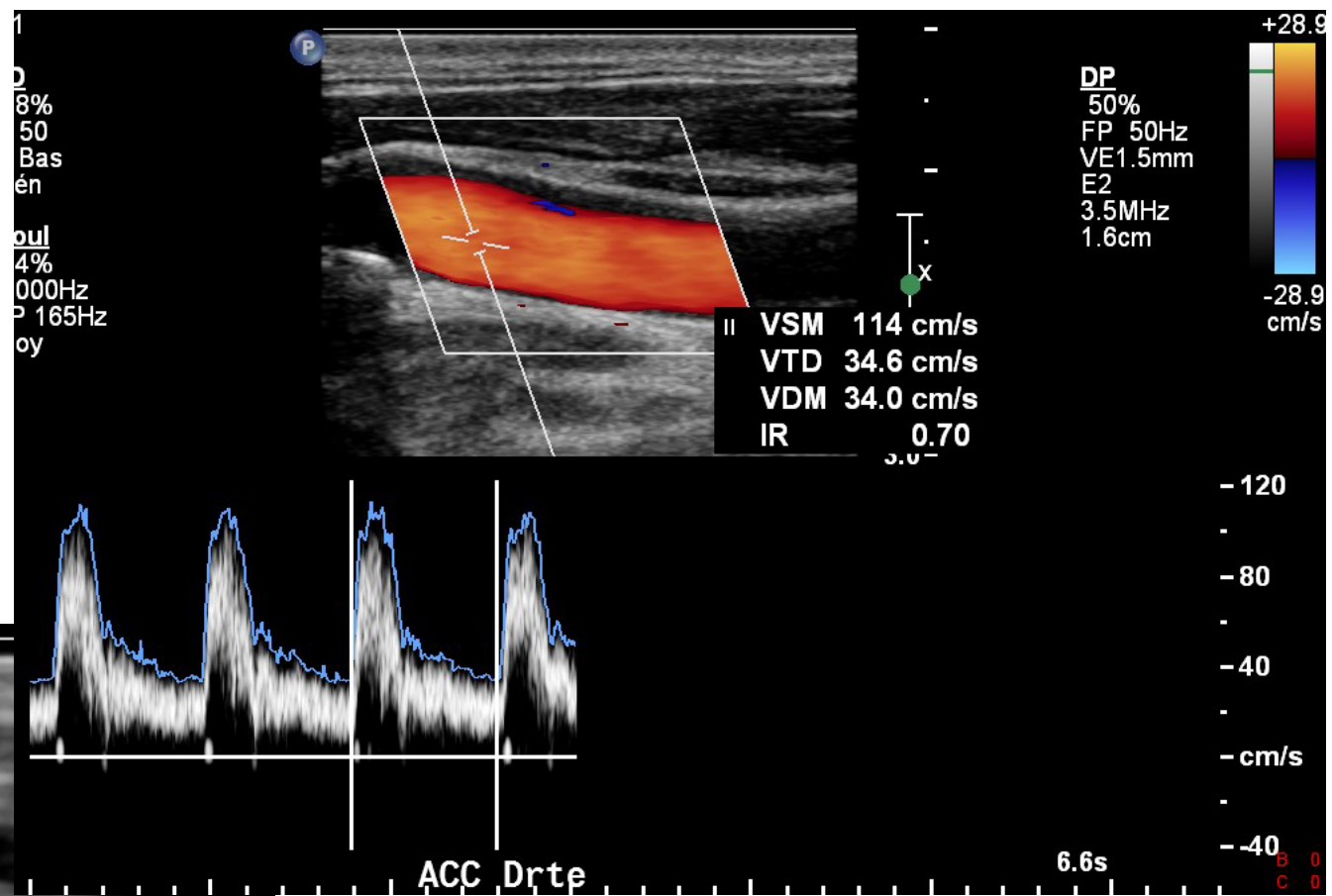
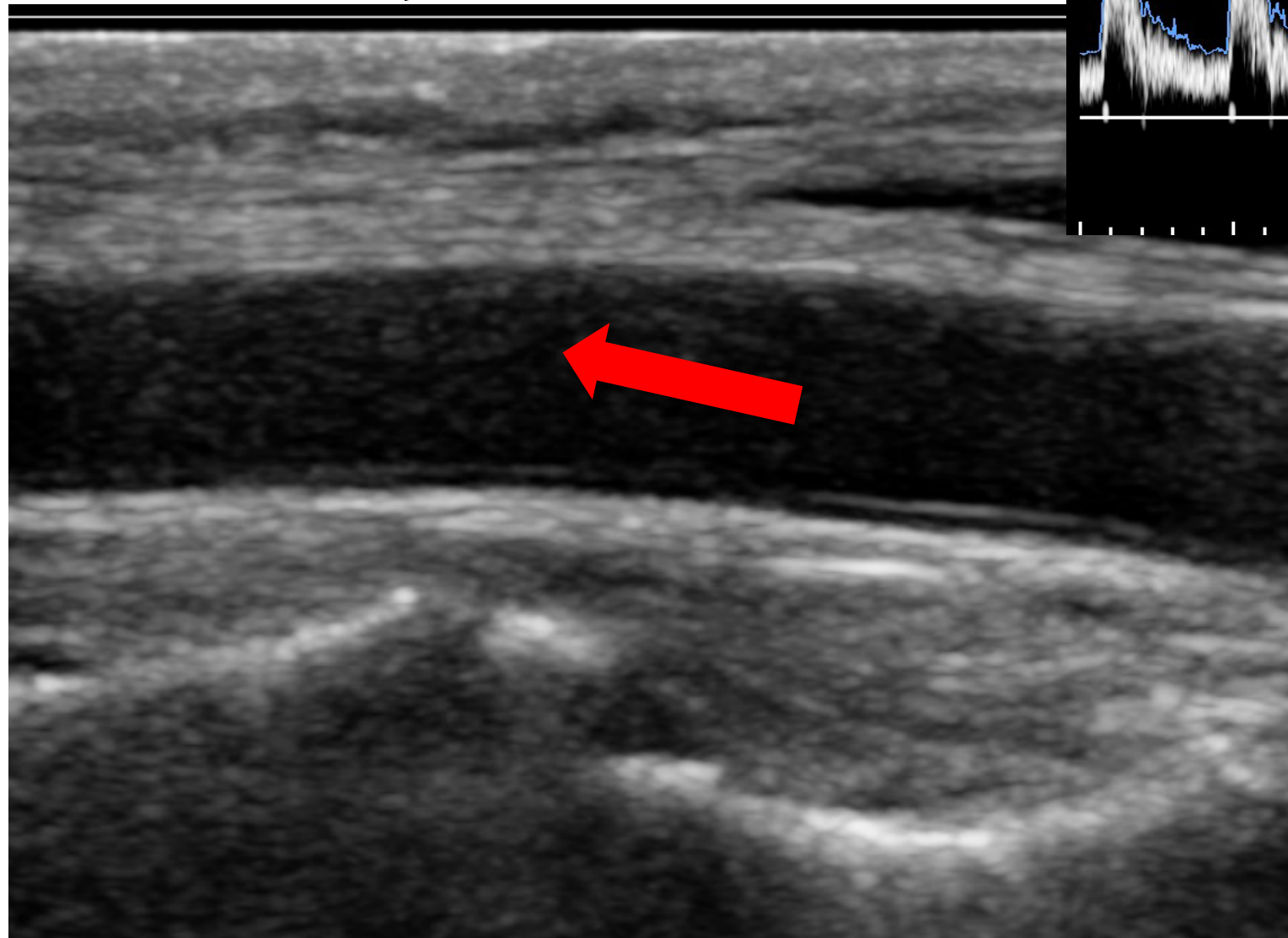


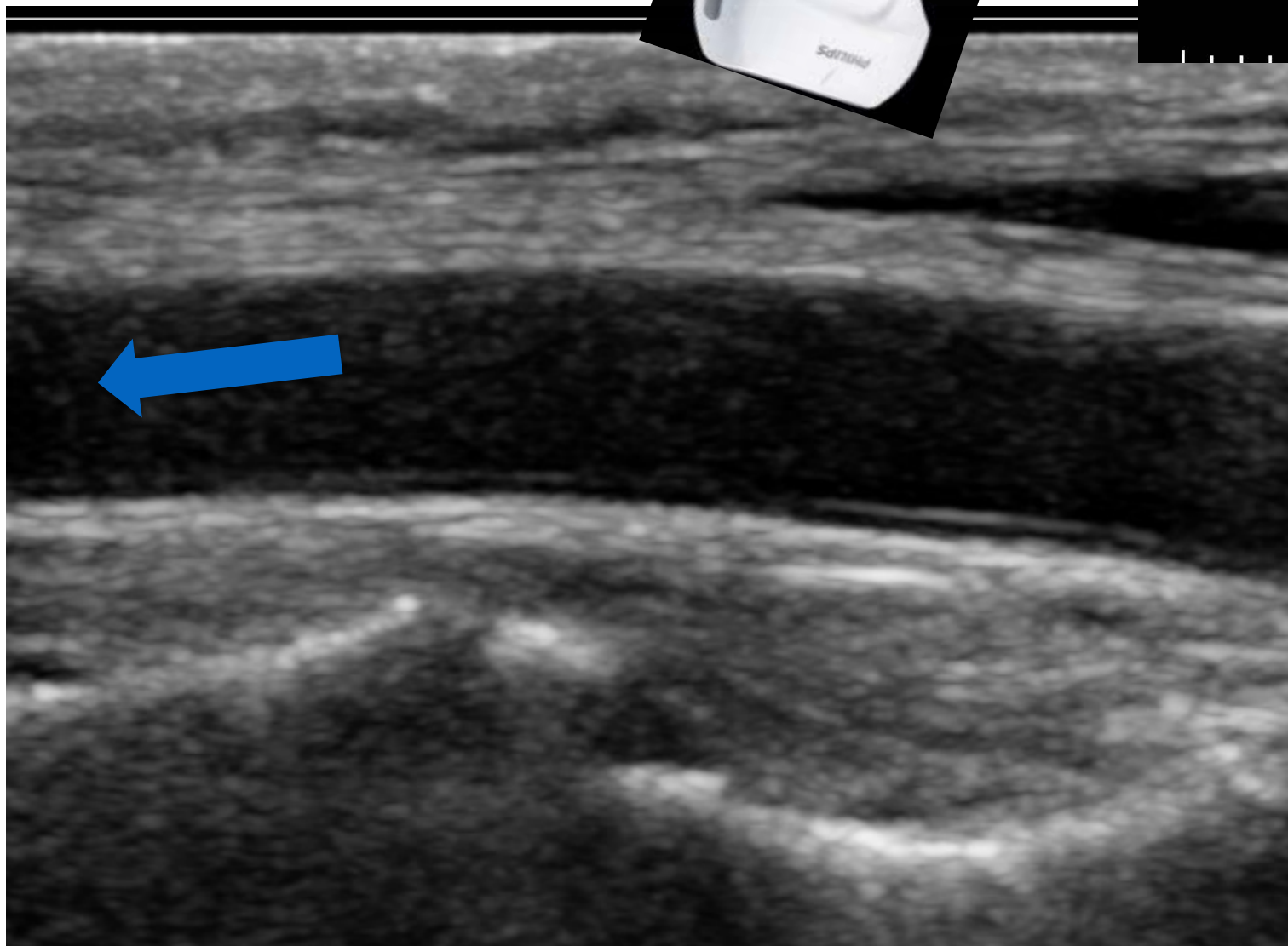
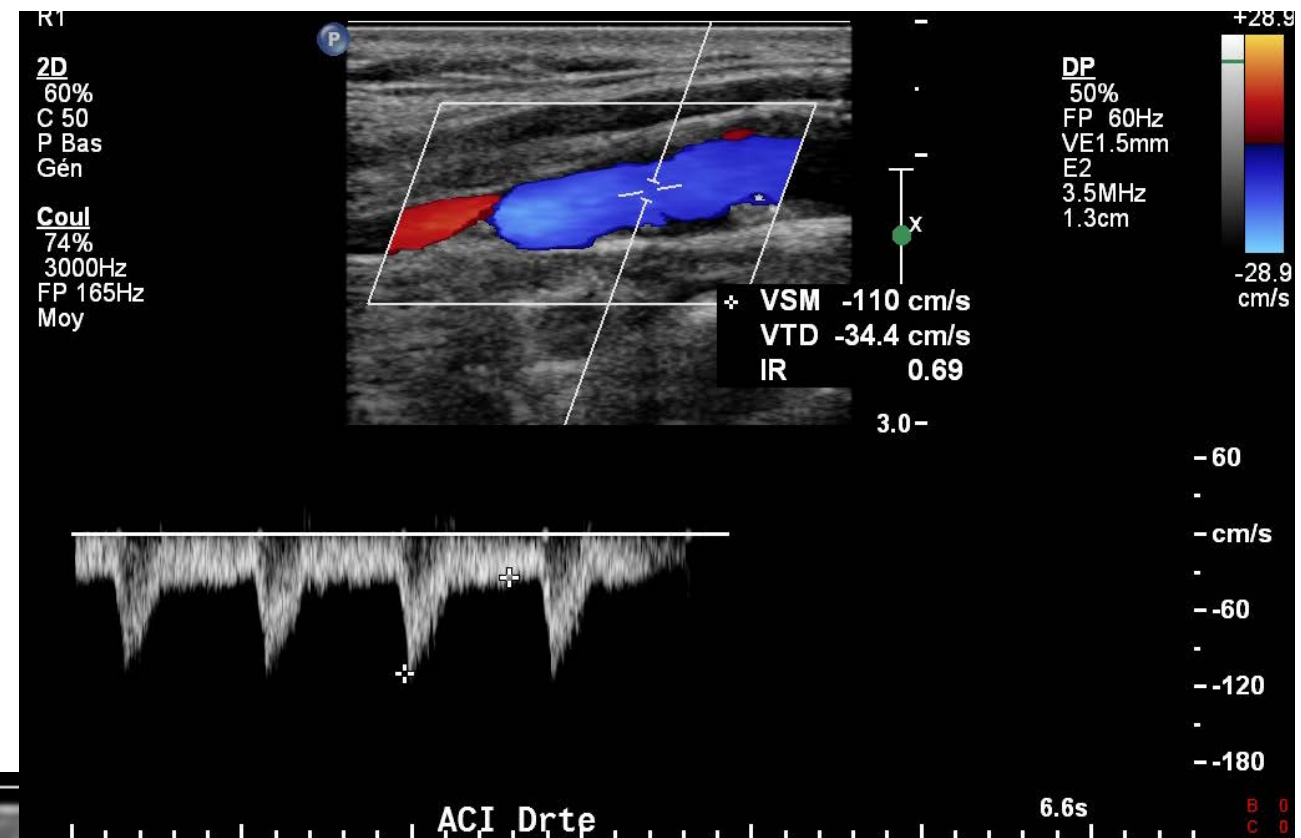
Echographie

- mode B
 - Doppler couleur
- => formule de l'effet Doppler

$$\Delta F = 2V \cdot F_0 \cdot \cos \Theta / c$$





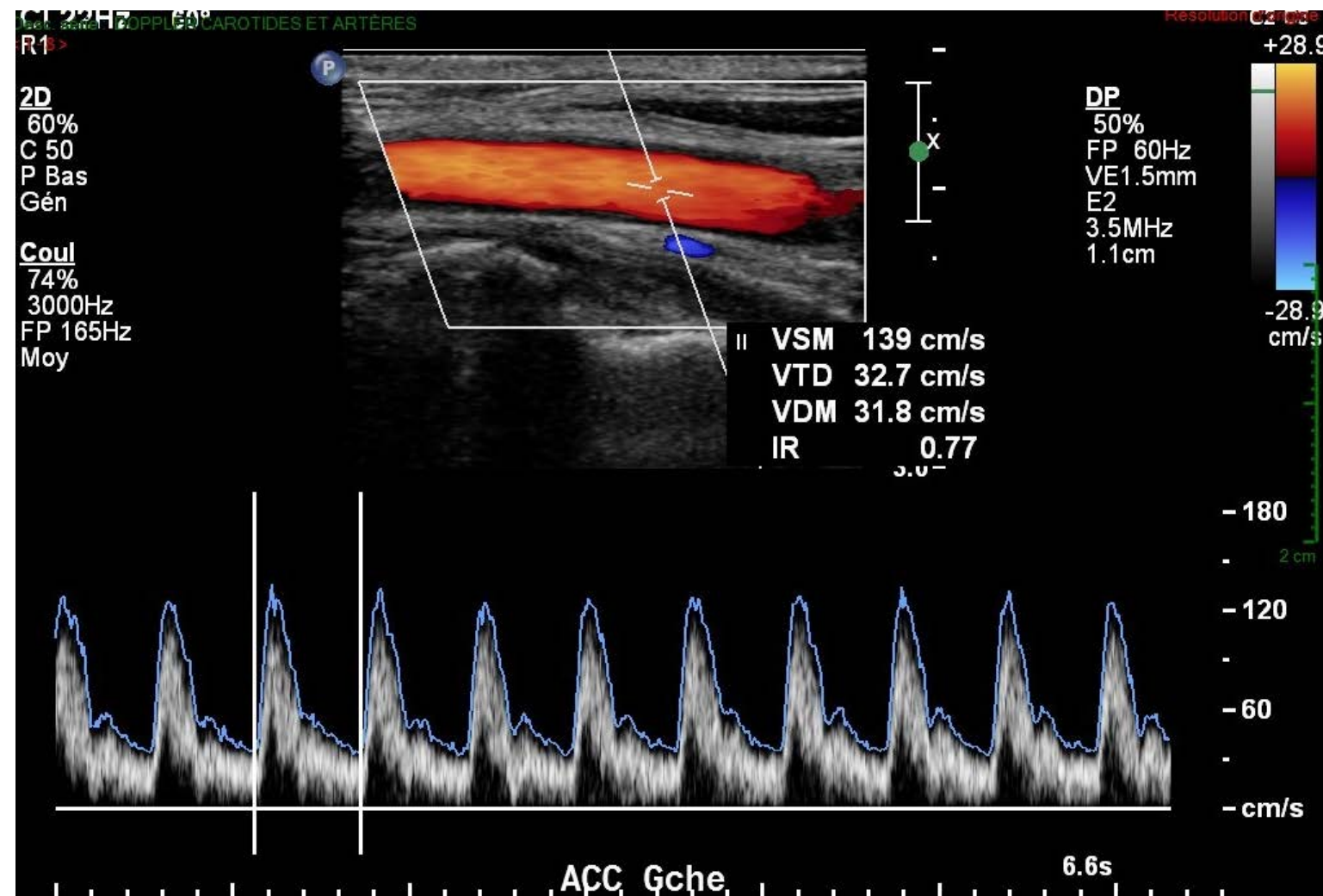


Echographie

- mode B
- Doppler couleur

=> formule de l'effet Doppler

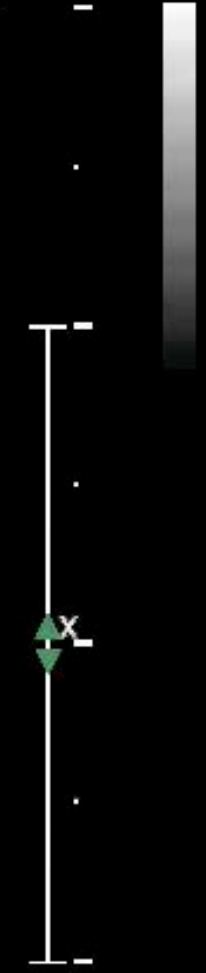
$$\Delta F = 2V \cdot F_0 \cdot \cos \Theta / c$$



CI 37Hz
RV

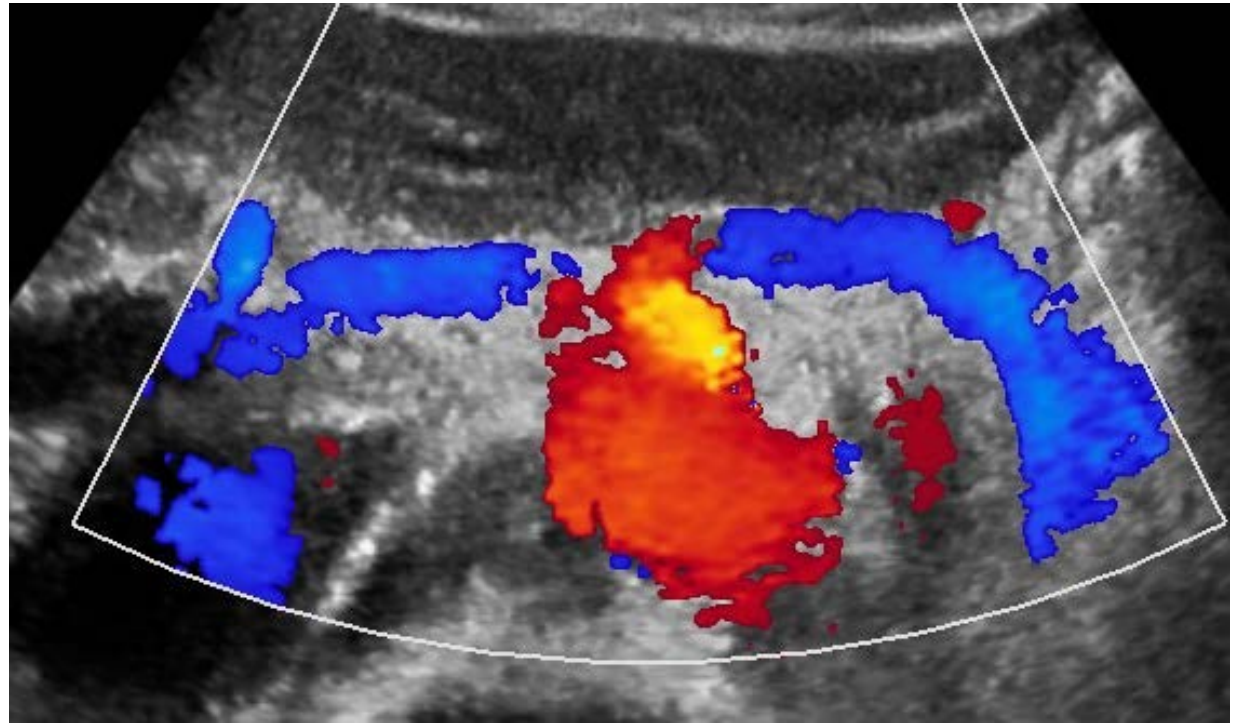
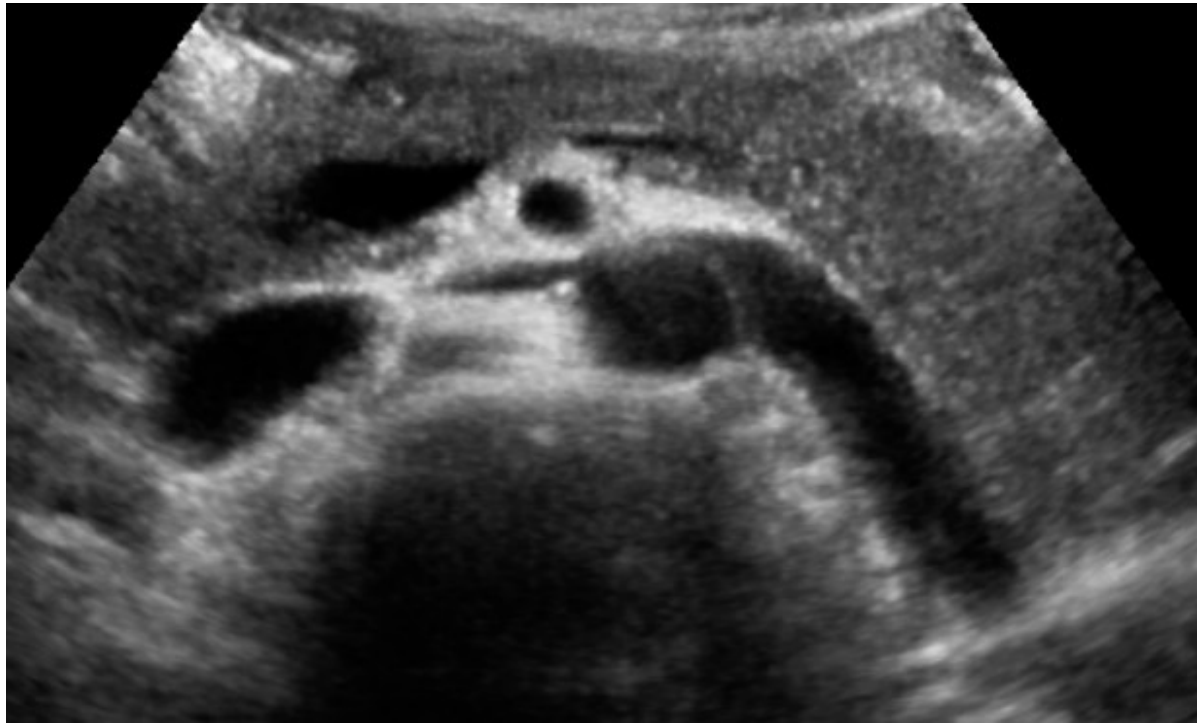
C2

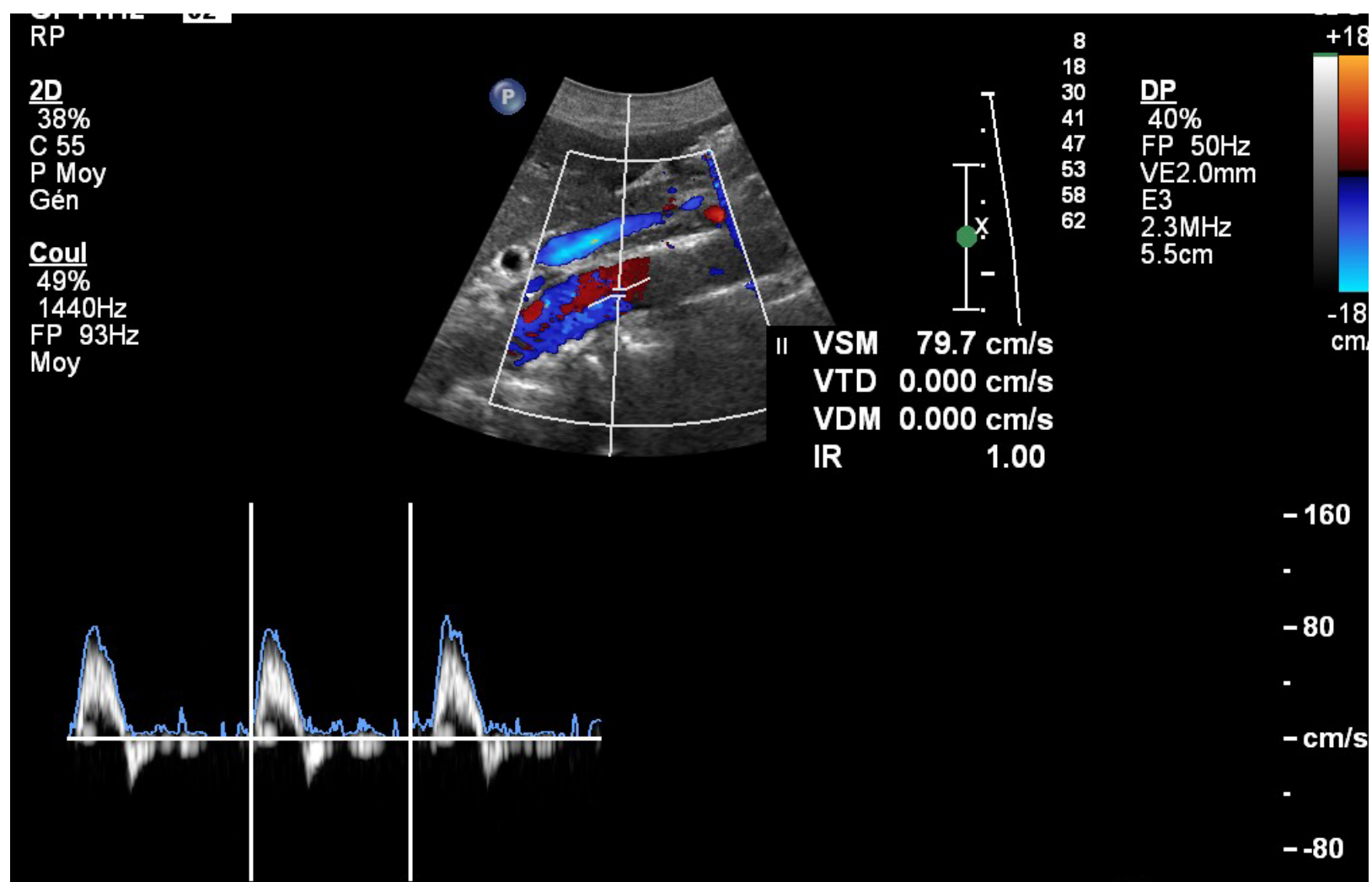
2D
42%
C 50
P Bas
Gén

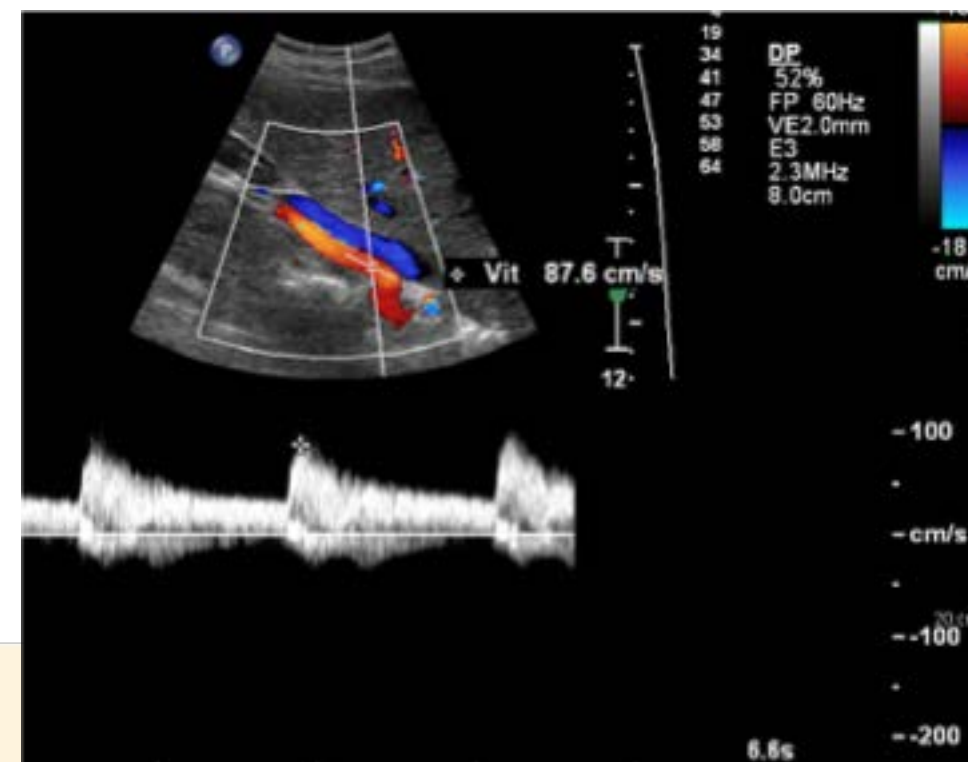
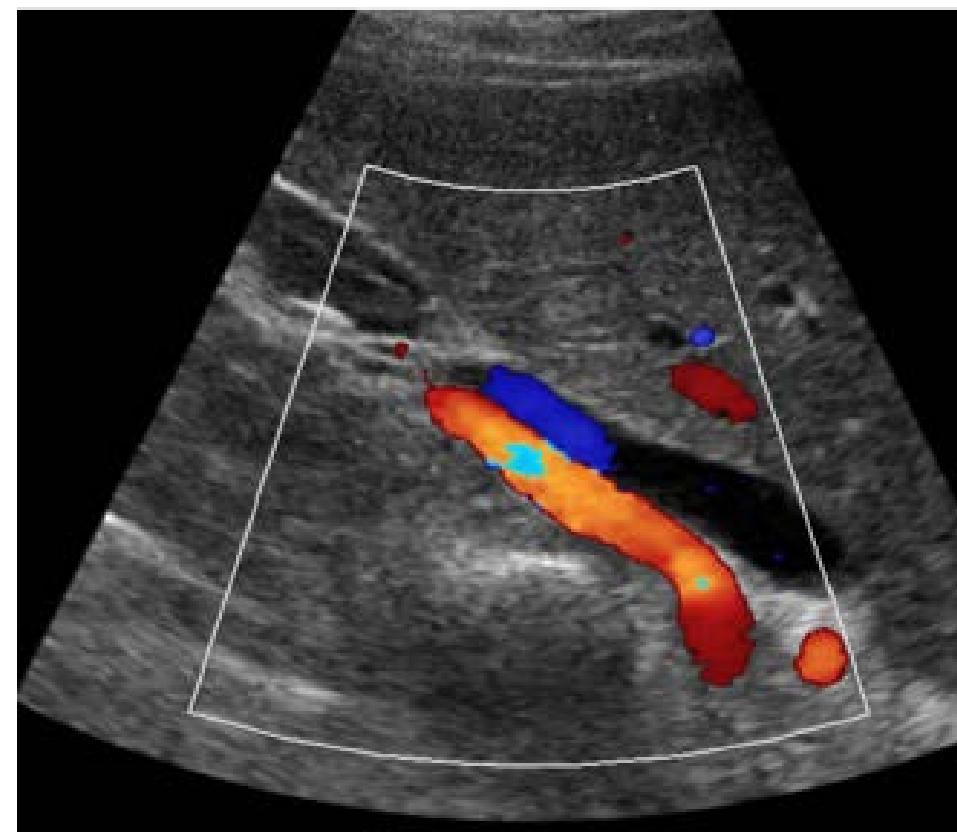


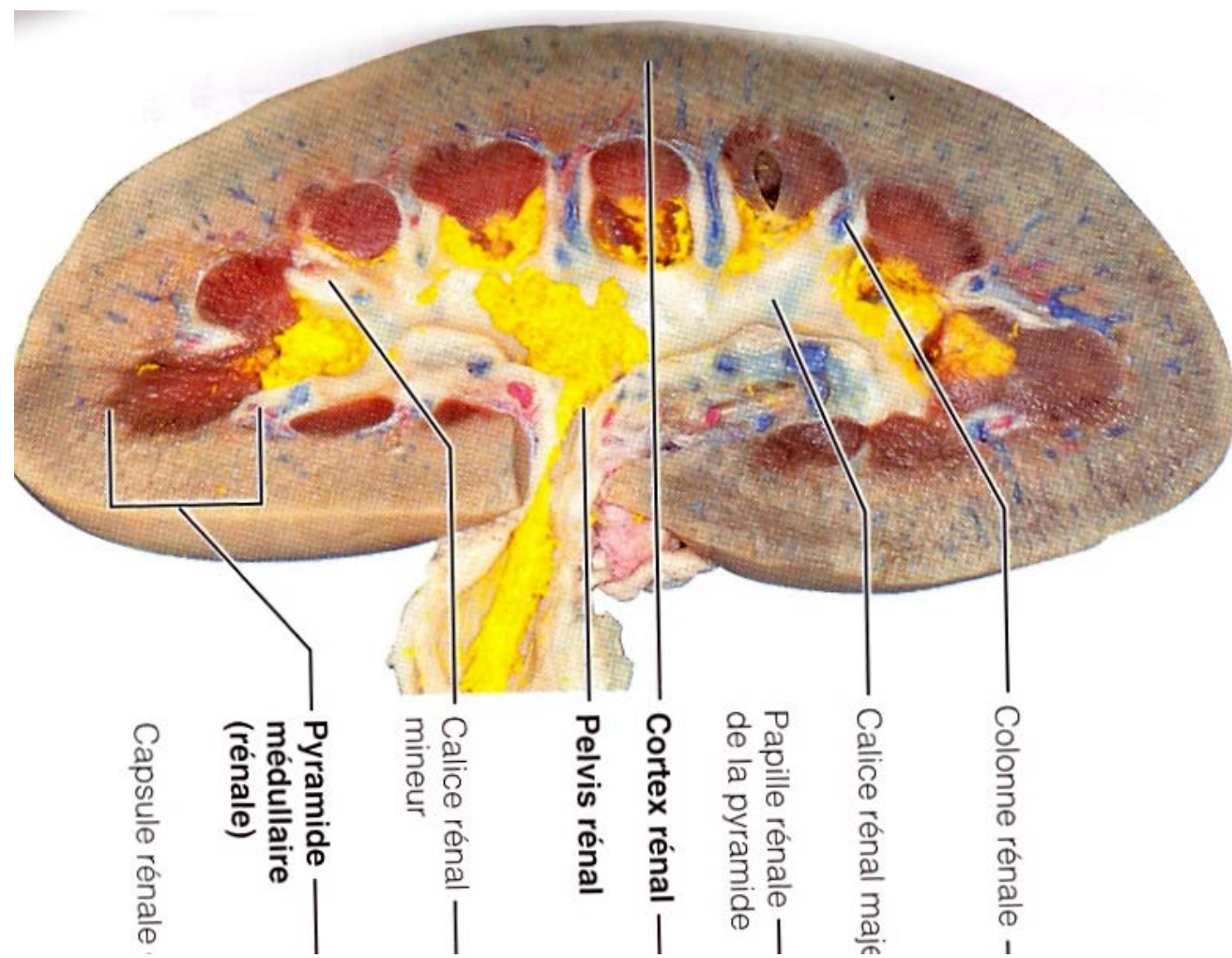
JPEG
3.5 · $\frac{1000}{\text{bpm}}$

ACC Drte

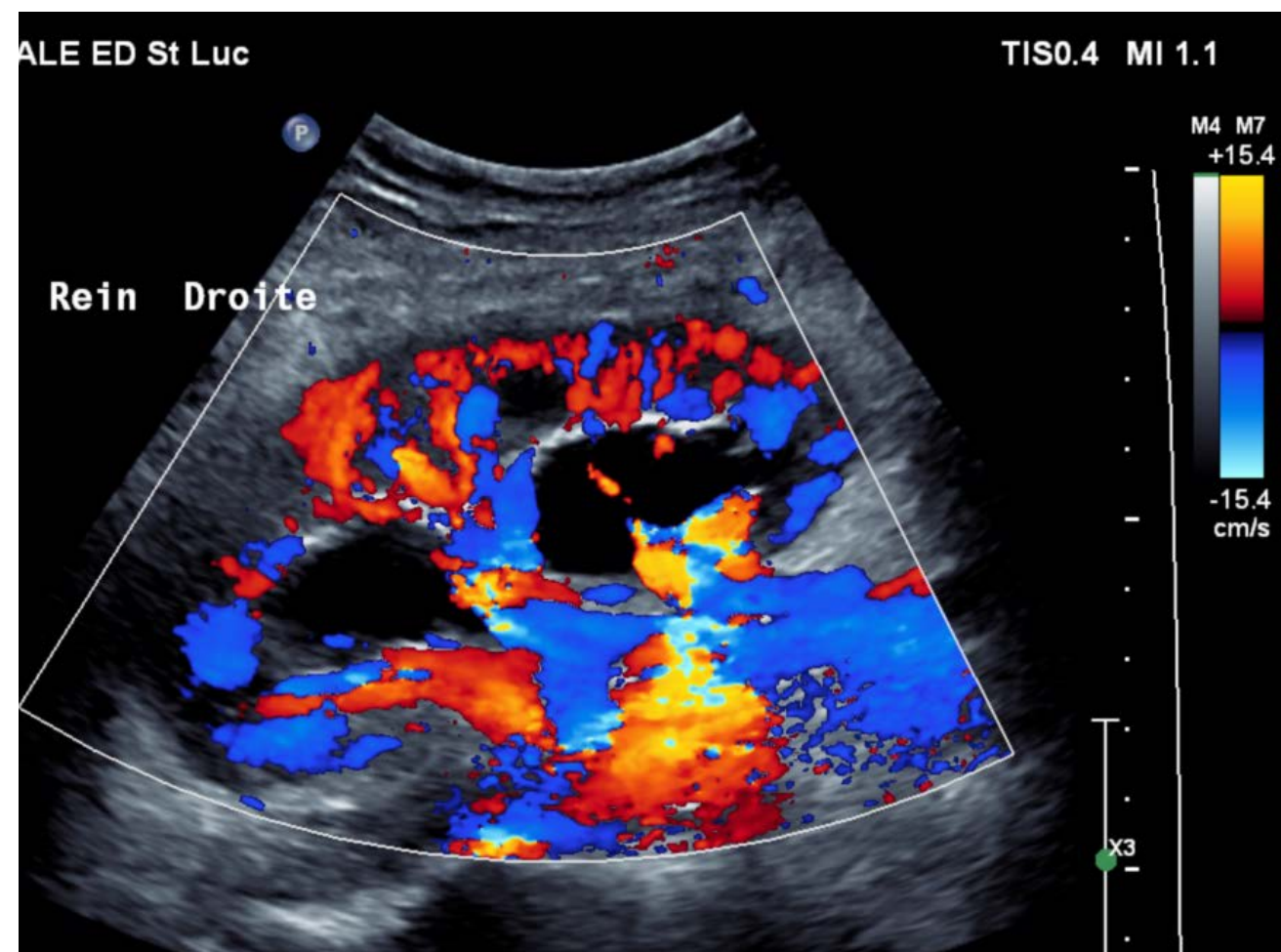
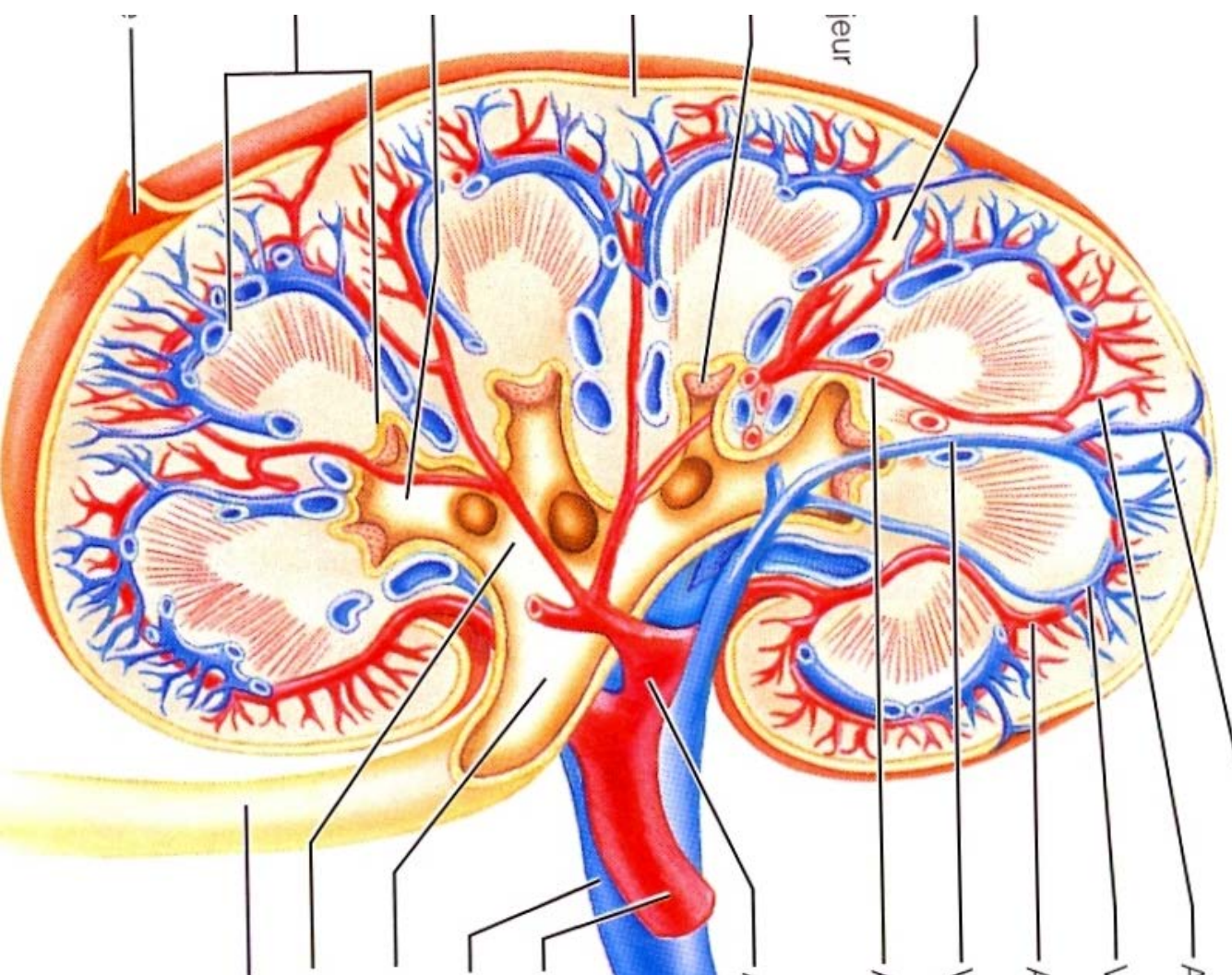




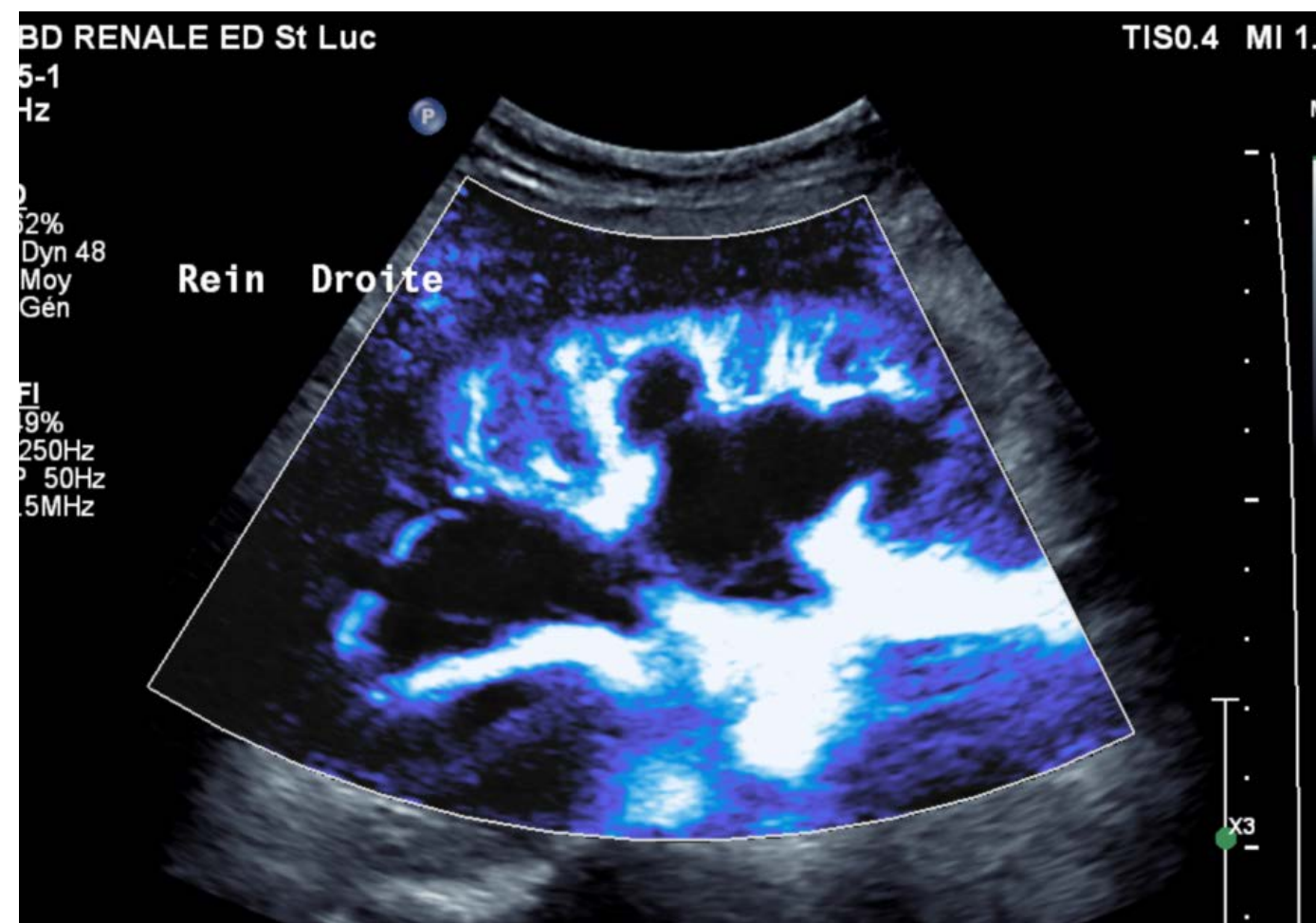
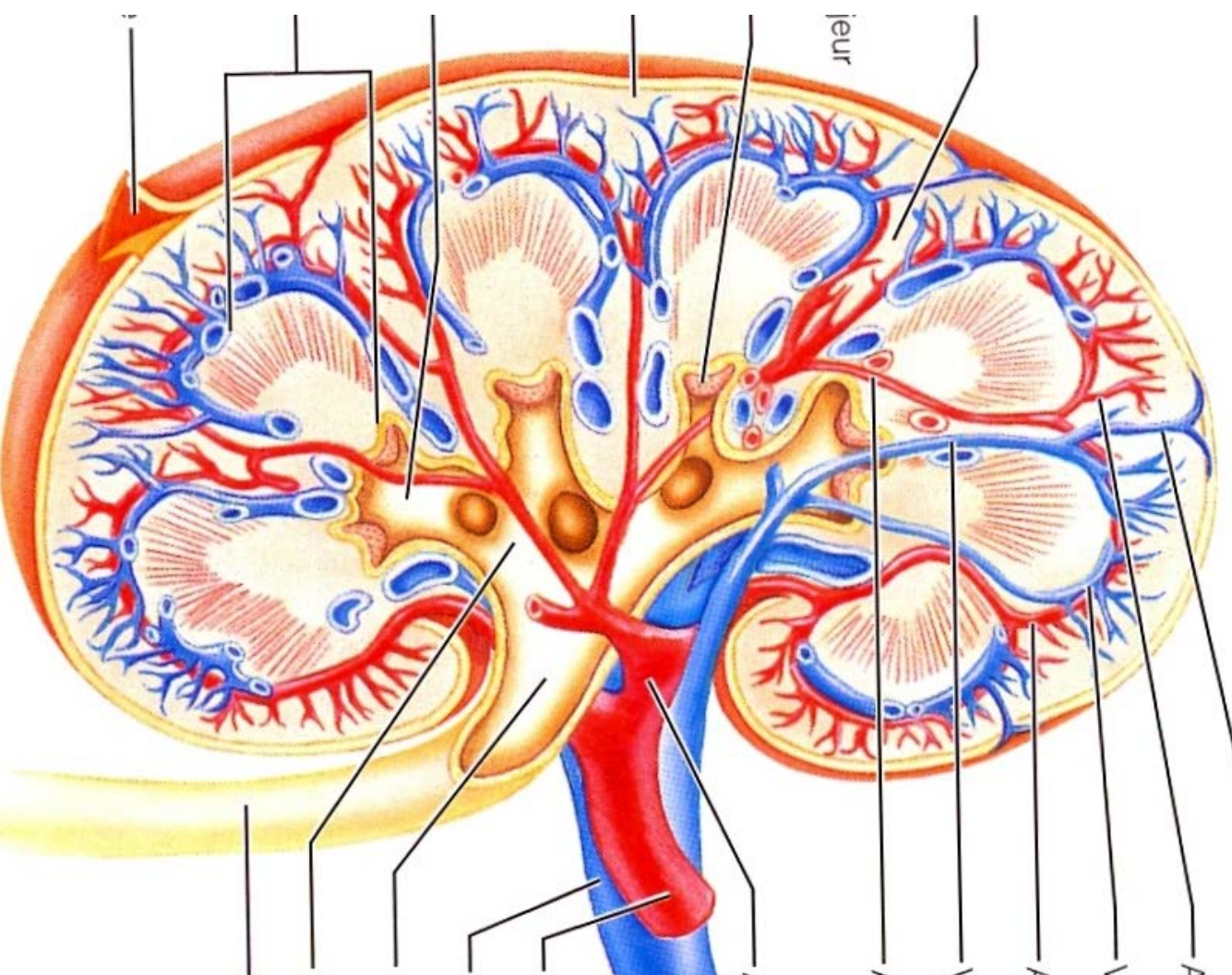




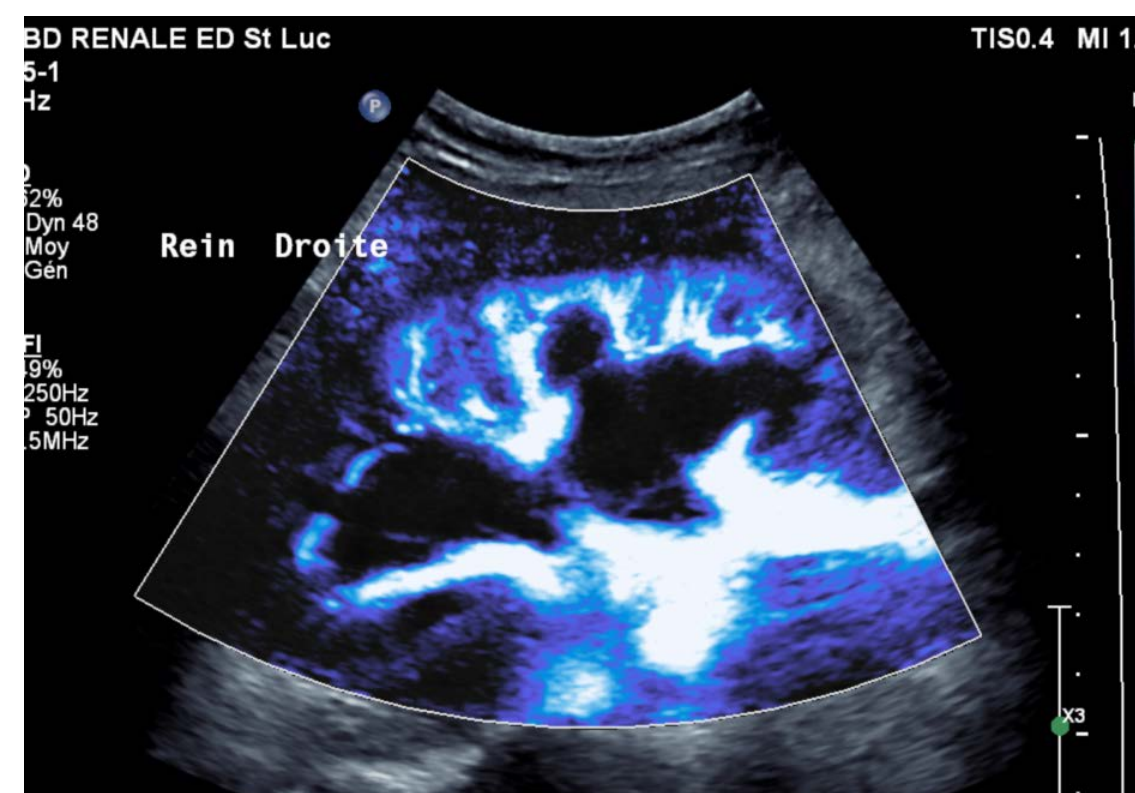
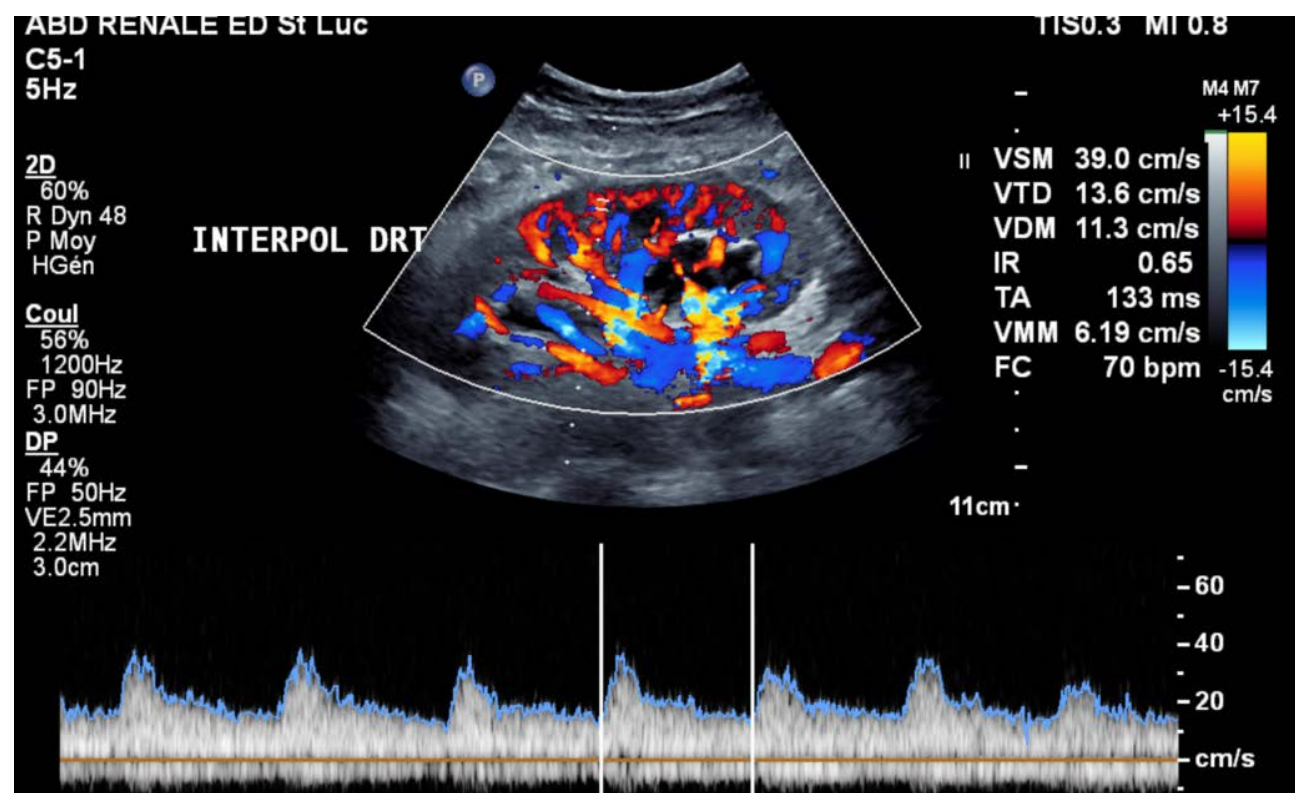
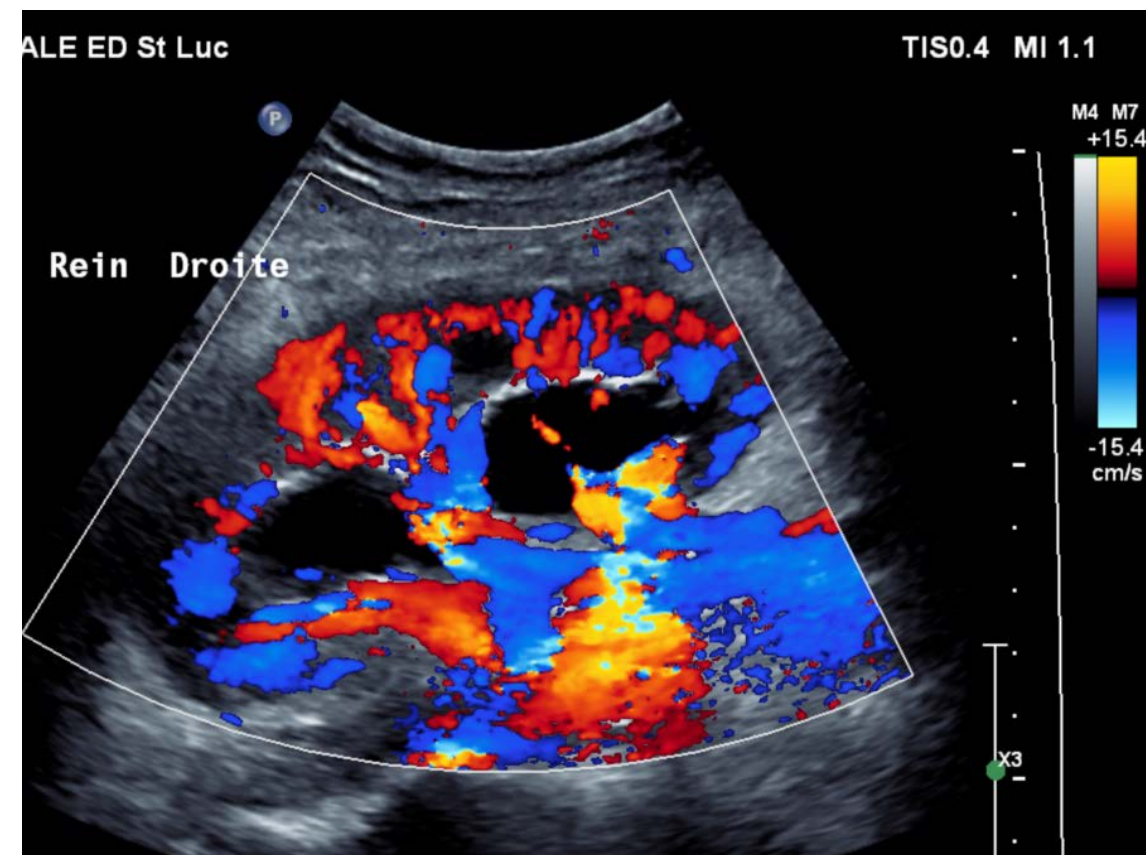
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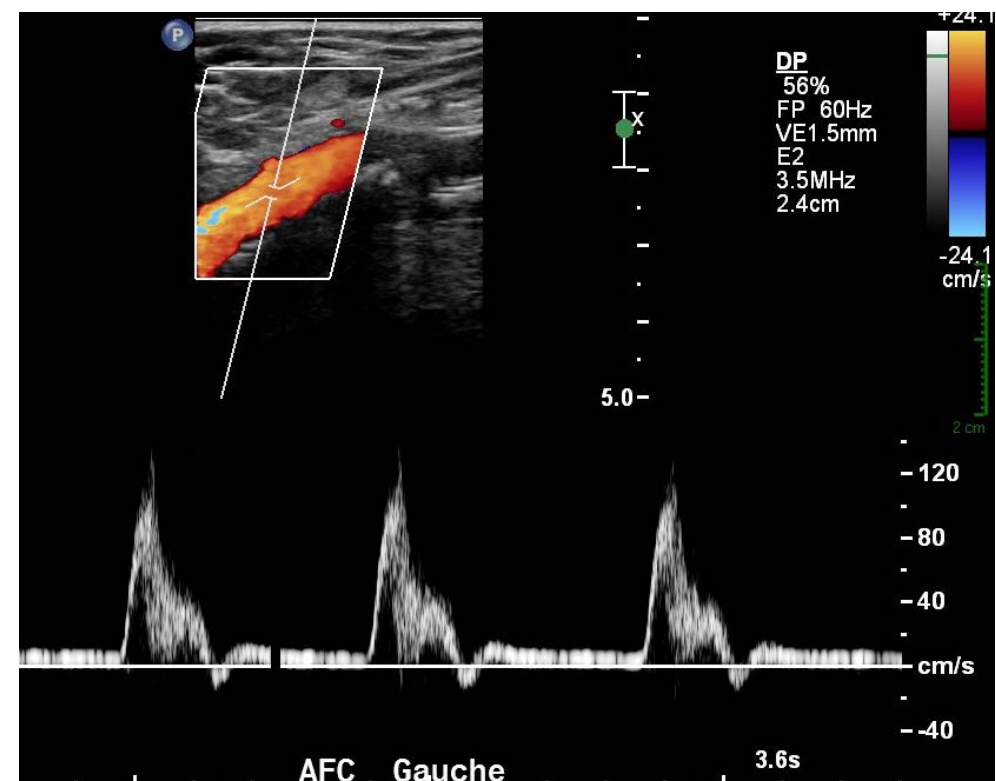
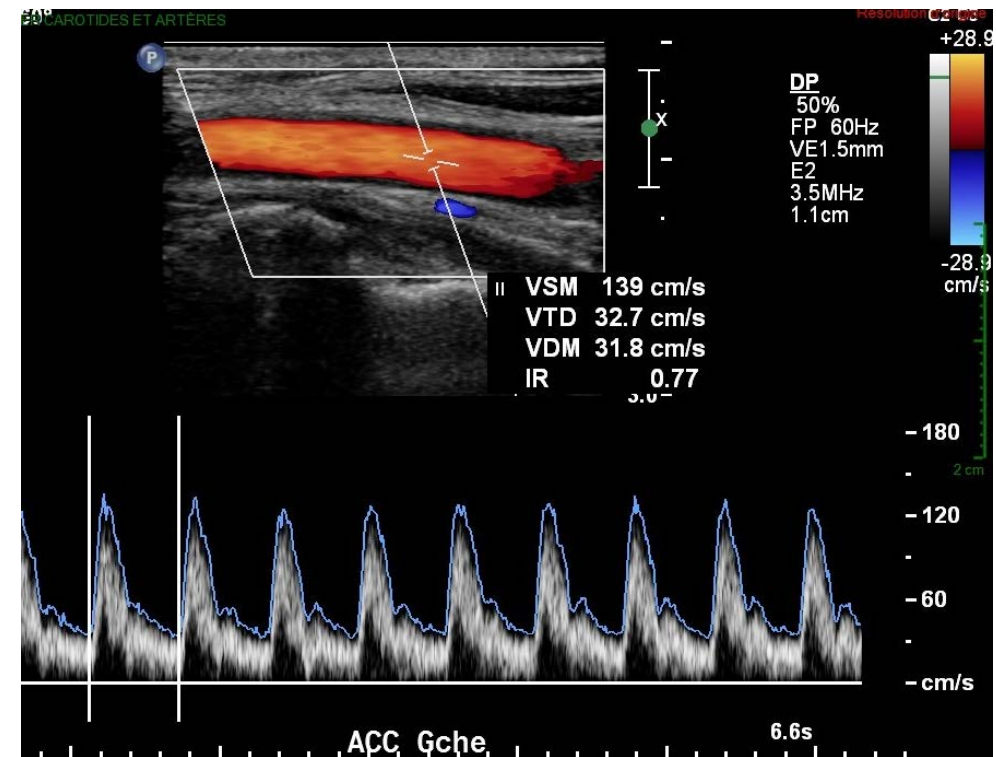
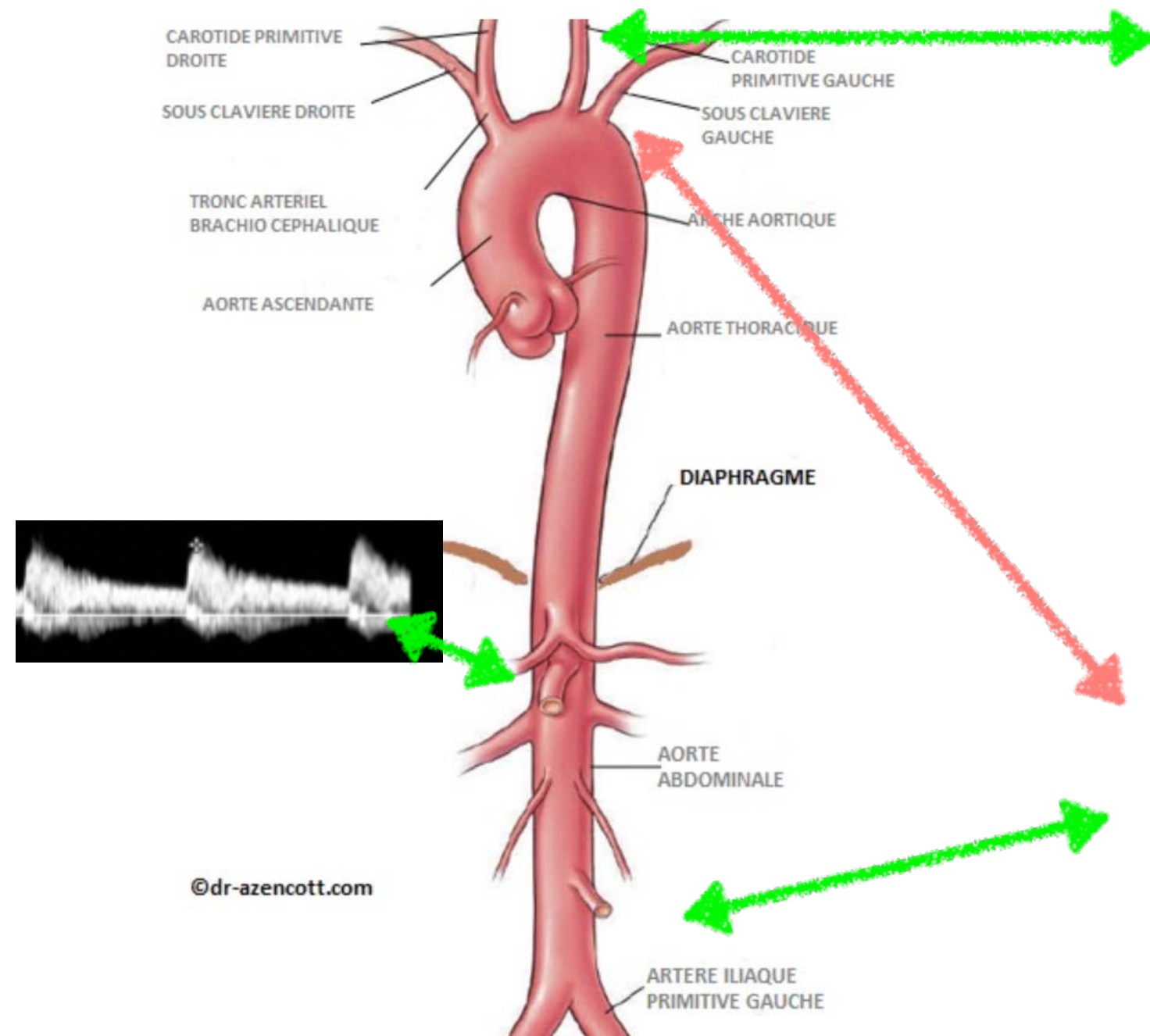
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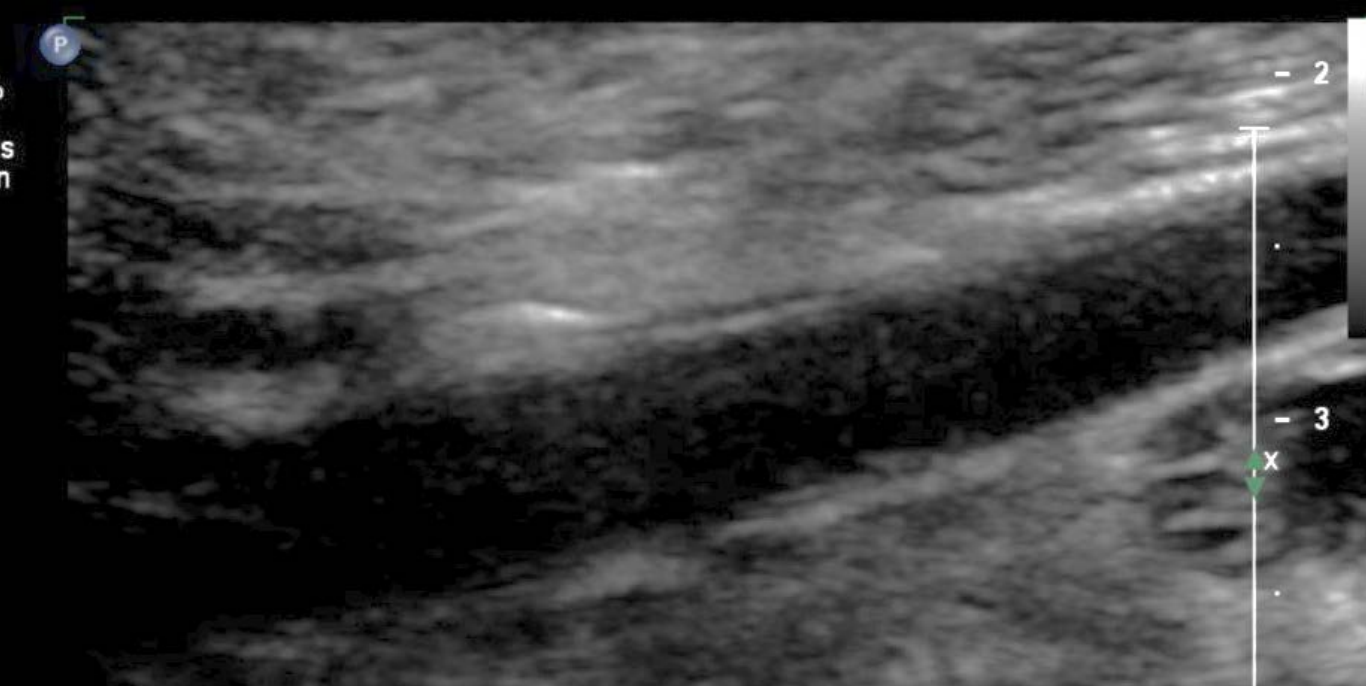


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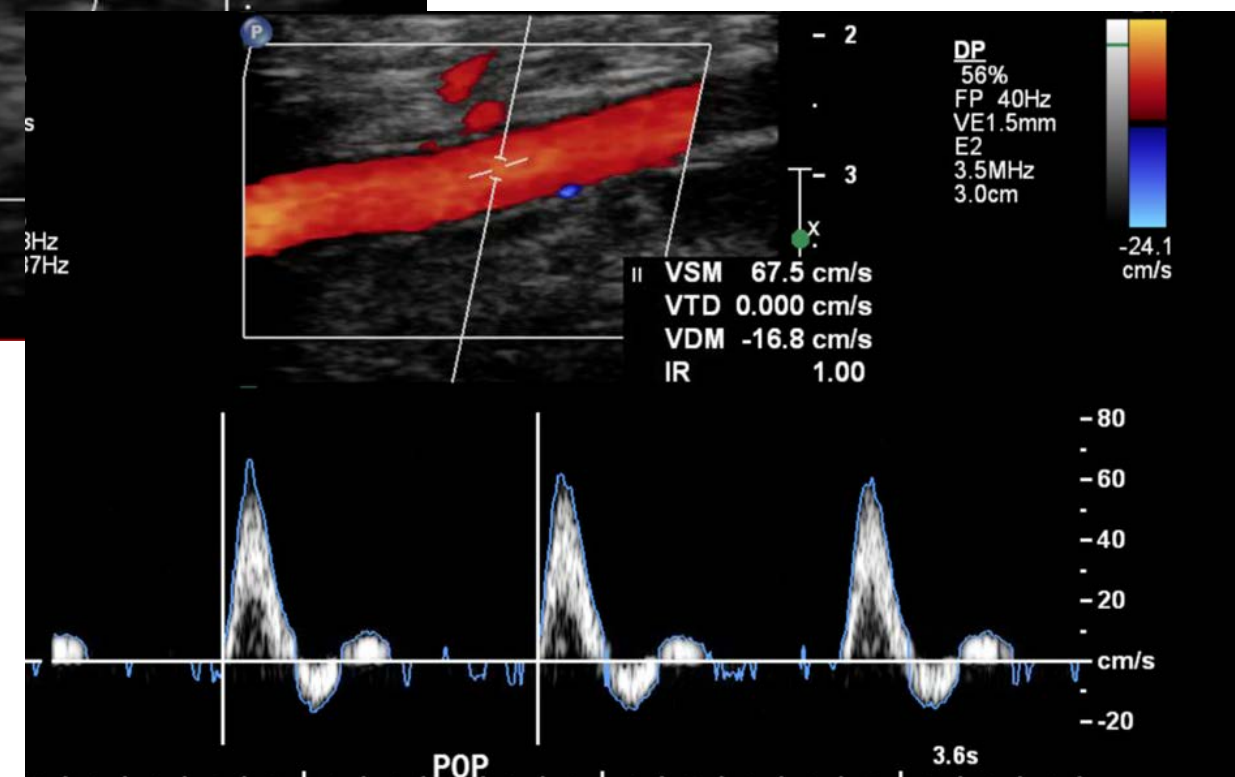
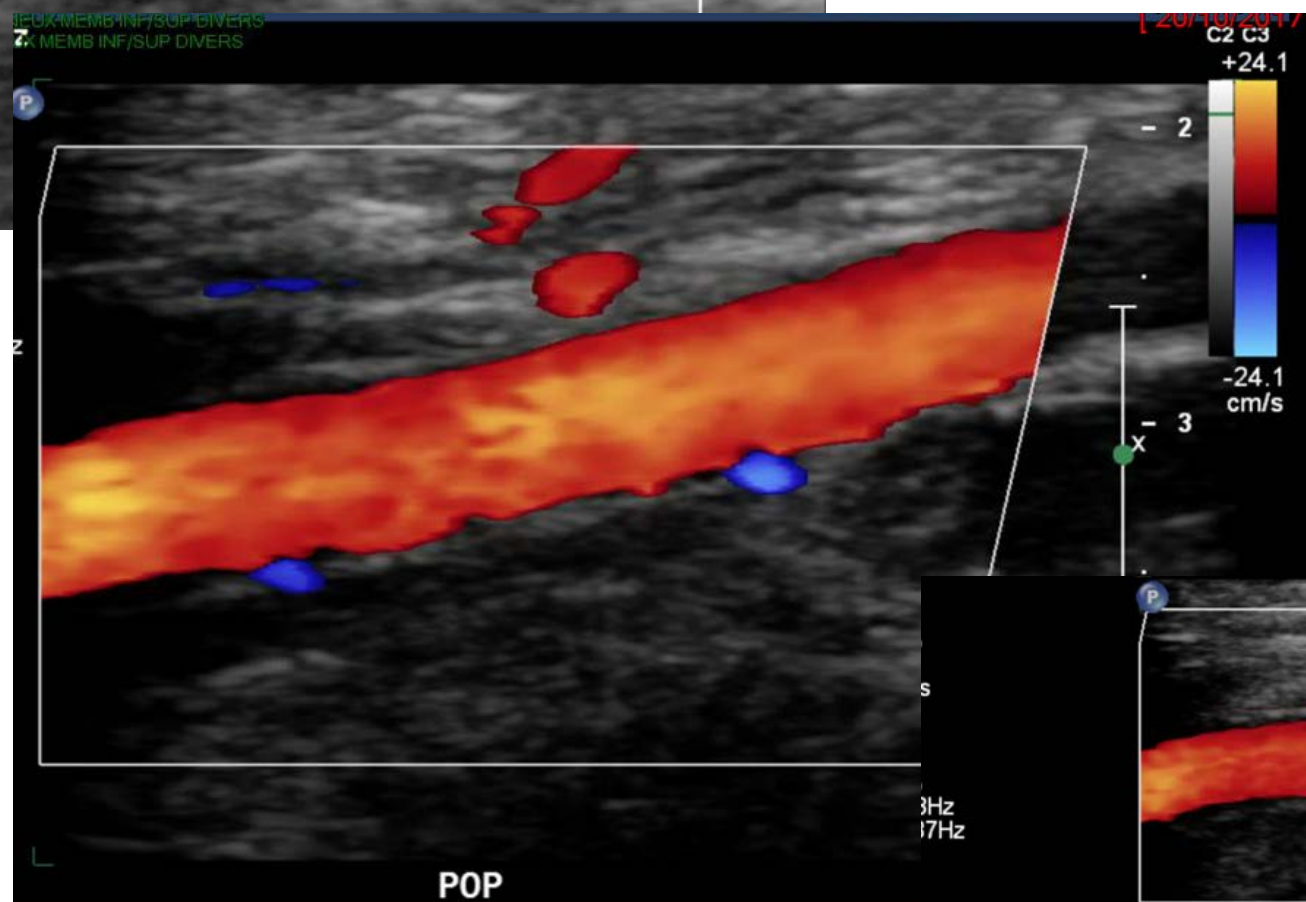


Echographie

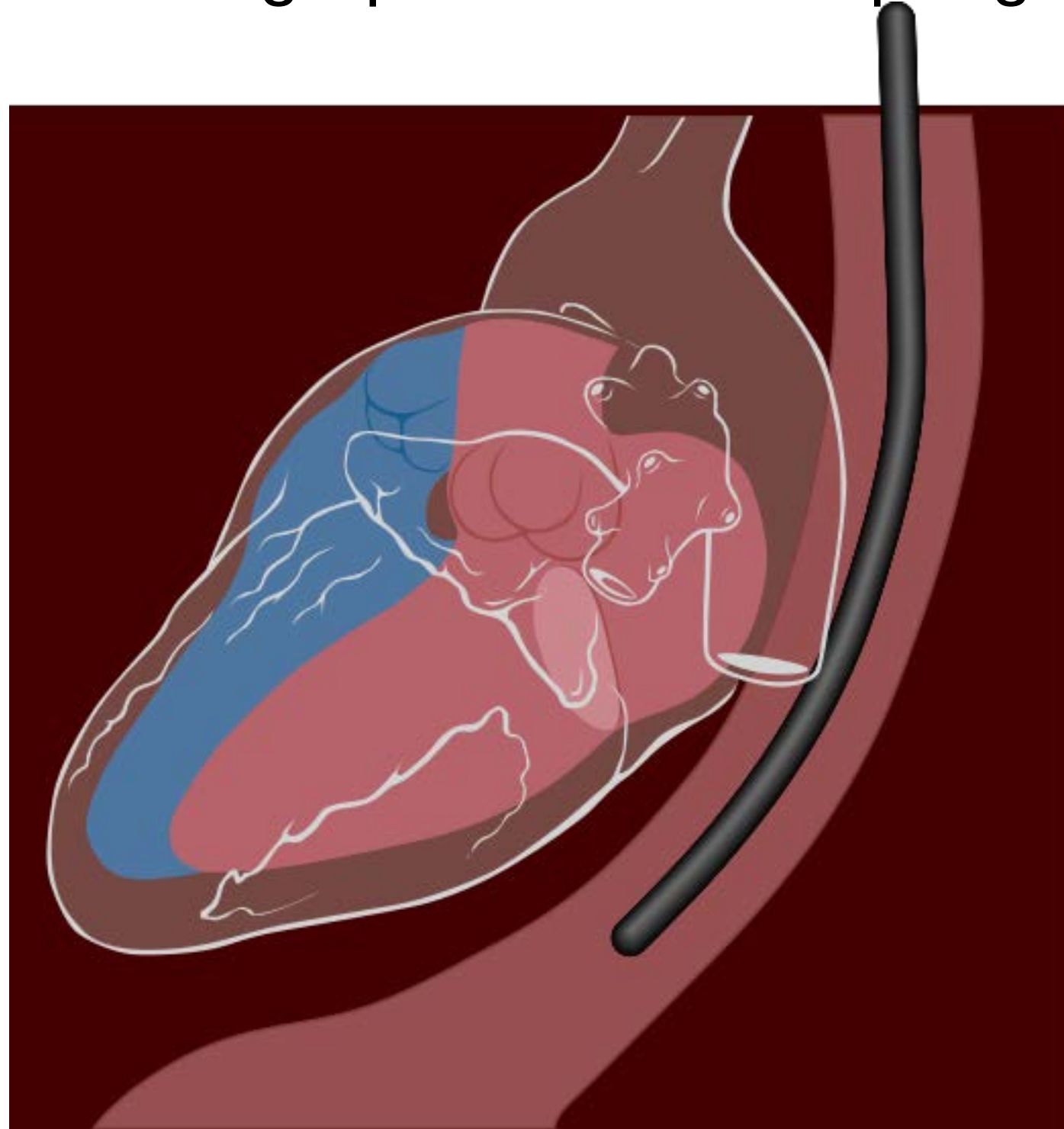




Artère poplitée

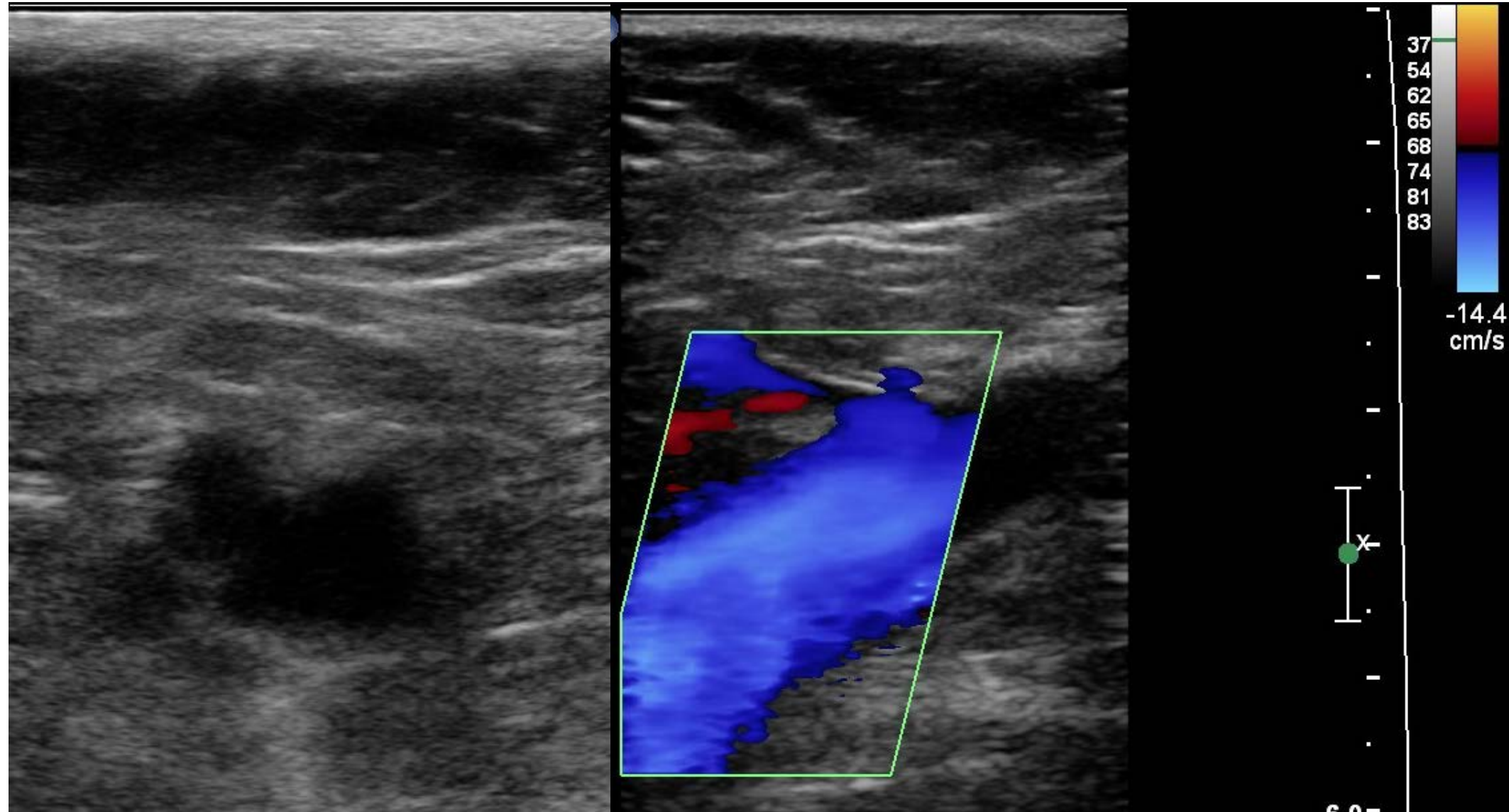


TEE = échographie trans-oesophagienne



wikipédia

Veines



PHILIPS

ITm0.7 IM 0.6

<1-3>

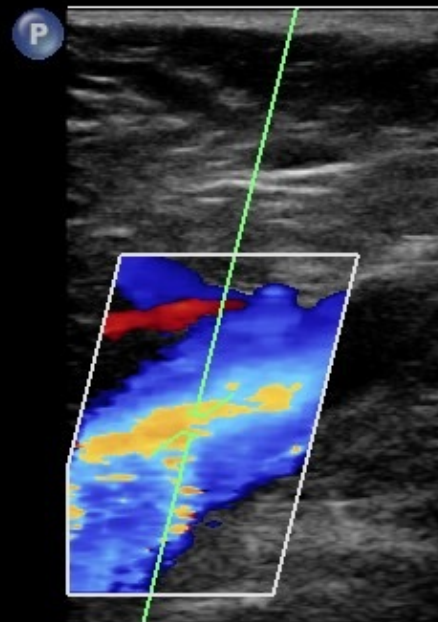
Clin. Univ. UCL St Luc

L9-3/Vasc vein

CI 18Hz 40°
R1

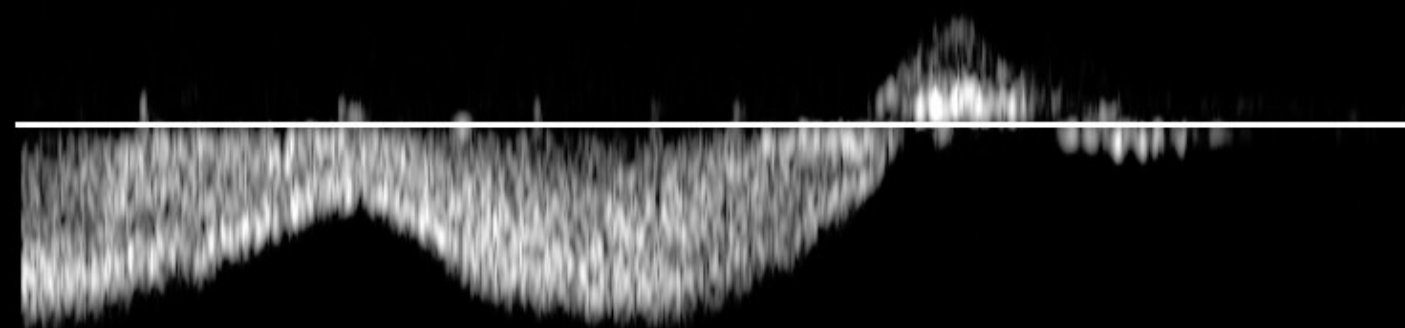
2D
50%
C 50
P Bas
Gén

Coul
64%
1500Hz
FP 52Hz
Moy



35
52
60
63
66
73
79
82

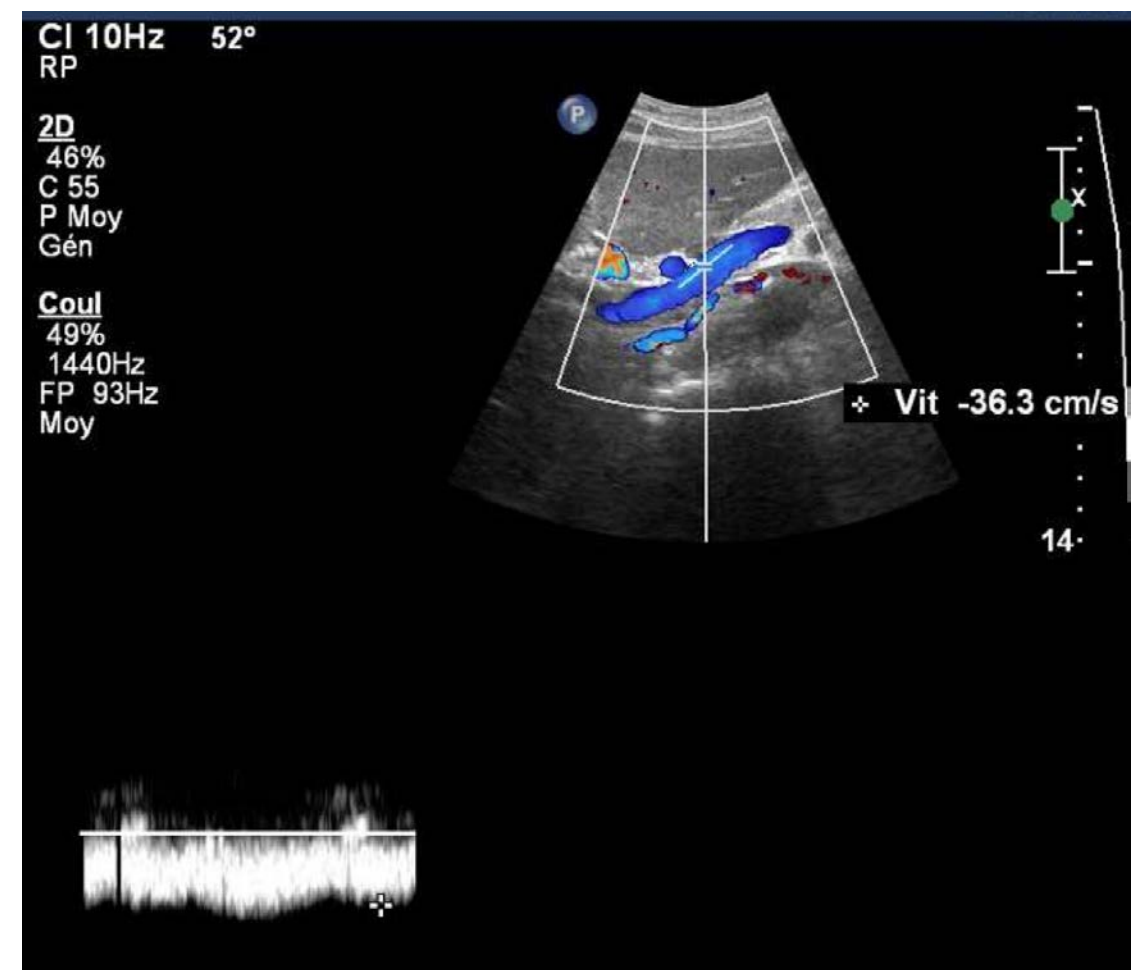
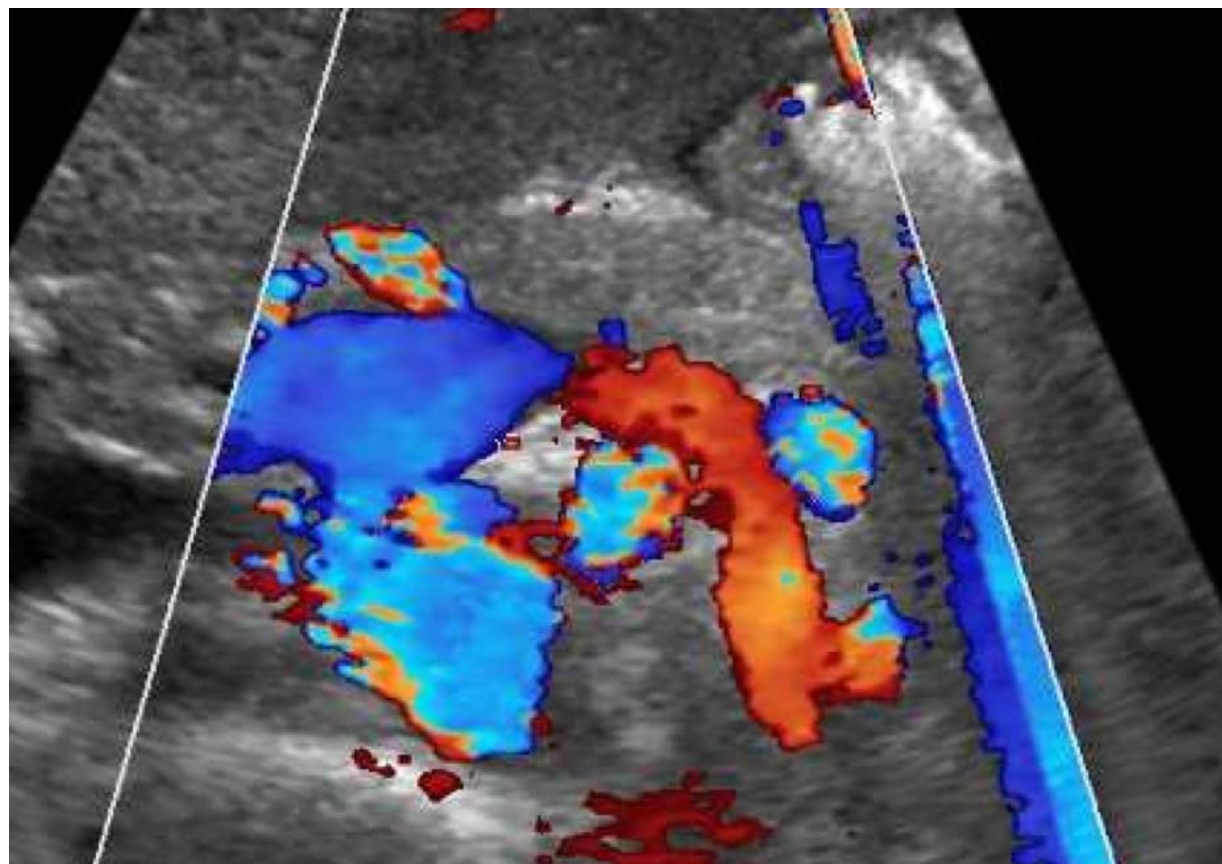
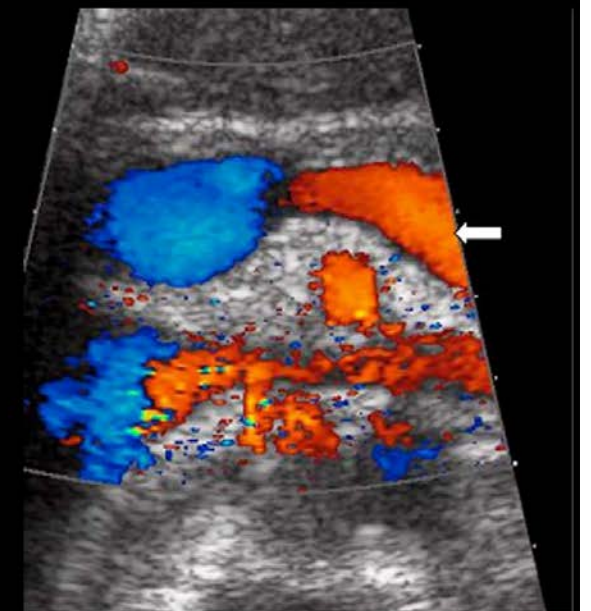
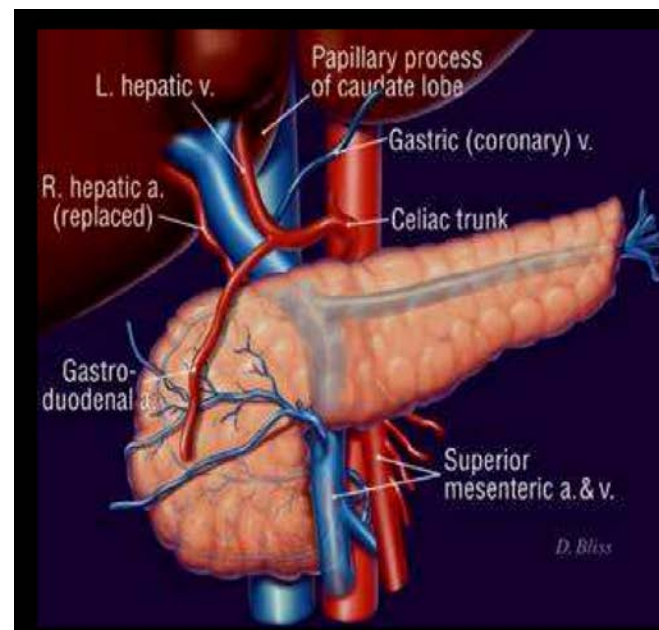
DP
44%
FP 40Hz
VE2.0mm
E3
3.5MHz
4.2cm



-
-10
-
-cm/s
-
-10
-
-20
-
-30
-
-40
-
-50

Droite

6.6s



ReinLithiaseOptim

TIS0.5 MI 1.3

C5-1

7Hz

Gauche

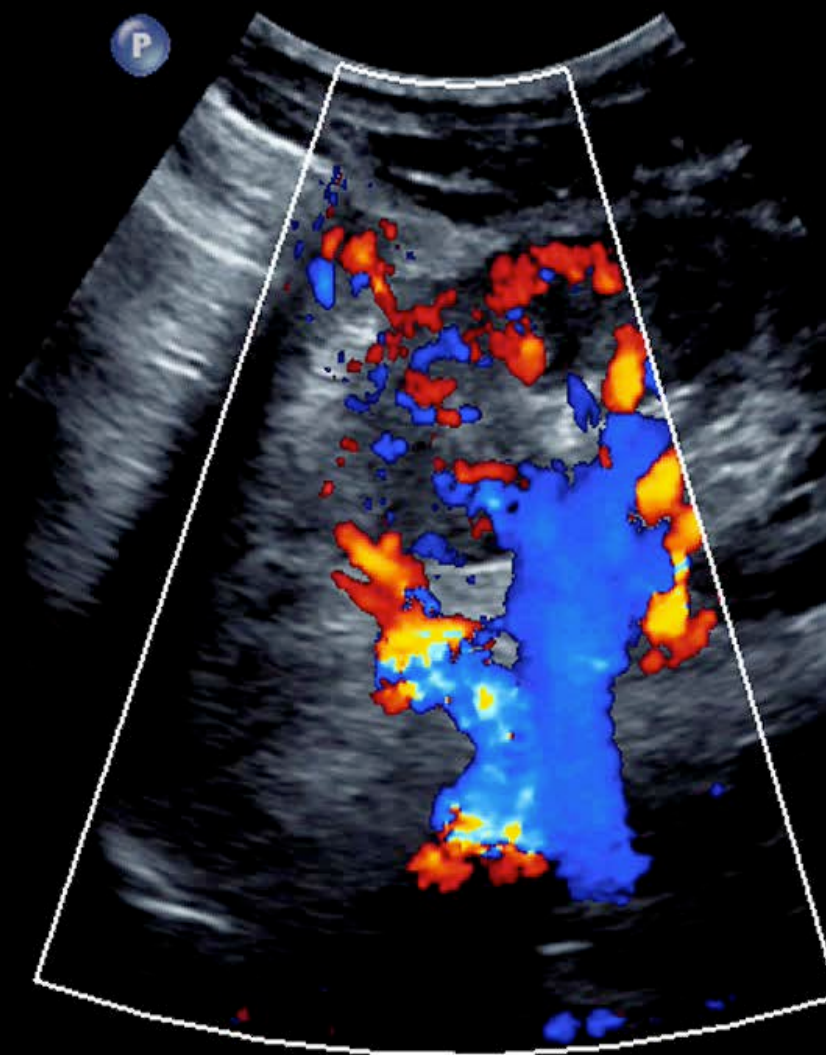
P

2D

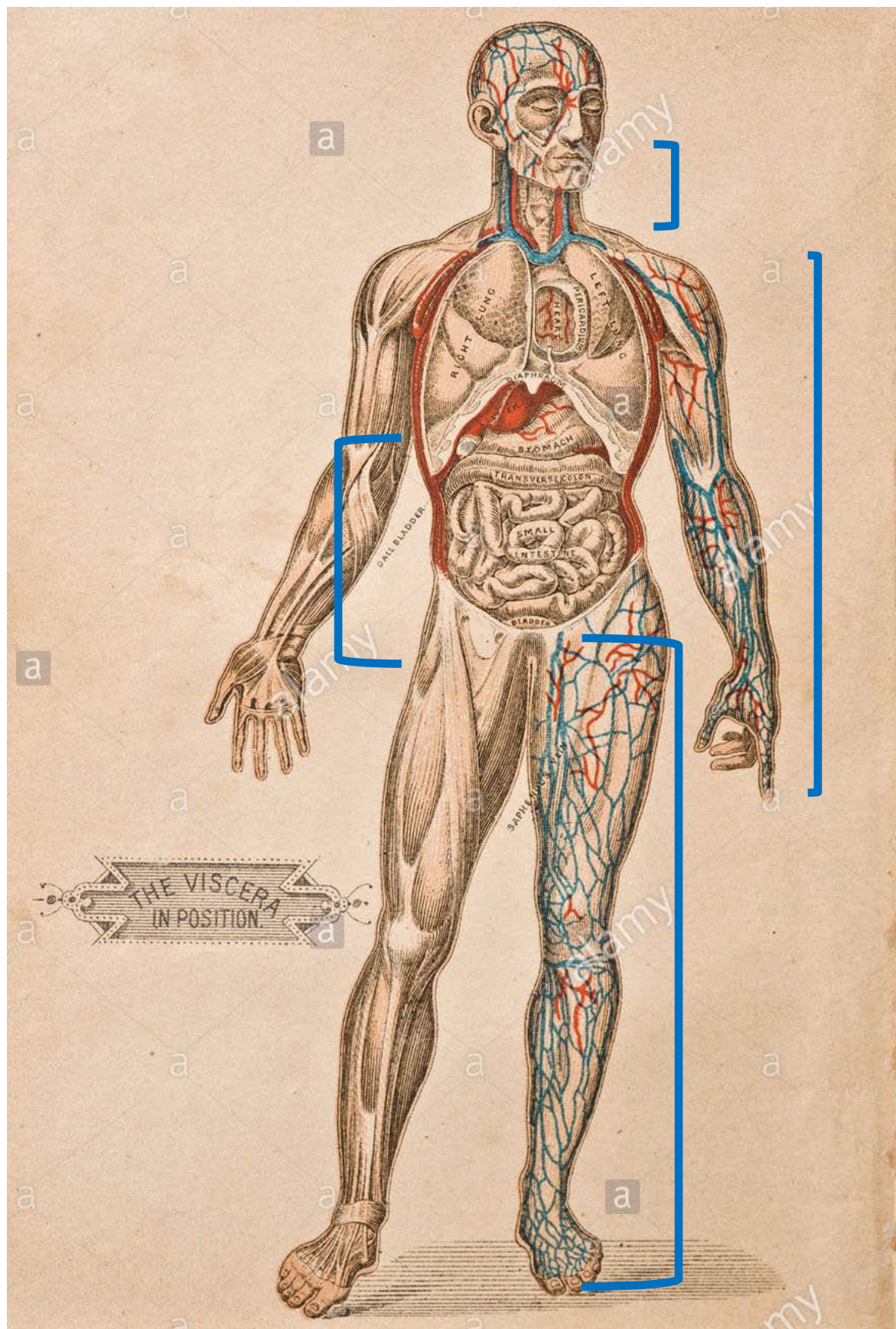
63%
R Dyn 48
P Moy
HGén

Coul

56%
1100Hz
FP 60Hz
2.8MHz



X3



Vaisseaux extra-craniens

Axes sous-claviers => Doigts

Aorte abdominale
& ses branches viscérales

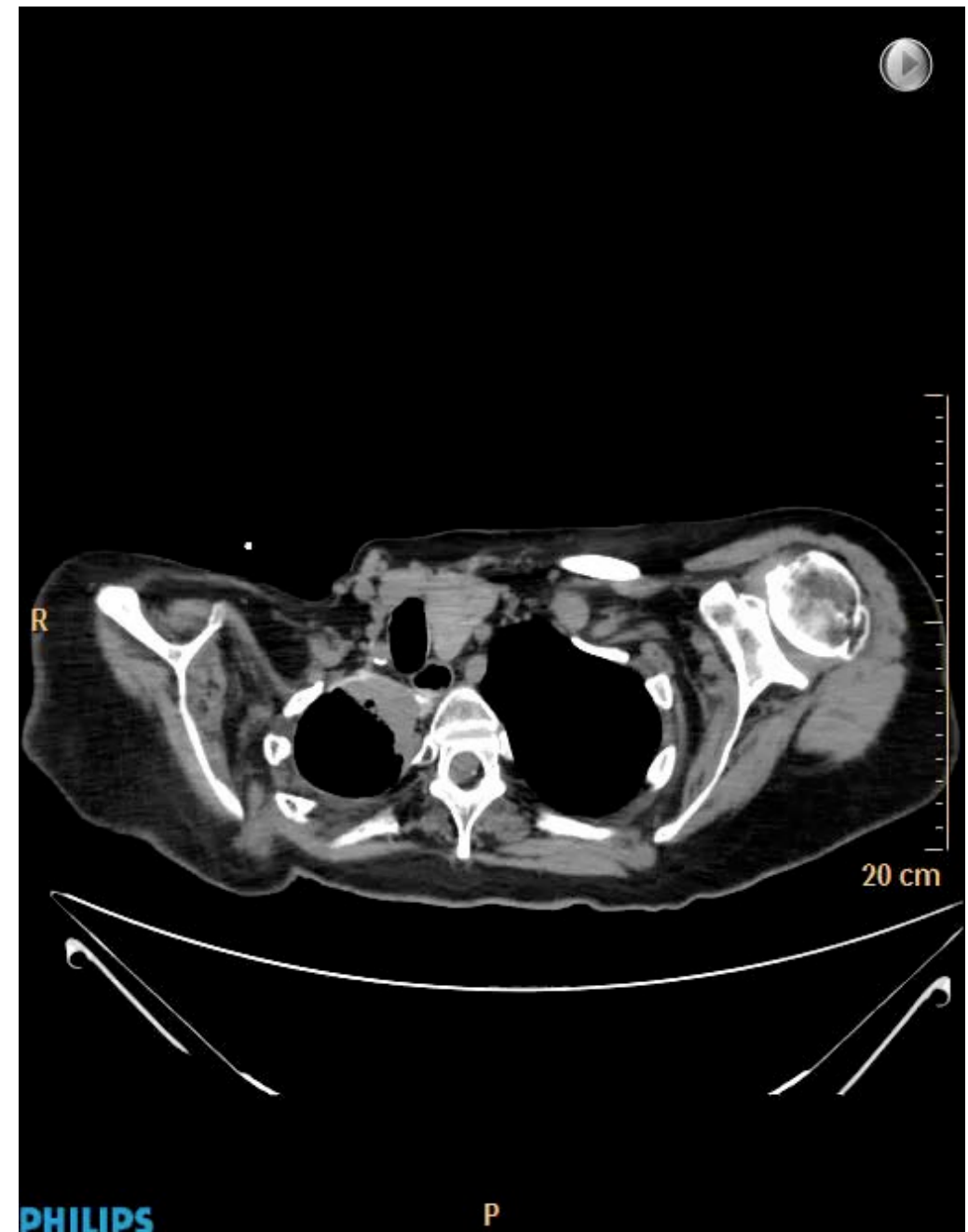
Axes Membres inférieurs =>
Avant-pieds

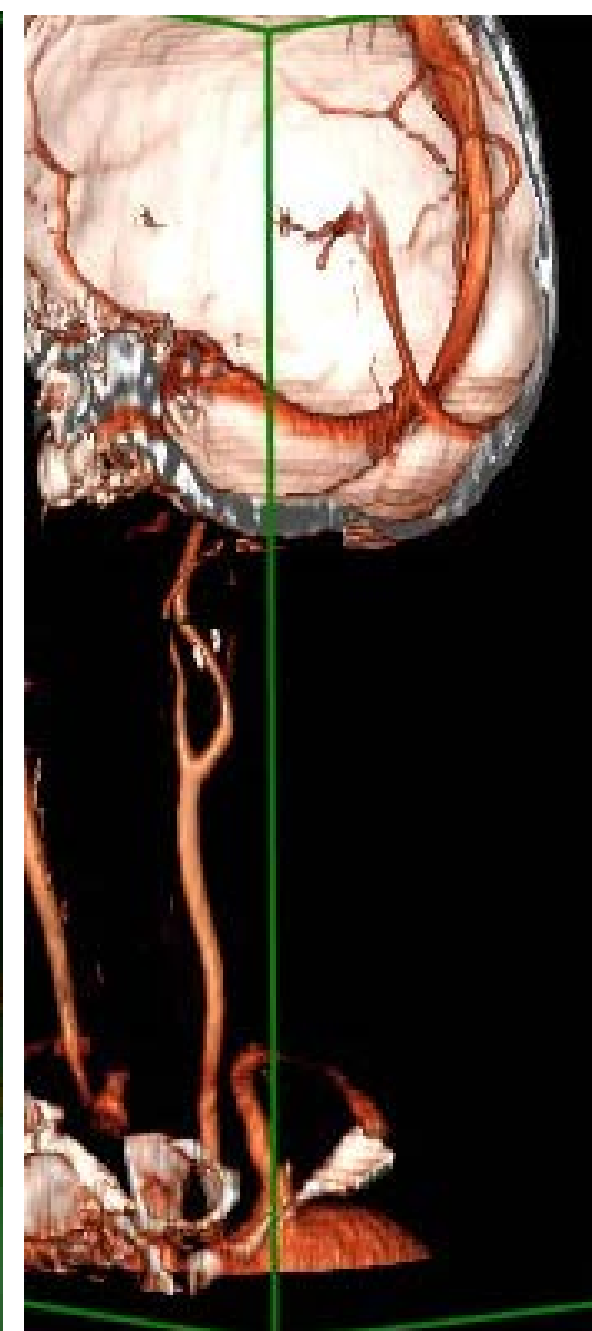
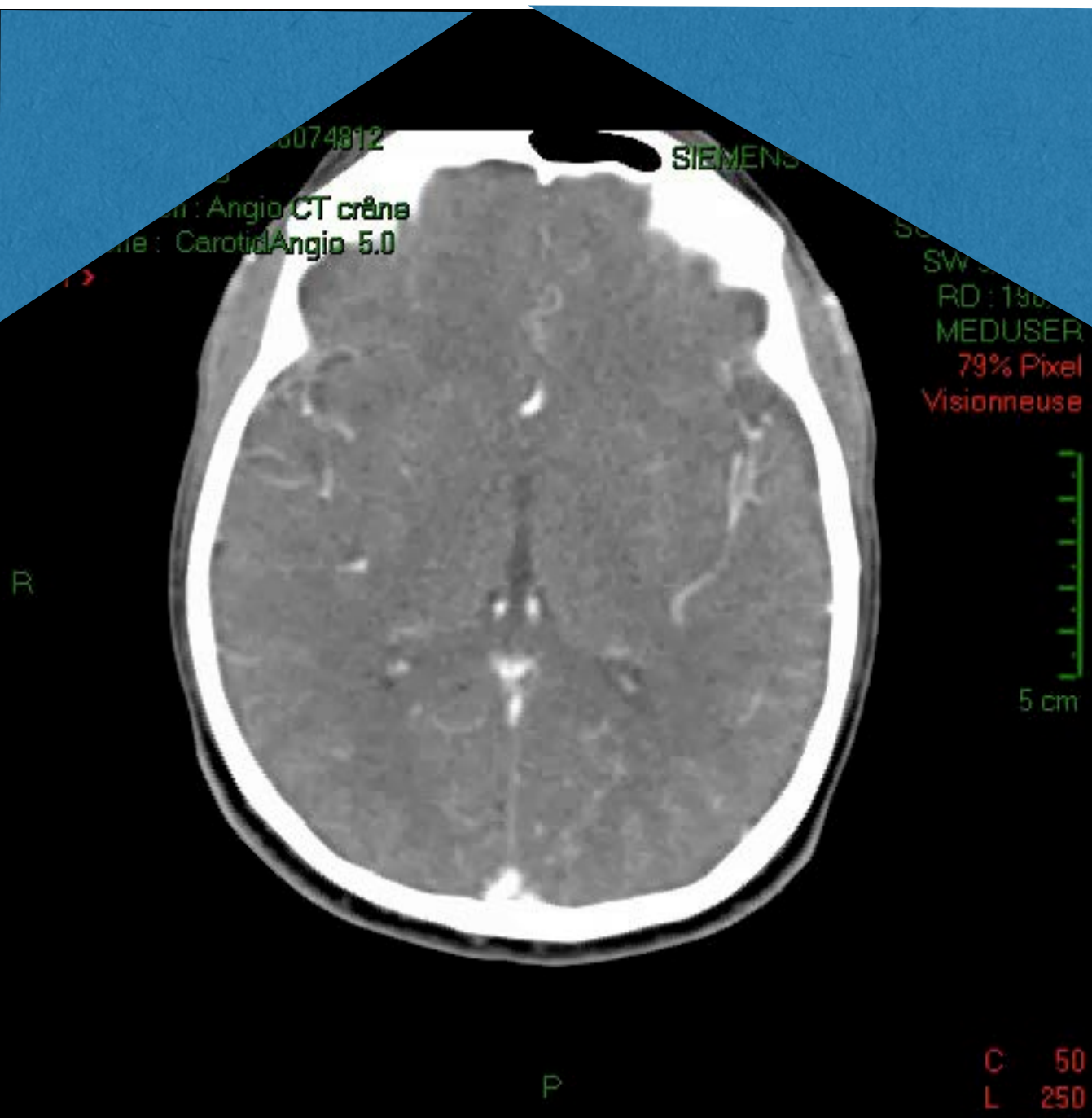
Scanner

- sans contraste
- avec injection IV d'iode

=> artères

=> veines



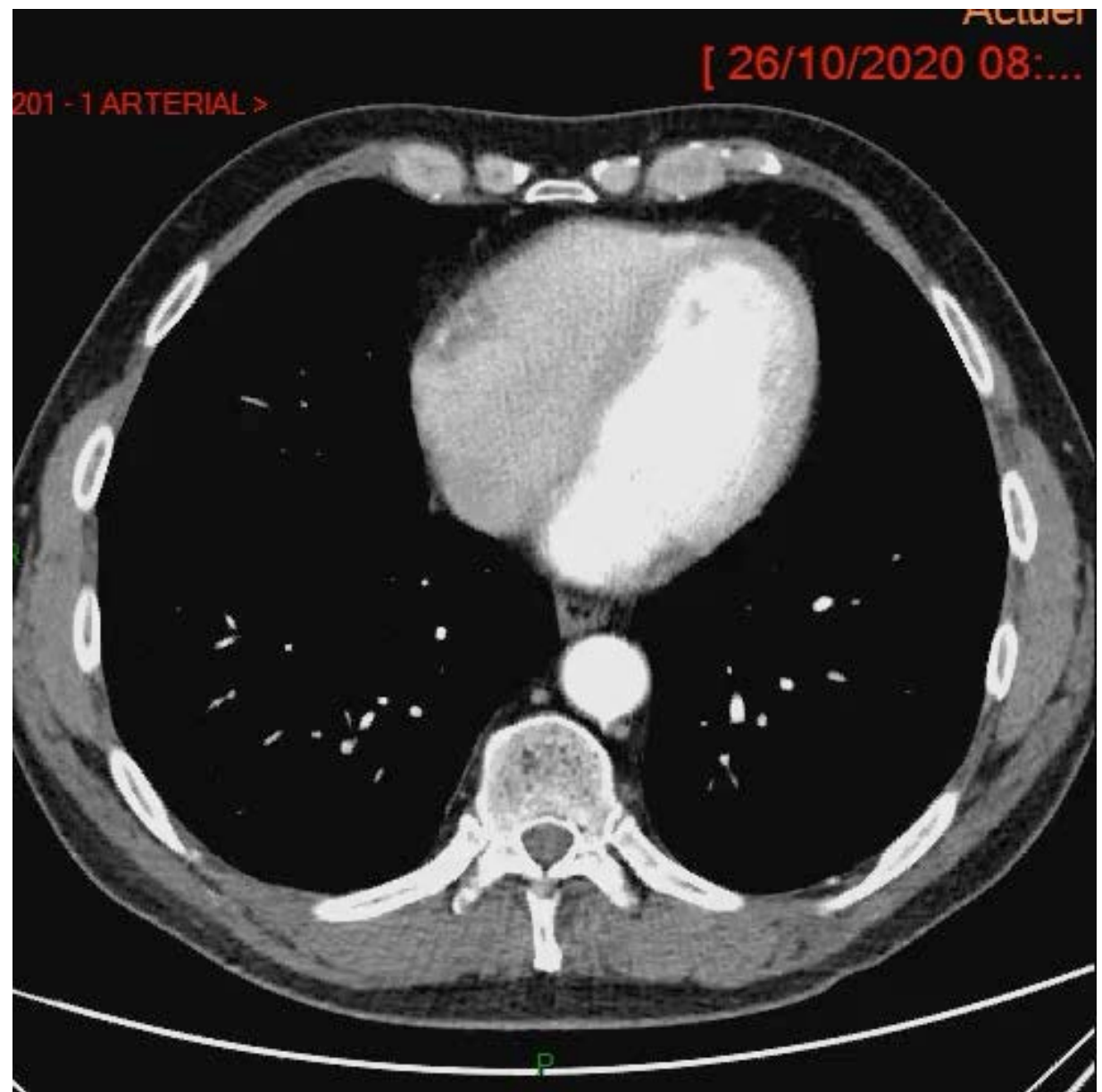


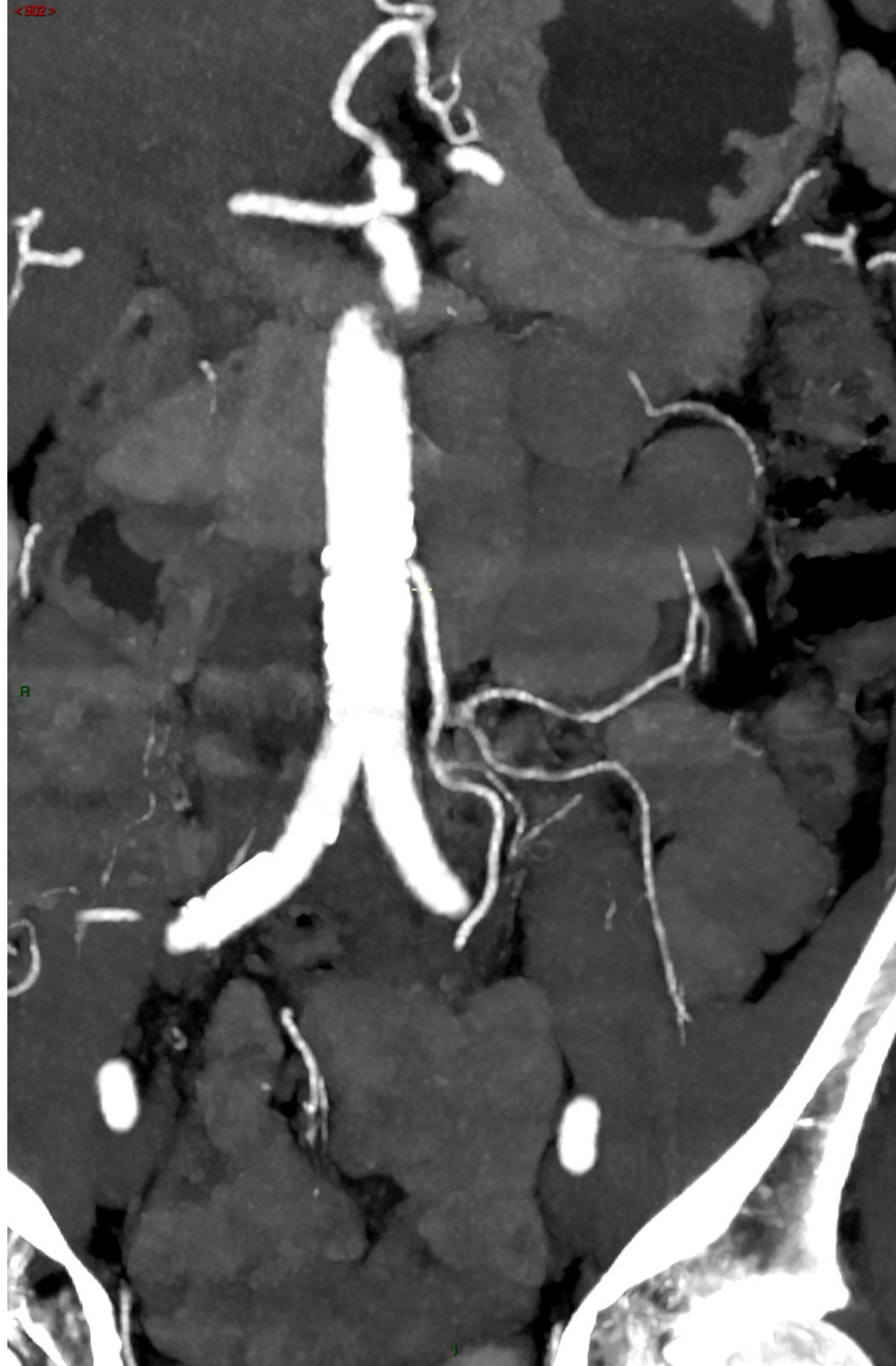
Scanner

- sans contraste
- avec injection IV d'iode

=> artères

=> veines



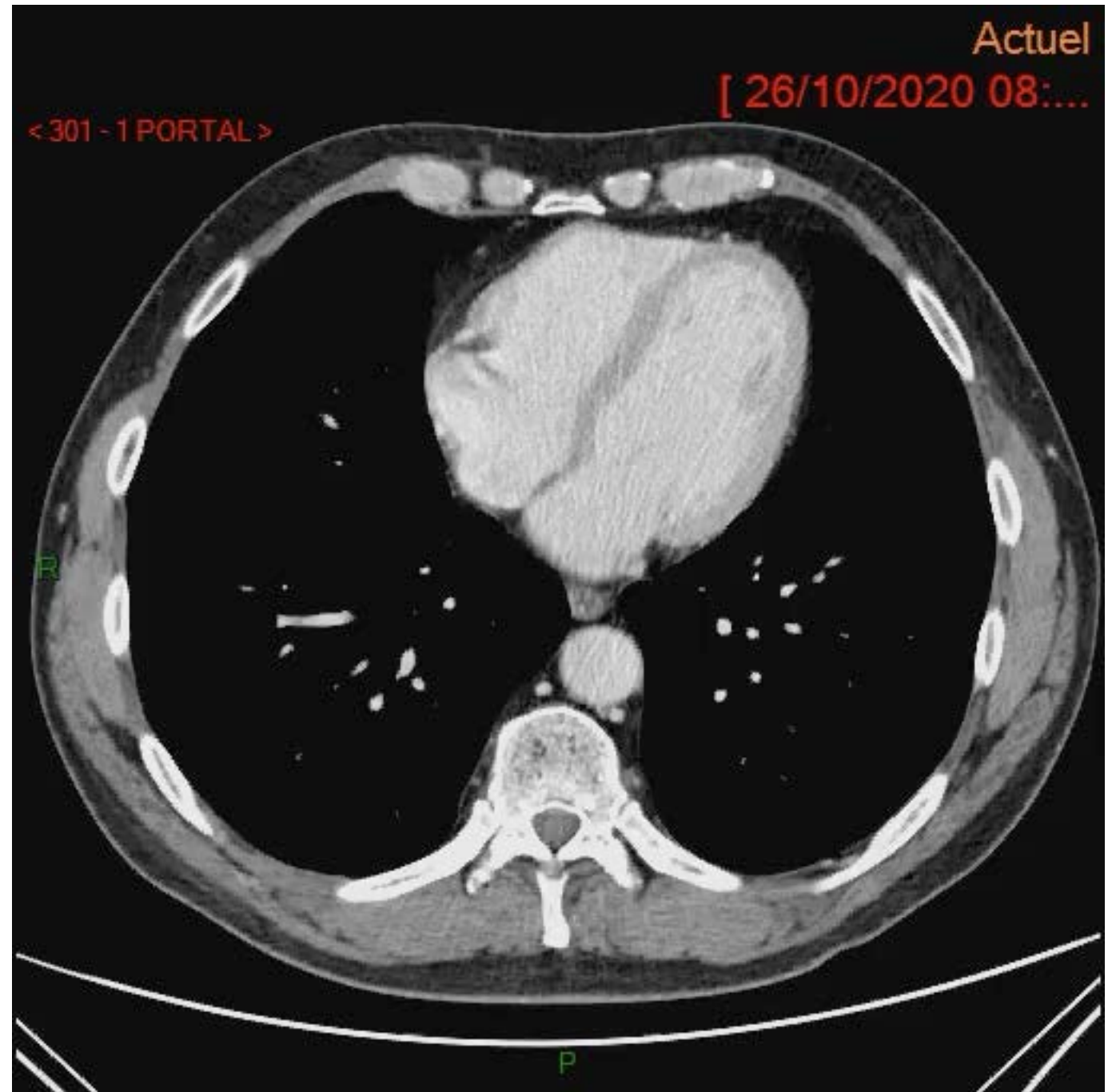


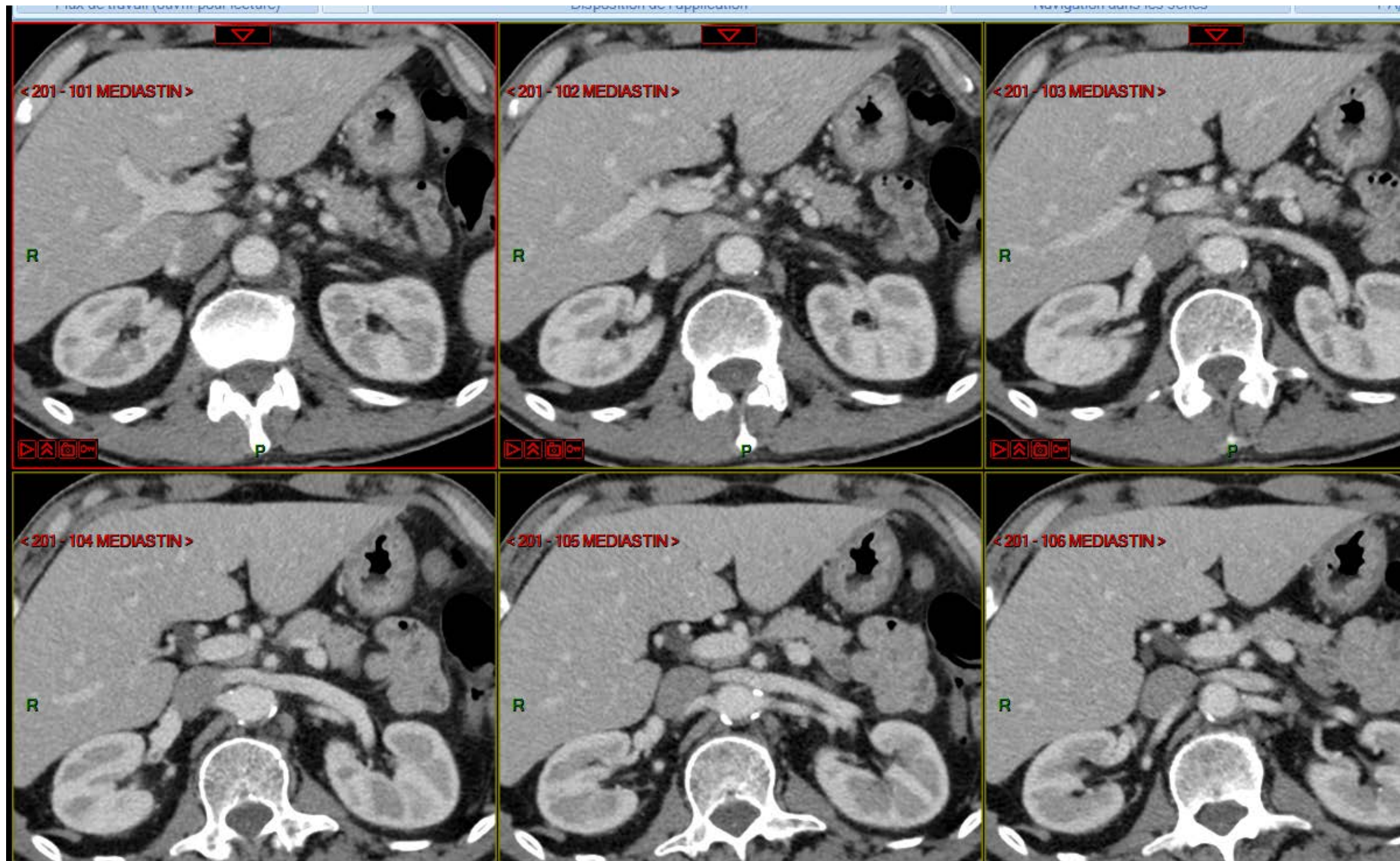
Scanner

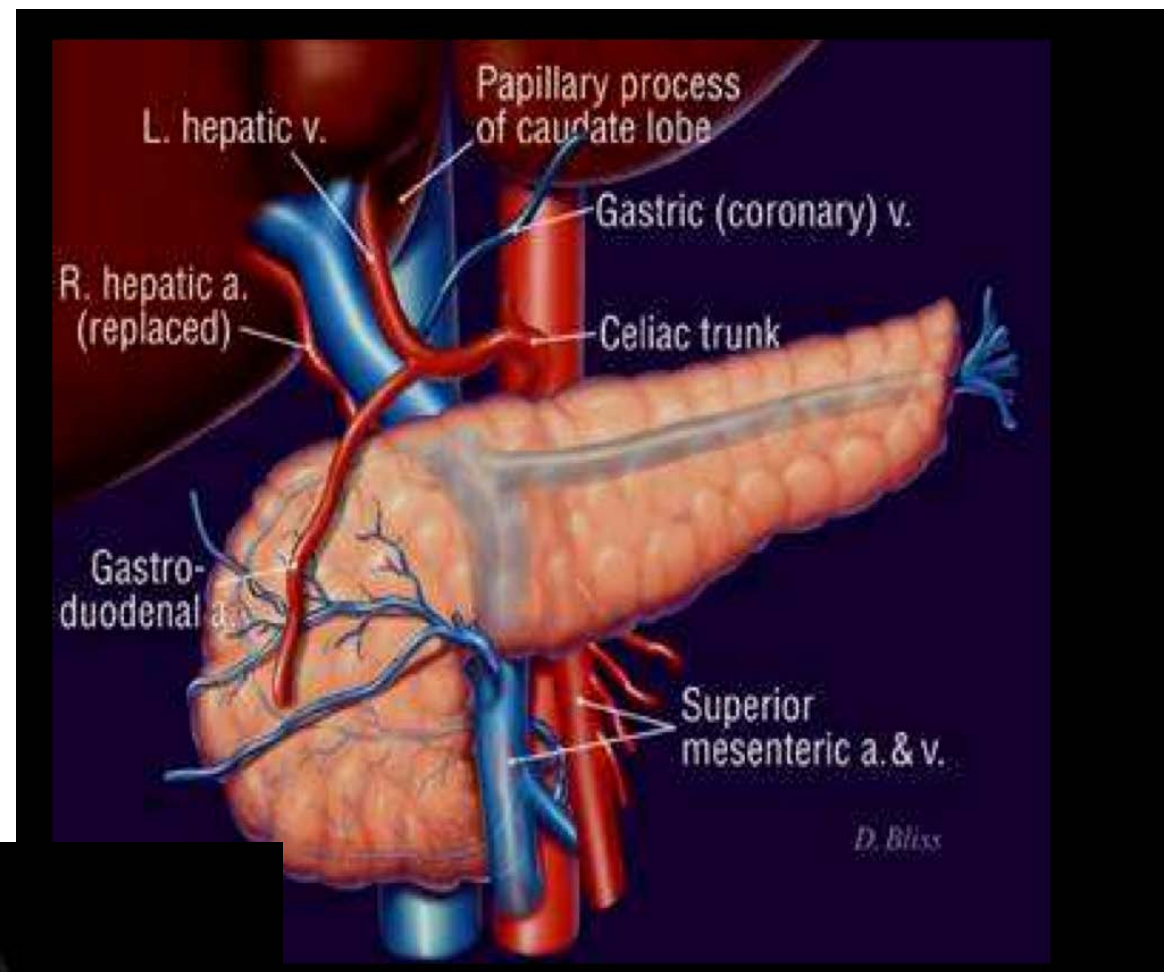
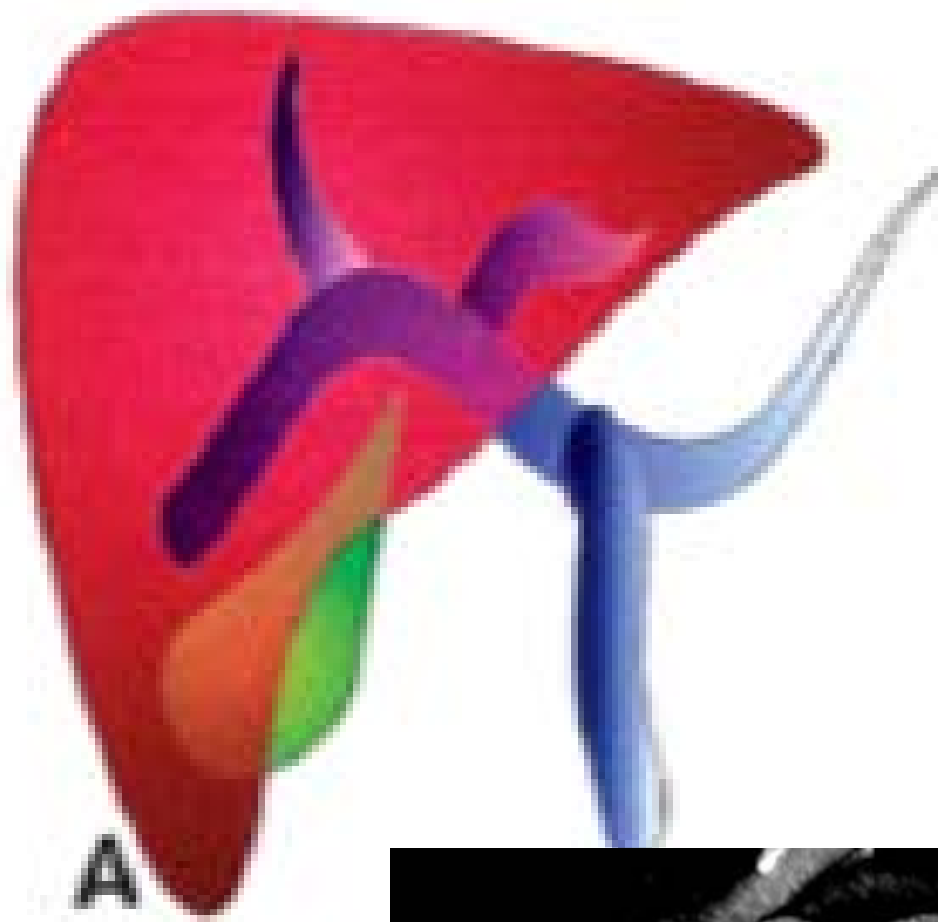
- sans contraste
- avec injection IV d'iode

=> artères

=> veines





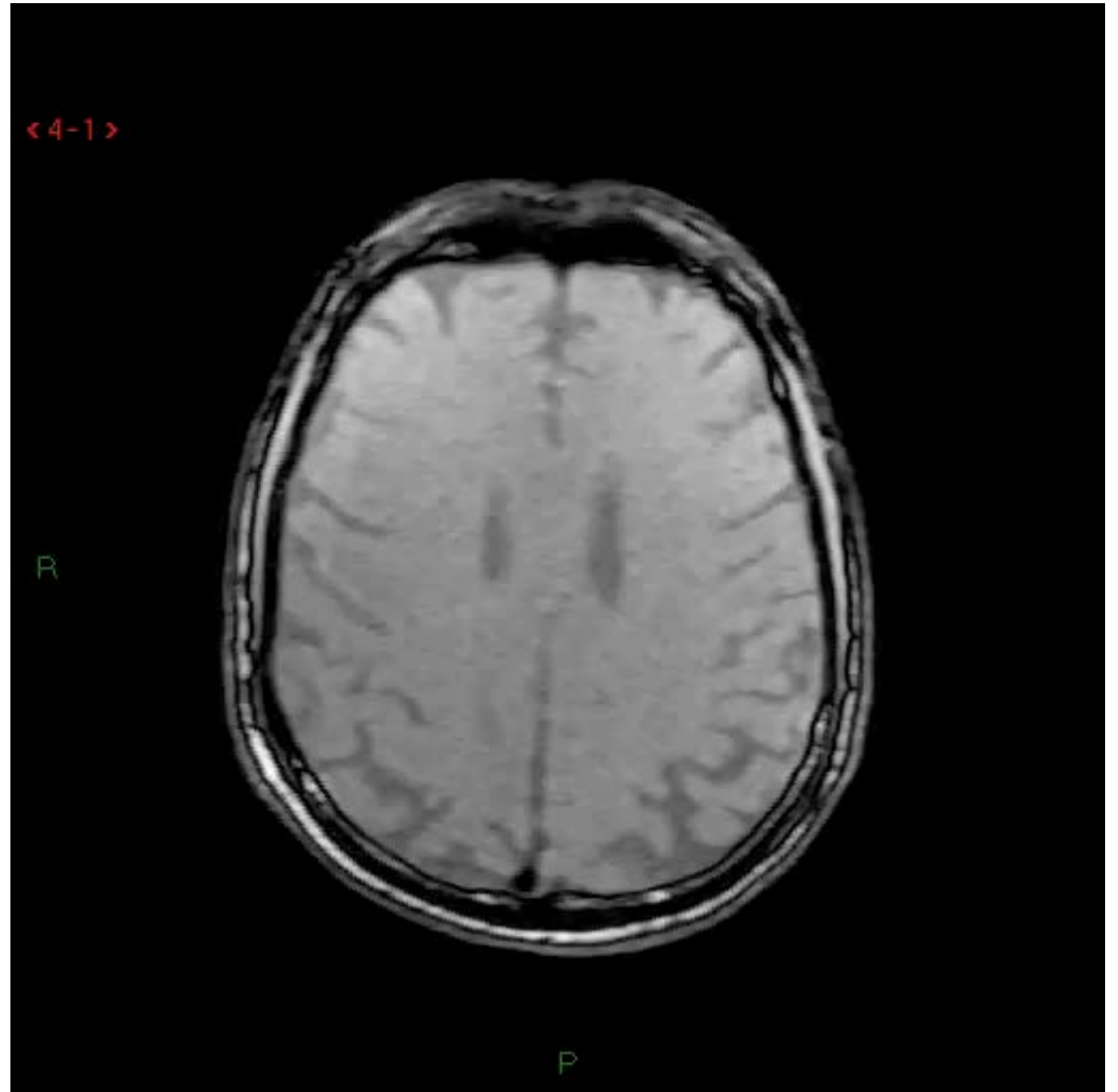


IRM

- sans contraste
- avec injection IV de Gadolinium

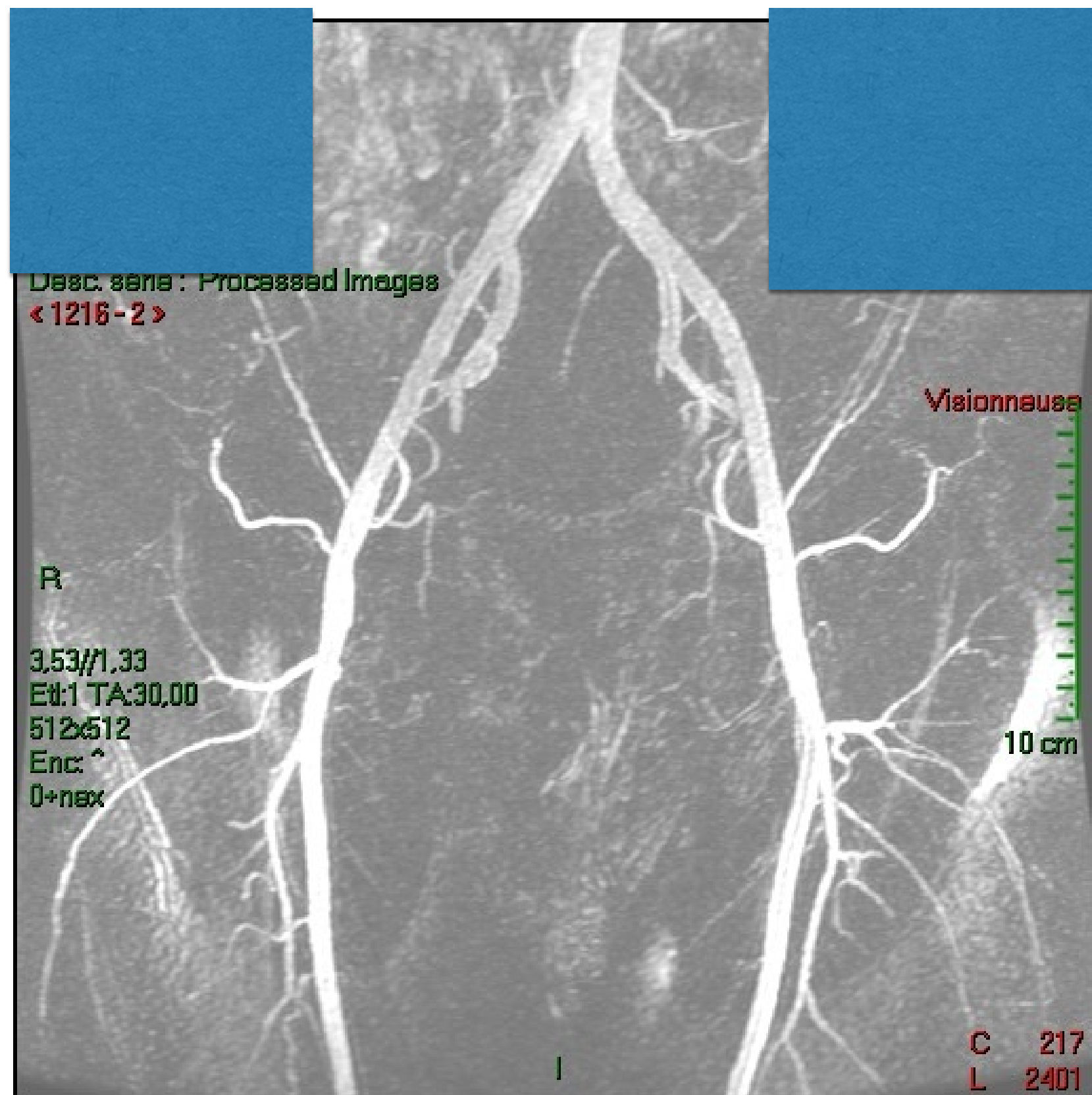
=> artères

=> veines

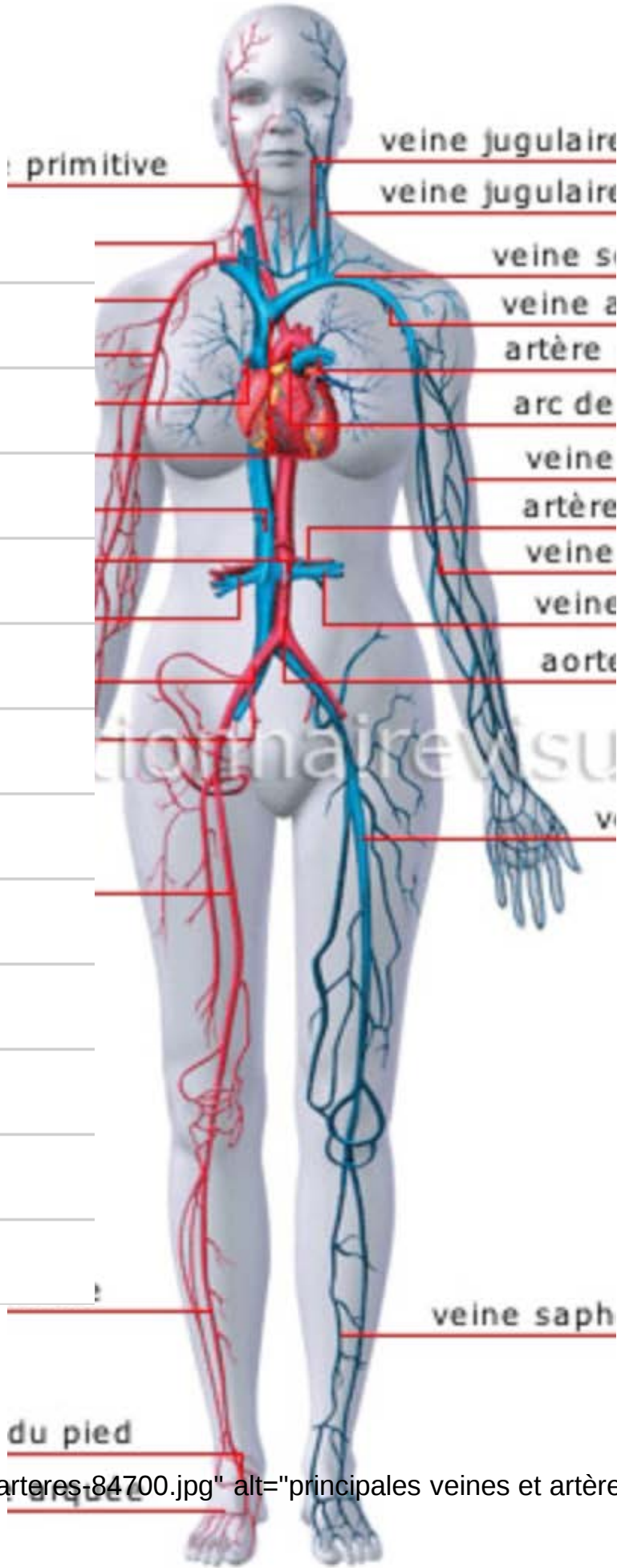


IRM





artères					
	techniques				
régions	rx	US	CT	IRM	
cérébrale	R/	x	x	x	
thoracique	R/	x (TEE)	x	?	
abdominale	R/	x	x	x	
périphériques	R/	x	x	x	



Imagerie des voies lymphatiques

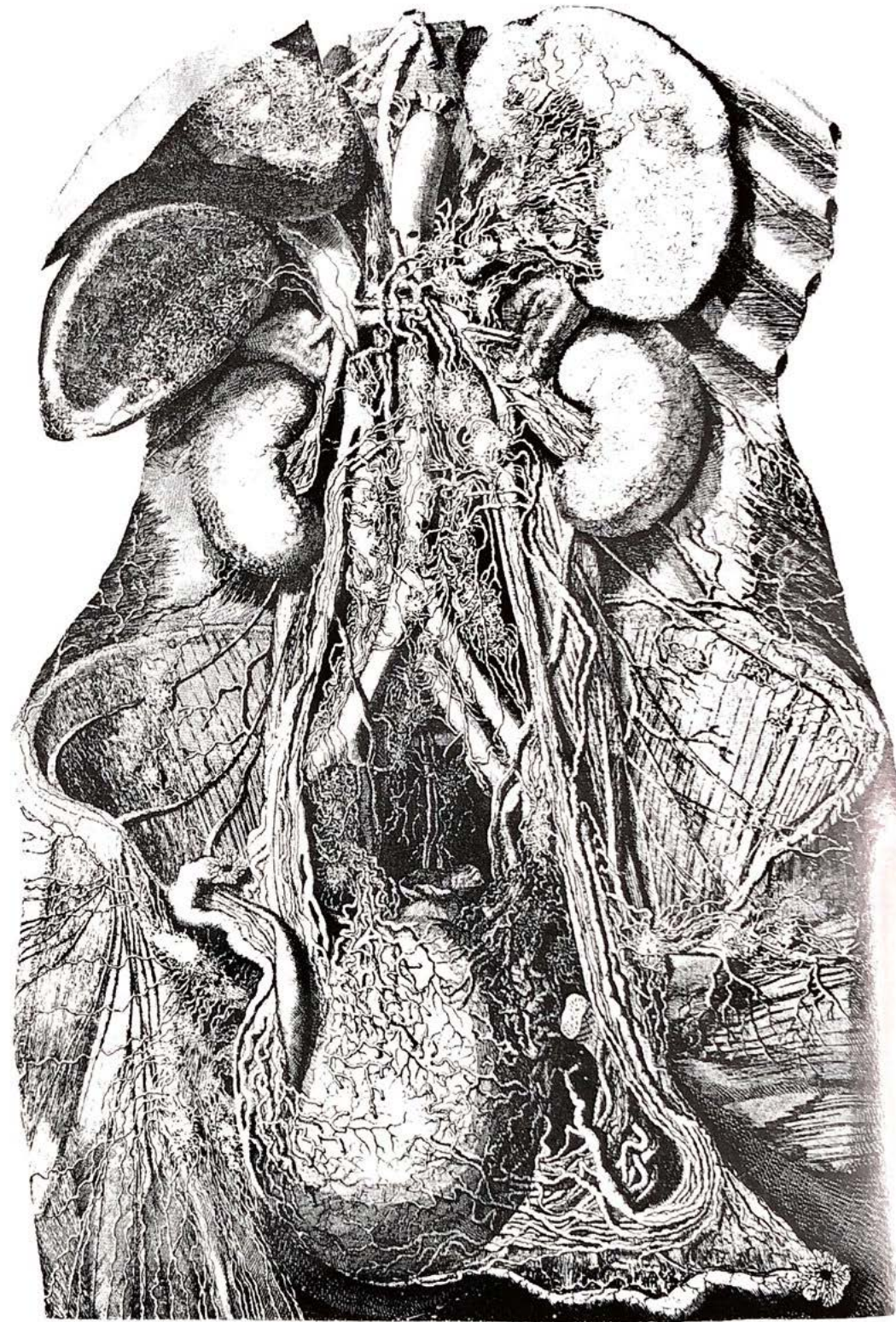
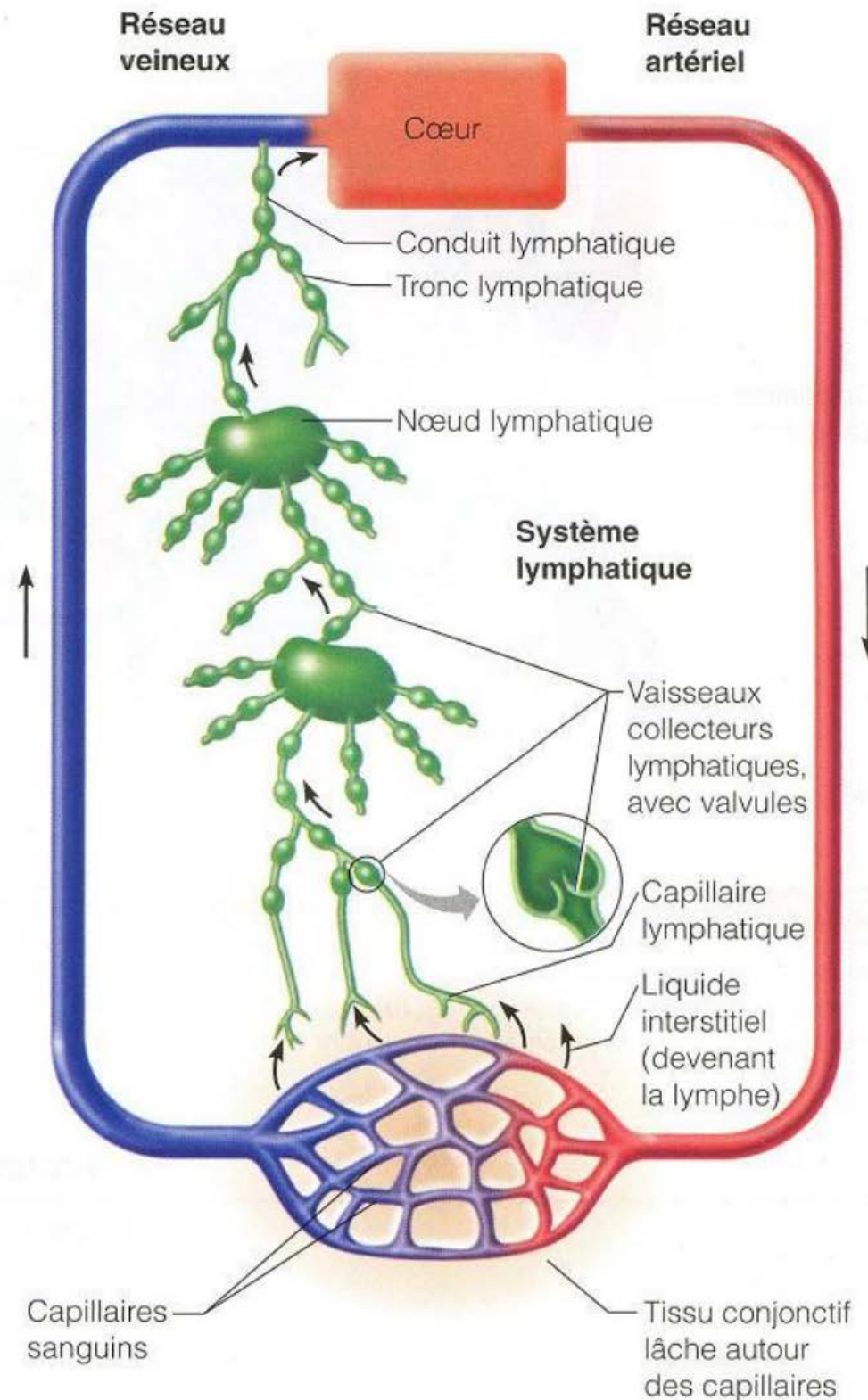


Fig. 1. A plate from Mascagni's *Vasorum lymphaticorum corporis humani*, showing details of the collecting lymph channels of the internal genitals [26]

P Mascagni,
1787

La circulation lymphatique



anne Zeller

Imagerie des voies lymphatiques

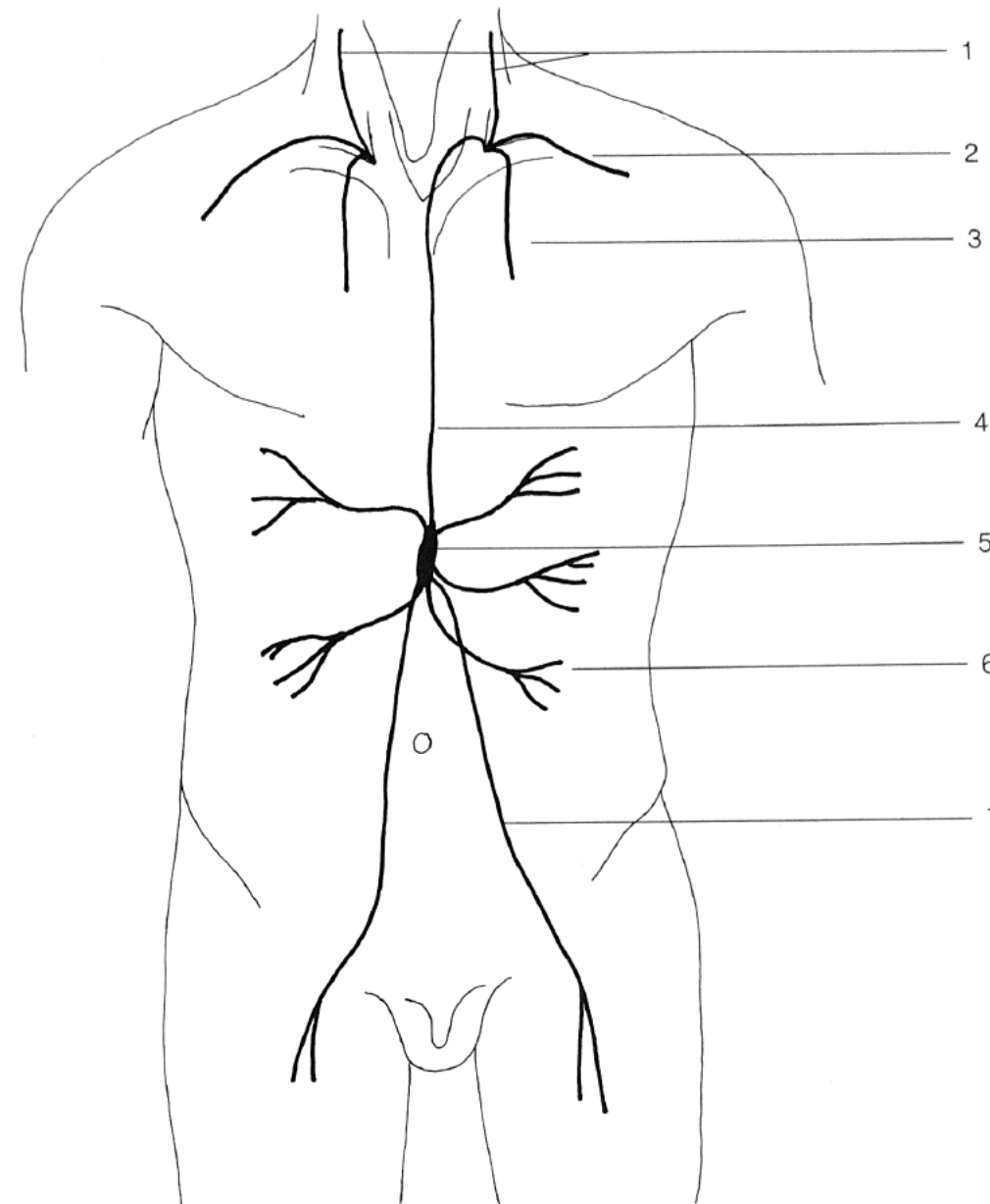


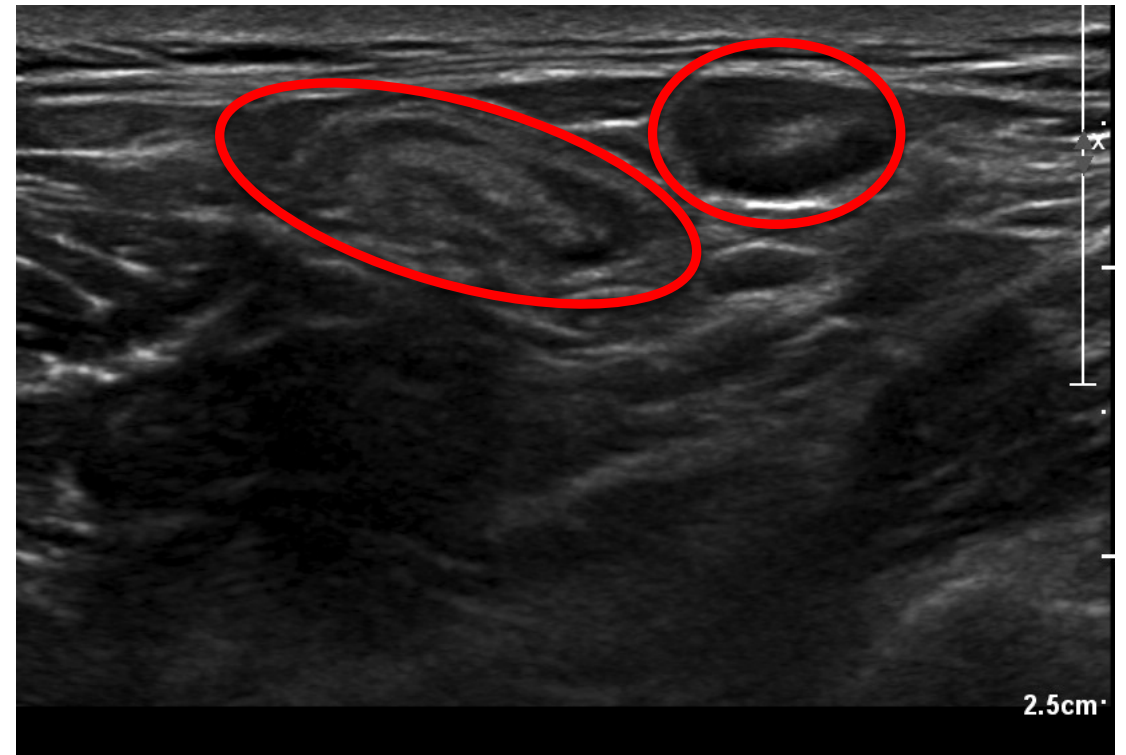
Fig. 3. The main lymph vessels of the human body

- 1 Jugular trunk
- 2 Subclavian trunk
- 3 Bronchomediastinal trunk
- 4 Thoracic duct

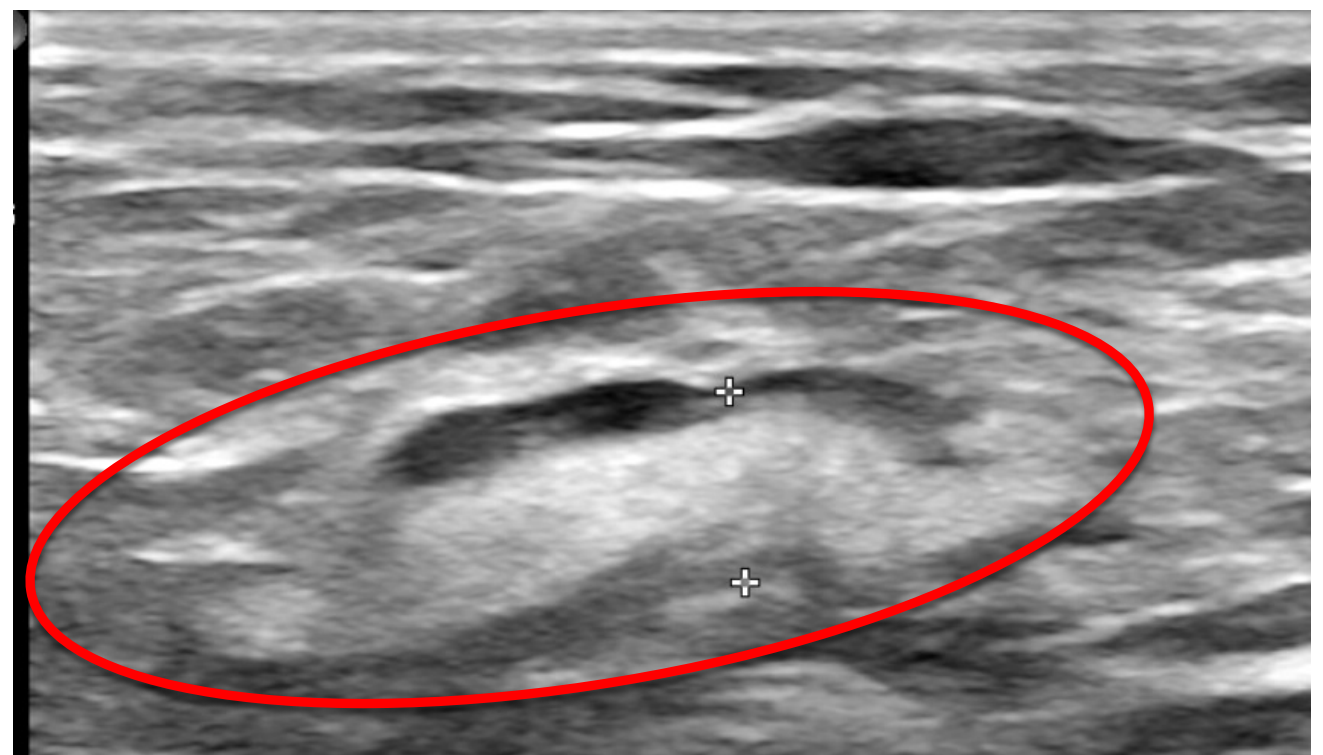
- 5 Cisterna chyli
- 6 Intestinal trunks
- 7 Lumbar trunk

Richter & Feyerabend
1991

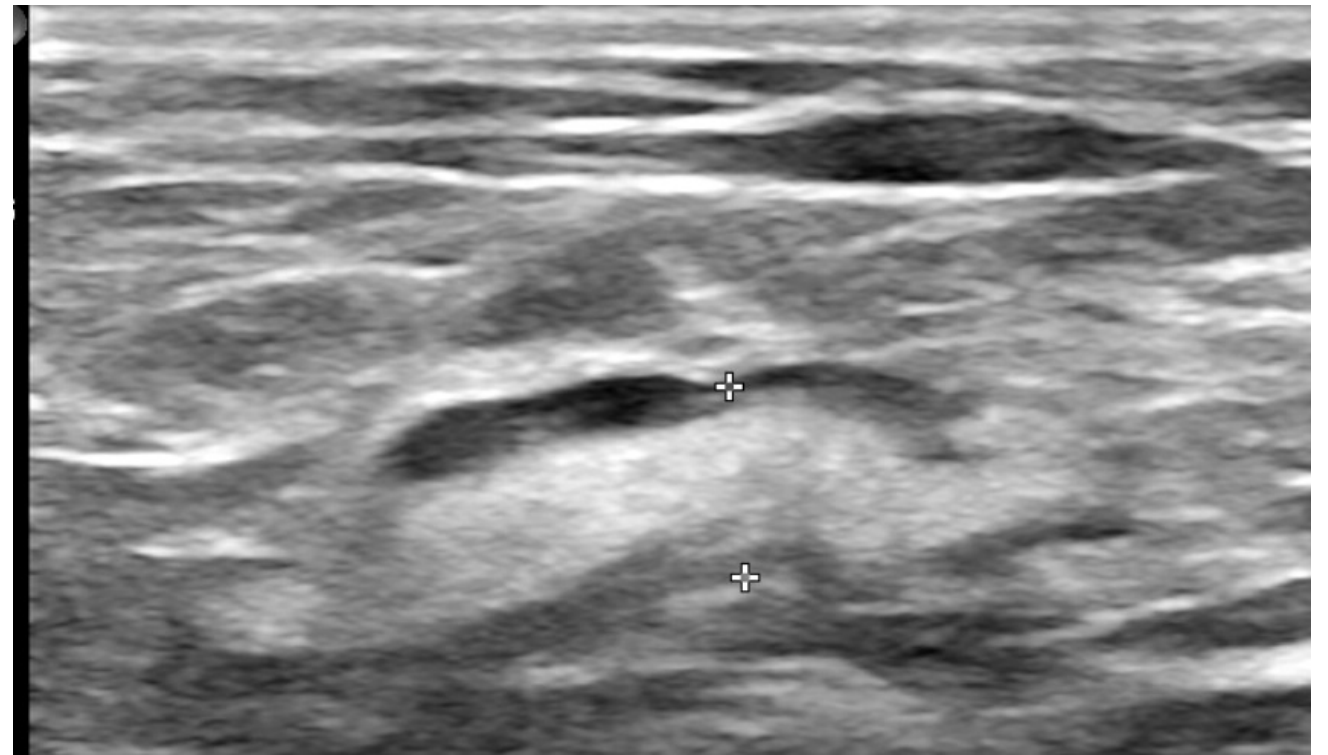
Imagerie des voies lymphatiques



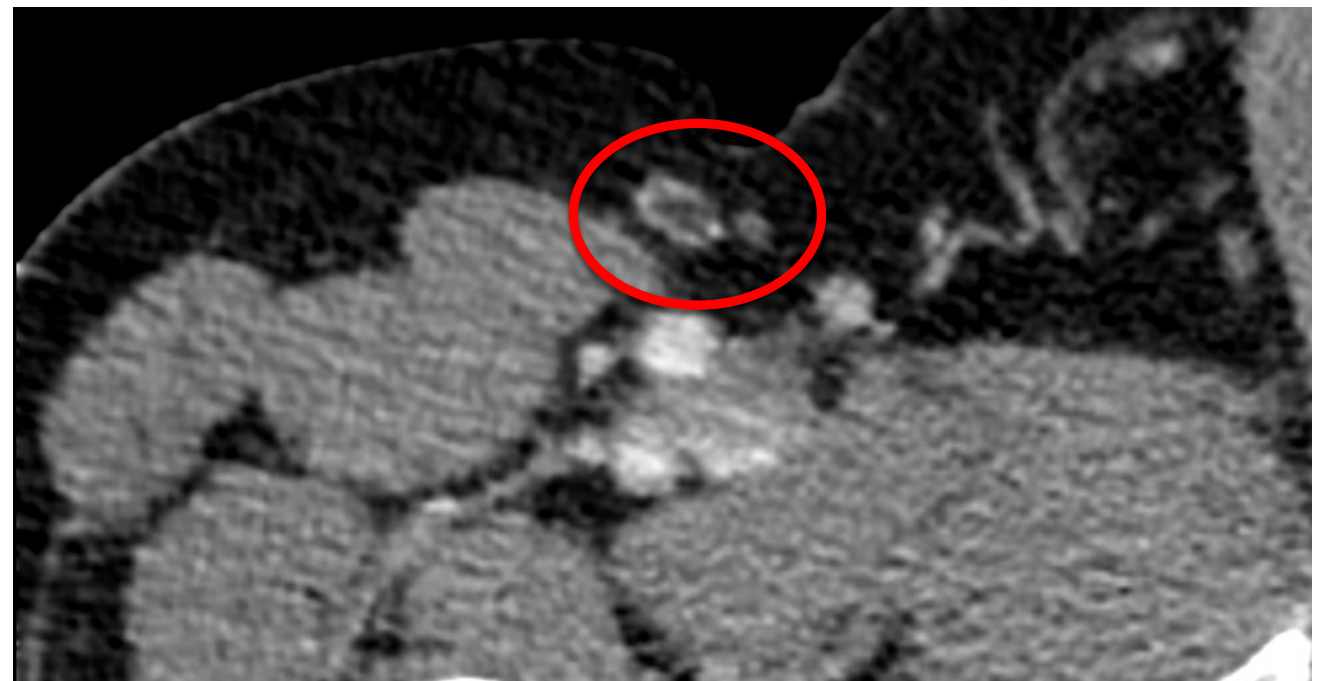
- ECHO, CT, IRM
- (Lymphographie)

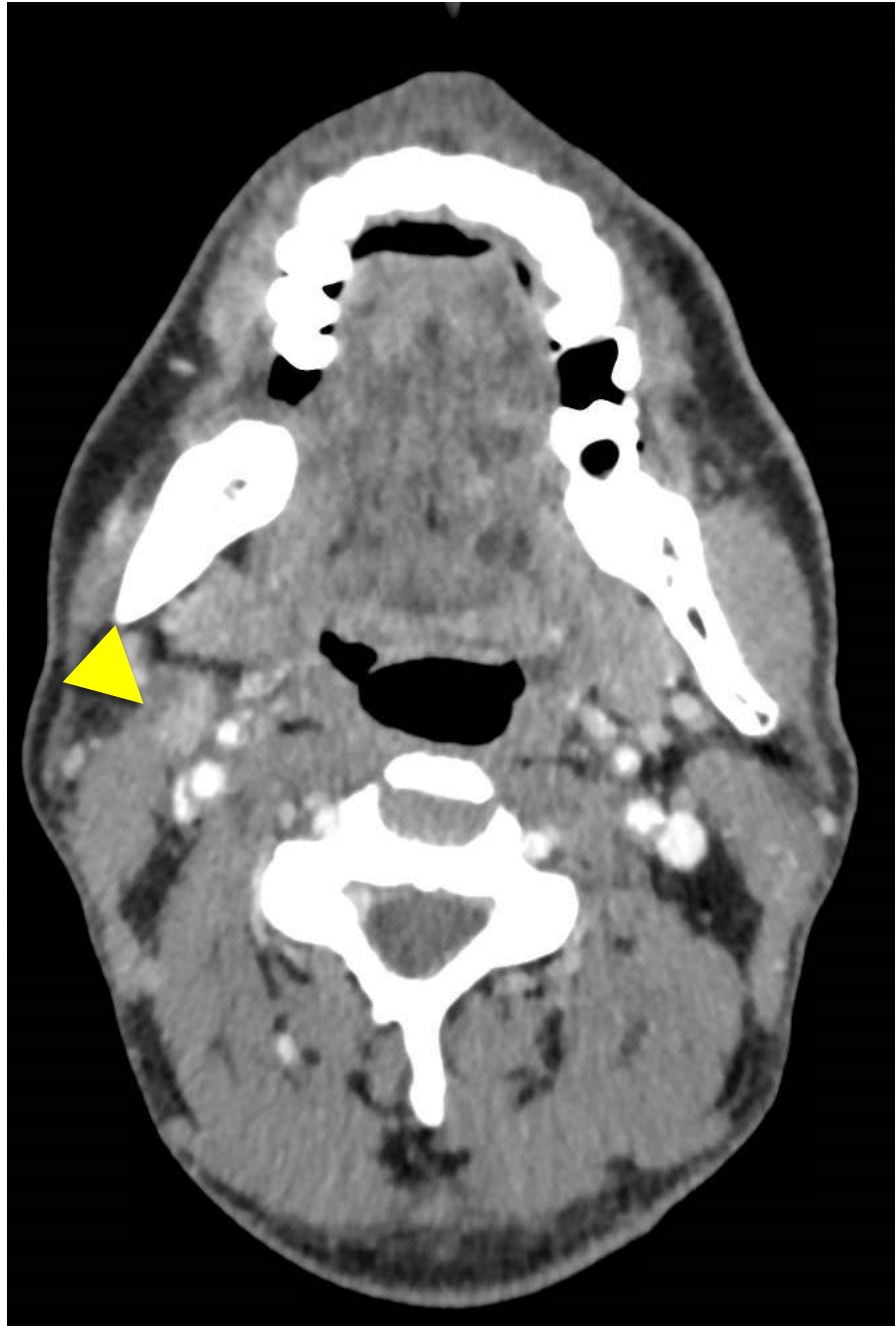


Imagerie des voies lymphatiques



- ECHO, CT, IRM
- (Lymphographie)





Ahuja and Ying

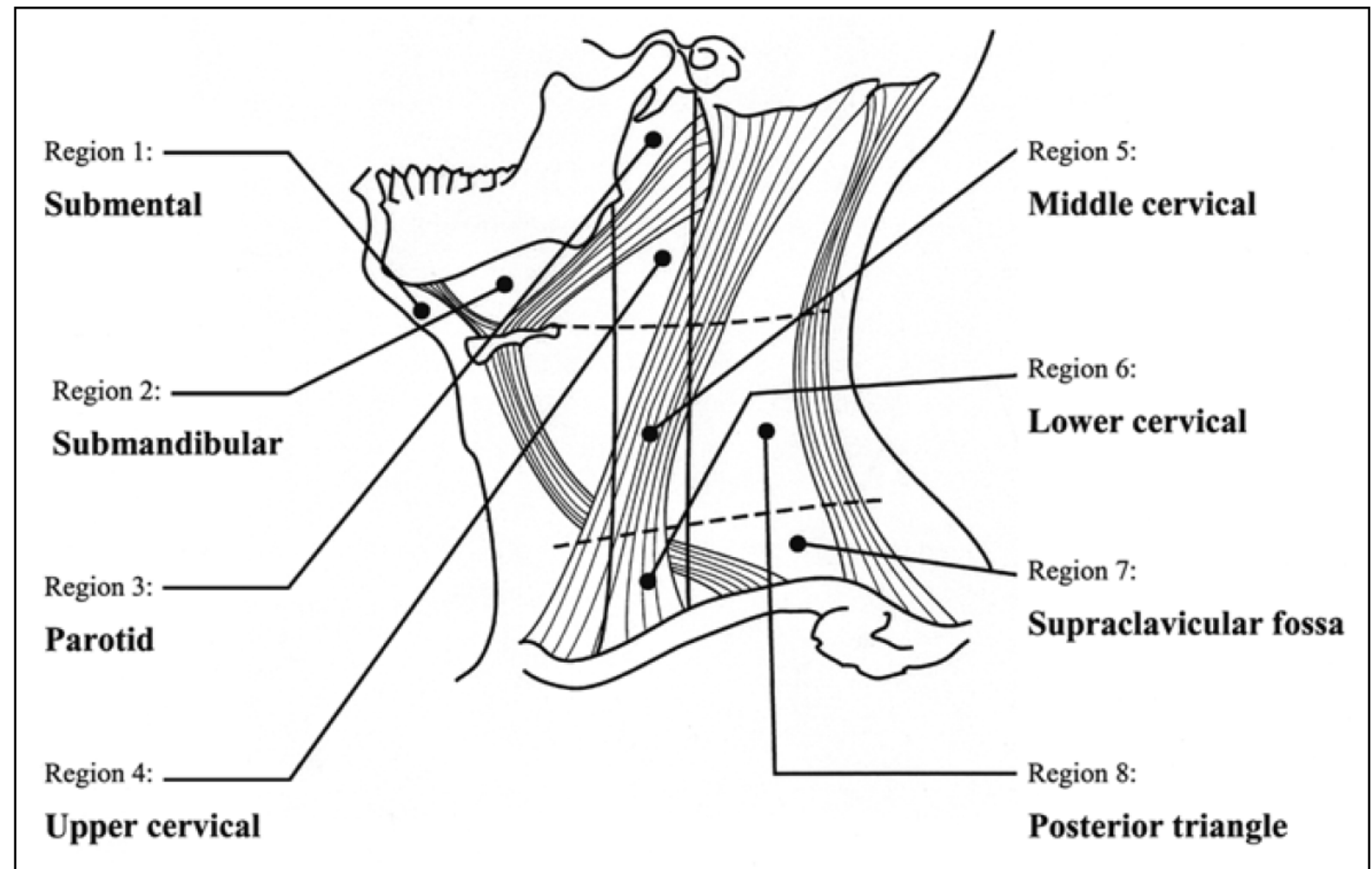
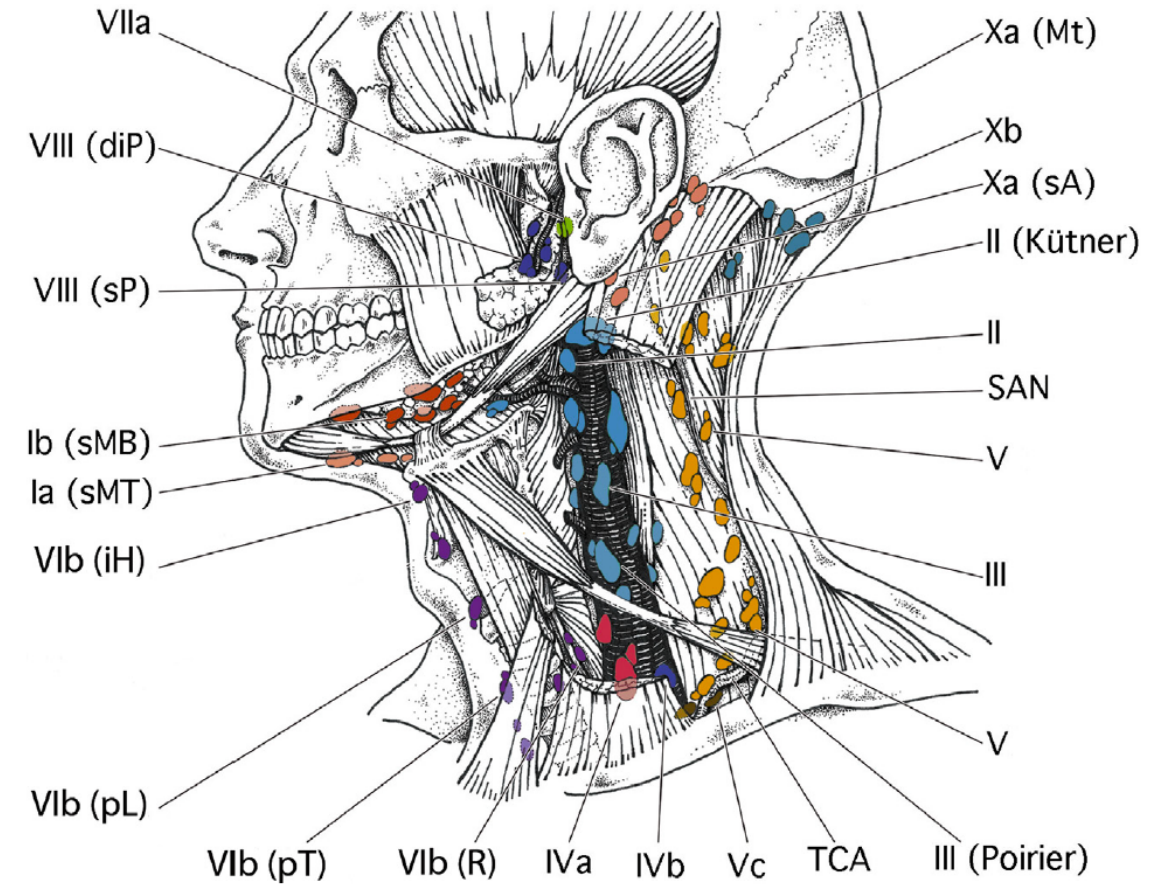
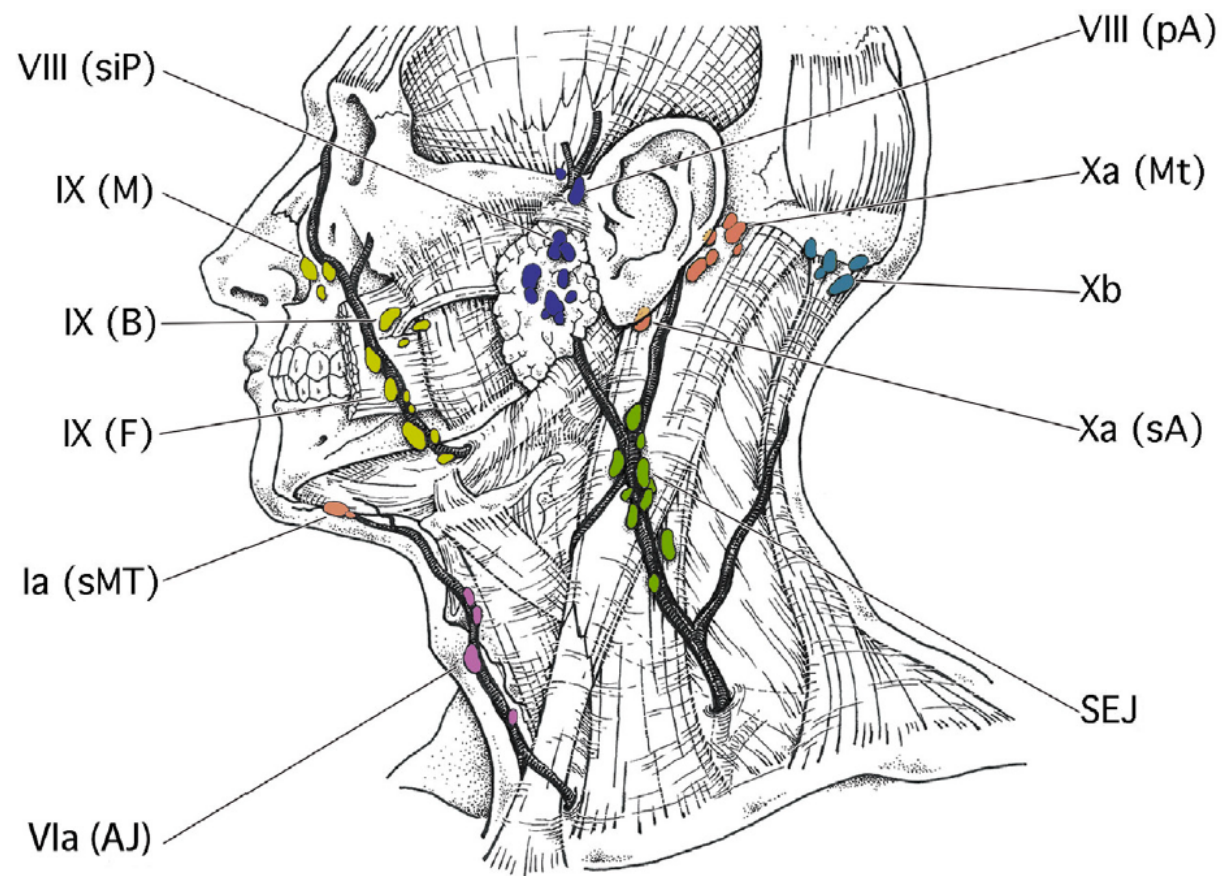


Fig. 1.—Schematic diagram of neck shows classification of cervical lymph nodes in sonography examinations.



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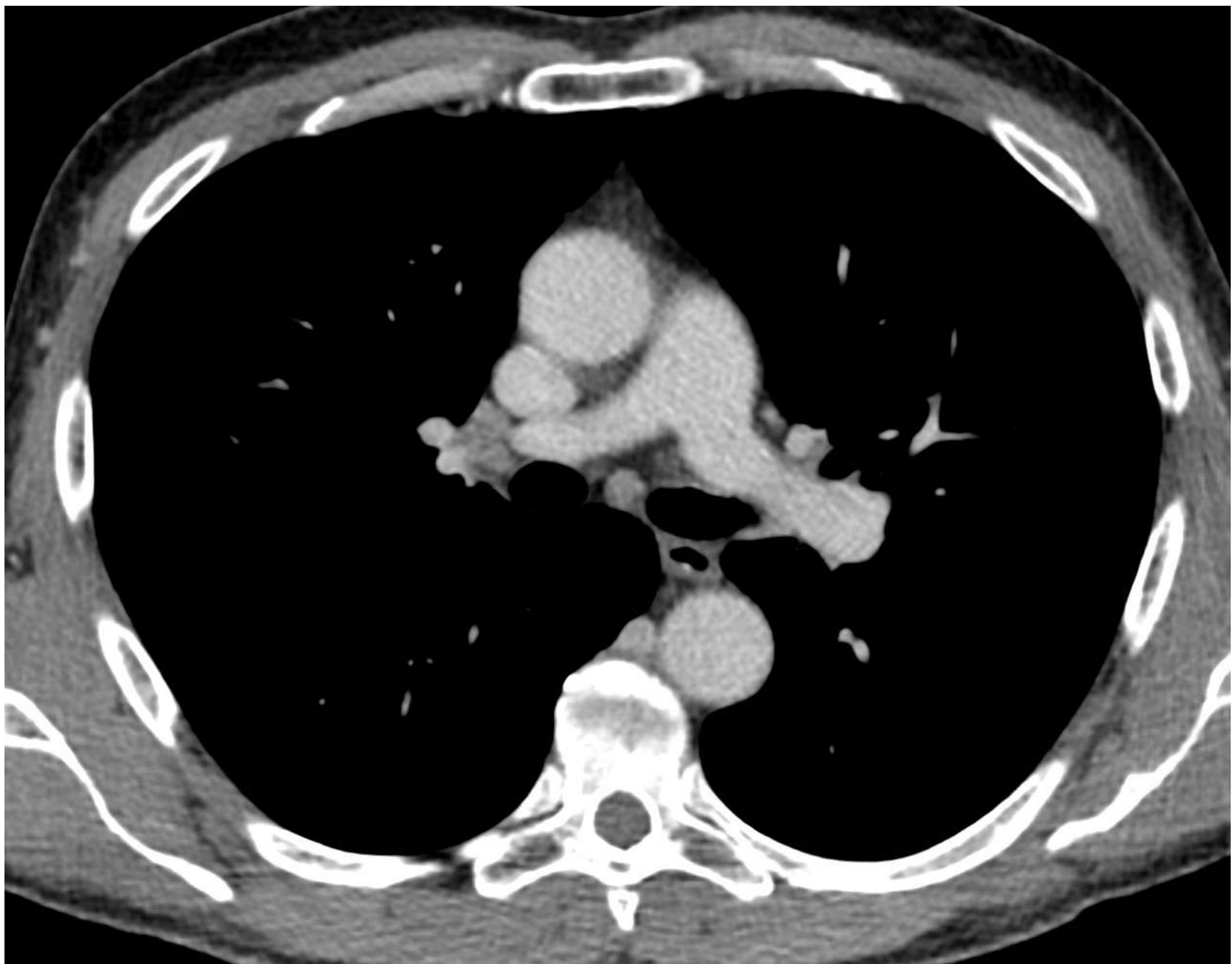
journal homepage: www.thegreenjournal.com

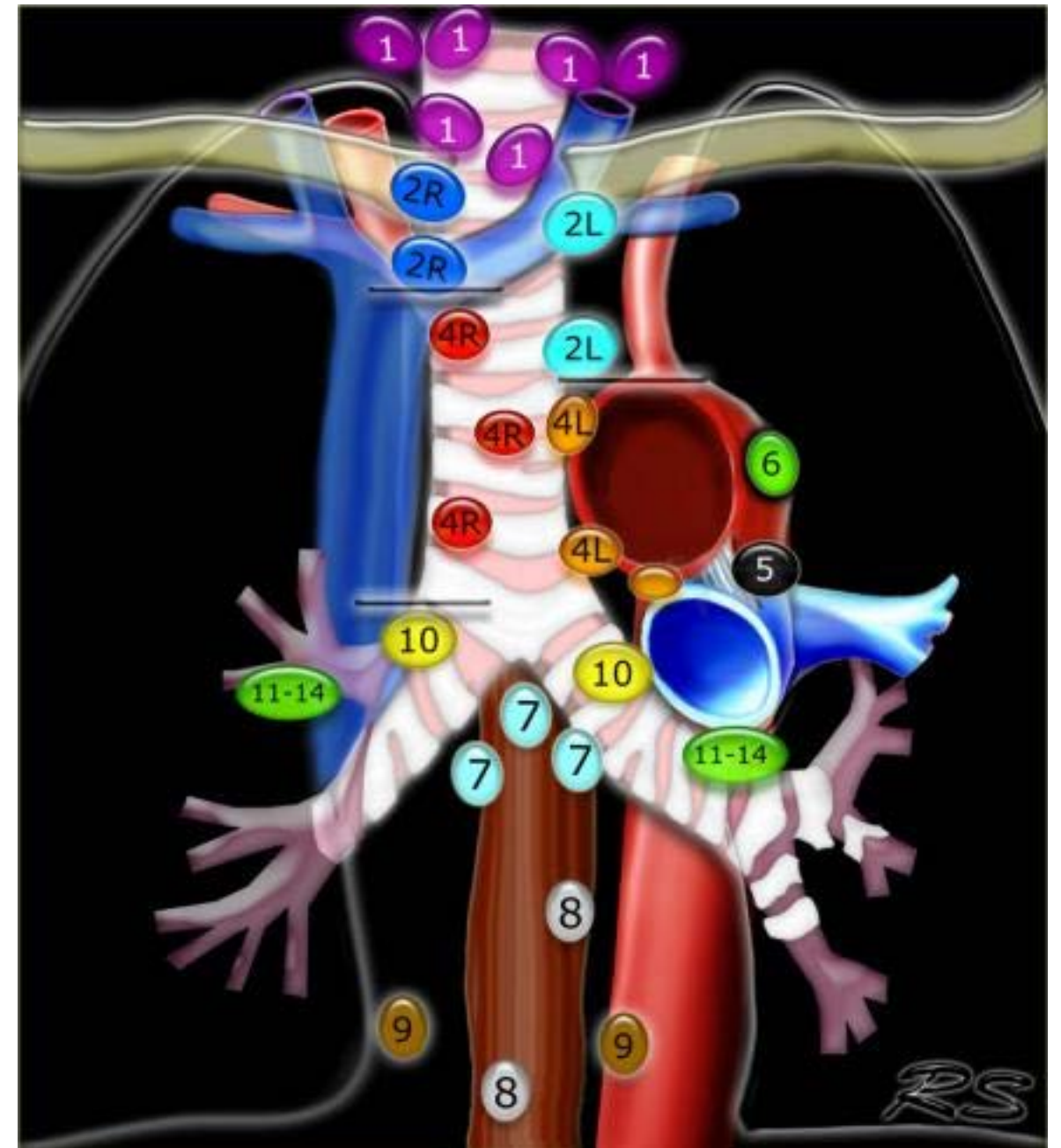
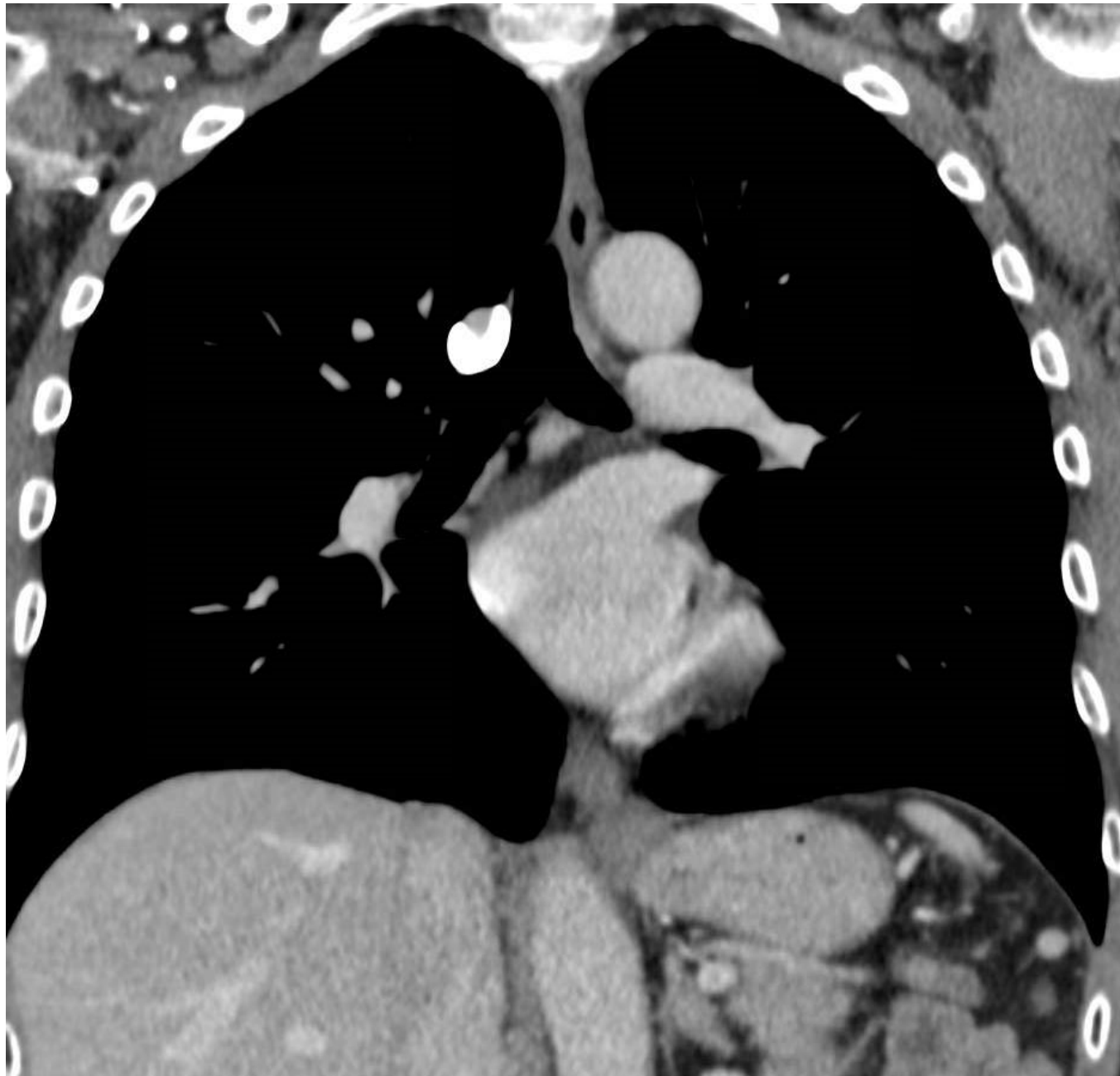


Original article

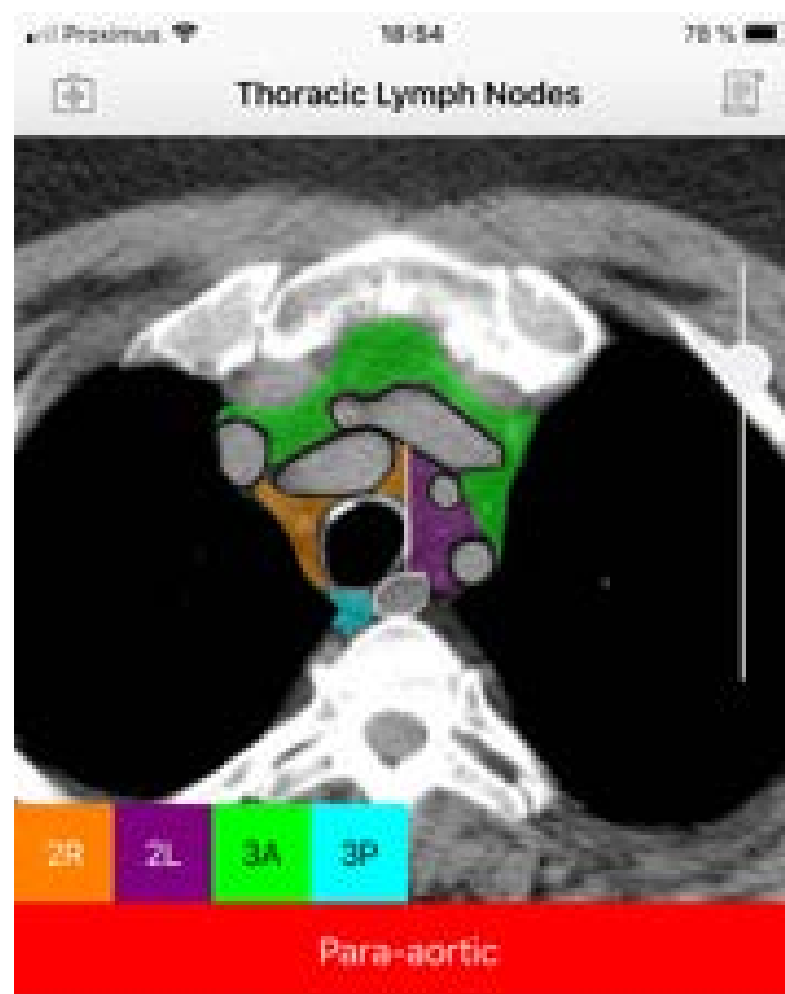
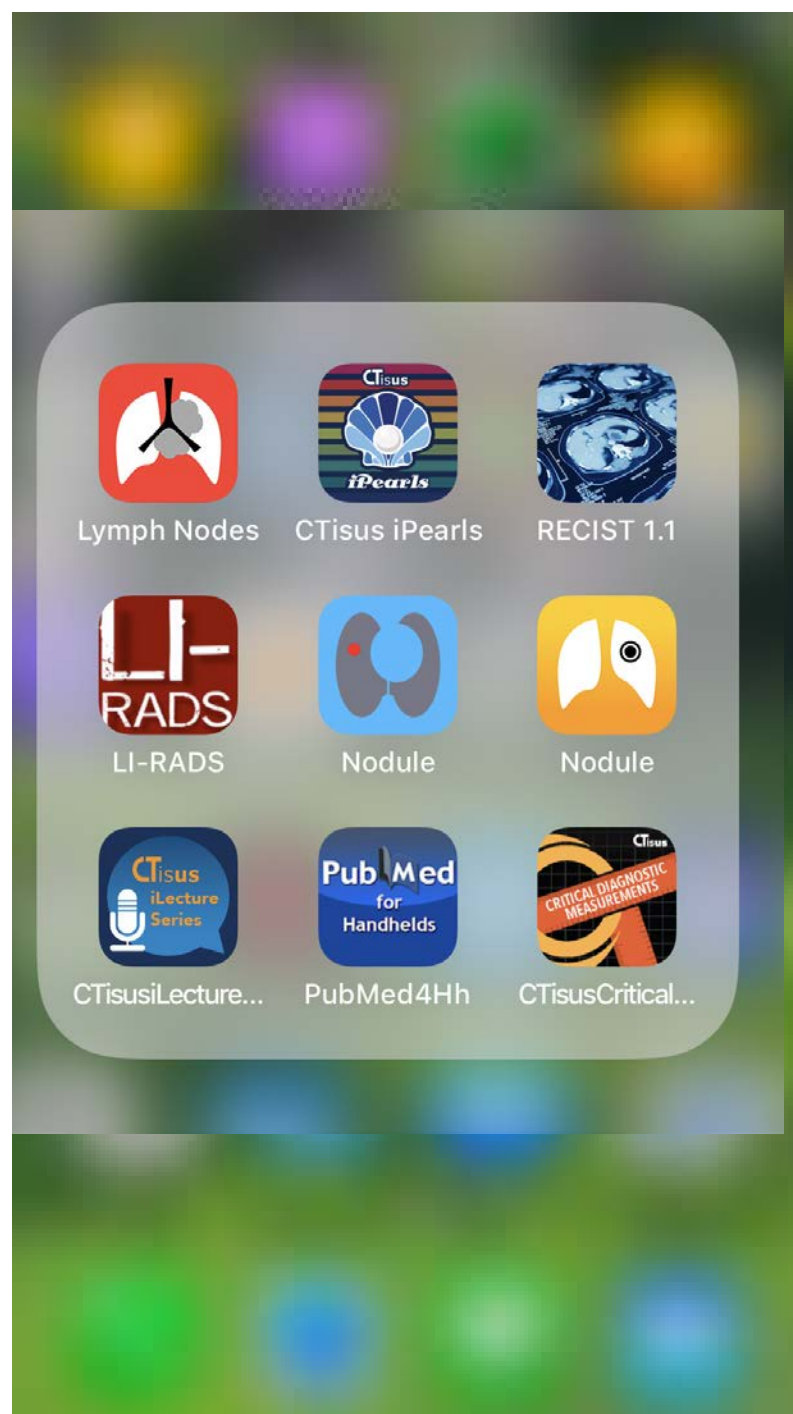
Delineation of the neck node levels for head and neck tumors: A 2013 update. DAHANCA, EORTC, HKNPCSG, NCIC CTG, NCRI, RTOG, TROG consensus guidelines ☆

Vincent Grégoire^{a,*}, Kian Ang^b, Wilfried Budach^c, Cai Grau^d, Marc Hamoir^e, Johannes A. Langendijk^f, Anne Lee^g, Quynh-Thu Le^{h,i}, Philippe Maingon^j, Chris Nutting^k, Brian O'Sullivan^l, Sandro V. Porceddu^m, Benoit Lengeleⁿ





<https://radiologyassistant.nl/>

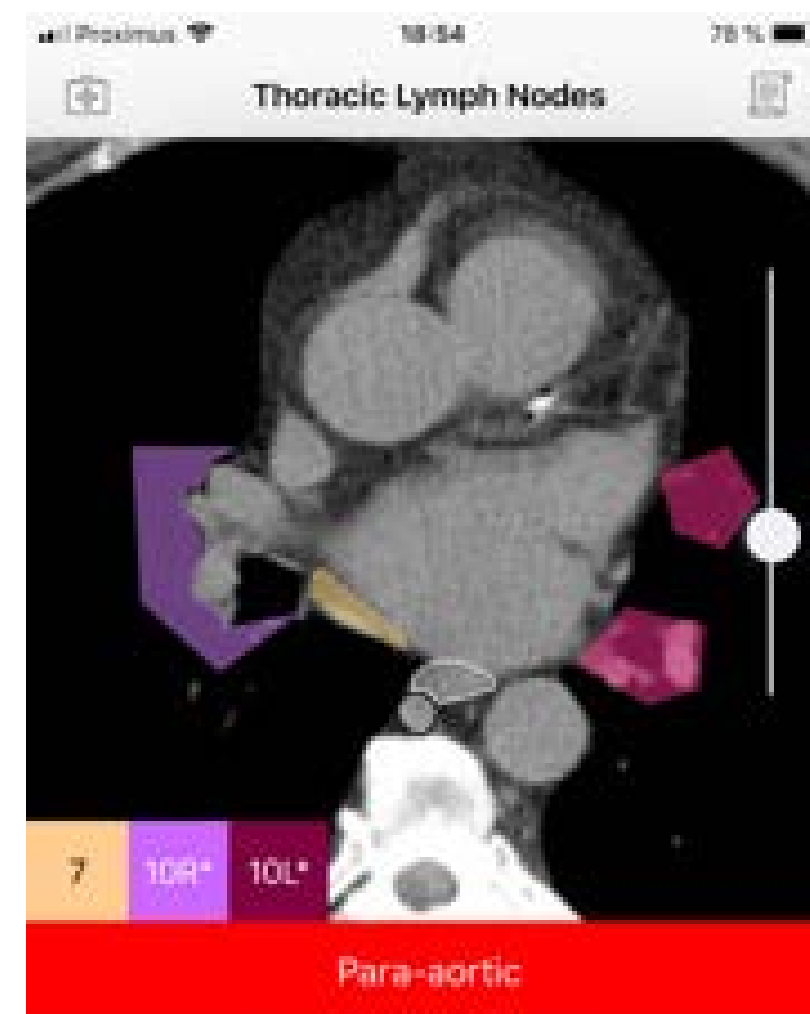


N2 if left lung cancer.
N3 if right lung cancer.

SAMPLING

- Chamberlain procedure.
- Extended mediastinoscopy.
- Transcervical extended mediastinal lymphadenectomy (TEMLA).
- Transthoracic needle aspiration (TTNA).
- Left video-assisted thoracoscopic surgery (VATS).

UPPER BORDER



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UPPER BORDER

Table 1. The upper limit of normal of nodal size according to anatomical regions in the abdomen and pelvis

Site	Nodal size (mm) ^a
Retrocrural	6
Paracardiac	12
Gastrohepatic	8
Porta hepatis	7
Portacaval	10 (13 ^b)
Upper paraortic	9
Lower paraortic	11
Mesenteric	5
Pelvic	10
Inguinal	15

**Abdominal
Imaging**

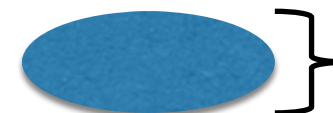
© Springer Science+Business Media, Inc. 2006
Published online: 1 August 2006

Abdom Imaging (2006) 31:632–643
DOI: 10.1007/s00261-006-9022-2

Cross-sectional imaging of nodal metastases in the abdomen and pelvis

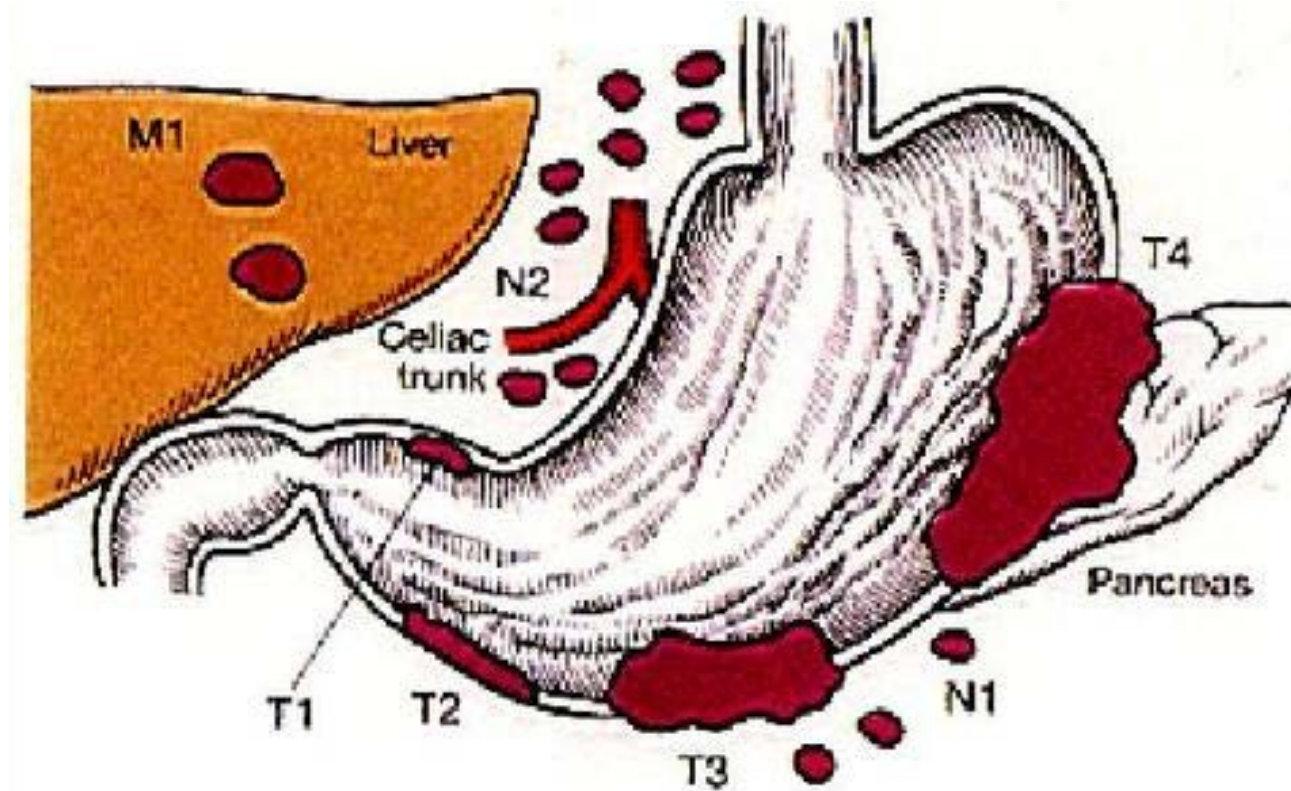
D. M. Koh, M. Hughes, J. E. Husband

Academic Department of Radiology, Royal Marsden Hospital, Downs Road, Sutton SM2 5PT, UK



Petit axe

Ganglions péri-gastriques



Medscape ®

<http://www.medscape.com>





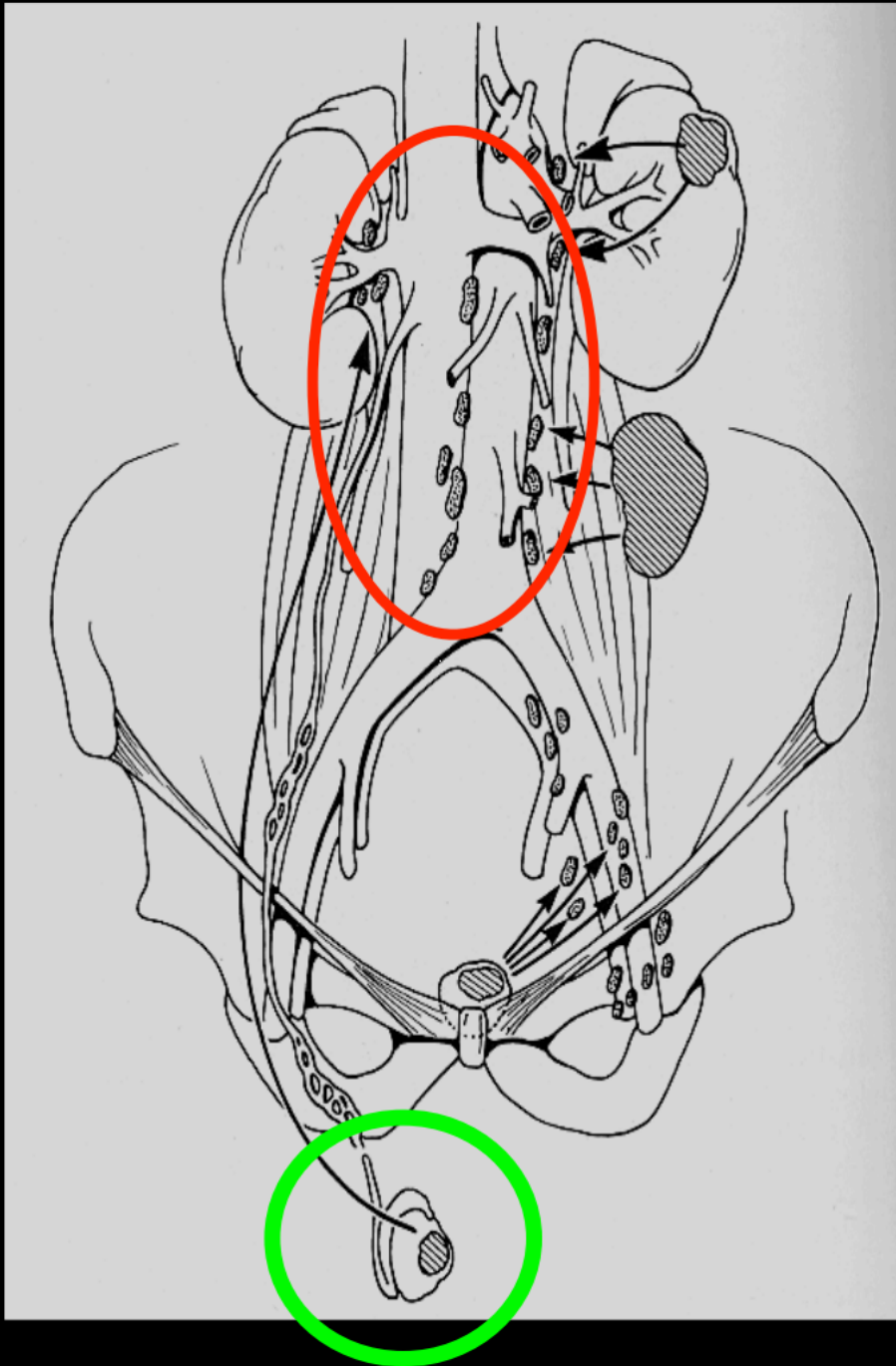


drainage ganglionnaire des tumeurs pelviennes, gonadiques , et rétro péritonéales

voies de propagations habituelles des métastases ganglionnaires

drainage ganglionnaire

localisation des tumeurs primitives



**gglions inguinaux
superficiels**

**vulve,pénis,vagin 1/3
inférieur ,rectum 1/3
inférieur , anus .**

**drainage pelvien
antérieur
latéral +++++**

**paroi ant. de la vessie
vessie,prostate,vagin 2/3
supérieurs,col
utérin,utérus,ovaire,
rectum**

**drainage
hypogastrique**

**la plupart des organes
pelviens**

drainage pré sacré

prostate,col,rectum +++

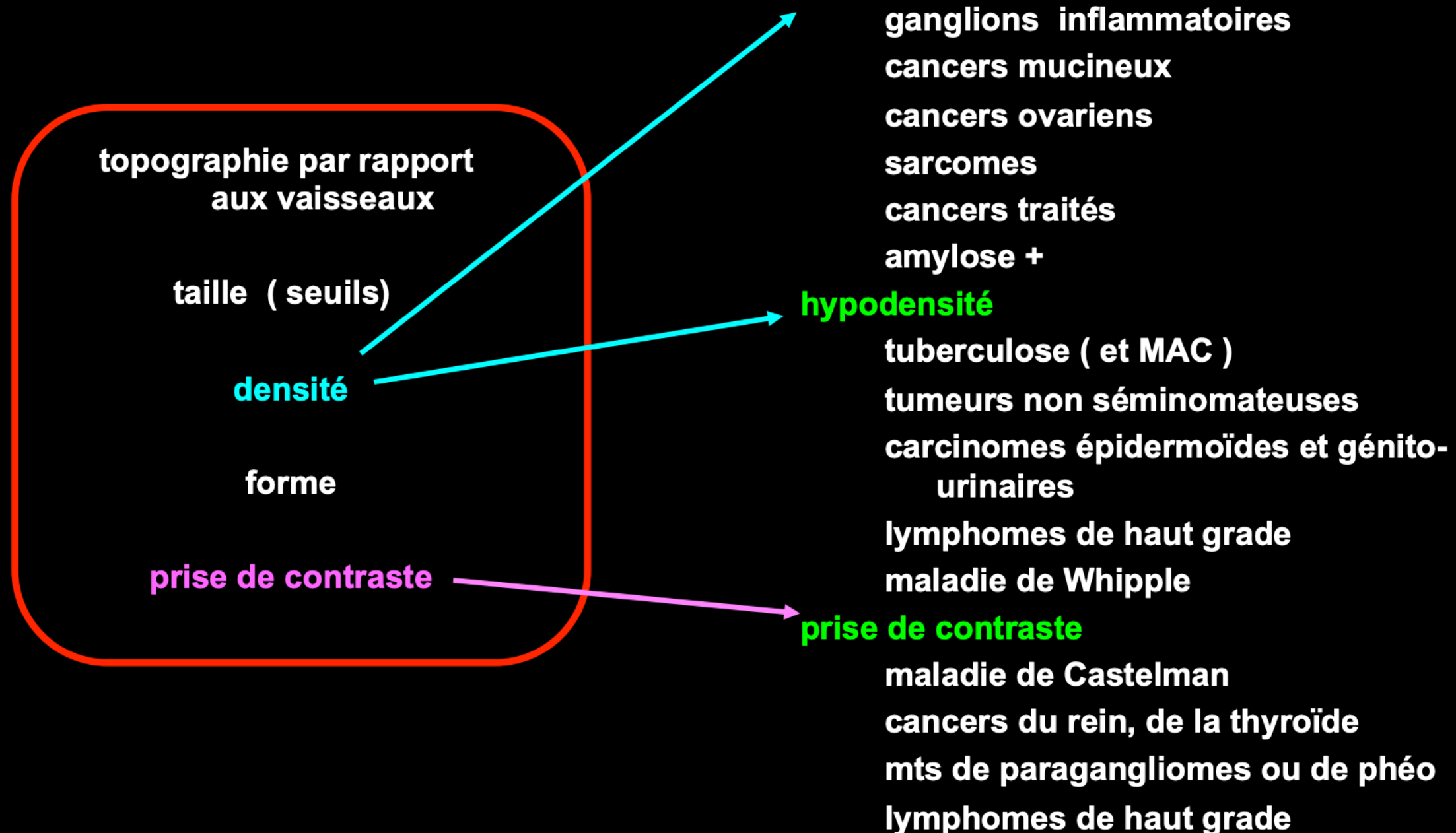
**drainage para
aortique**

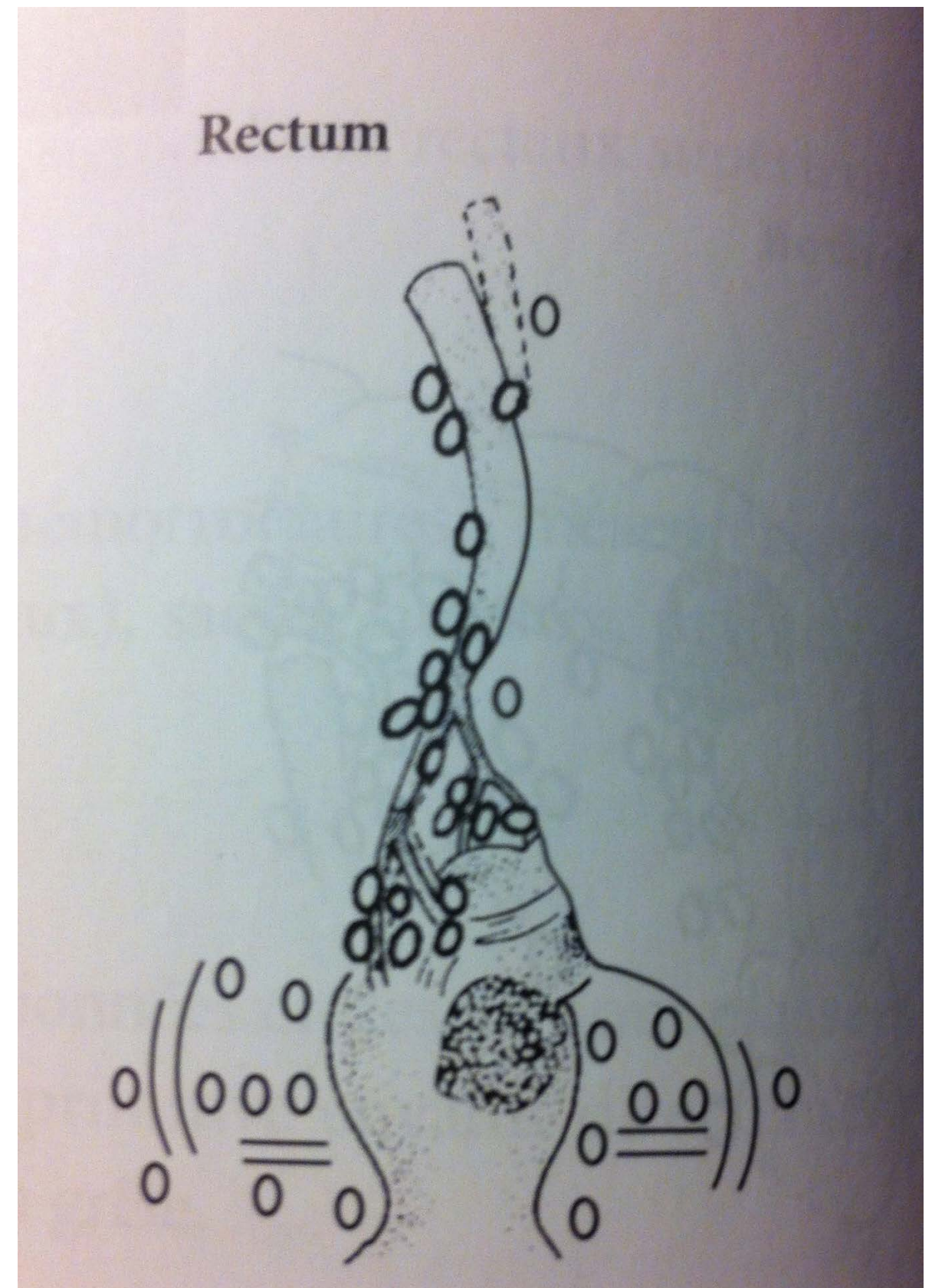
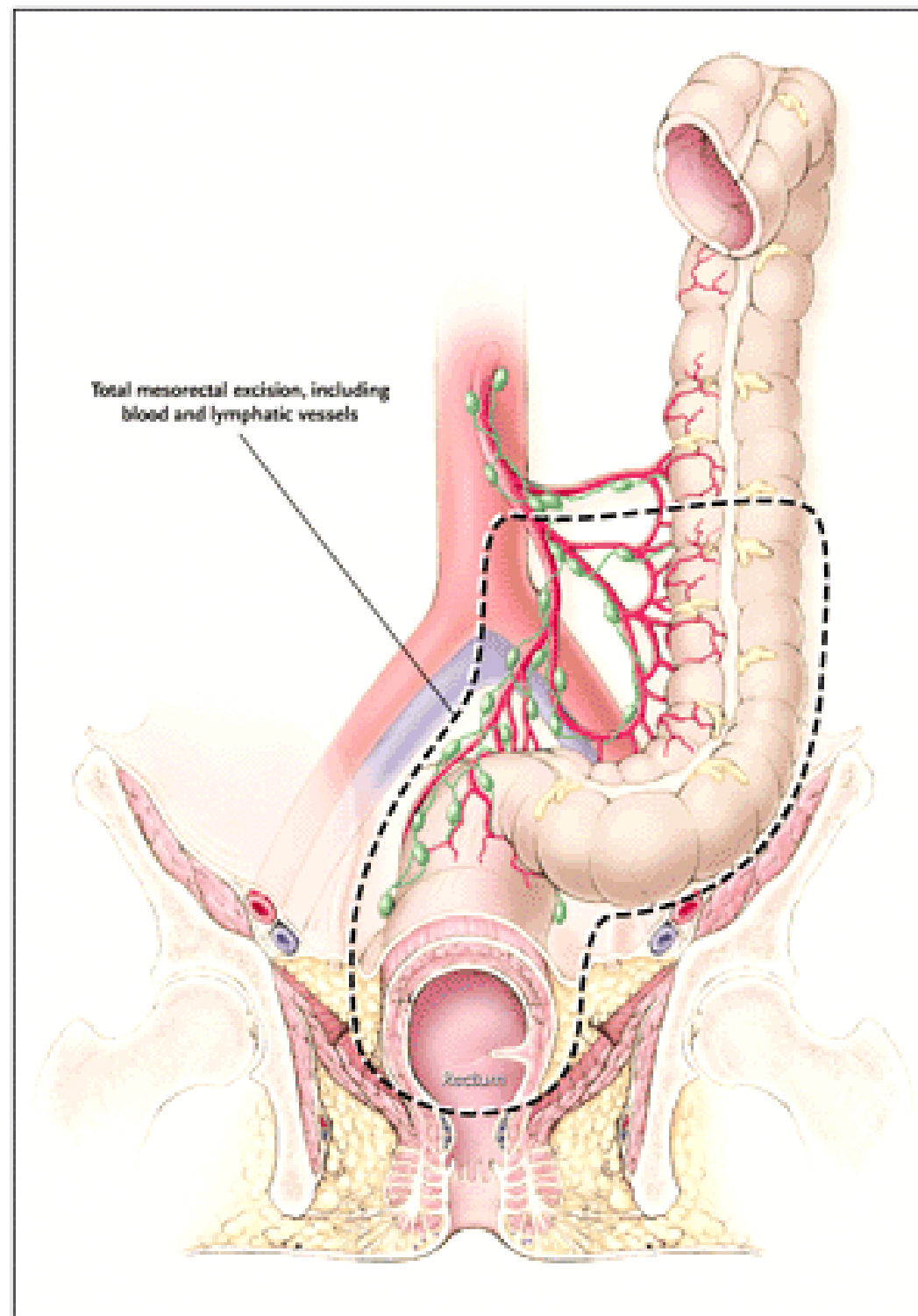
**ovaire,testicule
vessie,prostate,vagin sup.,col
utérus,rectum**

CT des adénopathies rétro péritonéales et pelviennes

technique : avant et après IV ; temps artériel ? ; en principe phase tardive (3 à 7 minutes; ou injection préalable chz les sujets maigres) la plus utile pour différencier veines et adénopathies ; importance des reformations multiplanaires frontales (adp rétro péritonéales) et frontales obliques (iliaques)

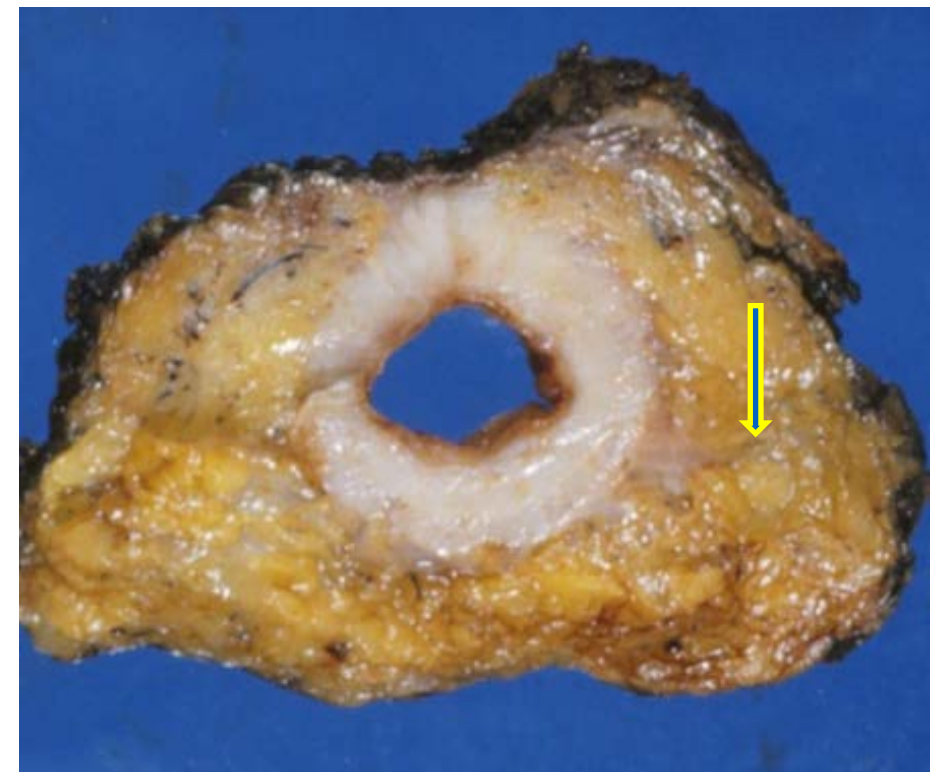
diagnostic étiologique des adénopathies (CT)



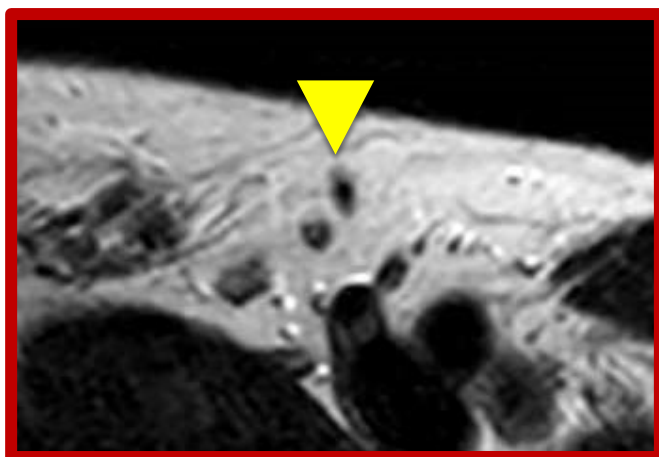
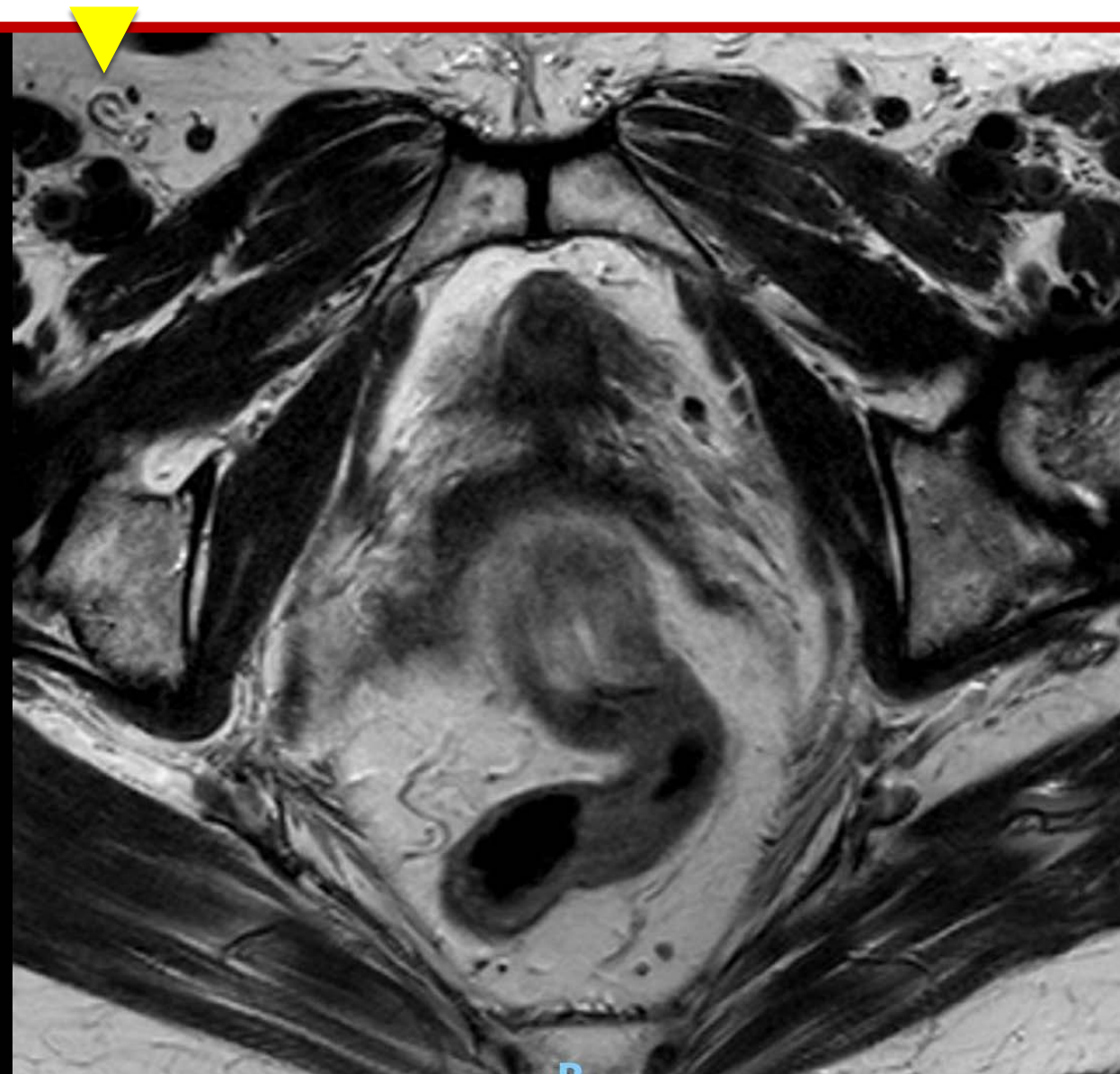
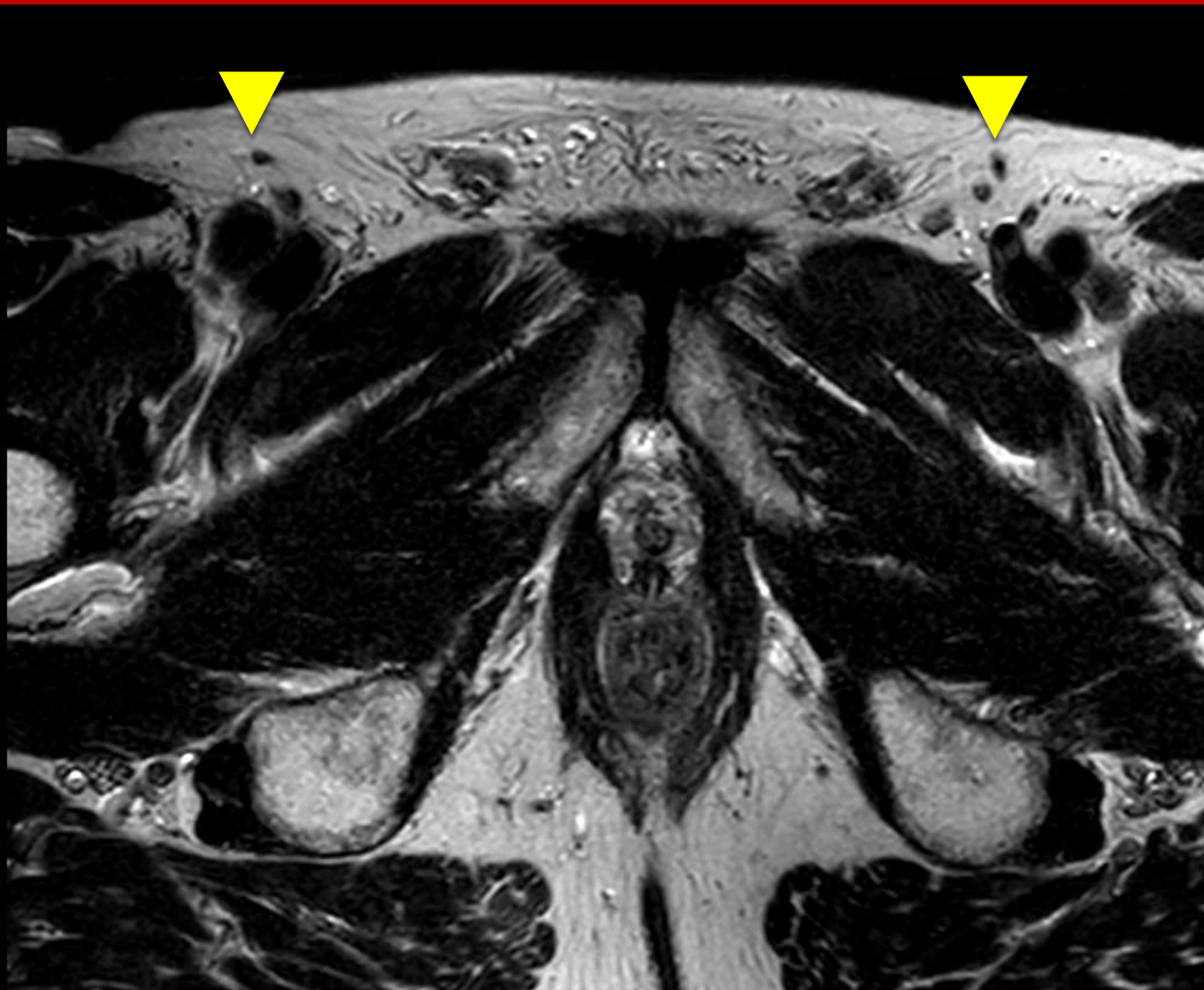




ypT3N2 marge 1 mm



Case 14



Imagerie des vaisseaux



