

Anatomie radiologique des vaisseaux

Bac 13

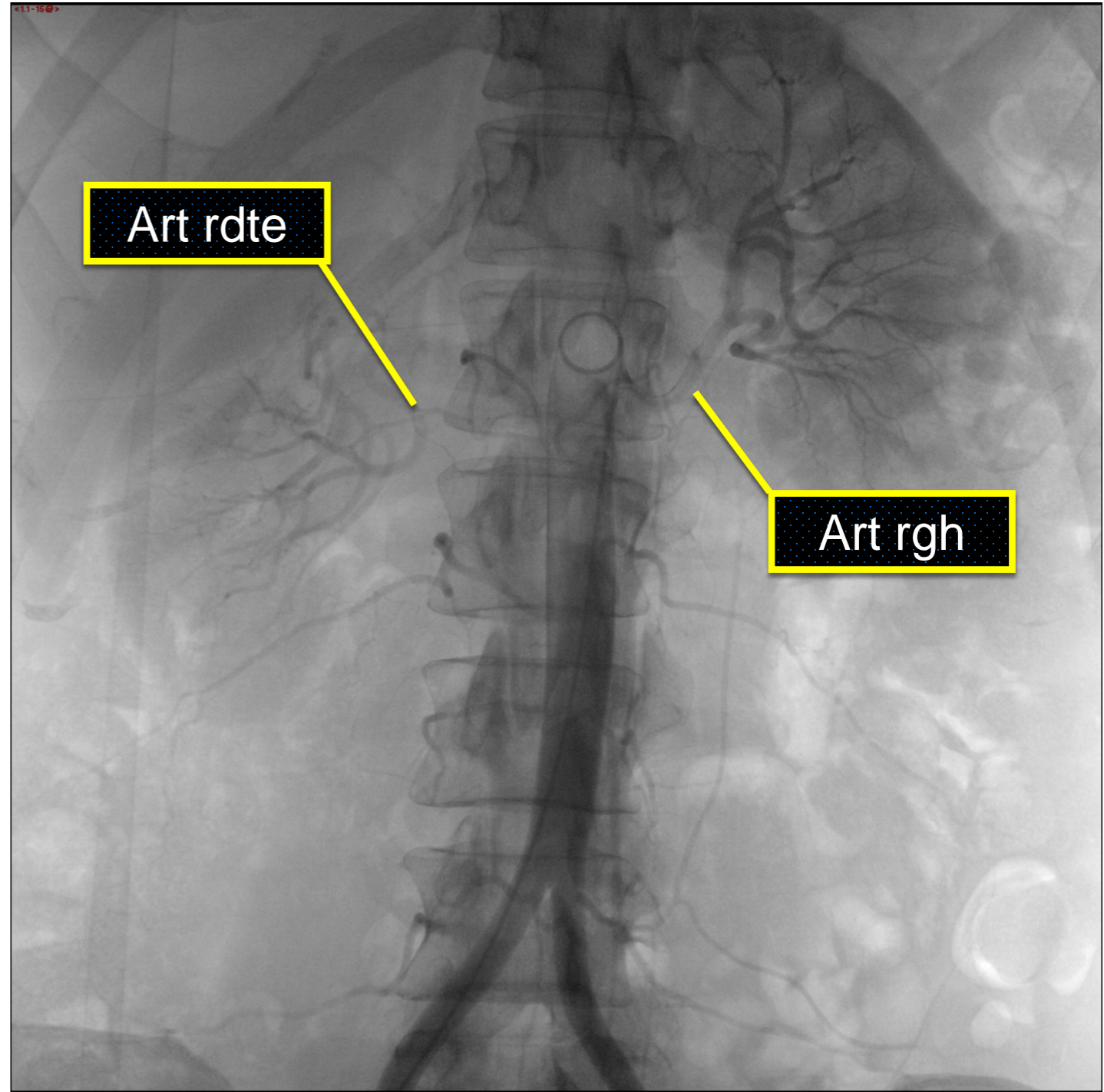
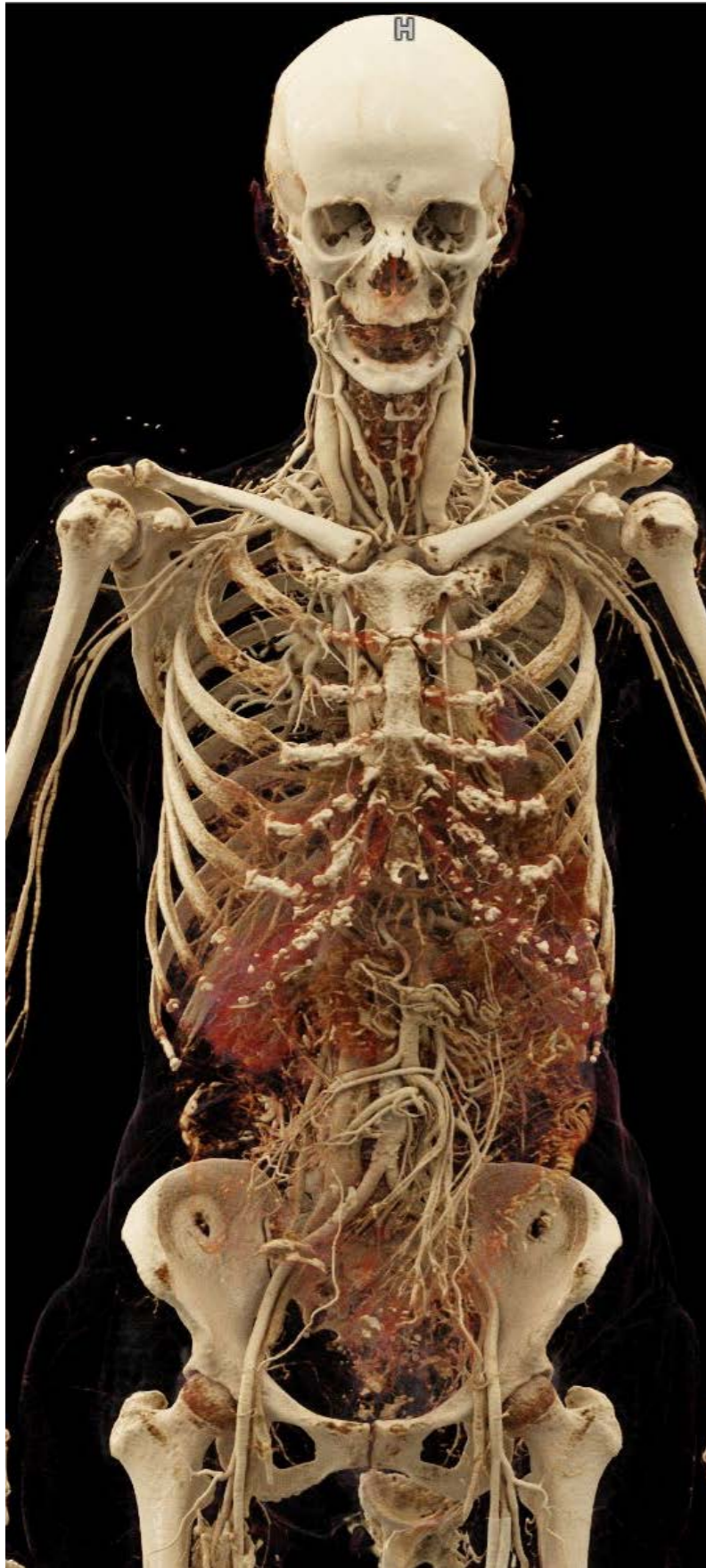
Etienne Danse, 2019

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

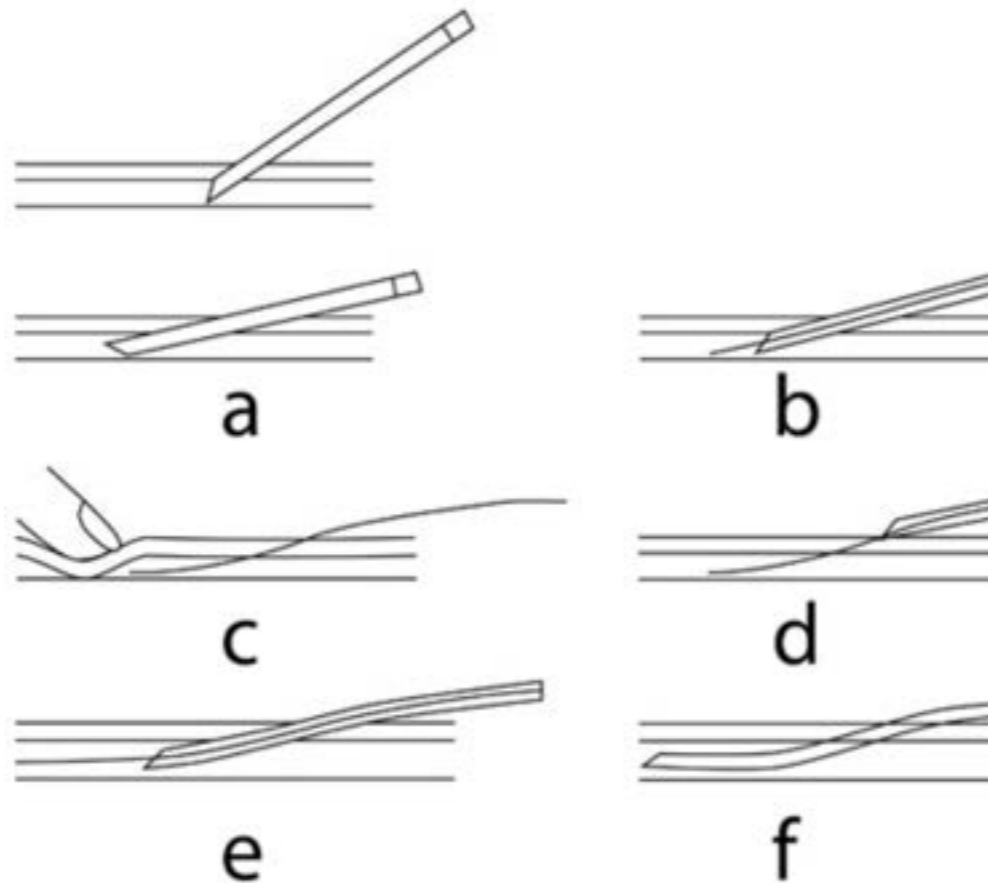


Aorte et ses branches



Technique de Seldinger

With thanks to Professors Lars Lönn and Ulf Nymen 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]*

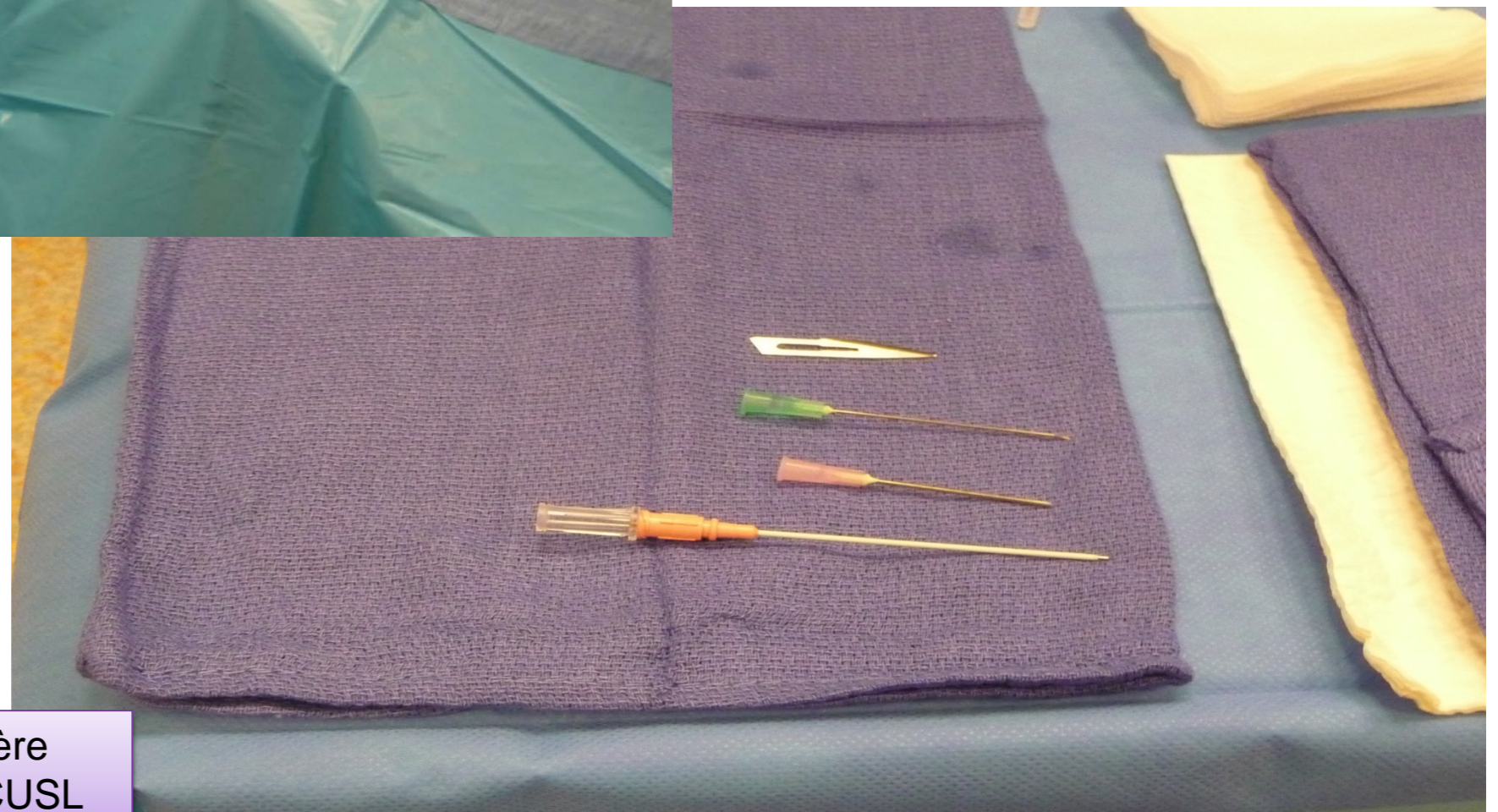
<http://informahealthcare.com/loi/ard>

Salle RX interventionnelle



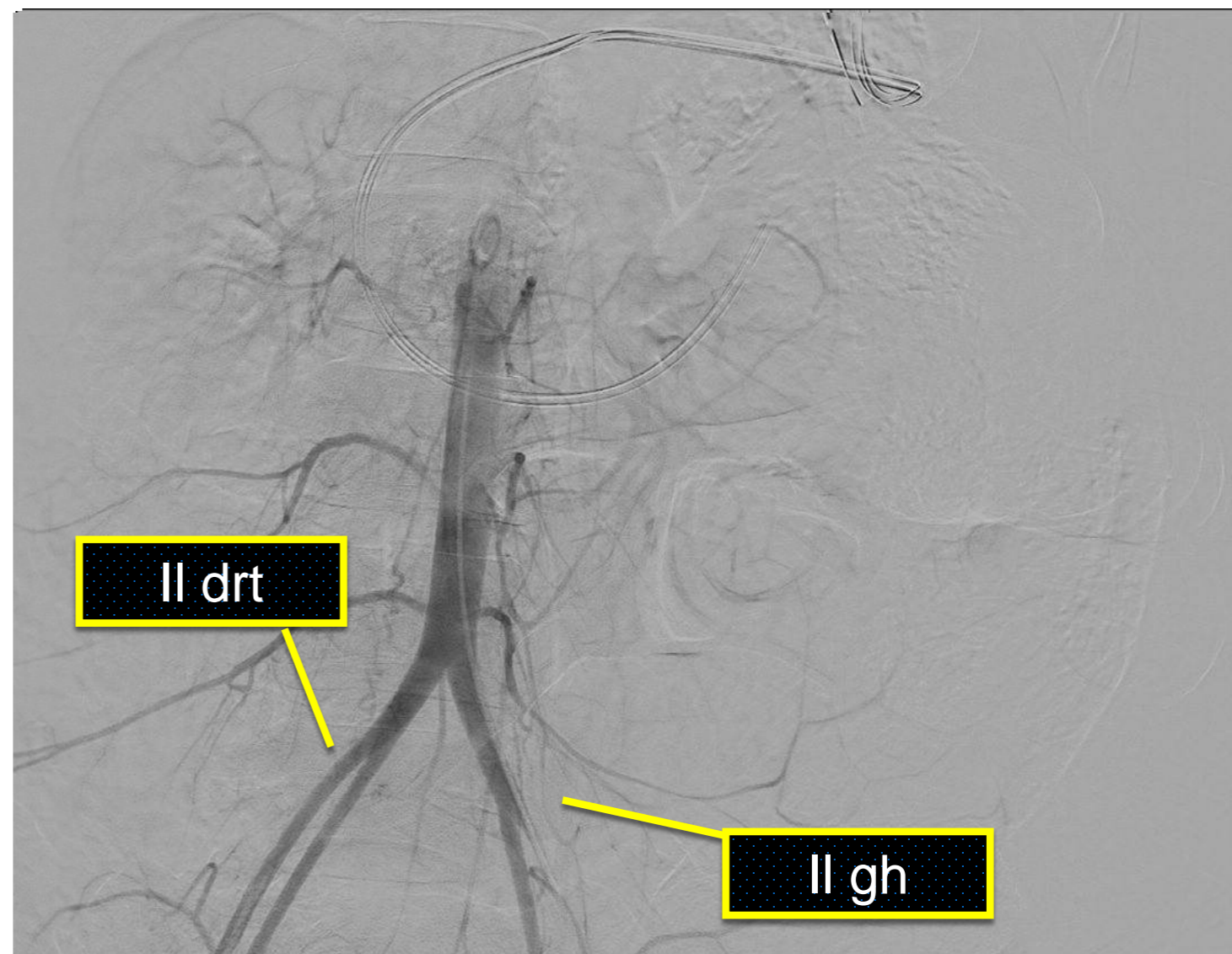
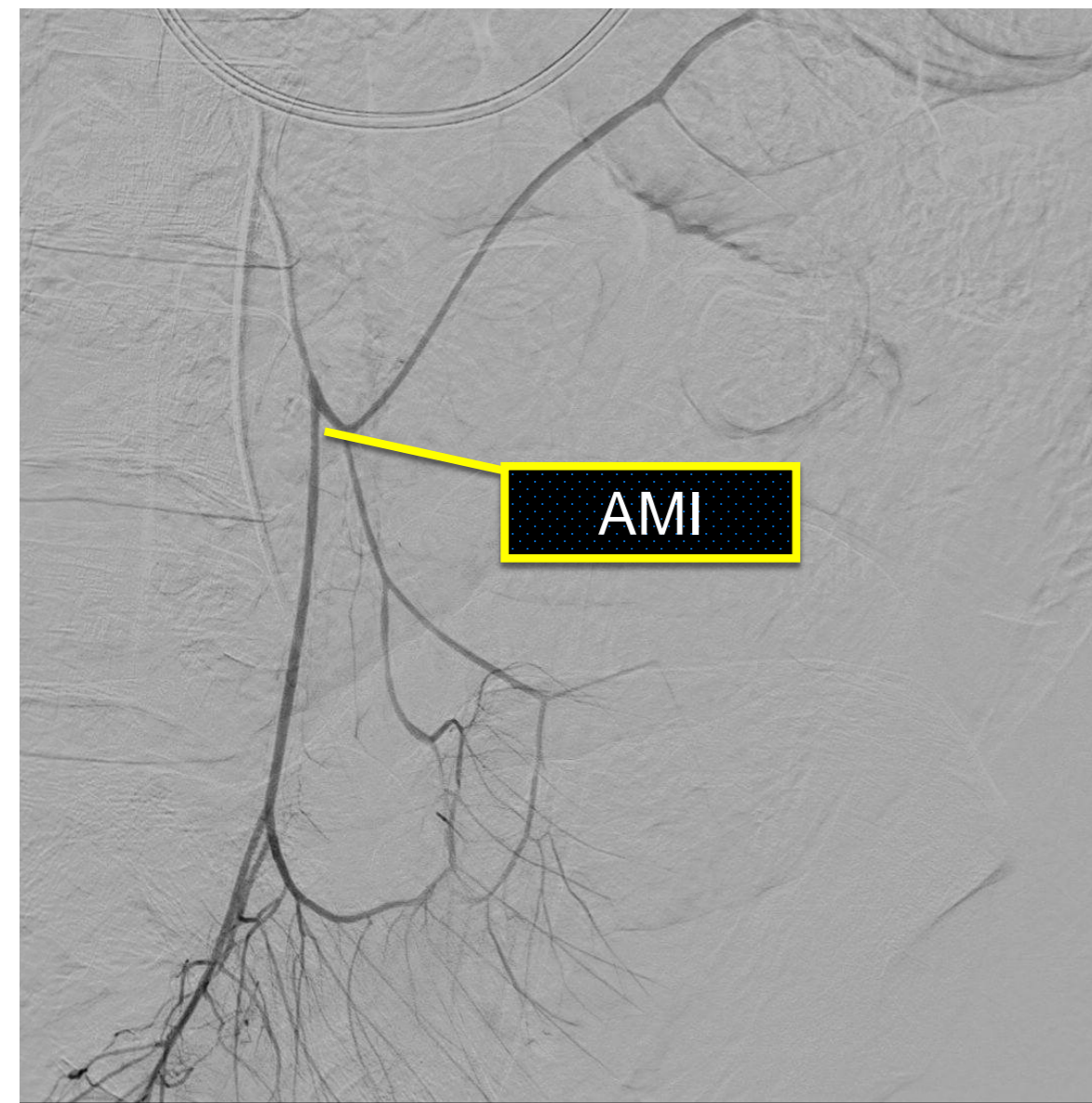
Courtoisie Mme Ch Preat, infirmière
responsable RX interventionnelle CUSL

Point-Aiguille de ponction



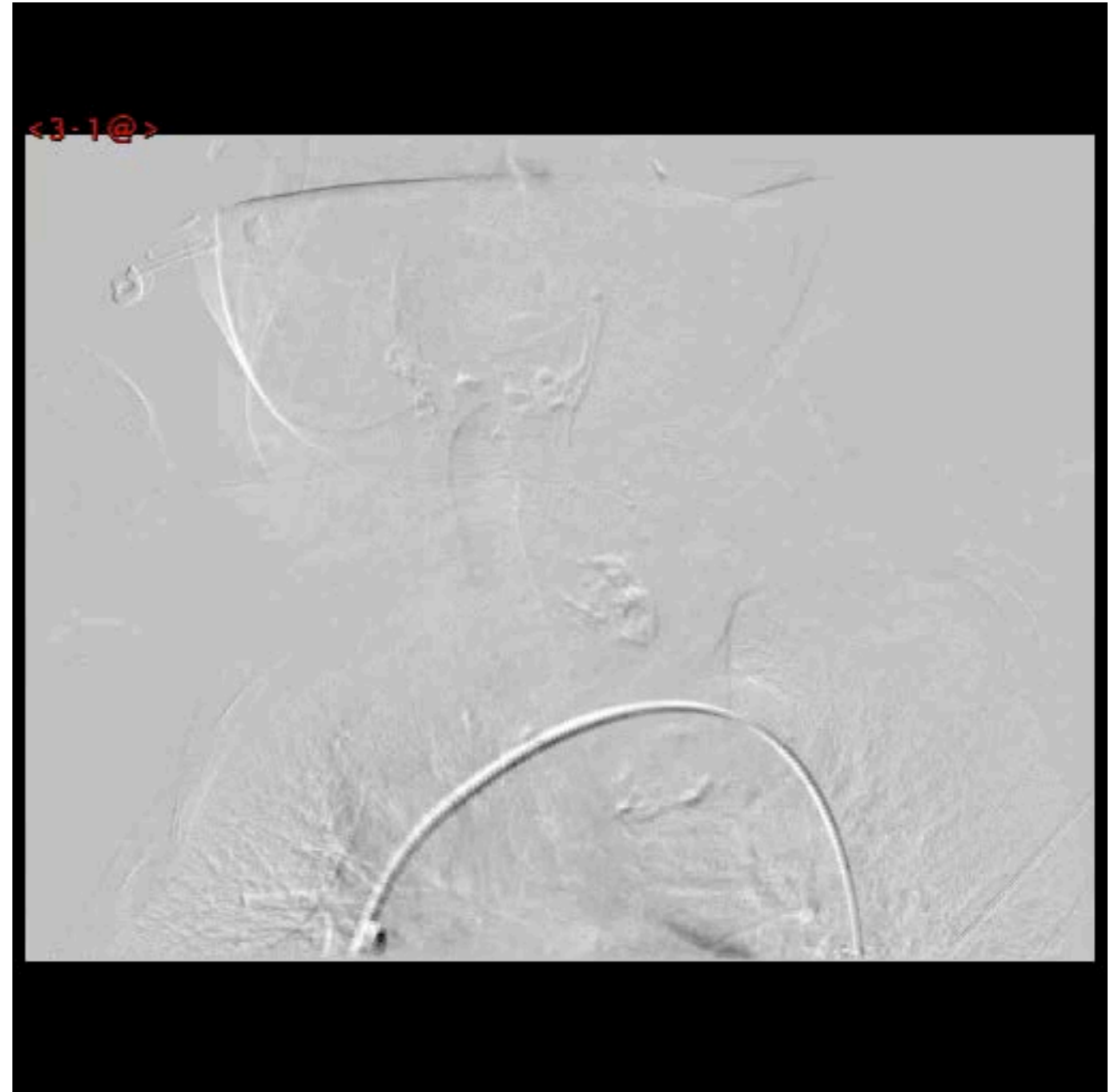
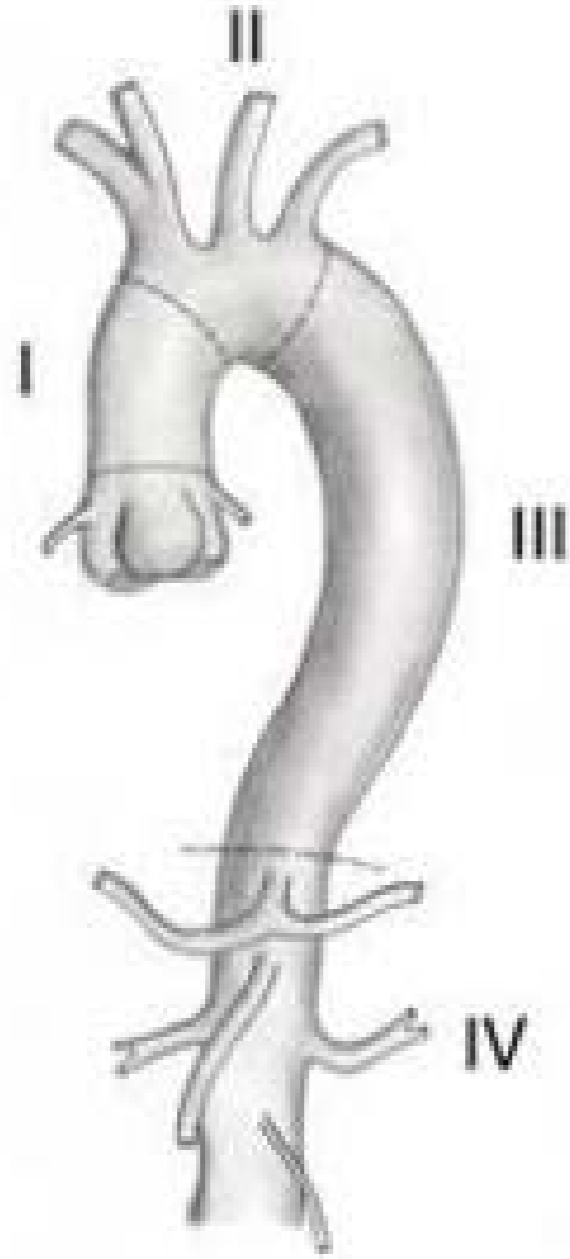
Courtoisie Mme Ch Preat, infirmière
responsable RX interventionnelle CUSL



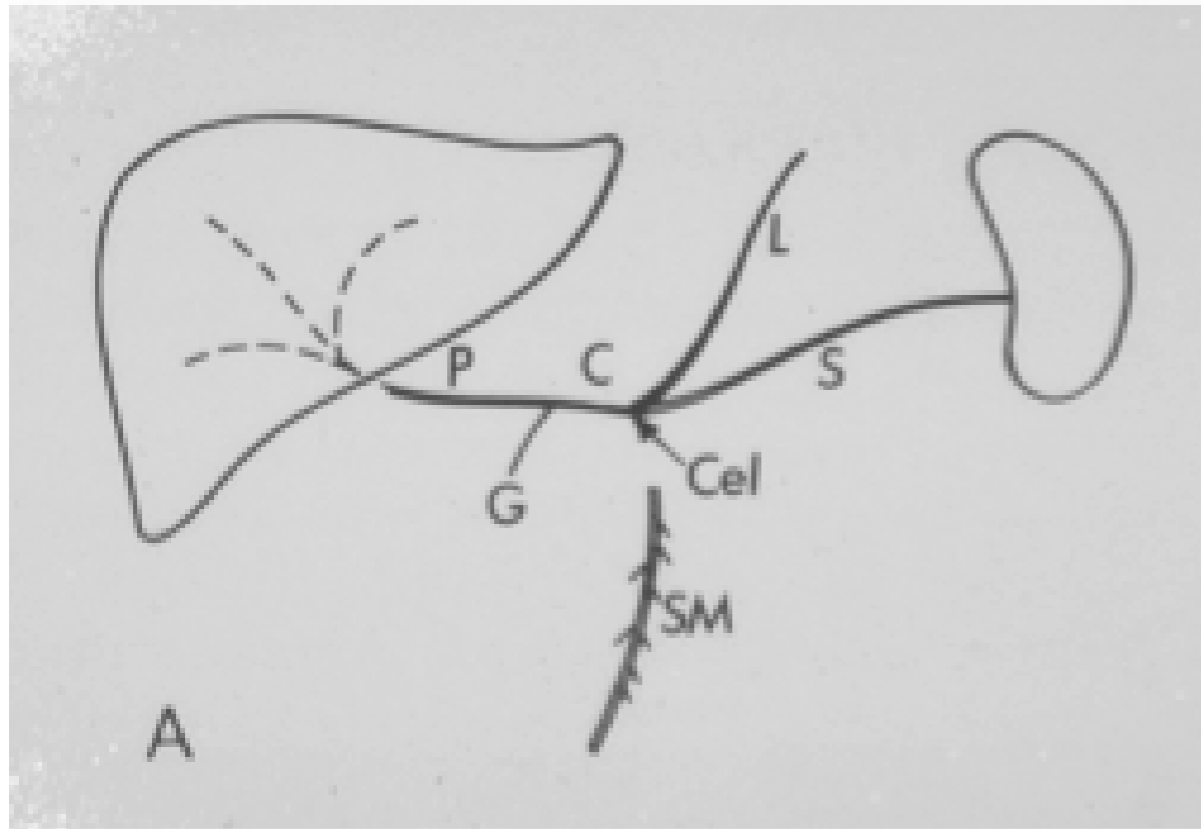


Aorte et ses branches en radiologie conventionnelle
=> angiographie numérisée avec soustraction

Radiologie conventionnelle

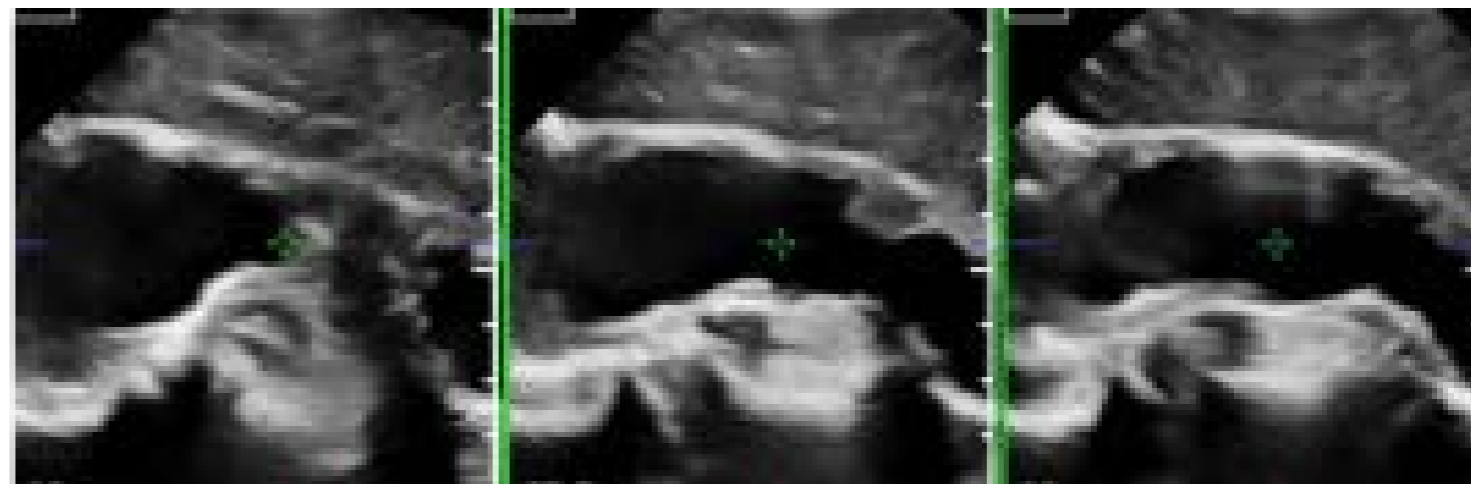
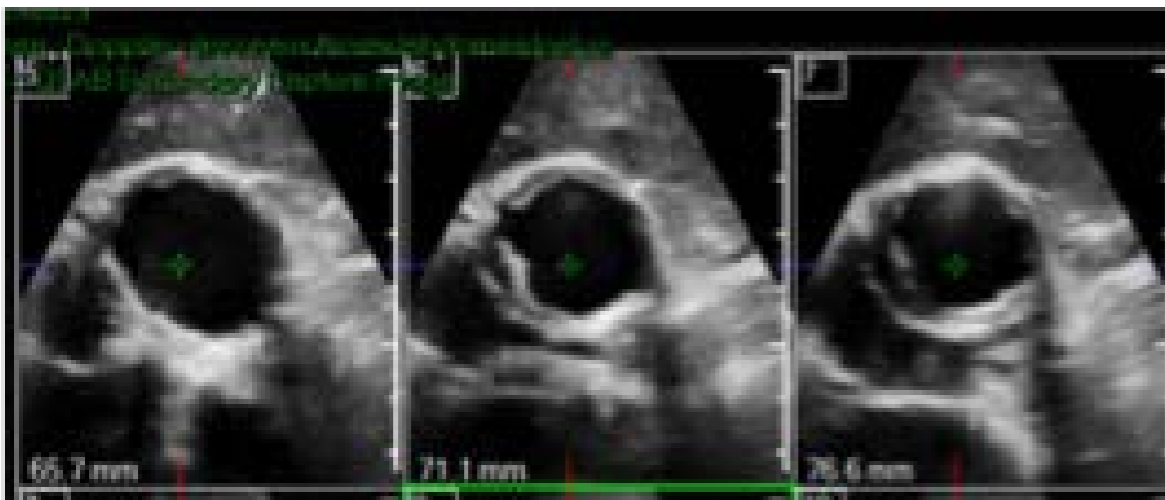
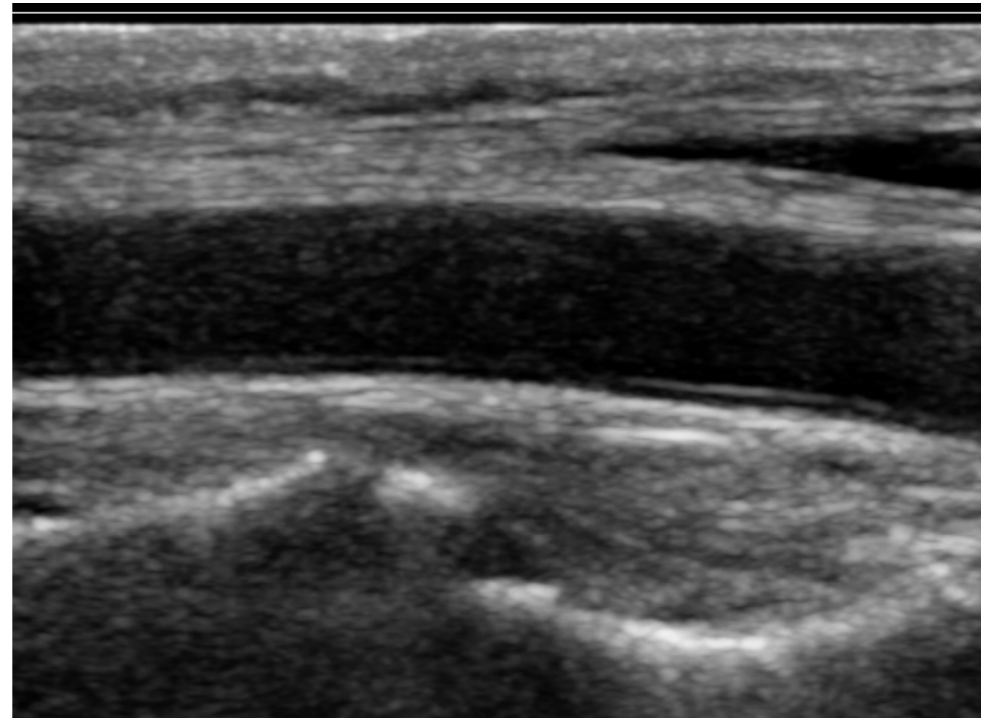


Radiologie conventionnelle



Echographie

- mode B



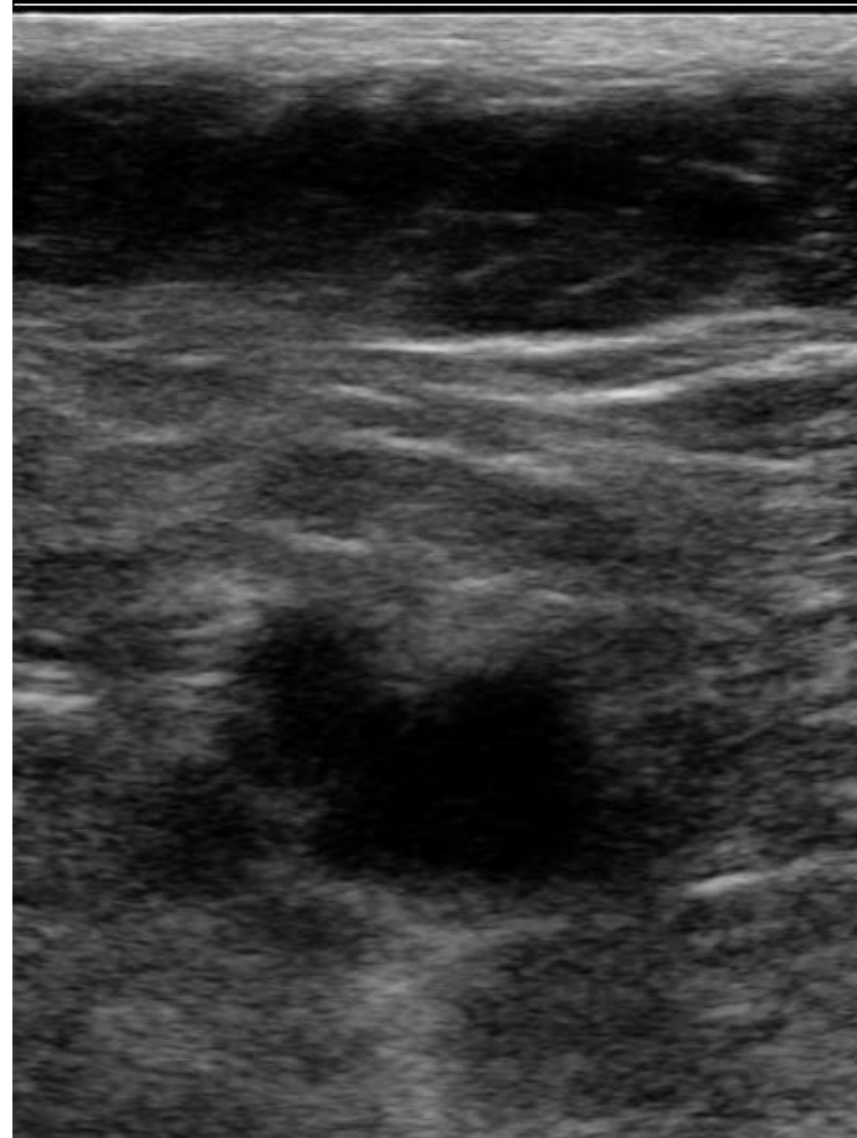


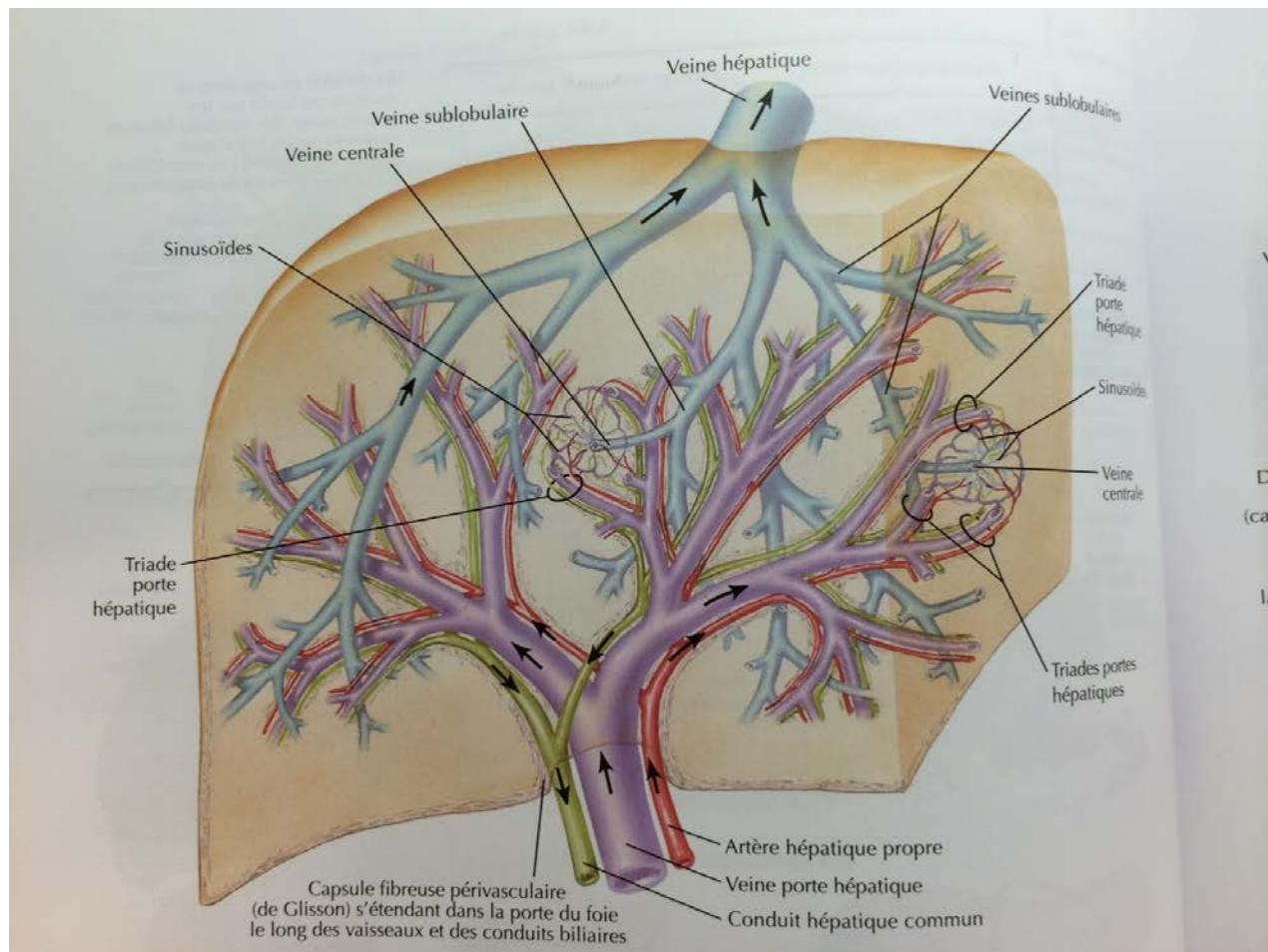
Complexe intima-media

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

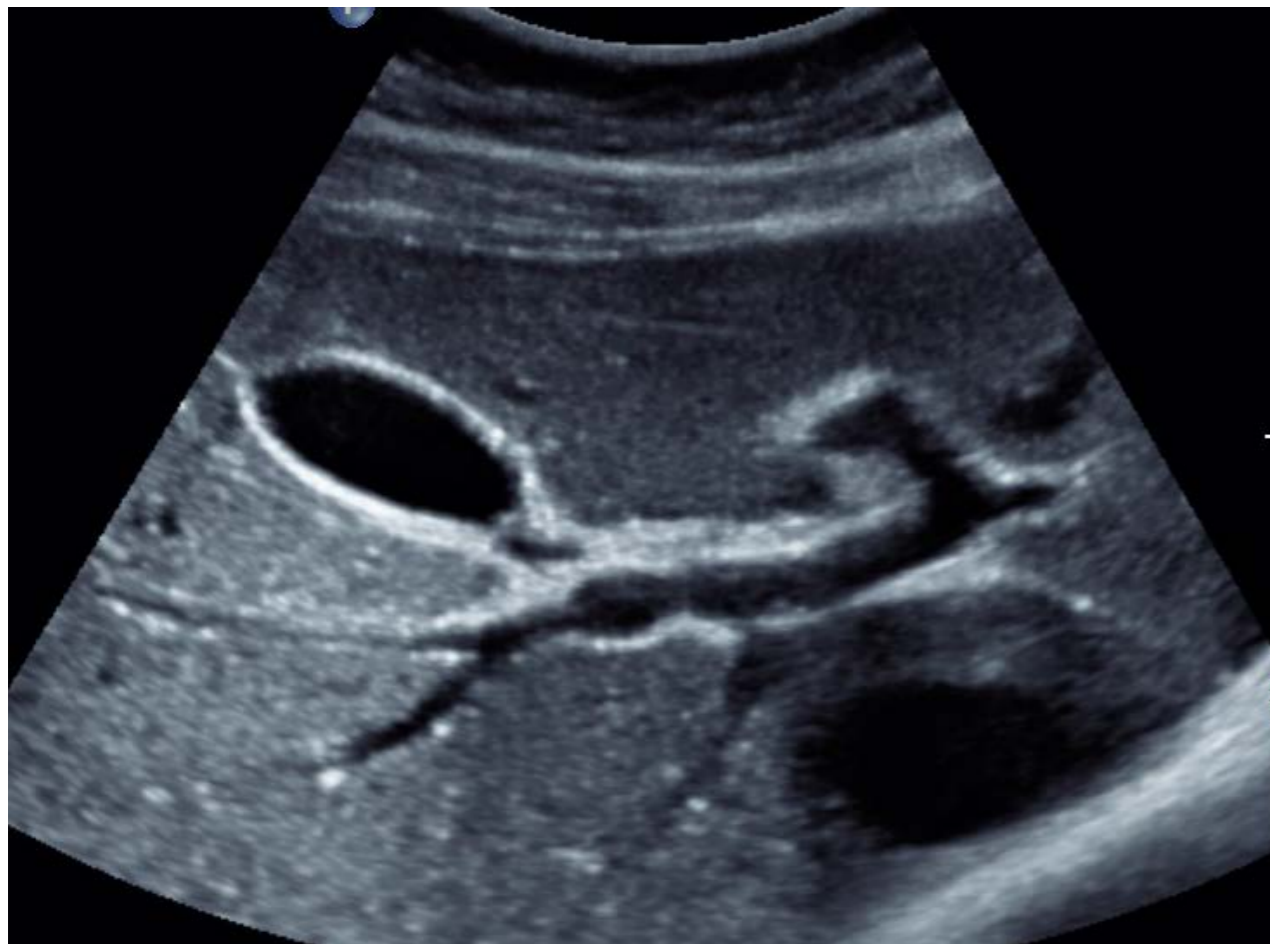
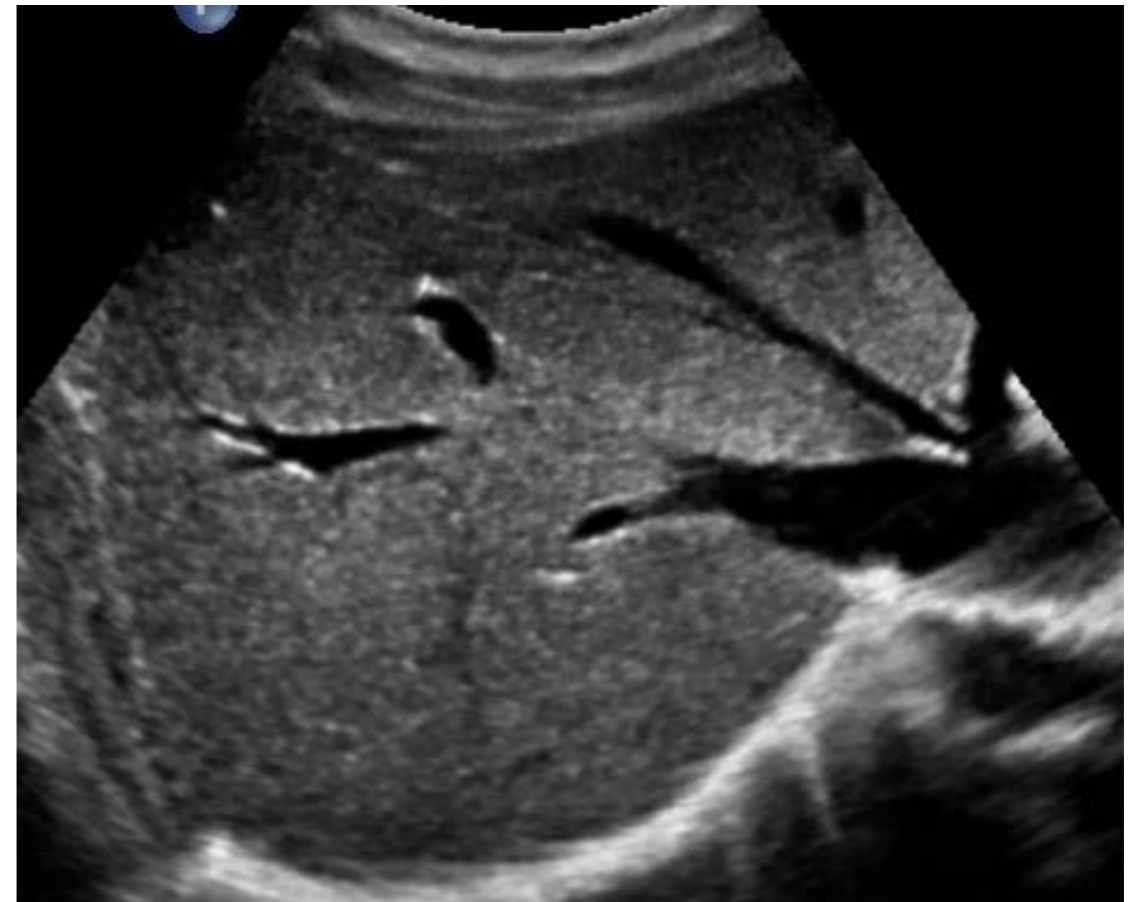
Veines

< 0,9 mm

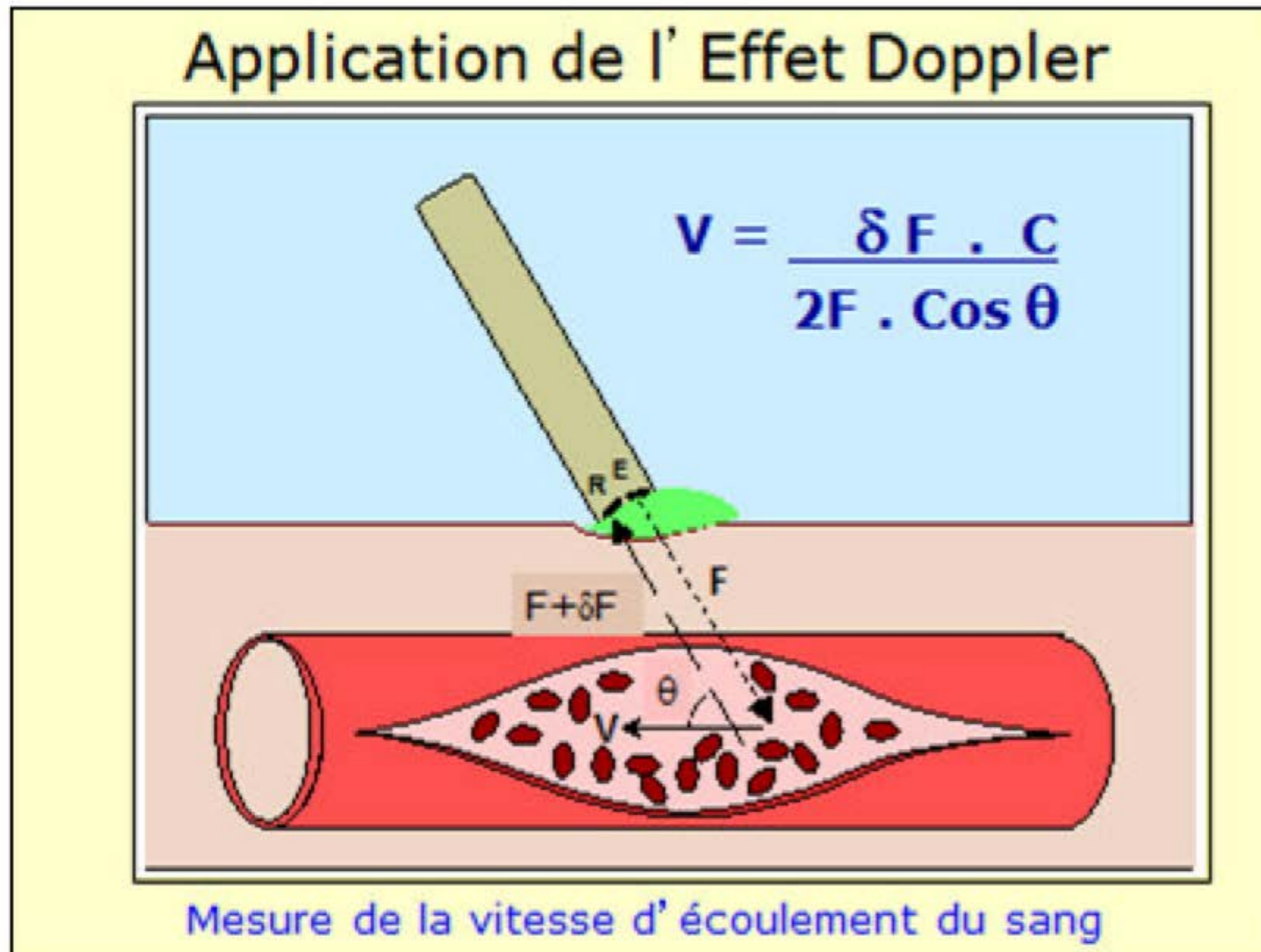




In Netter, Atlas d'anatomie humaine, 4^{ème} édition, 2007



Les Techniques
Ultrasonographiques d'Etude du
Flux Sanguin

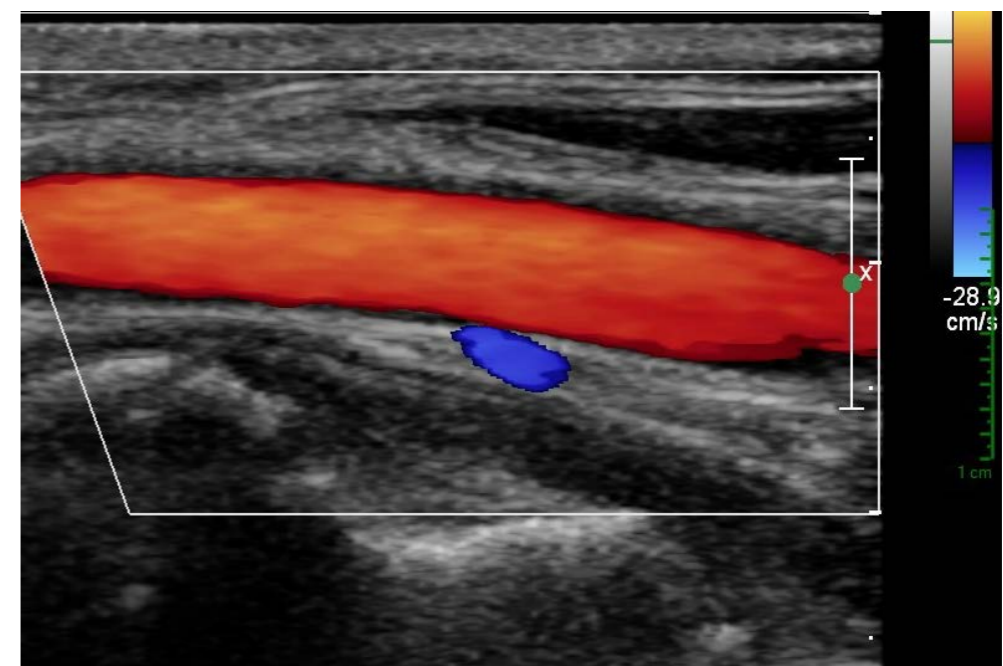
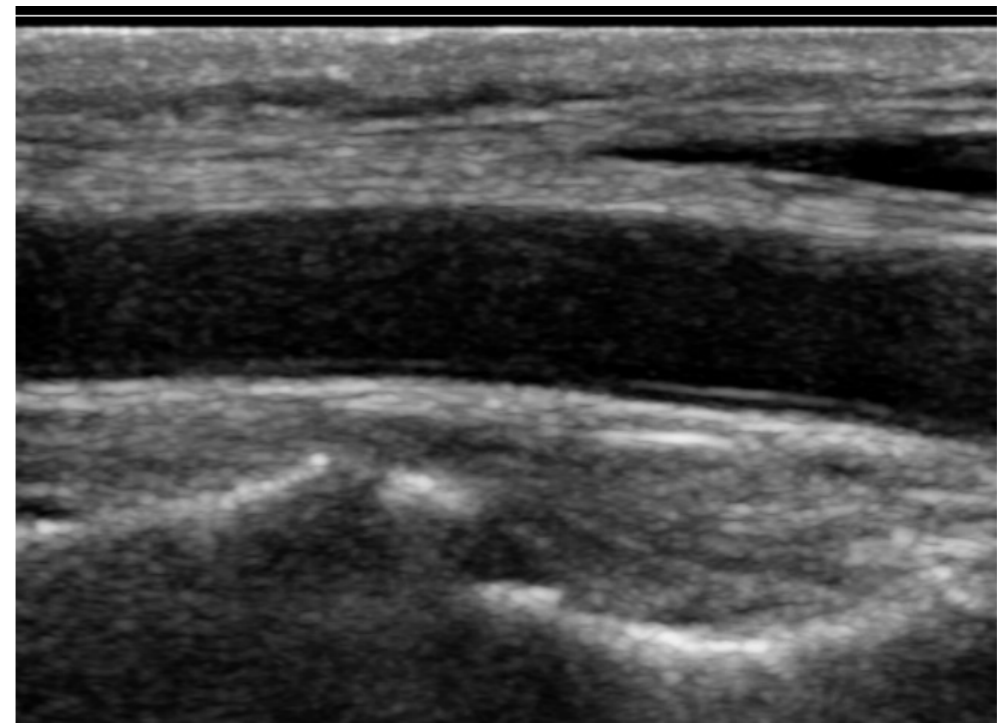


Echographie

- mode B
- Doppler couleur

=> formule de l'effet Doppler

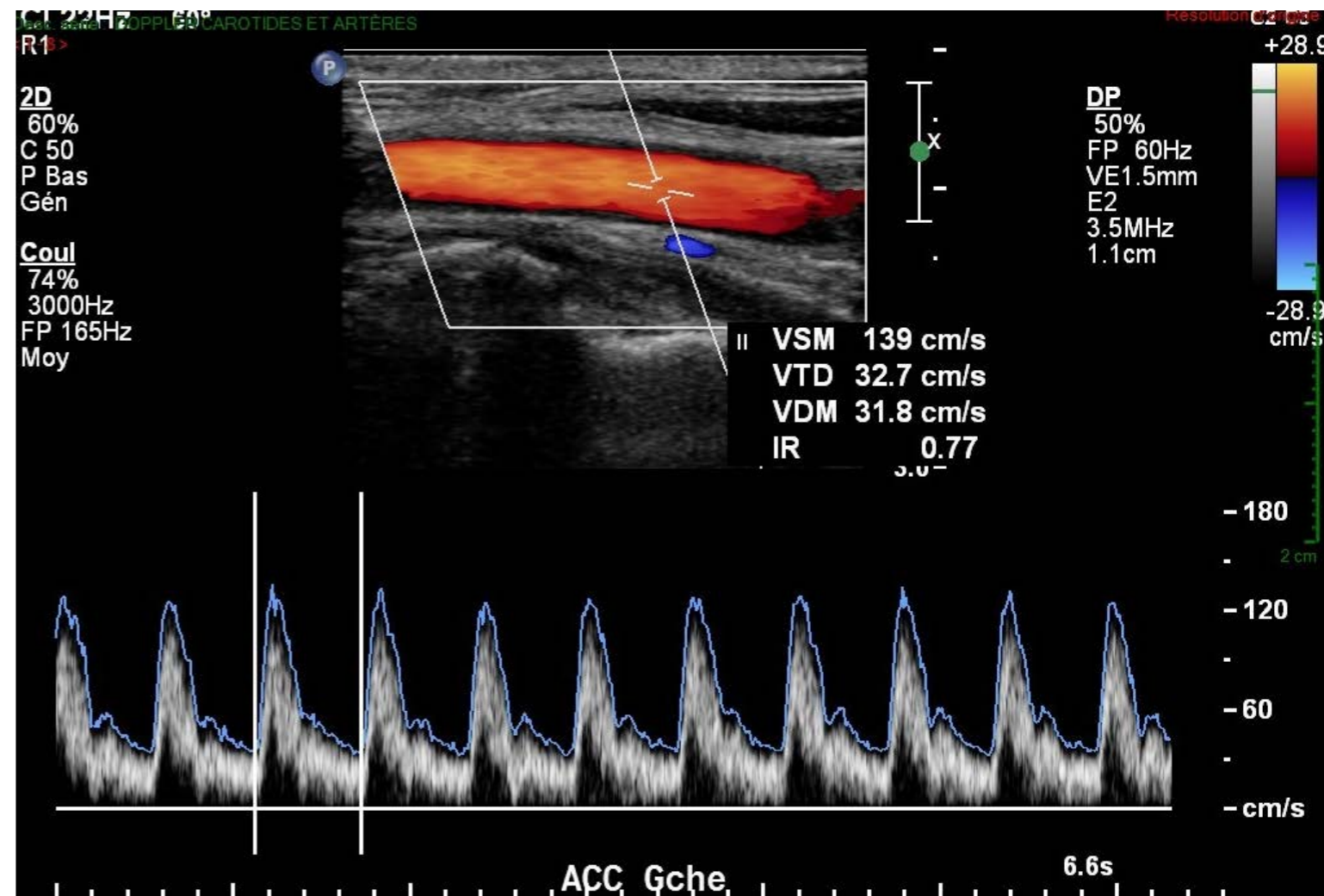
$$\Delta F = 2V \cdot F_0 \cdot \cos \Theta / c$$



Echographie

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

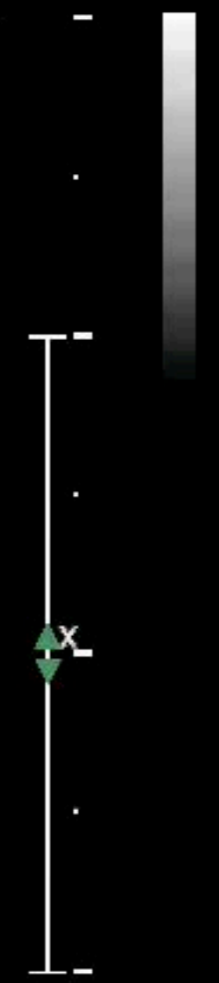
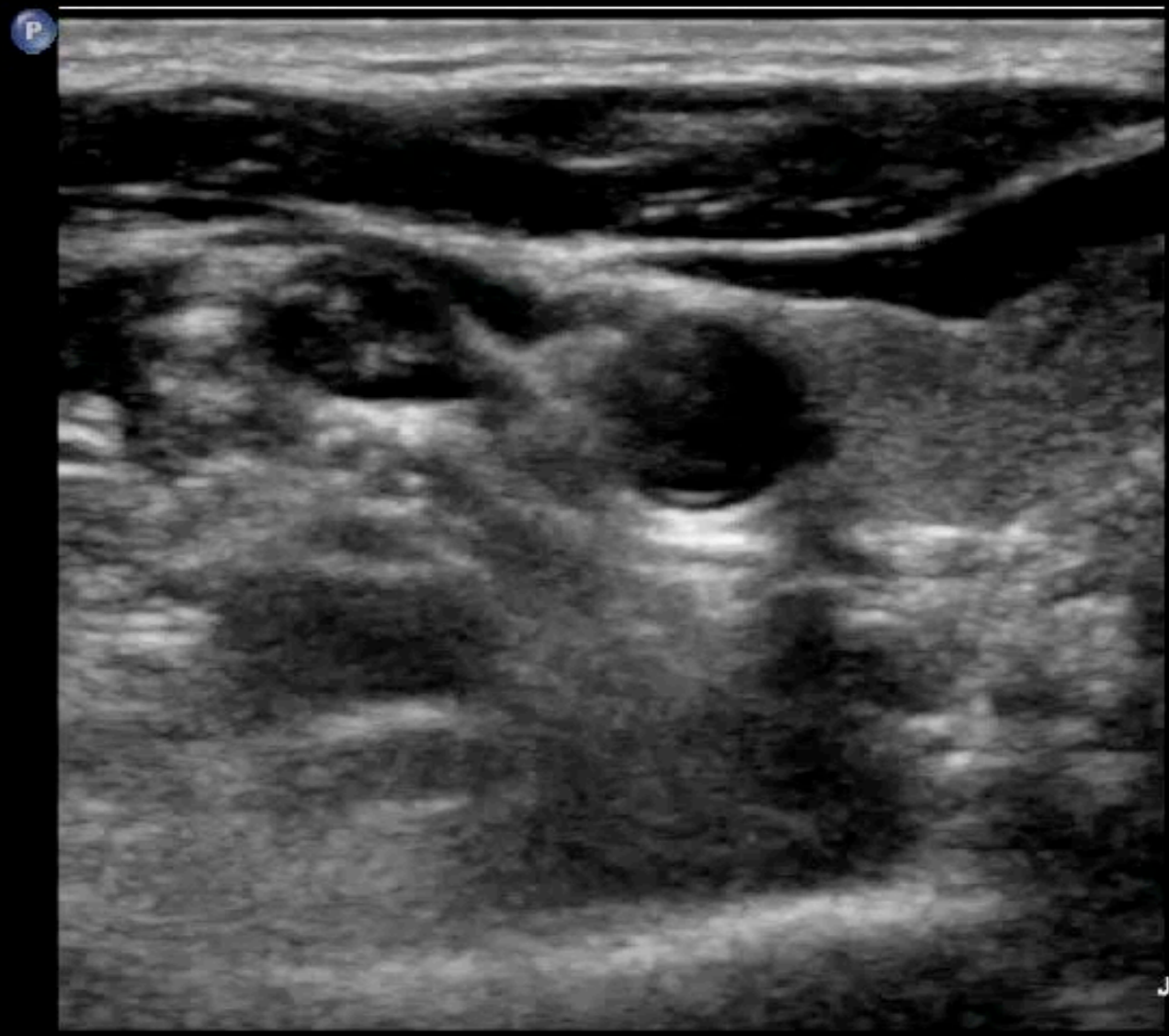
$$\Delta F = 2V \cdot F_0 \cdot \cos \Theta / c$$



CI 37Hz
RV

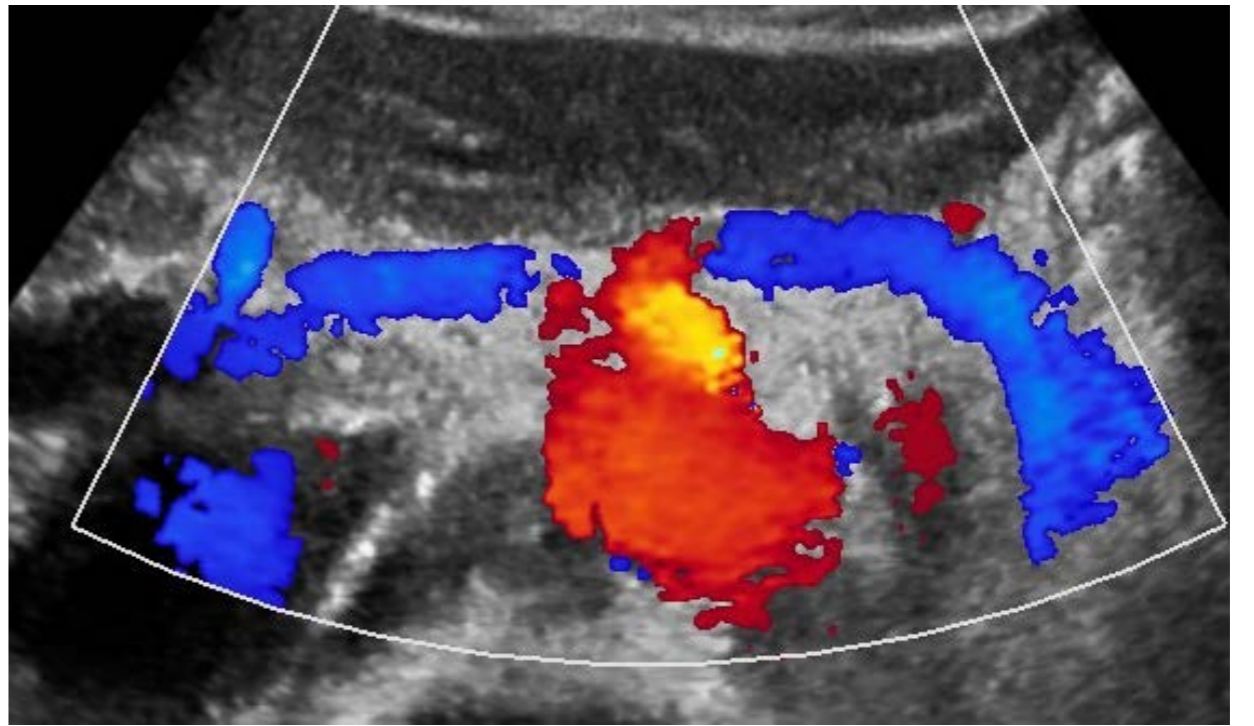
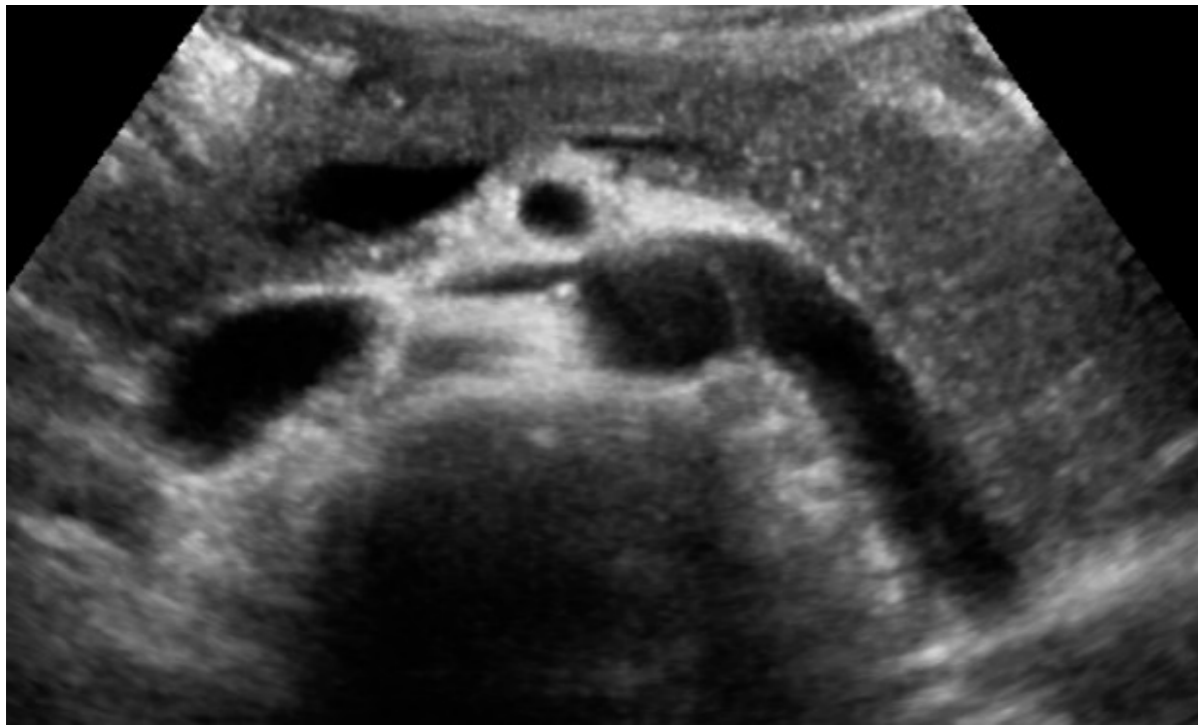
C2

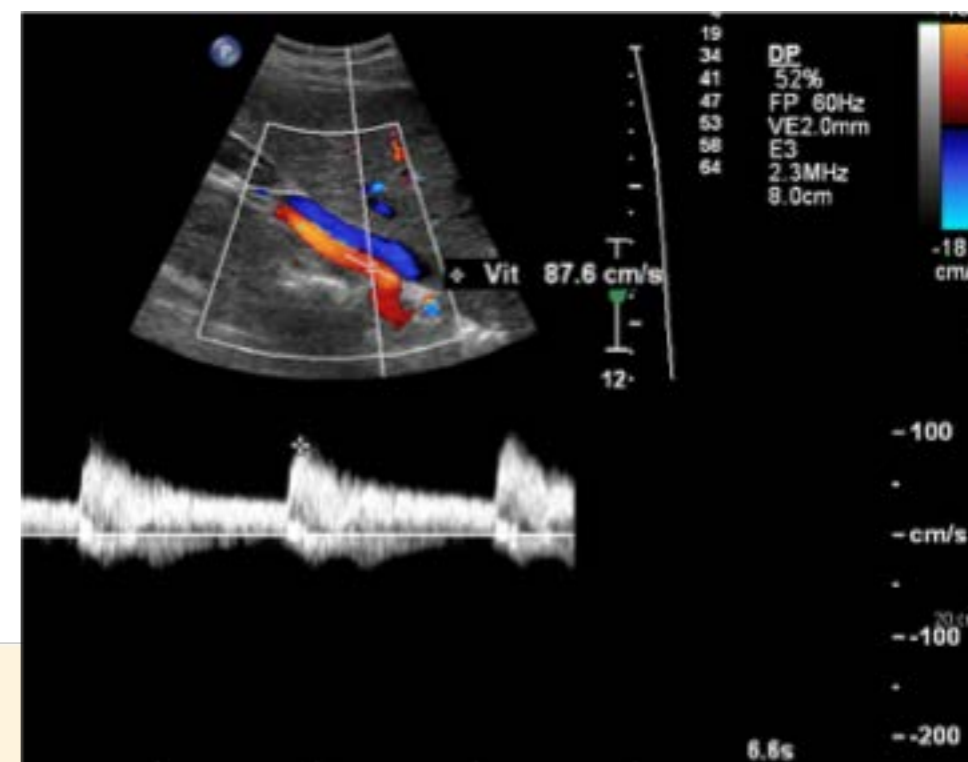
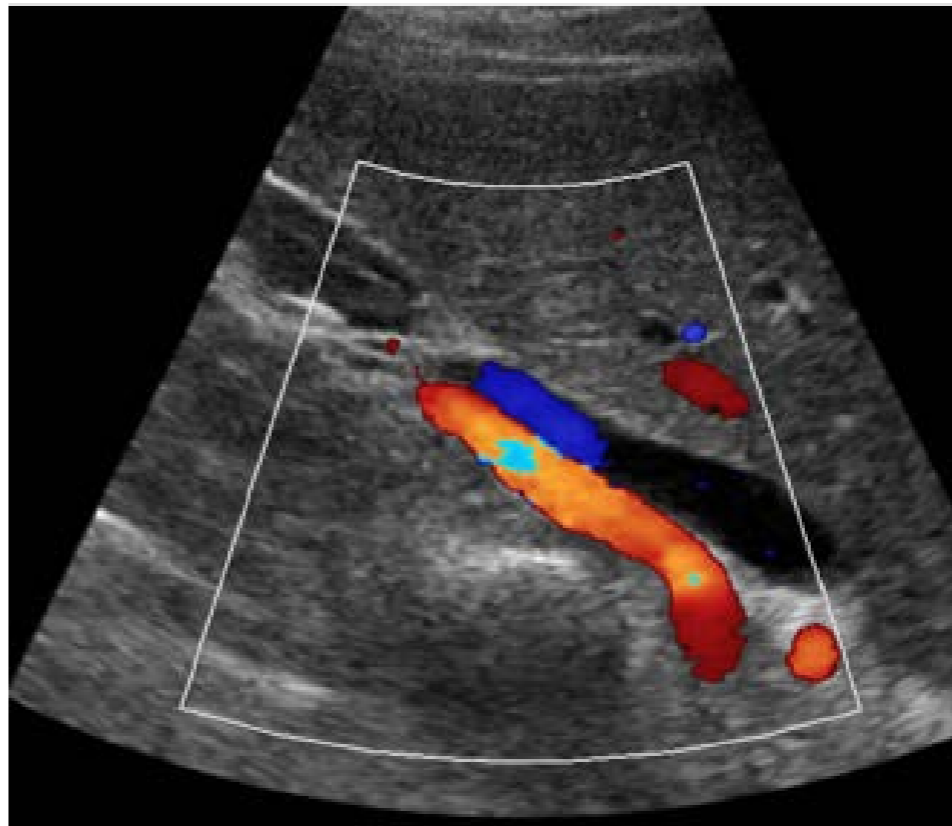
2D
42%
C 50
P Bas
Gén

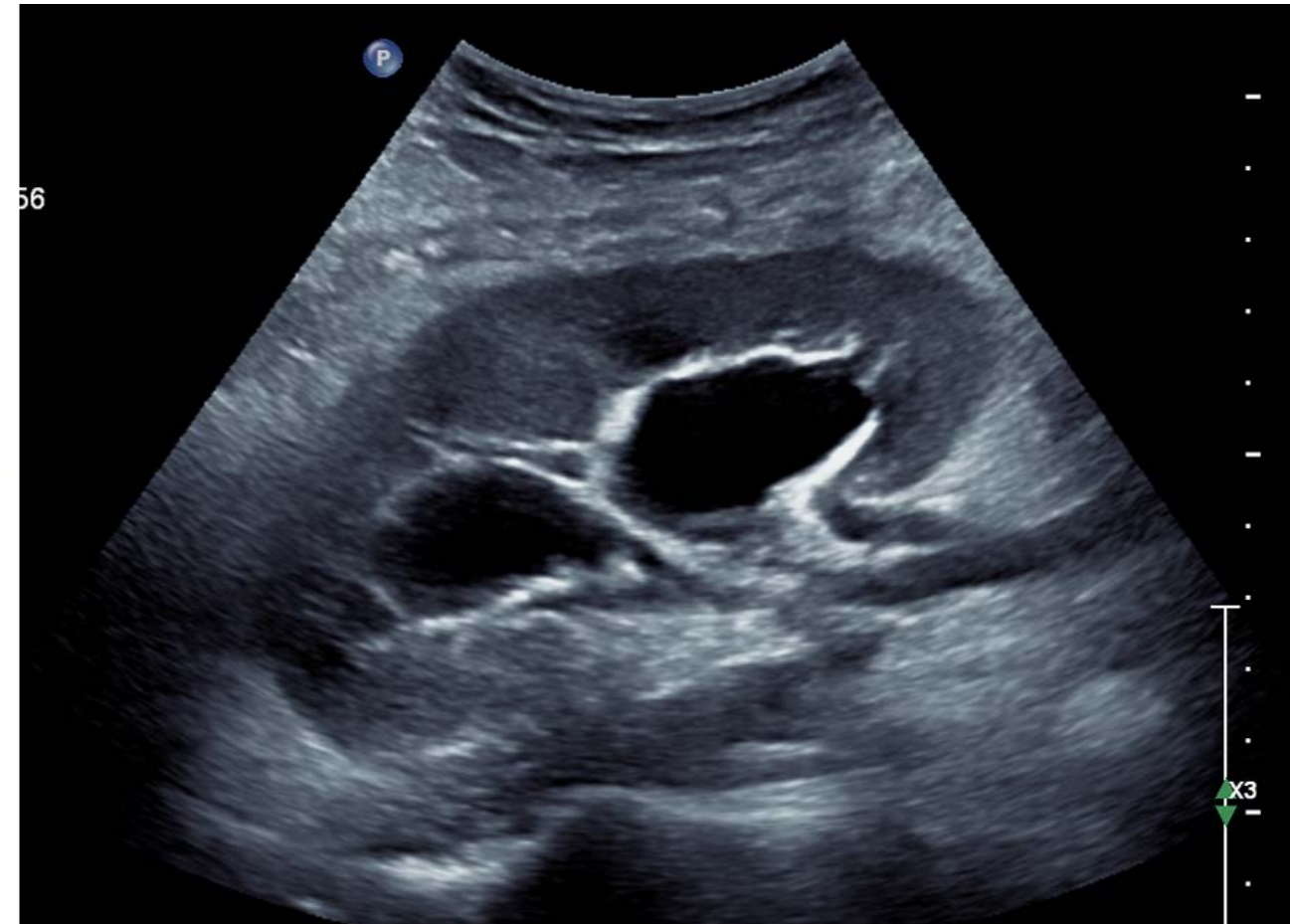
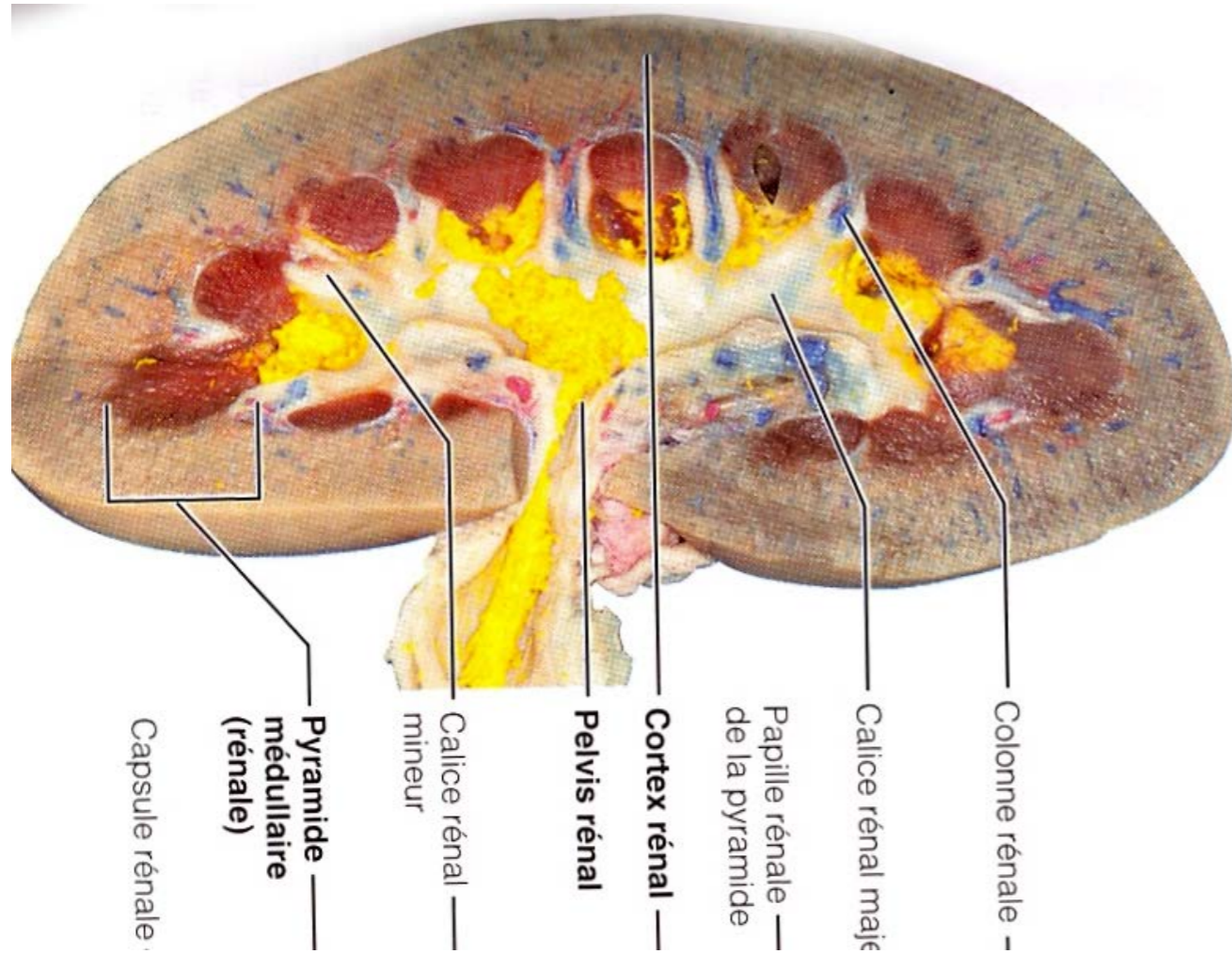


JPEG
3.5 · *** bpm

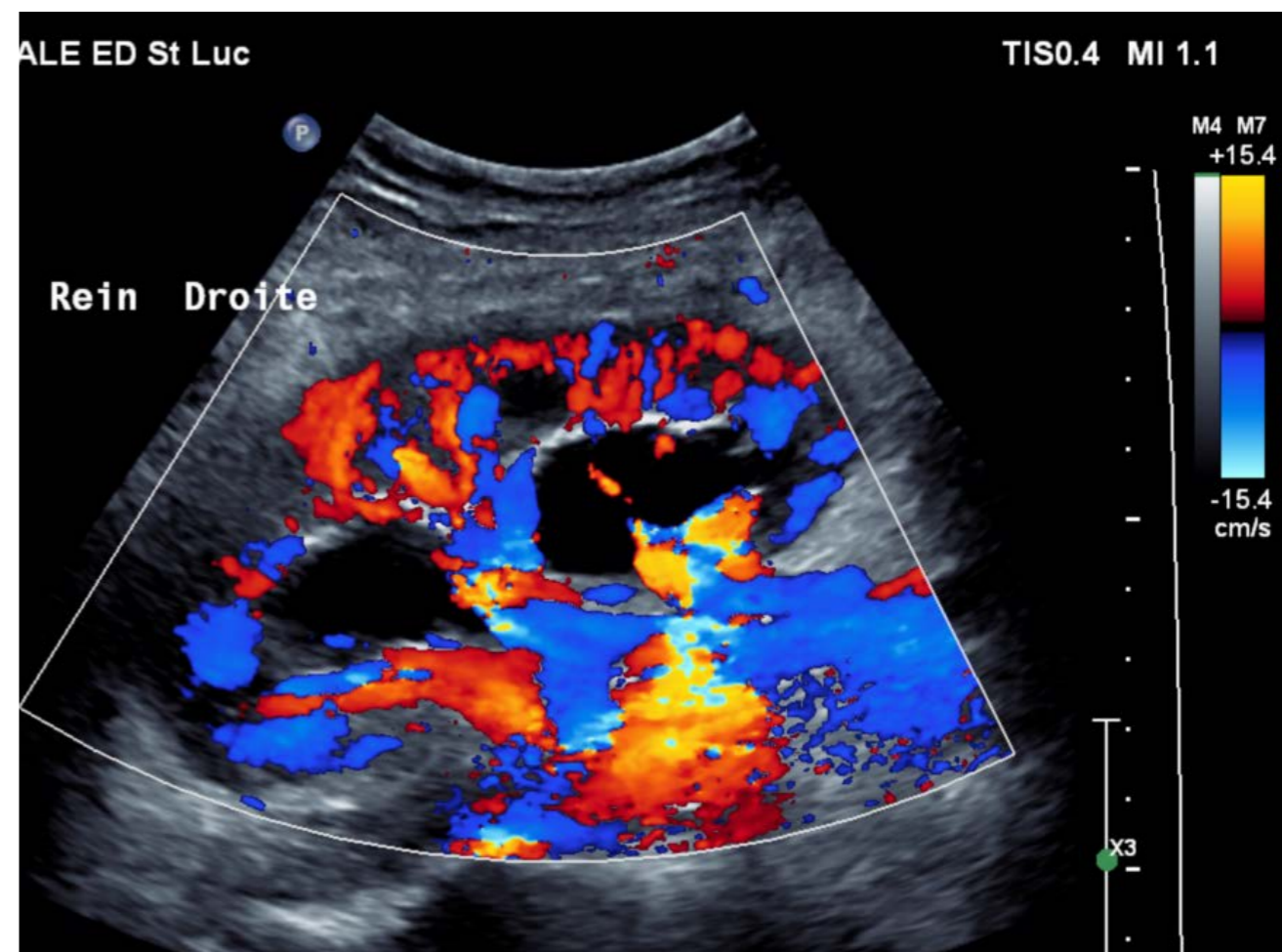
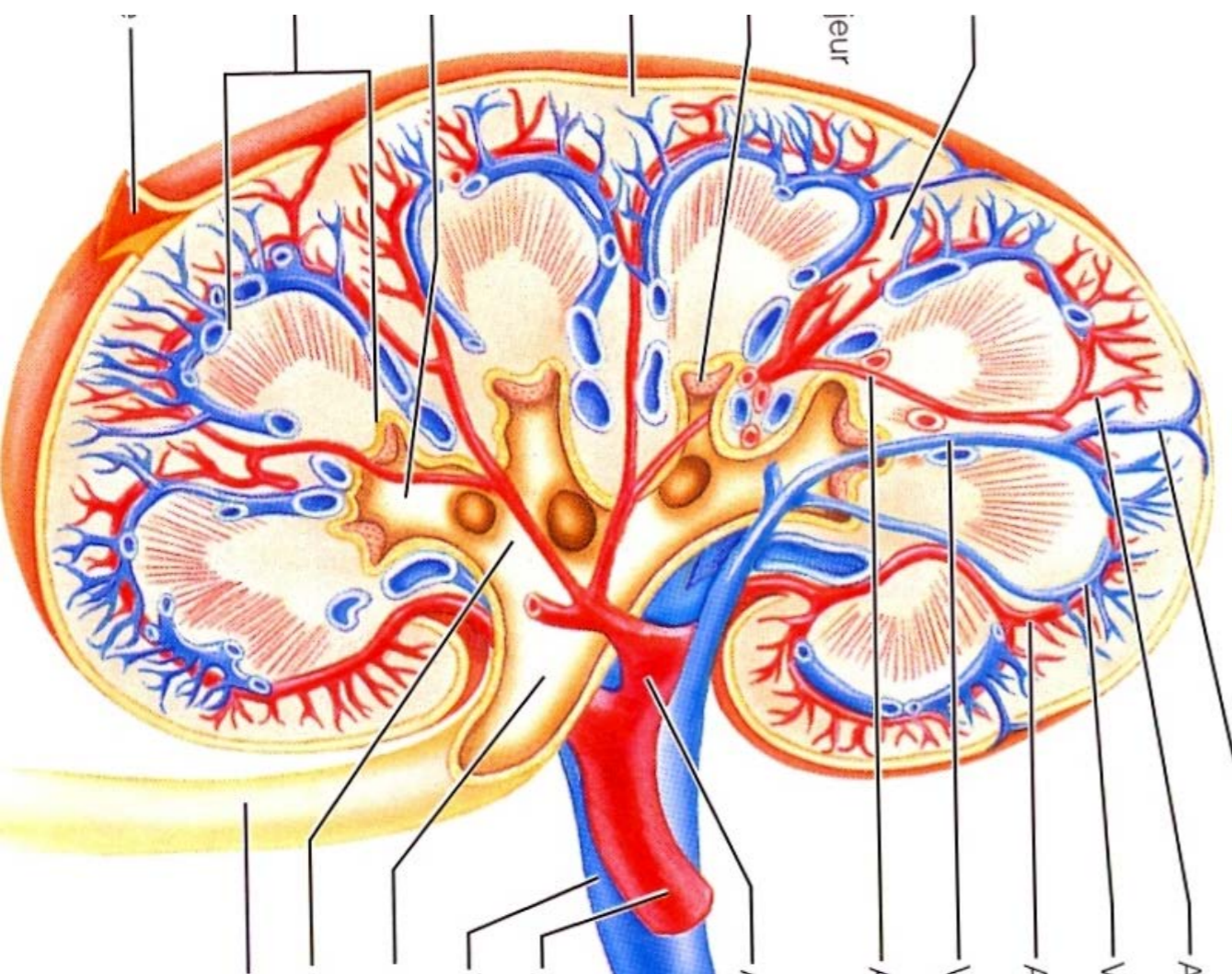
ACC Drte



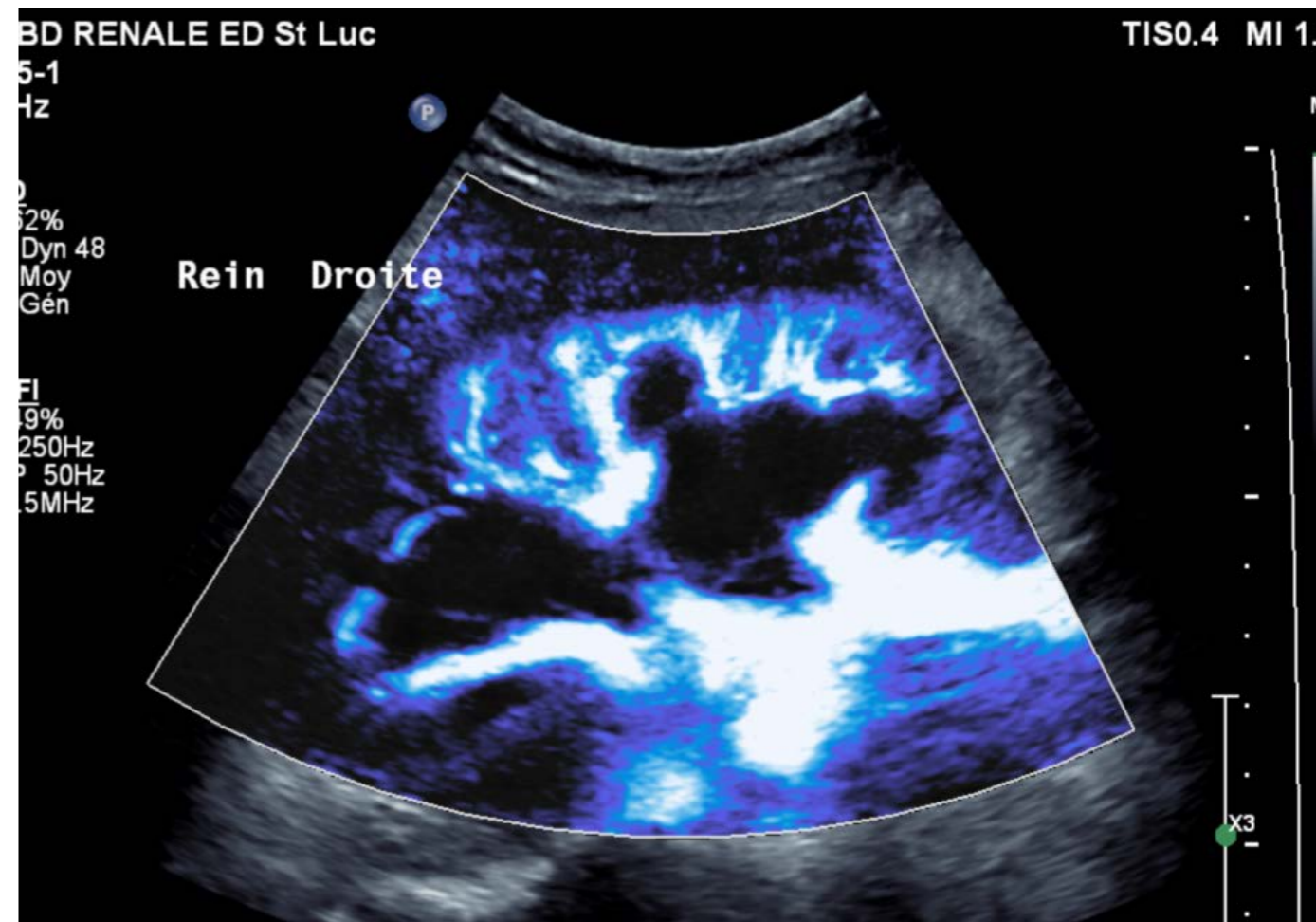
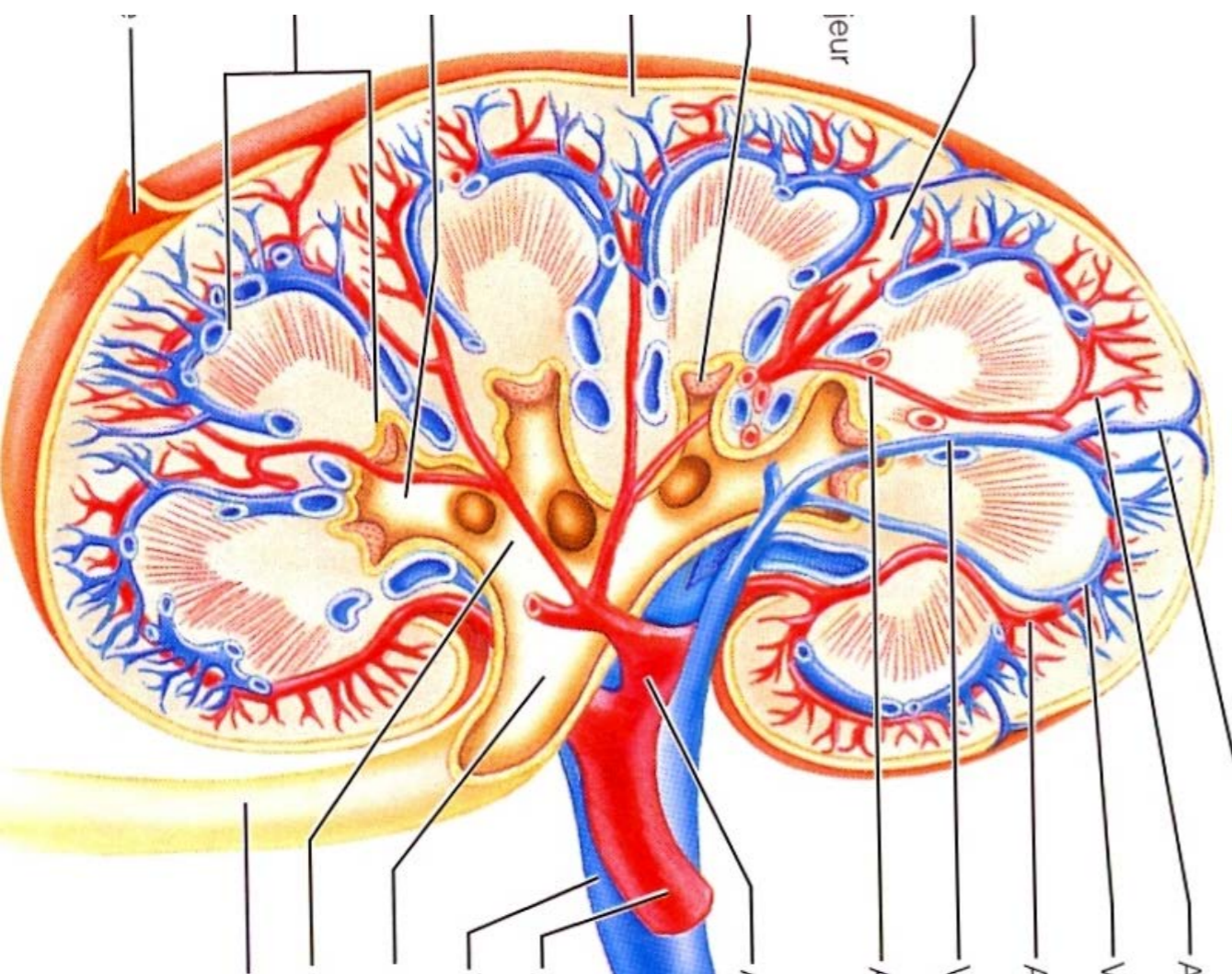




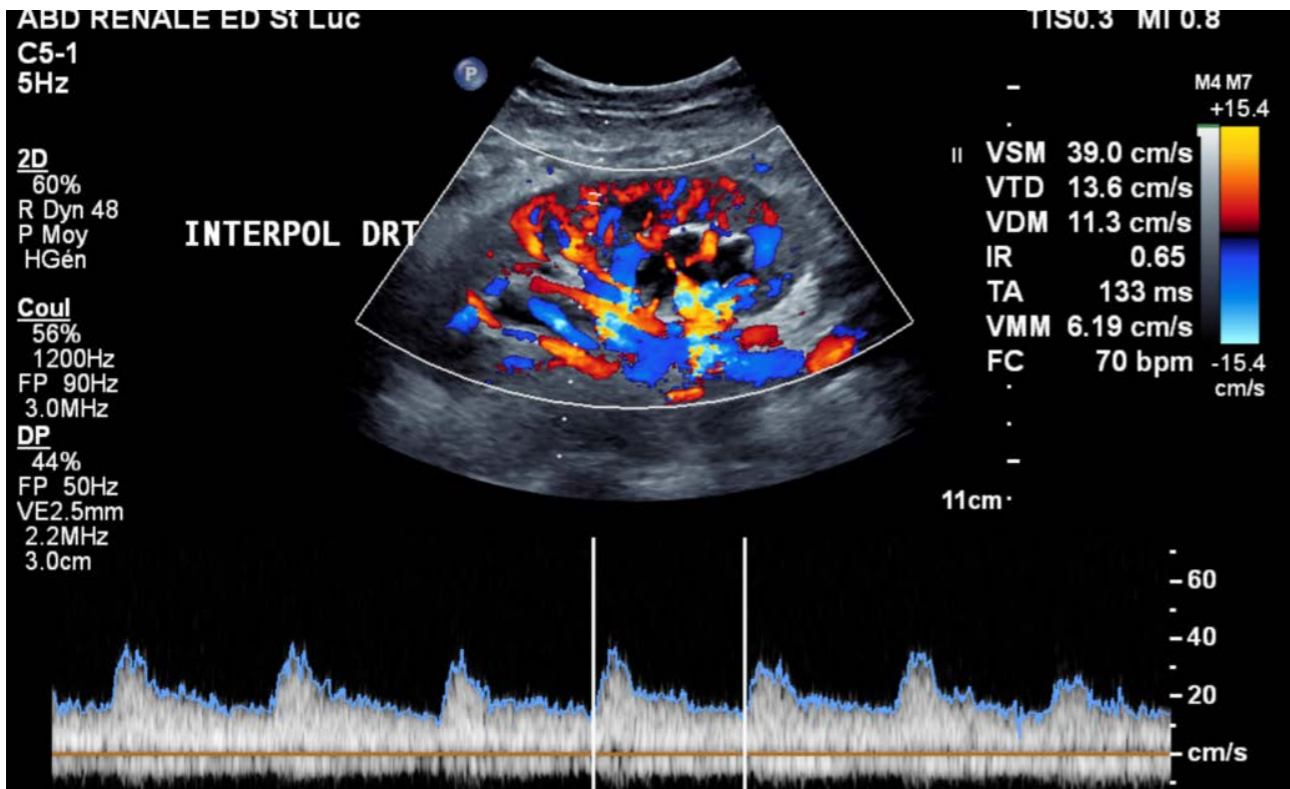
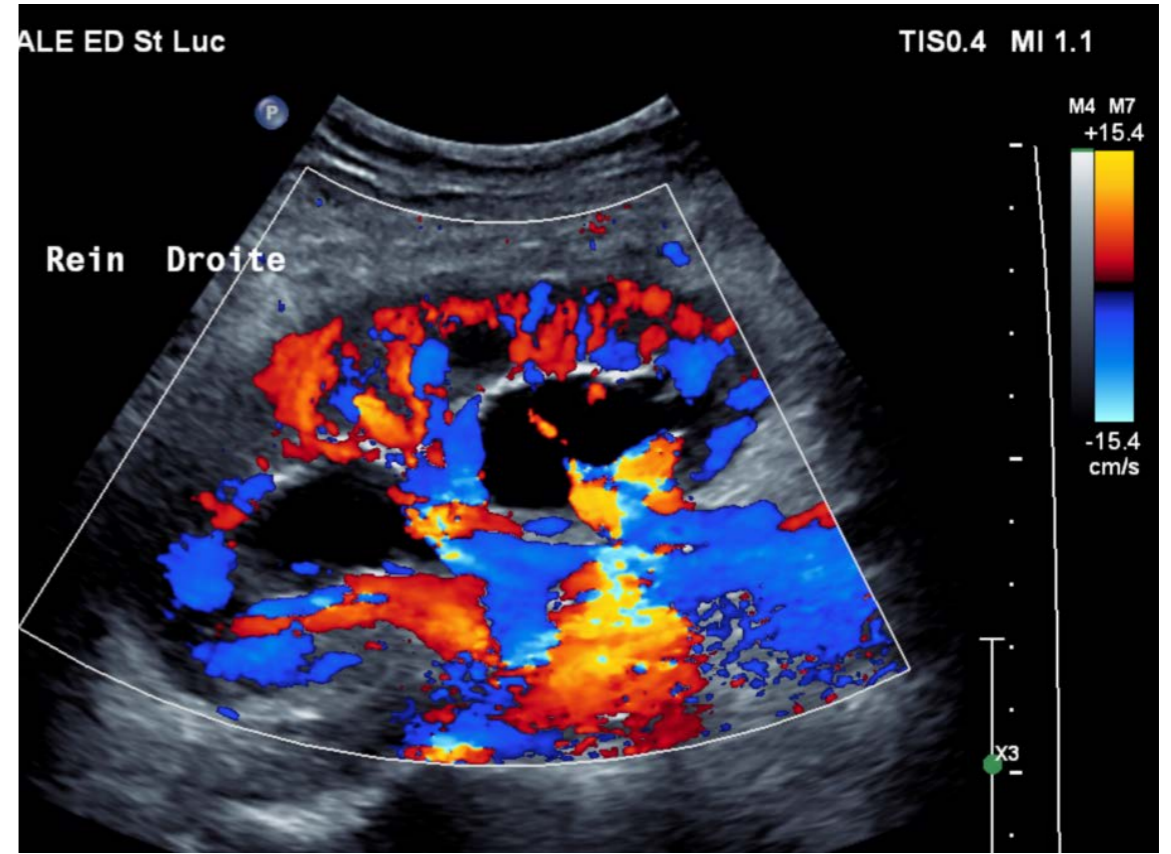
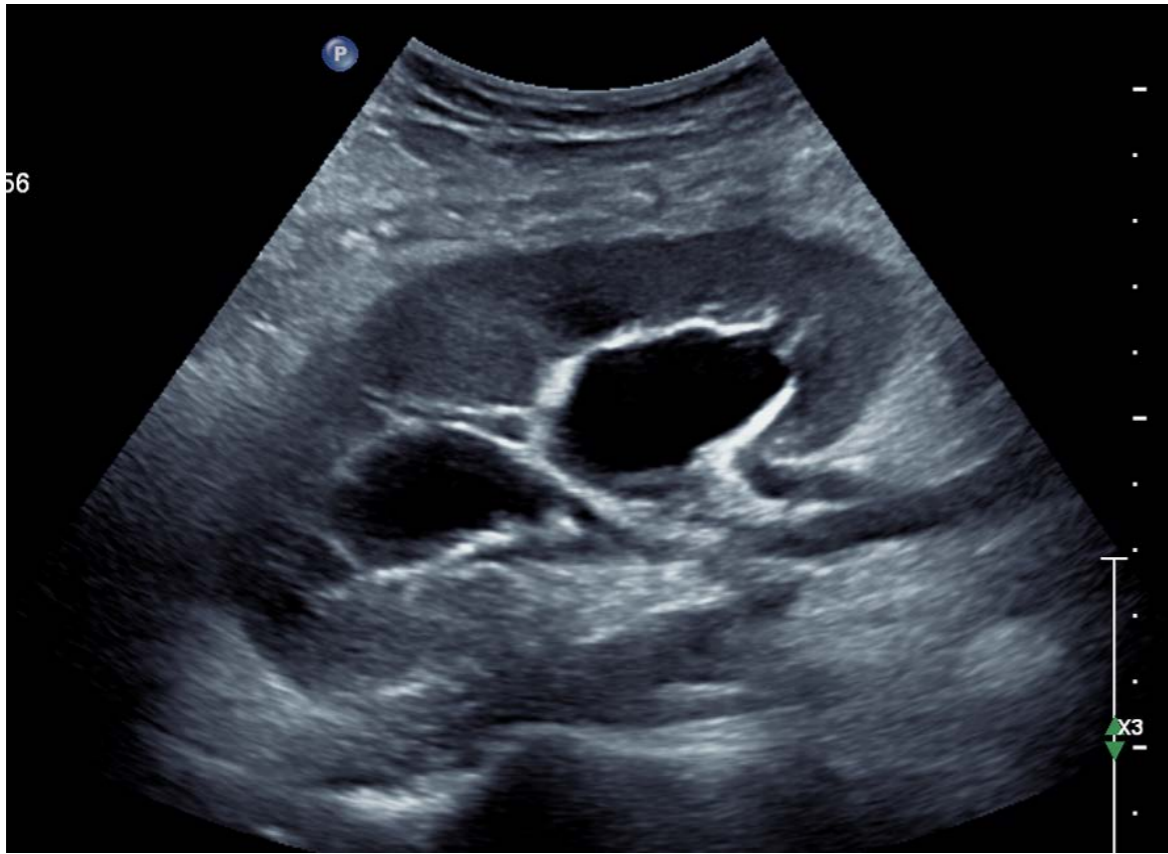
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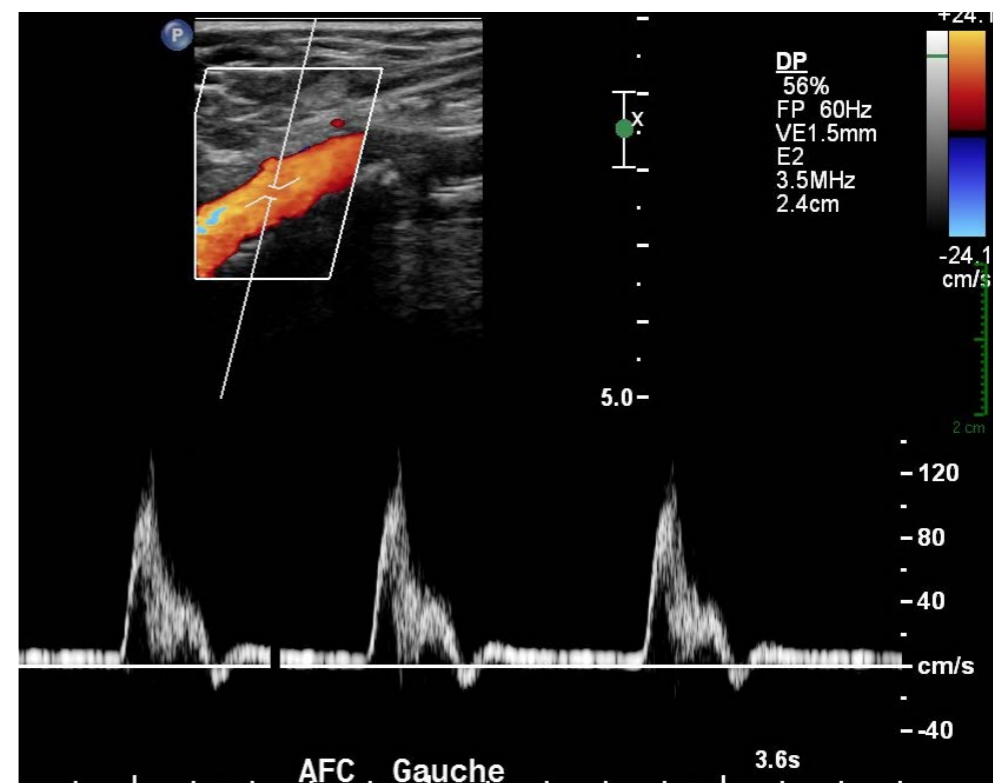
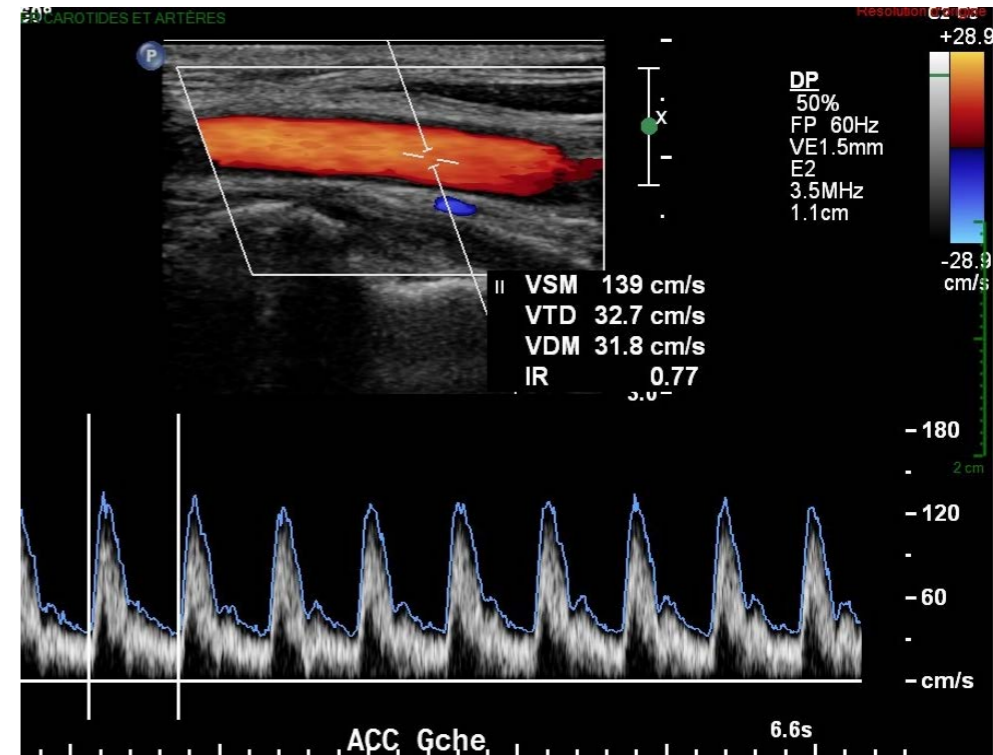
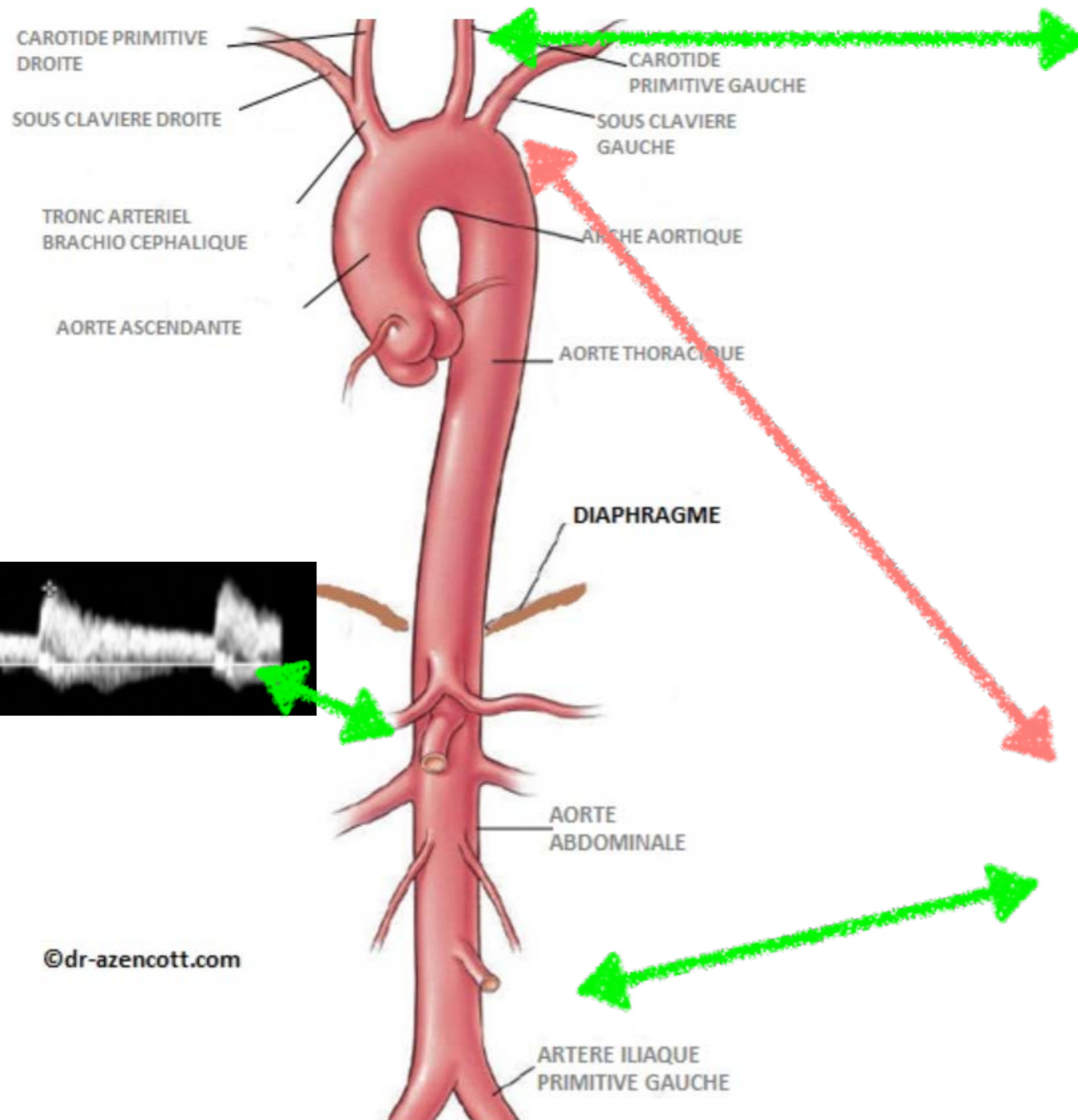
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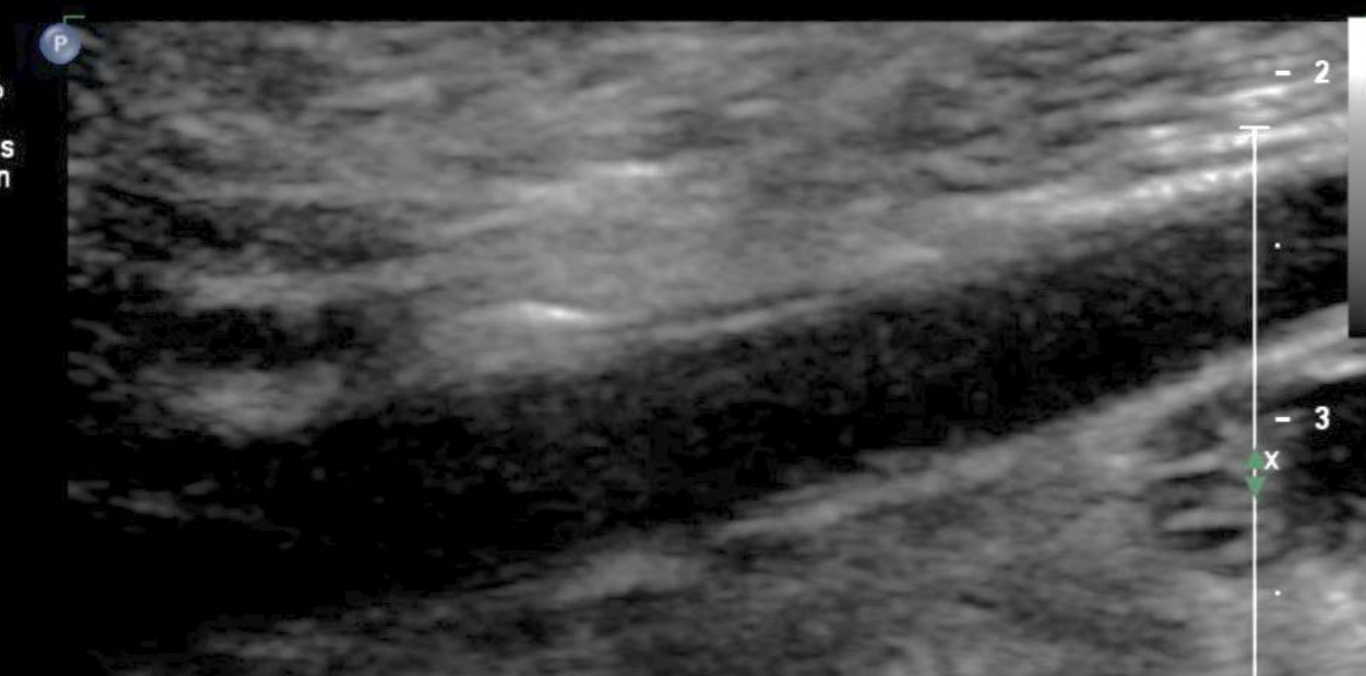


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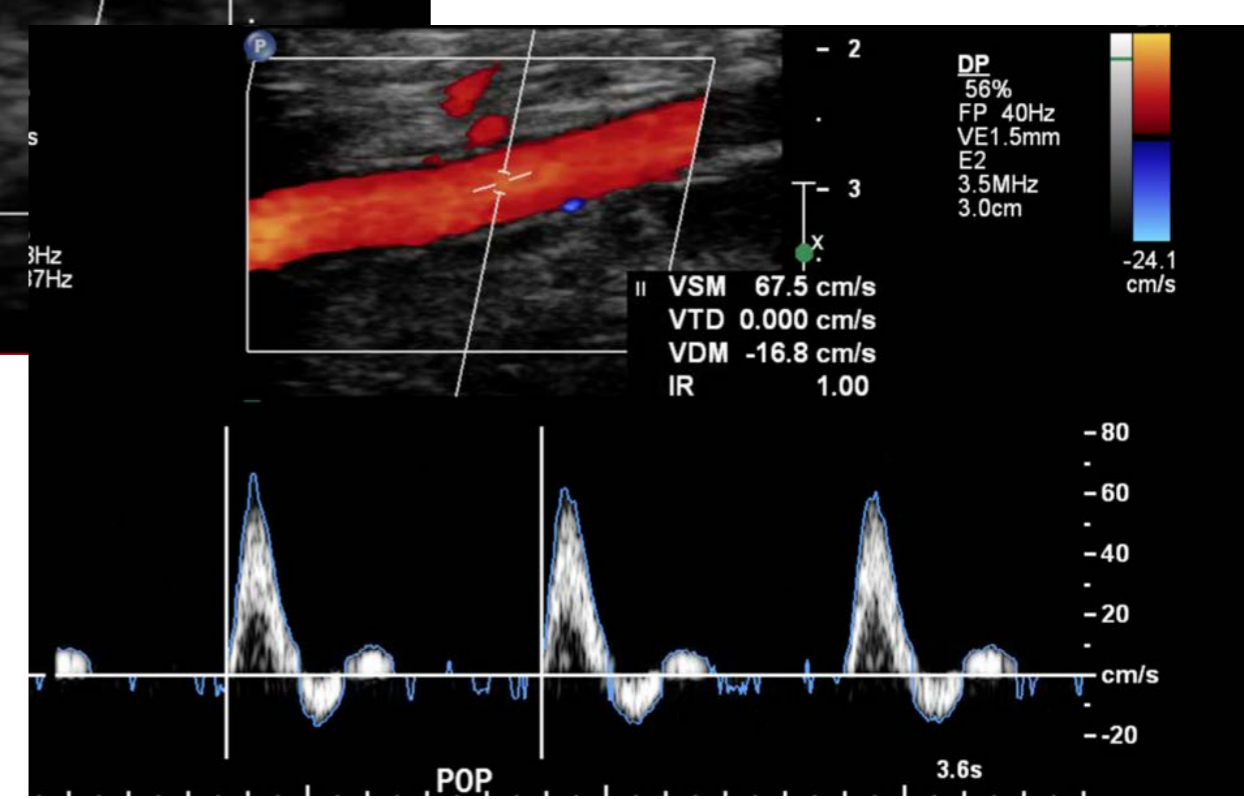
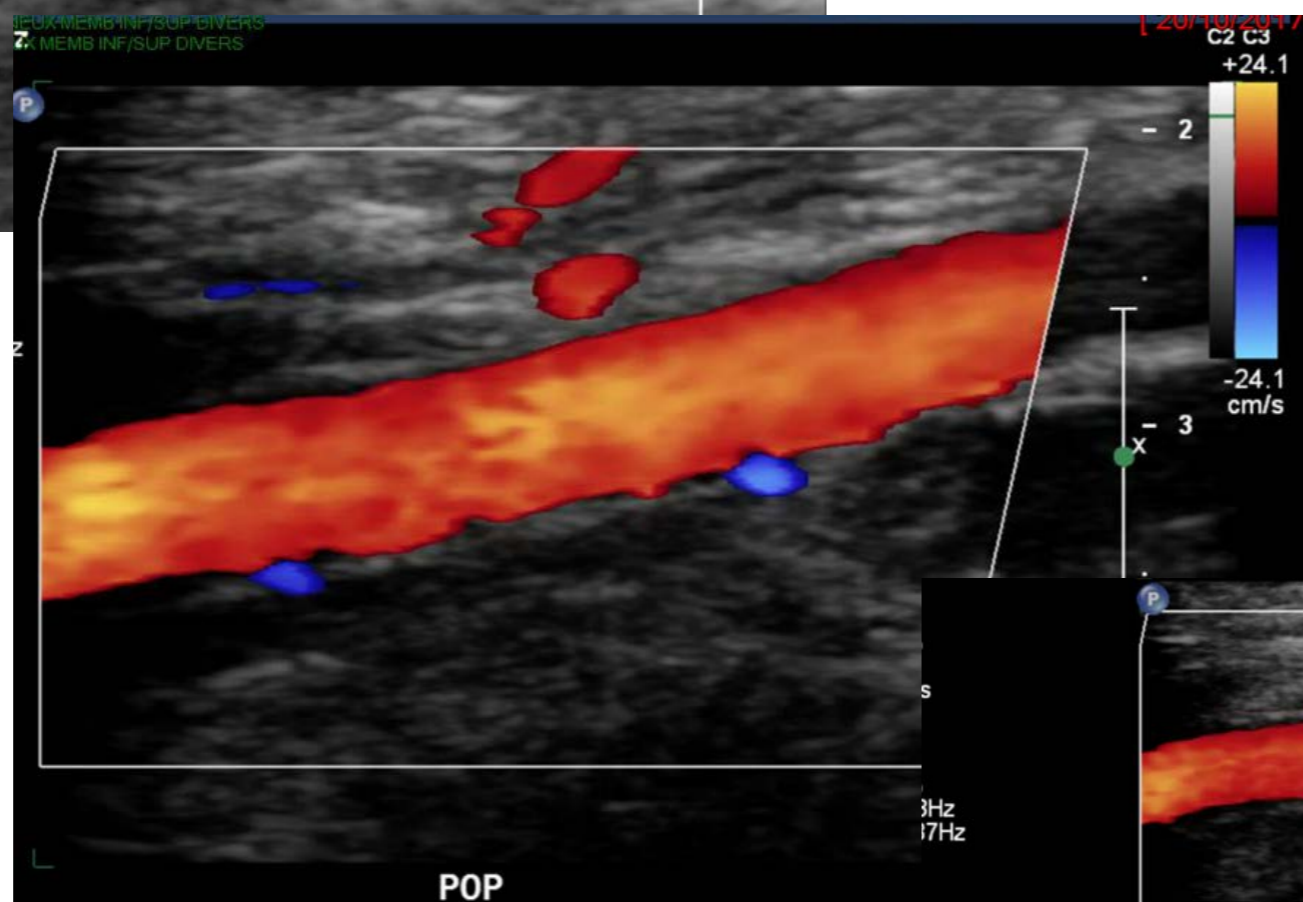


Echographie

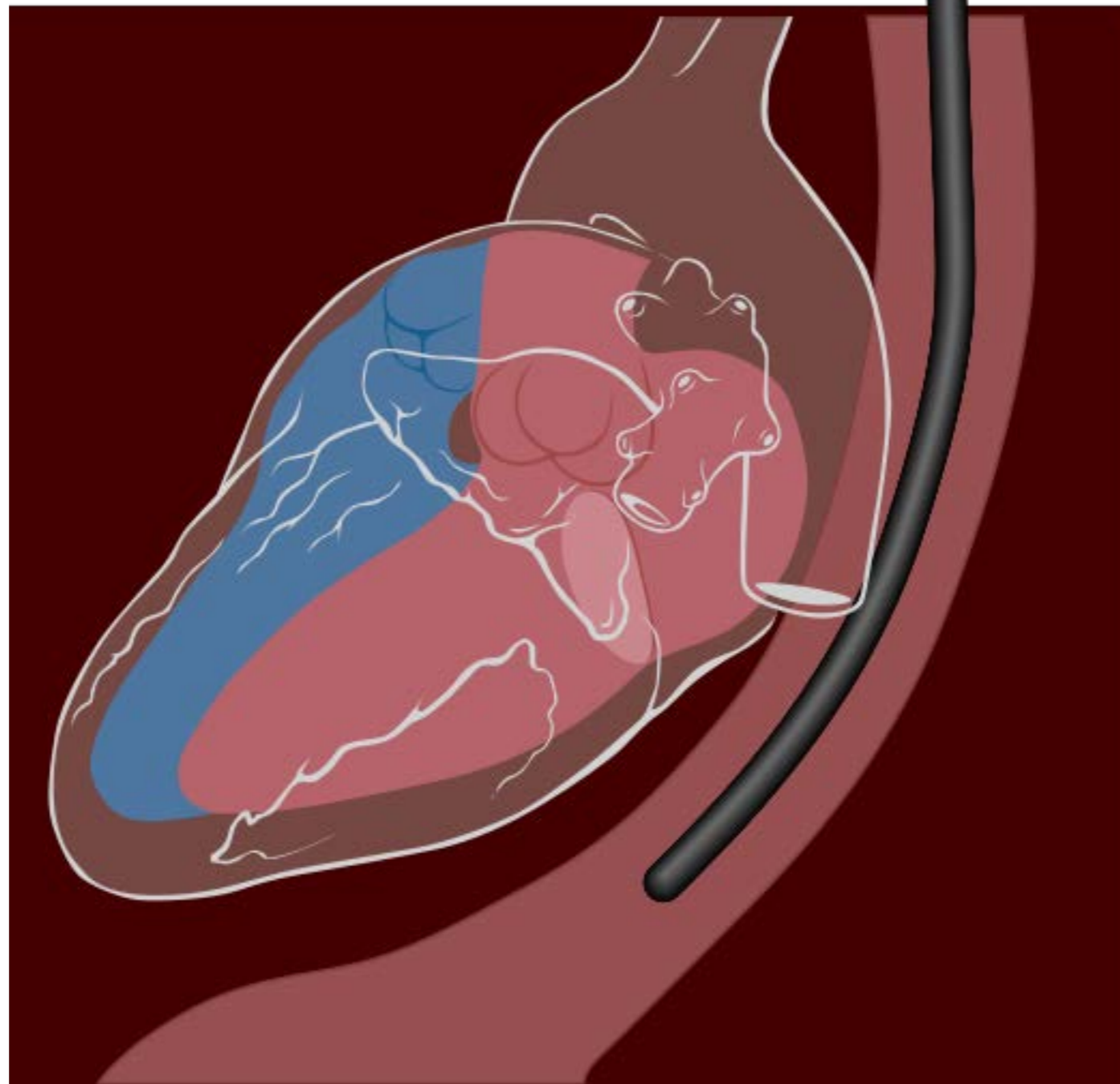




Artère poplitée

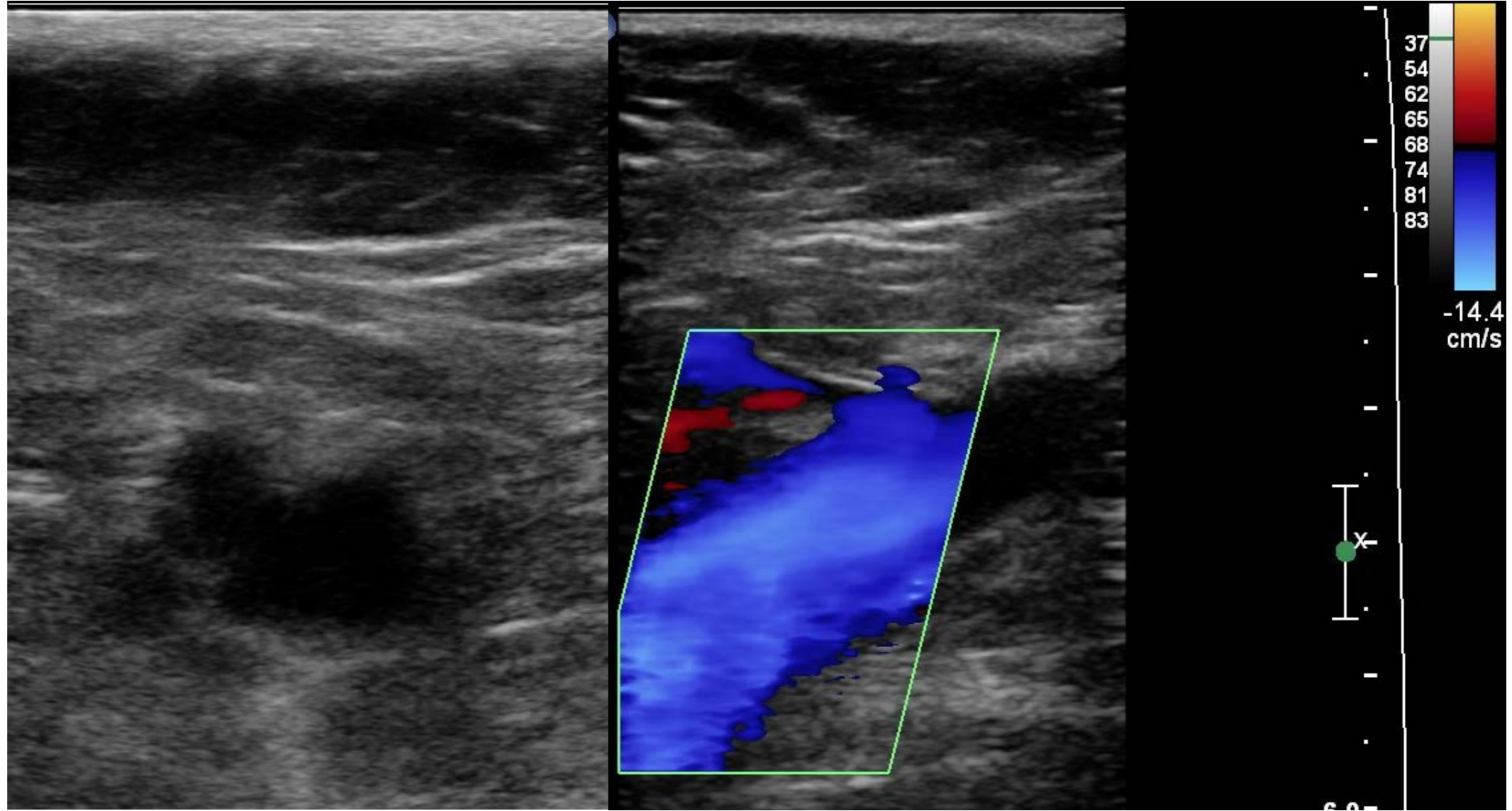


TEE = échographie trans-oesophagienne



wikipédia

Veines



PHILIPS

ITm0.7 IM 0.6

<1-3>

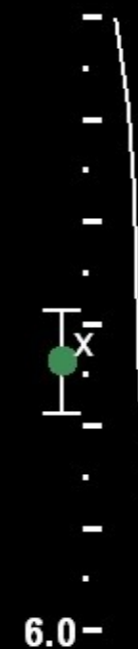
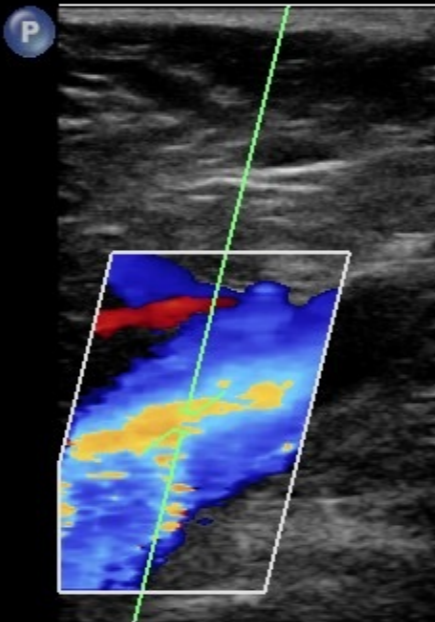
Clin. Univ. UCL St Luc

L9-3/Vasc vein

CI 18Hz 40°
R1

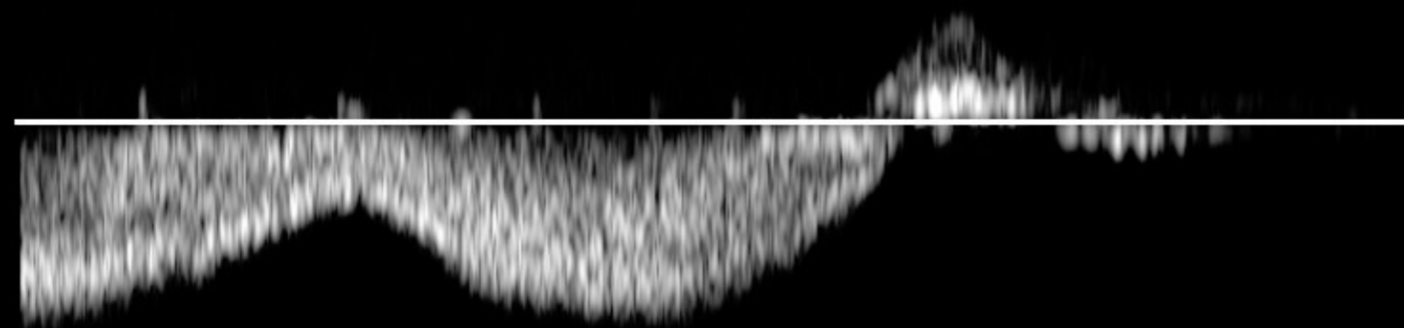
2D
50%
C 50
P Bas
Gén

Coul
64%
1500Hz
FP 52Hz
Moy



35
52
60
63
66
73
79
82

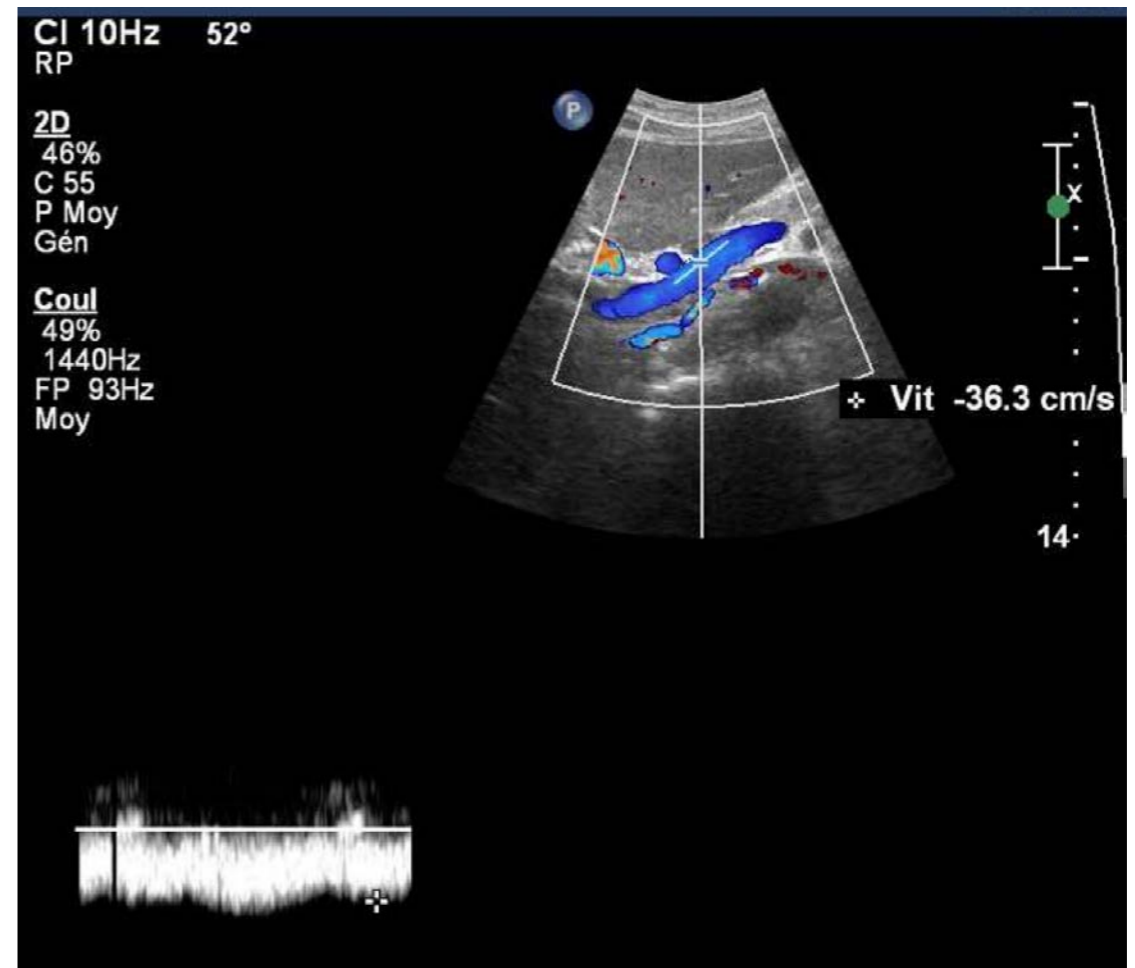
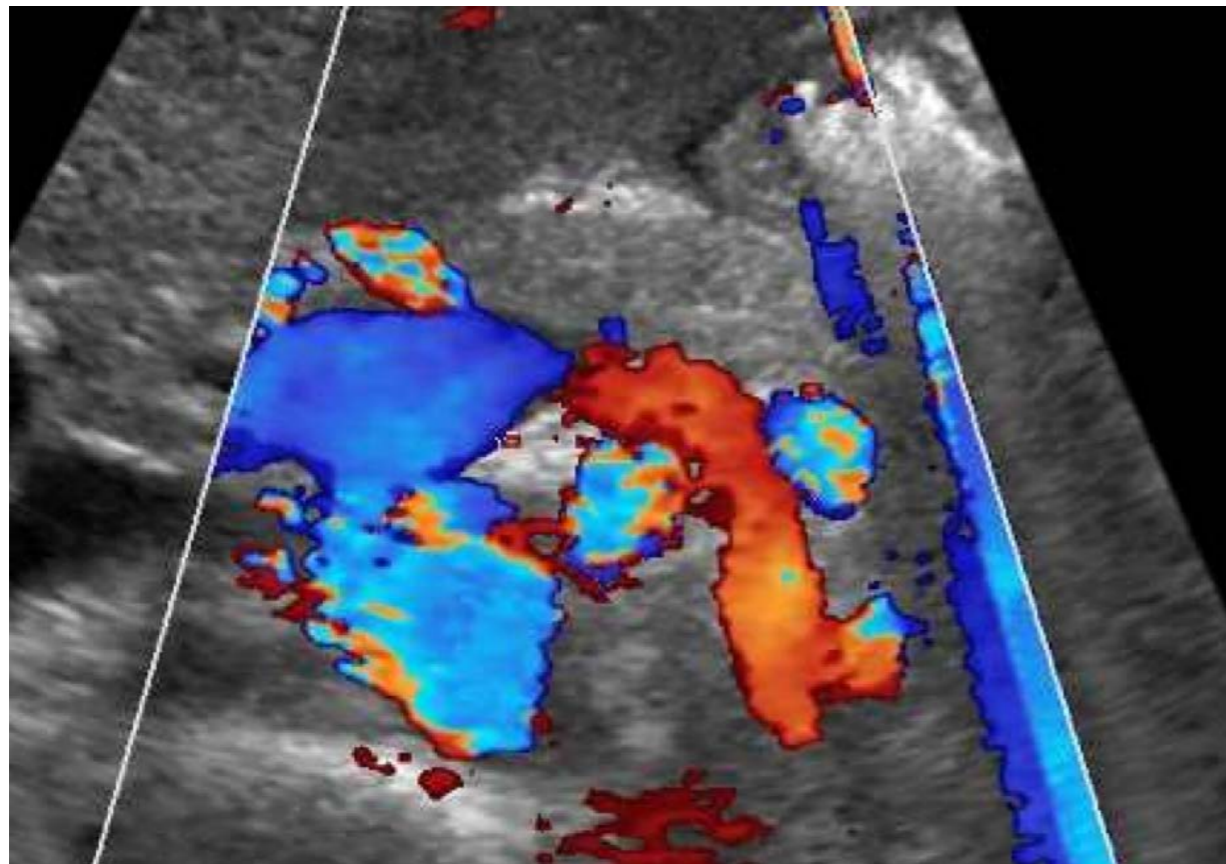
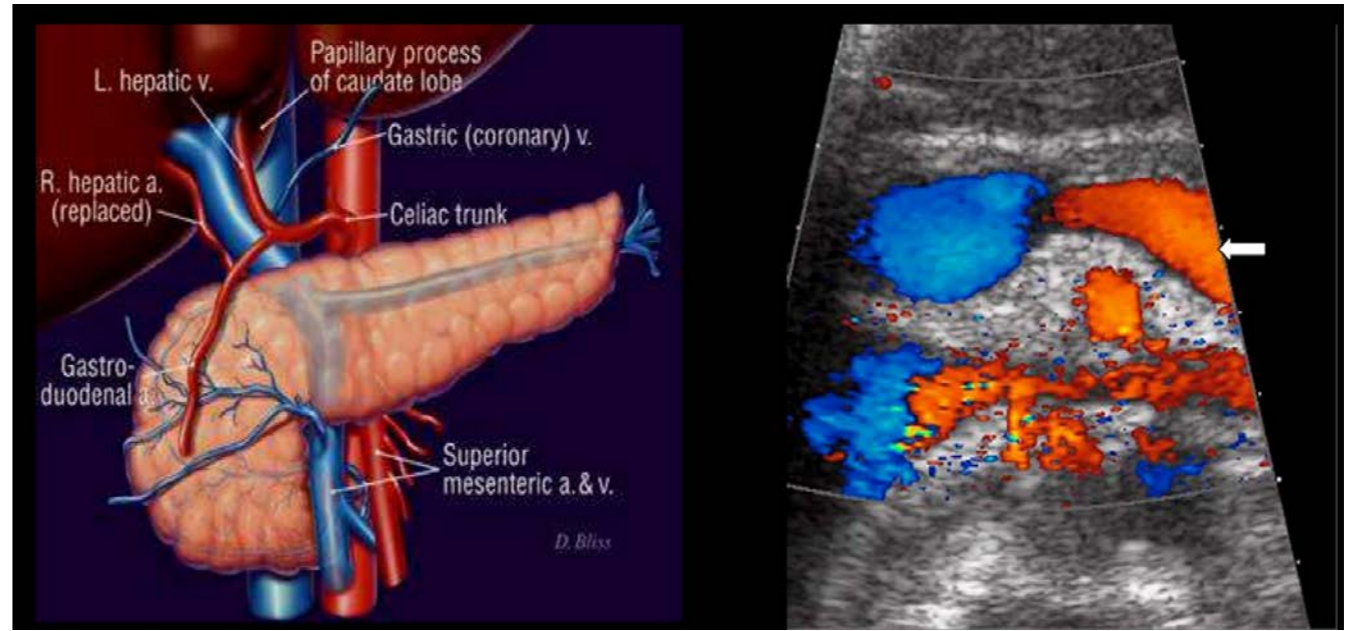
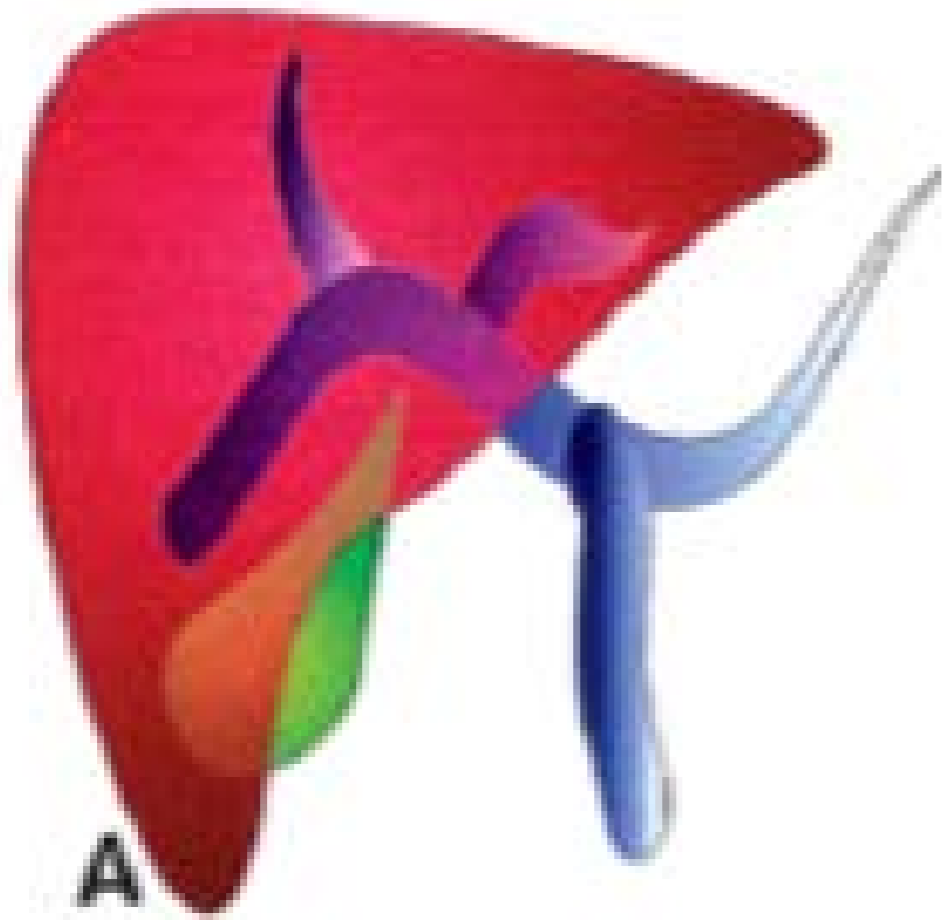
DP
44%
FP 40Hz
VE2.0mm
E3
3.5MHz
4.2cm



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

Droite

6.6s

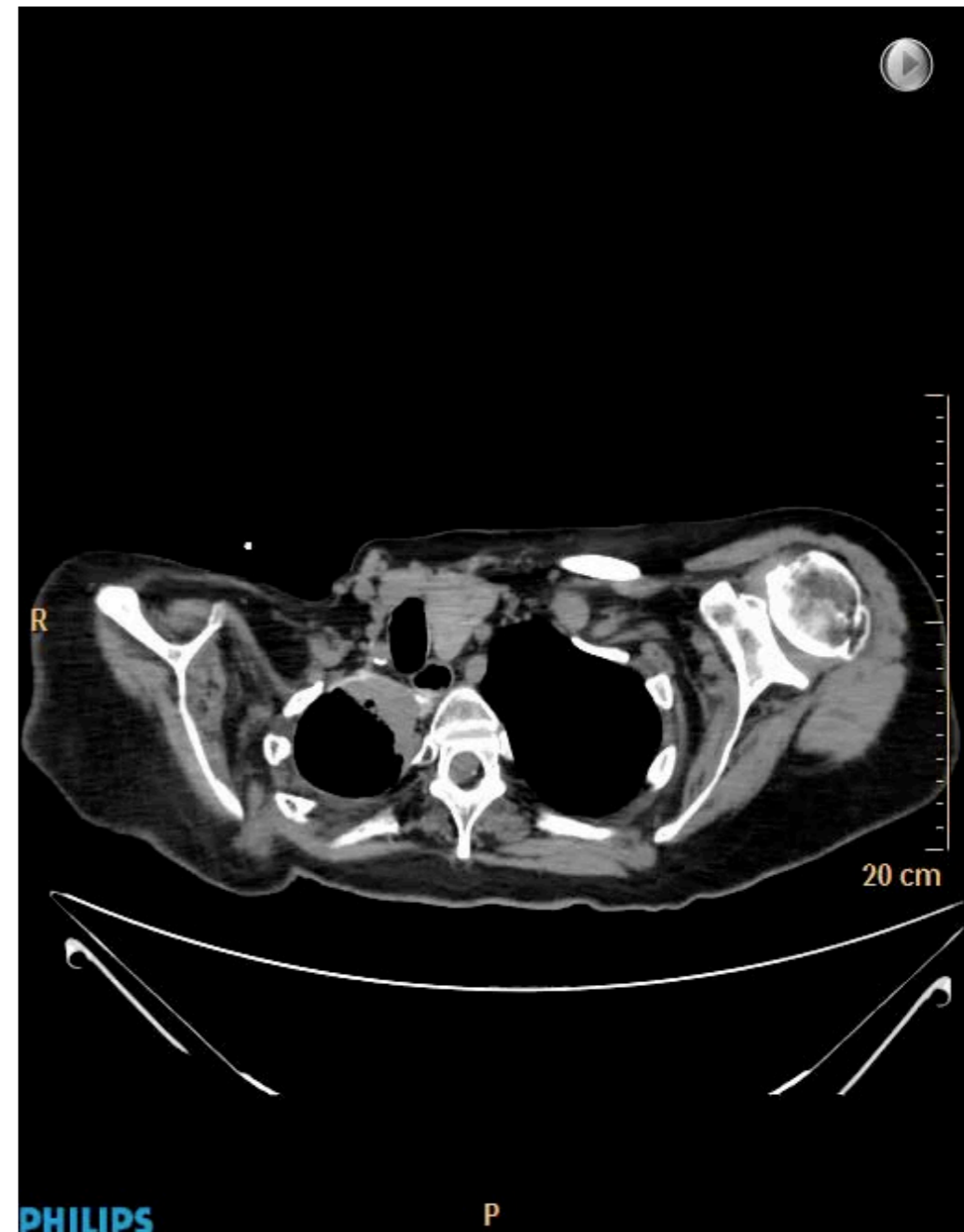


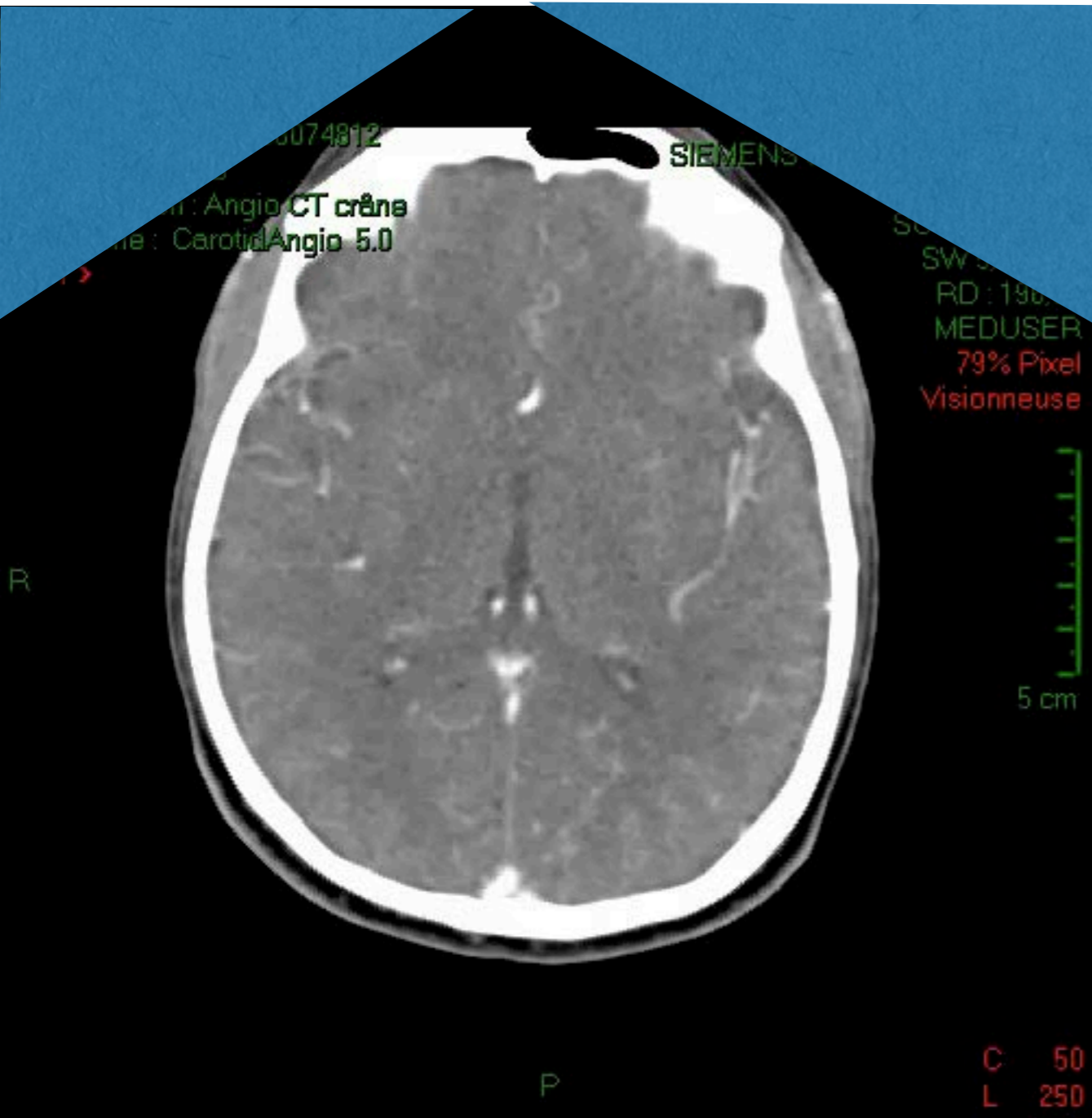
Scanner

- sans contraste
- avec injection IV d'iode

=> artères

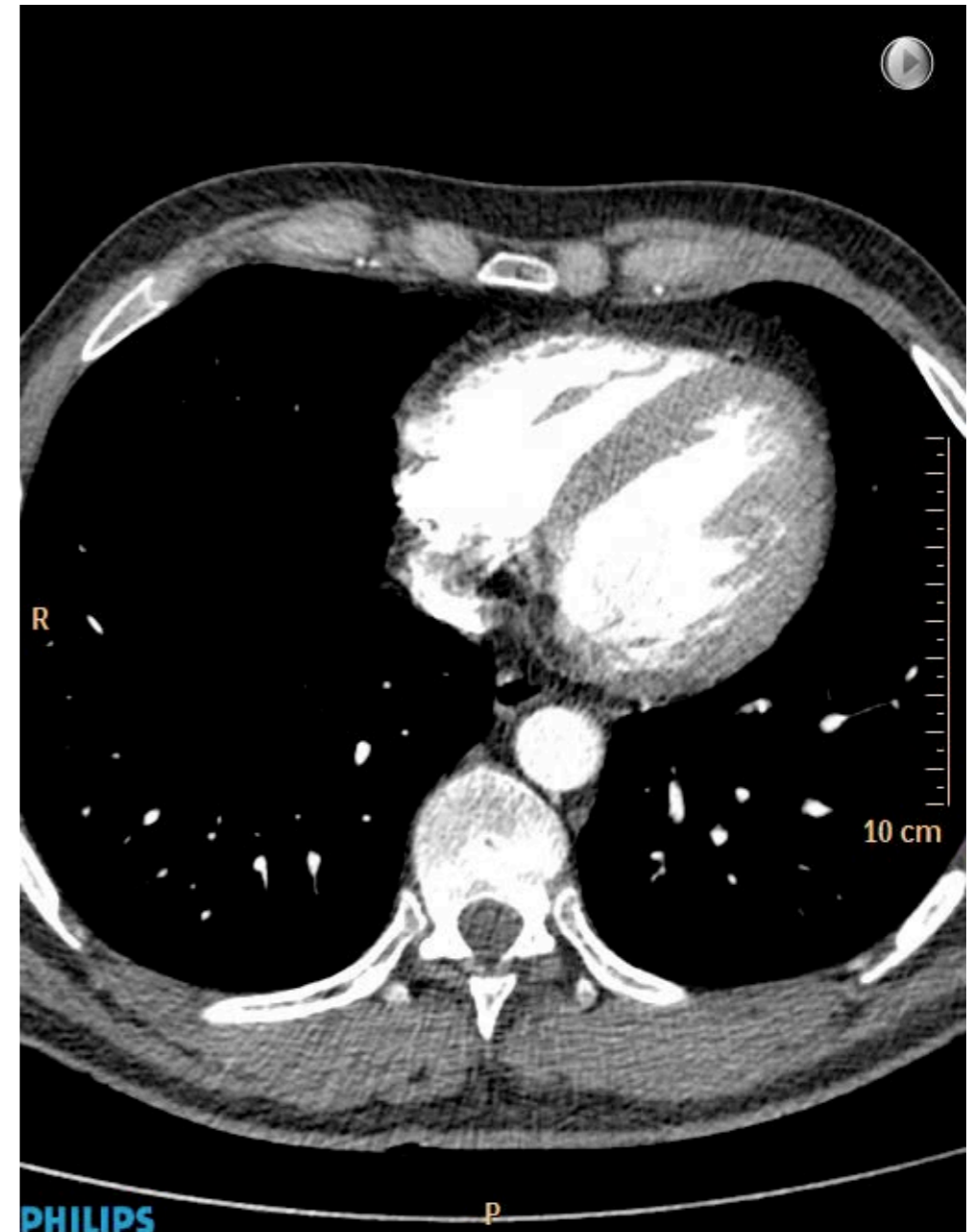
=> veines

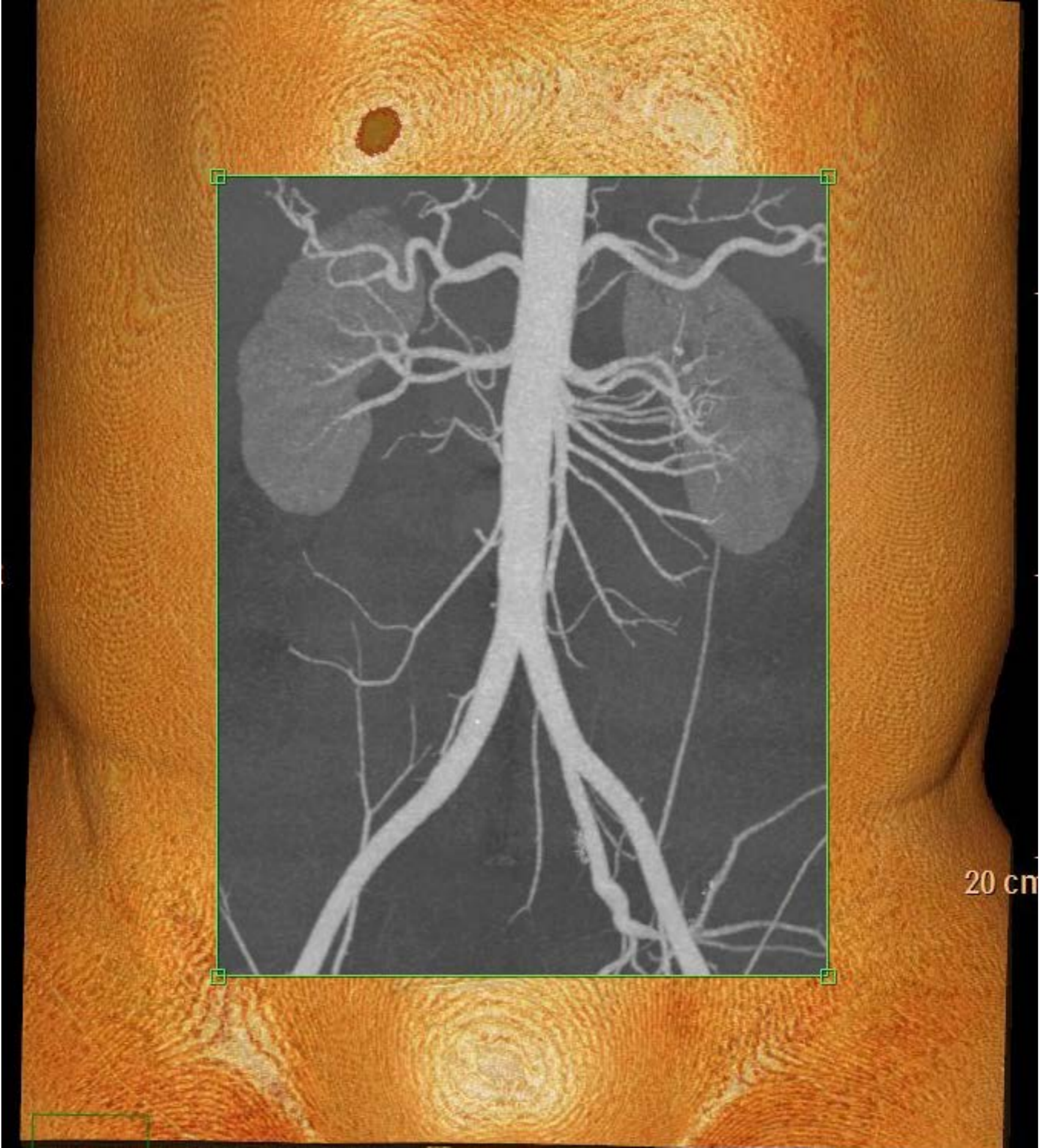


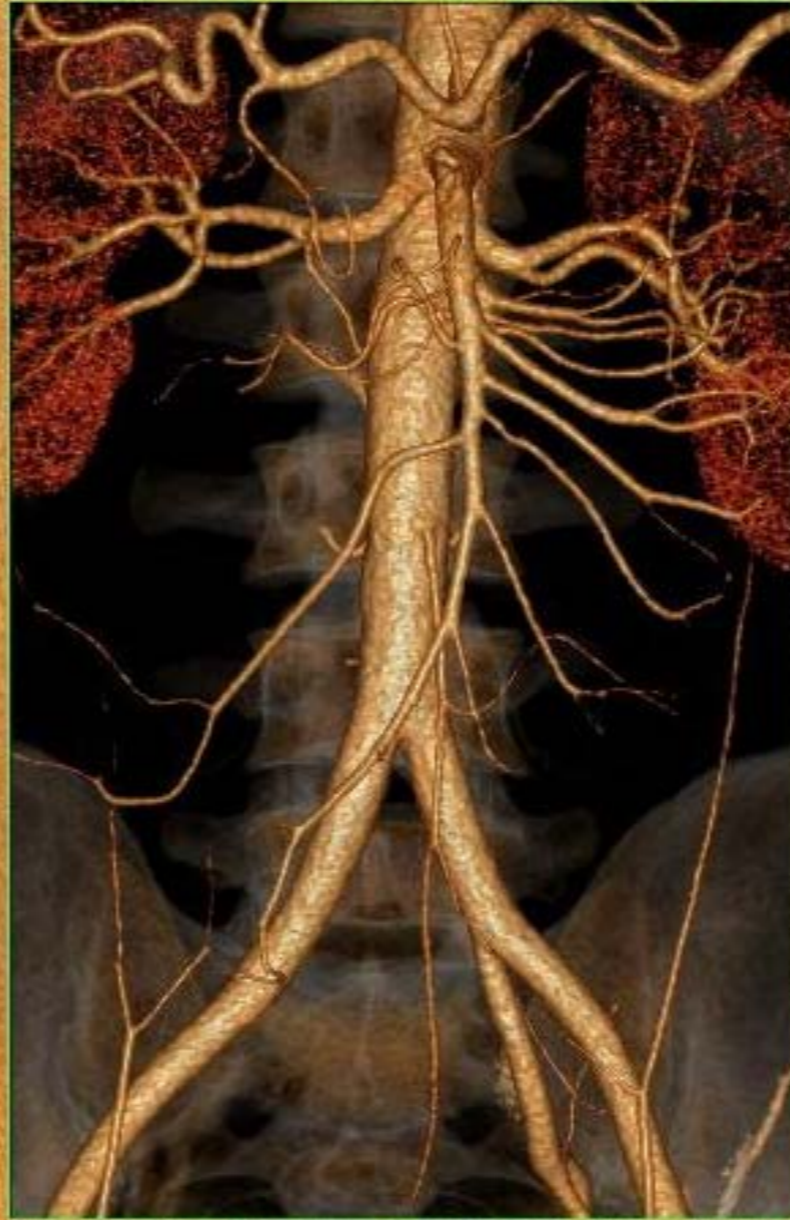


Scanner

- sans contraste
 - avec injection IV d'iode
- => artères
- => veines









ReinLithiaseOptim

C5-1
7Hz

Gauche

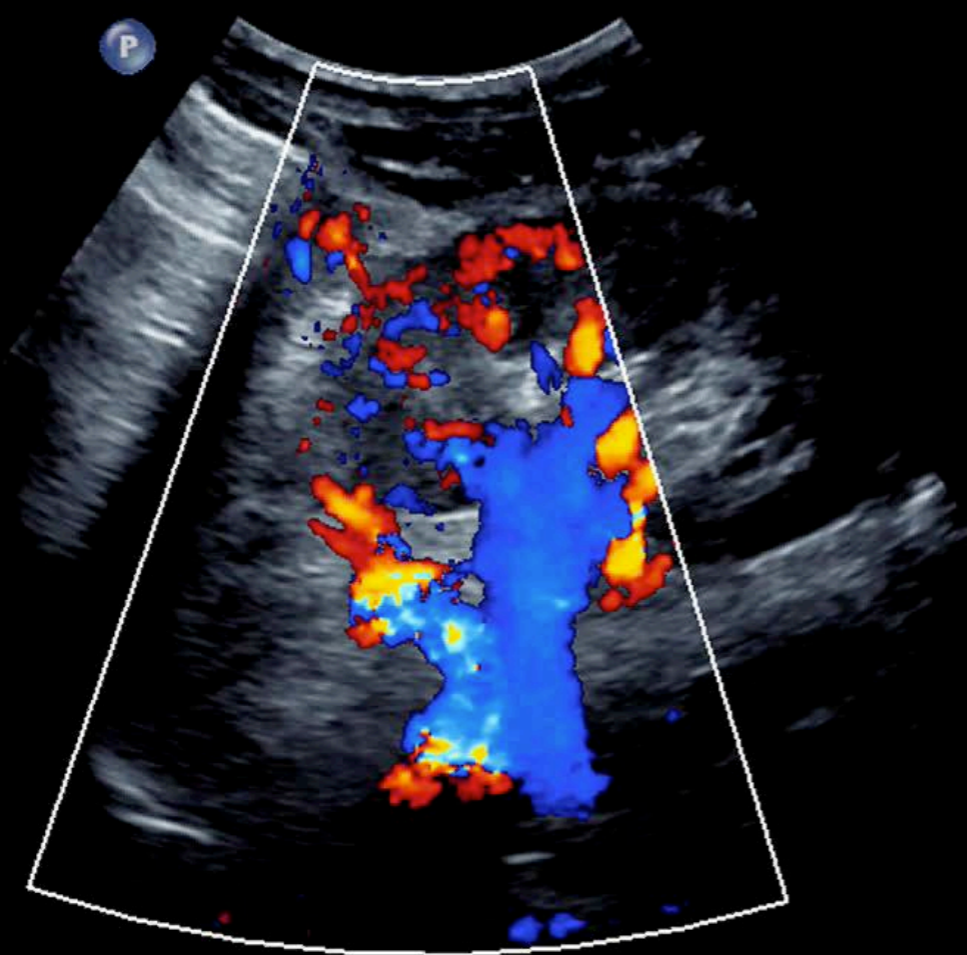
P

2D

63%
R Dyn 48
P Moy
HGén

Coul

56%
1100Hz
FP 60Hz
2.8MHz



TIS0.5 MI 1.3

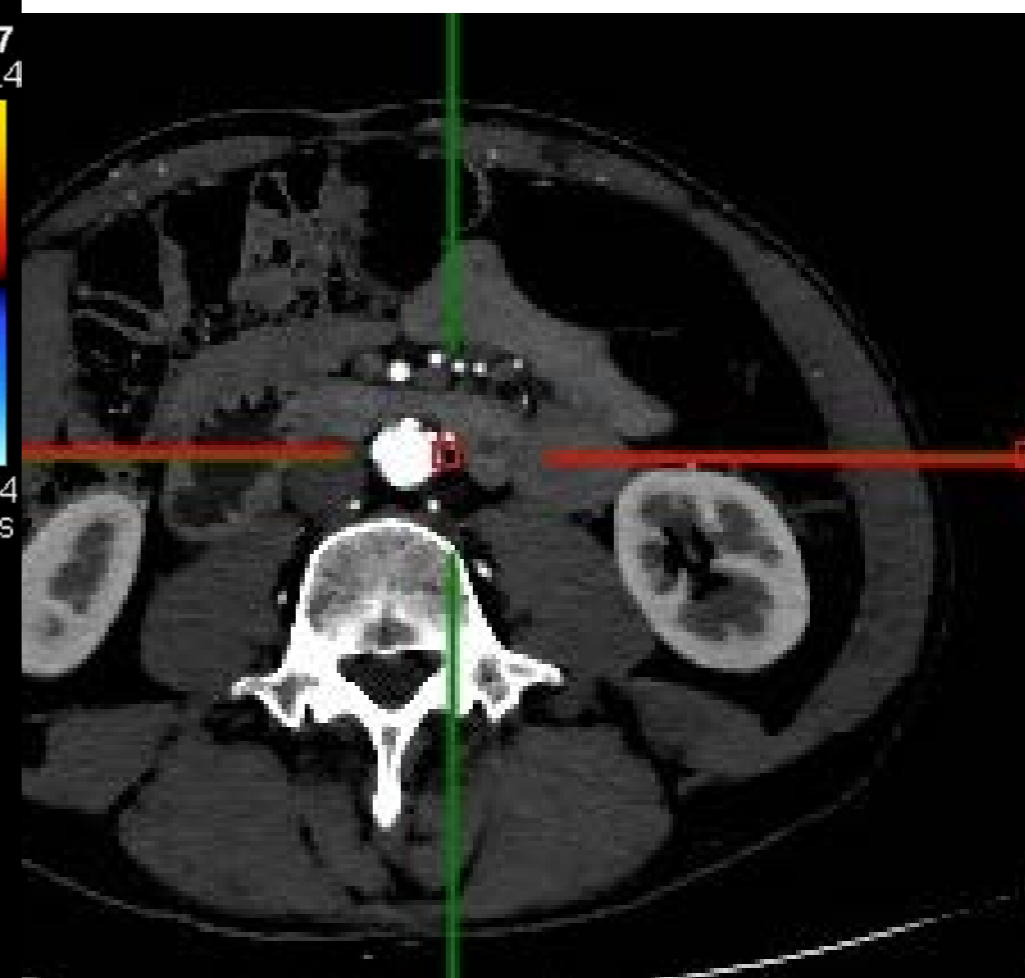
M4 M7
+15.4

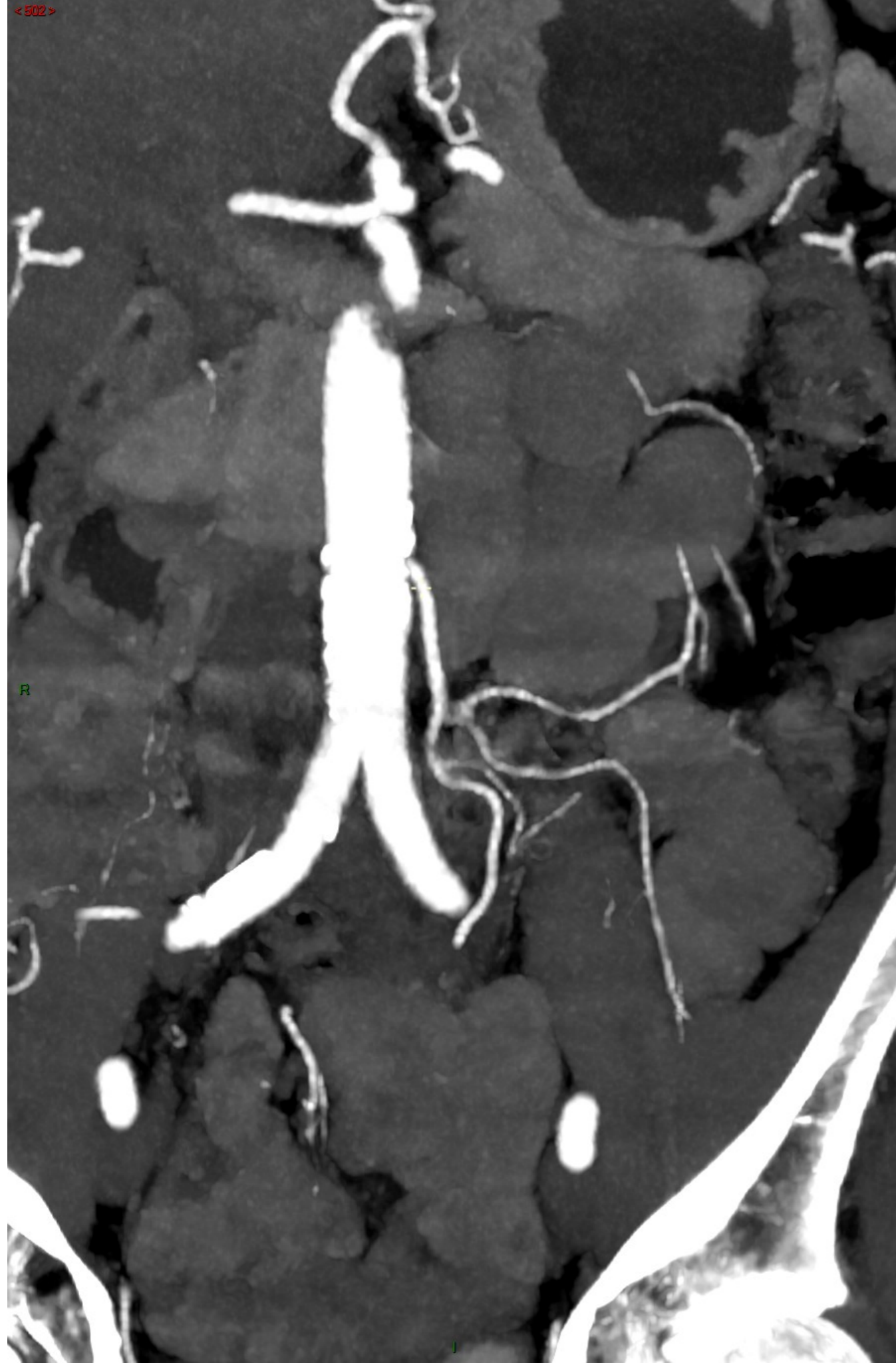


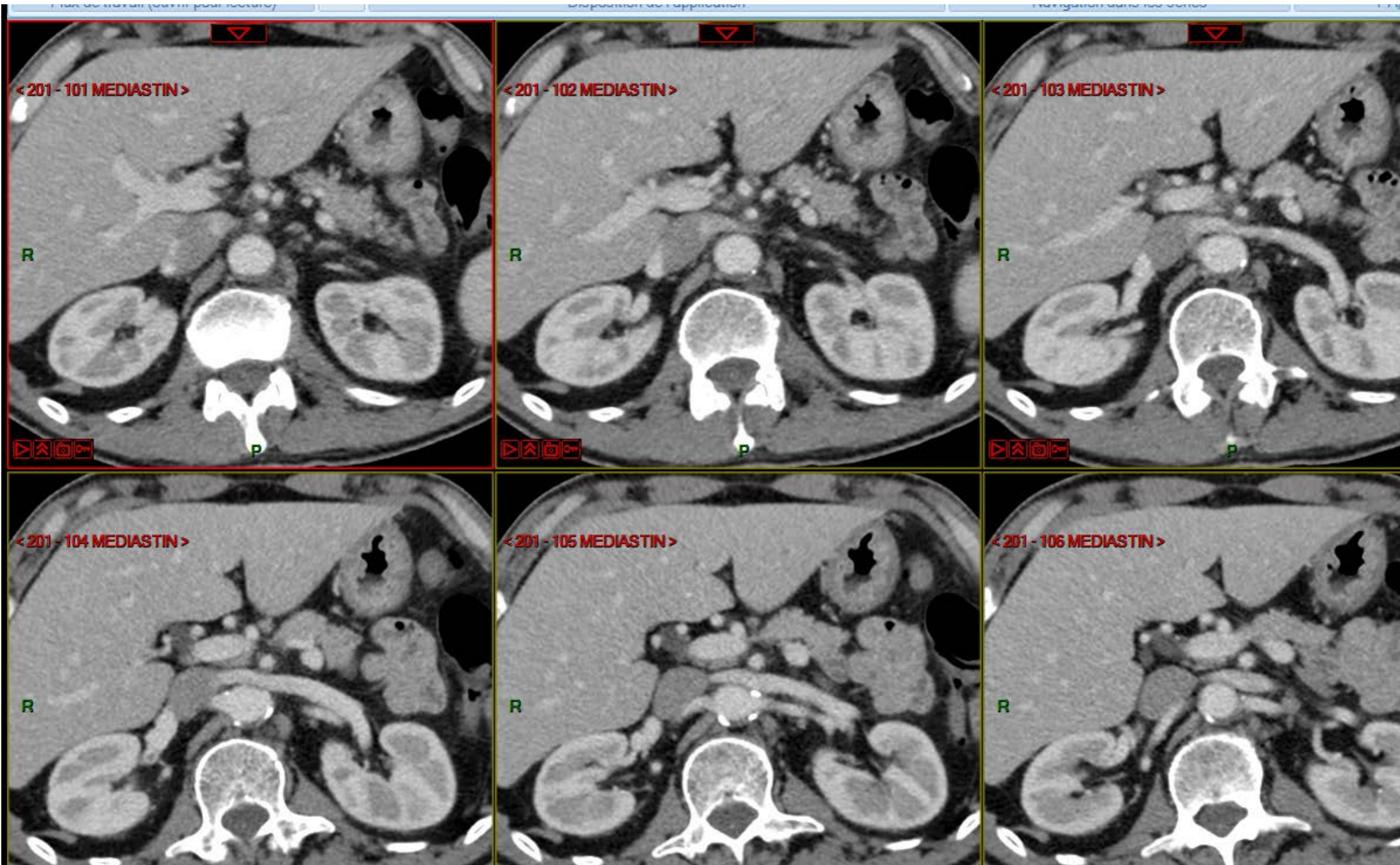
-15.4
cm/s

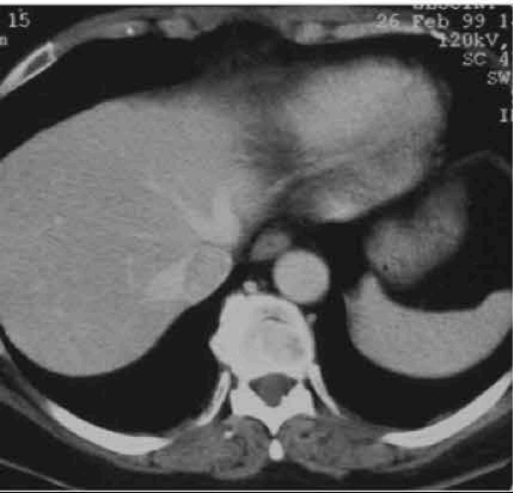
X3

14cm* *** bpm

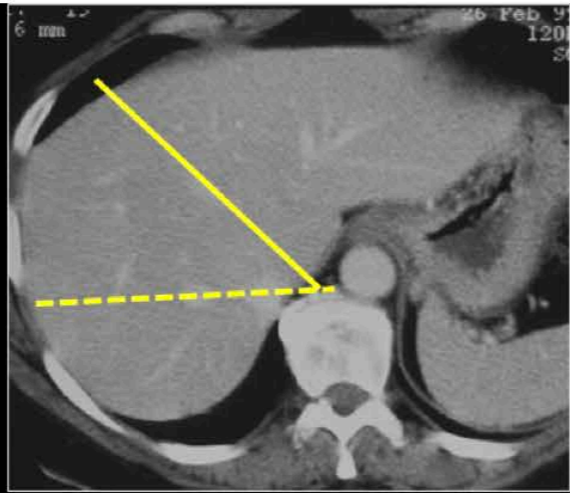




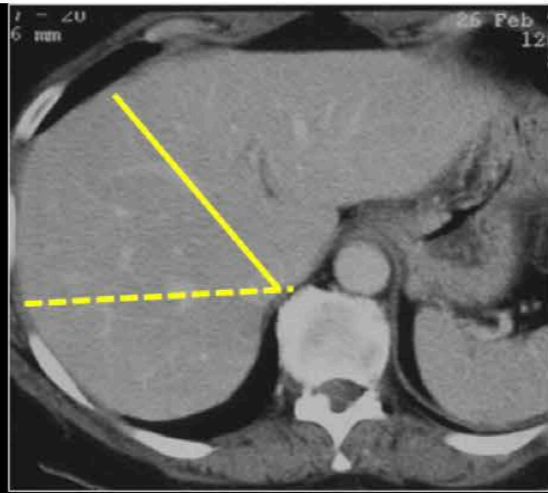




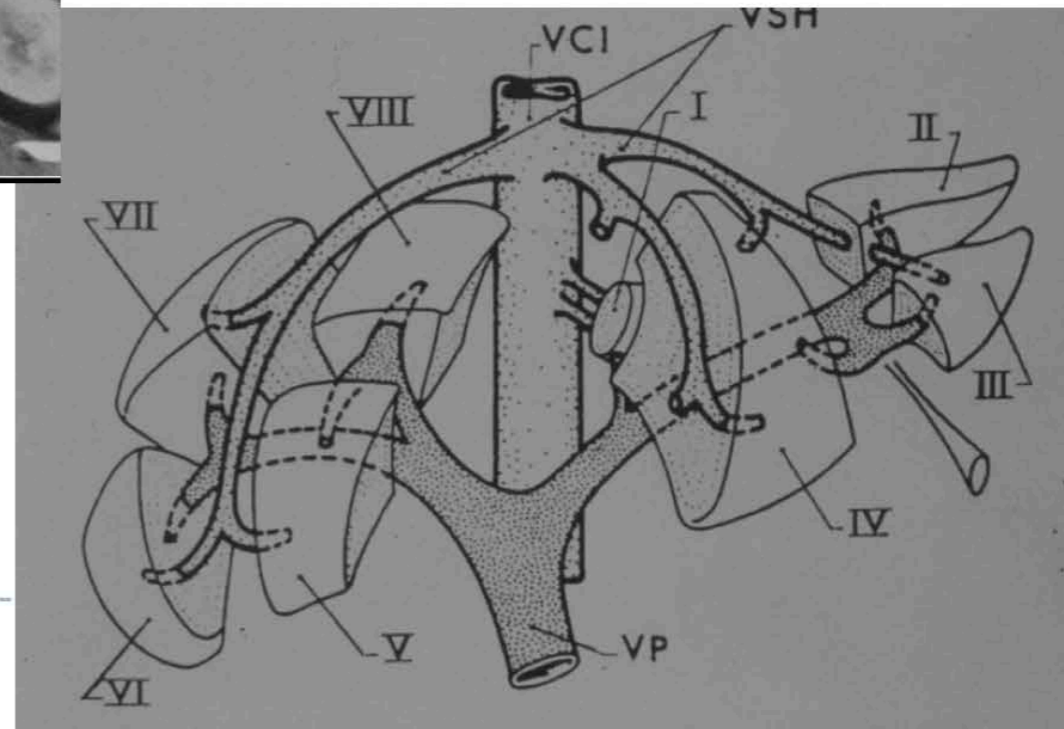
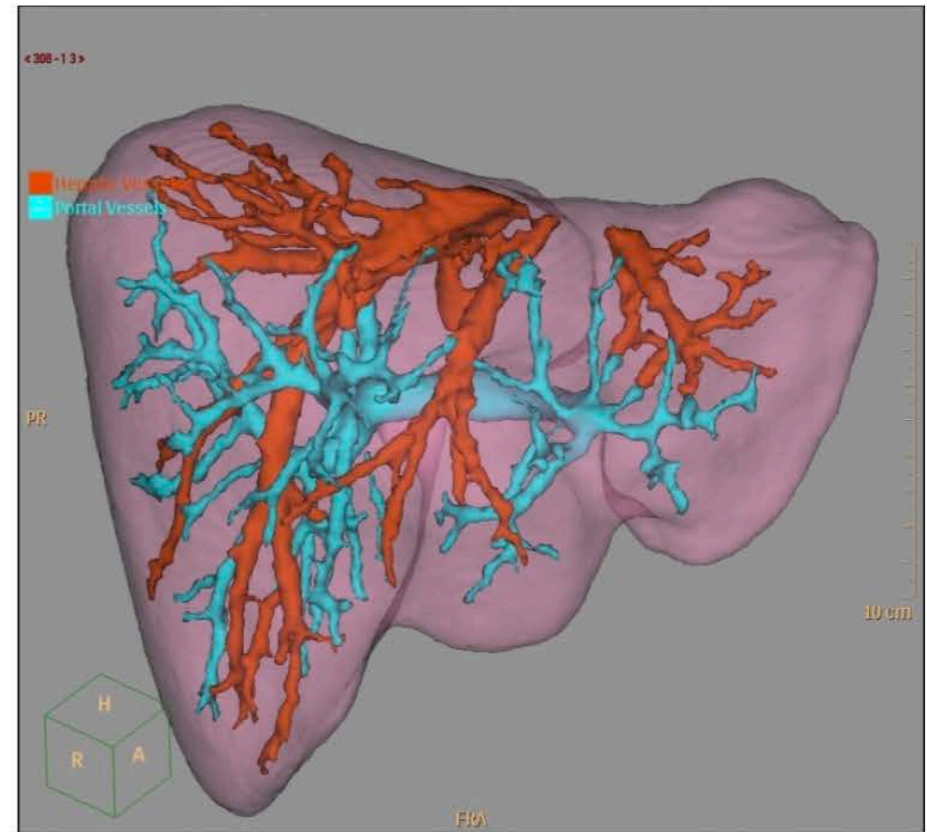
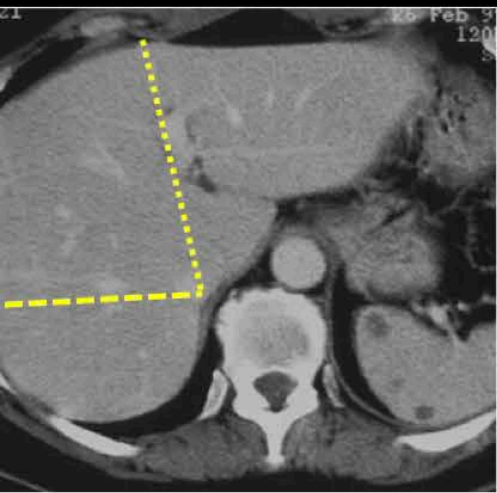
cissure latérale droite

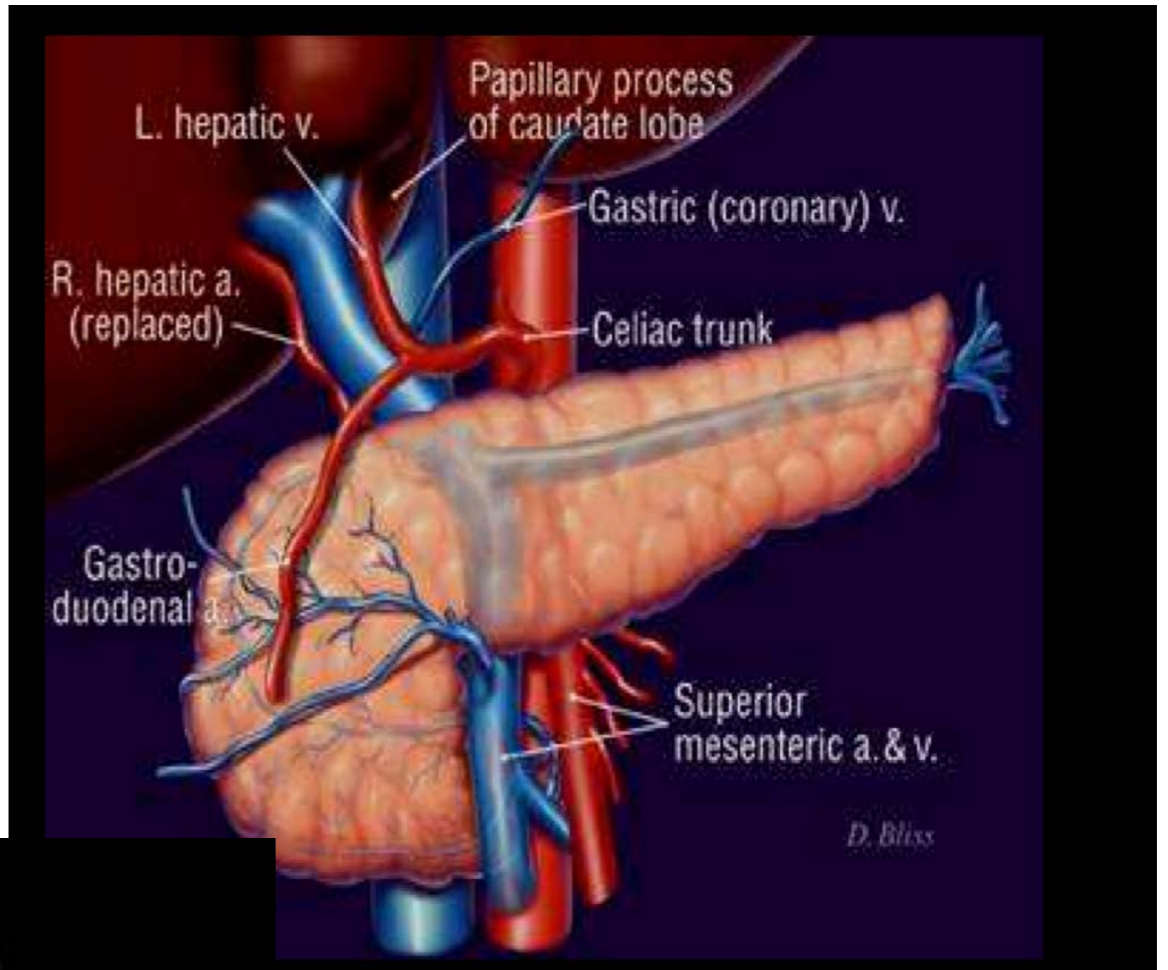


principale



ombilicale



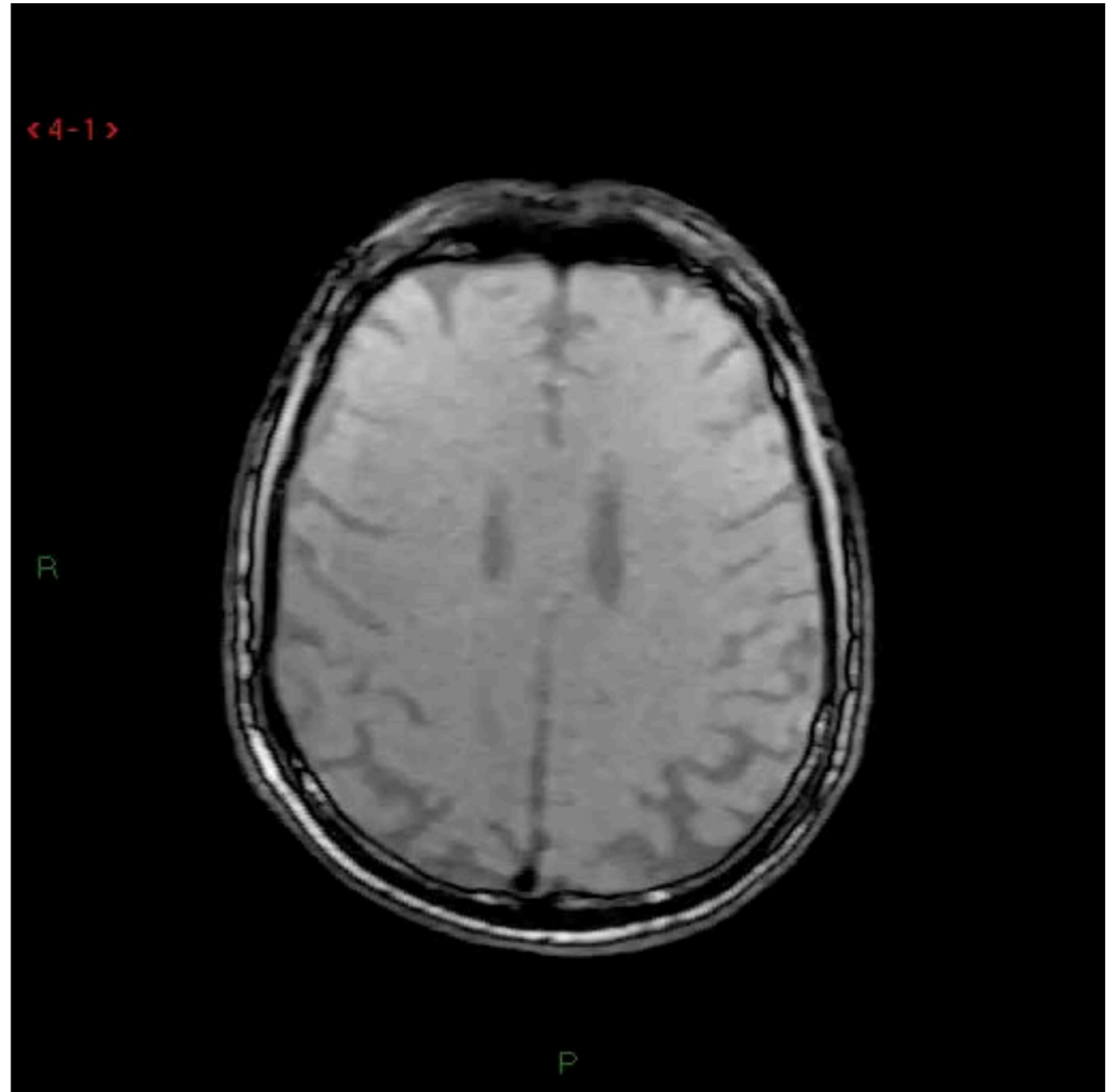


IRM

- sans contraste
- avec injection IV de Gadolinium

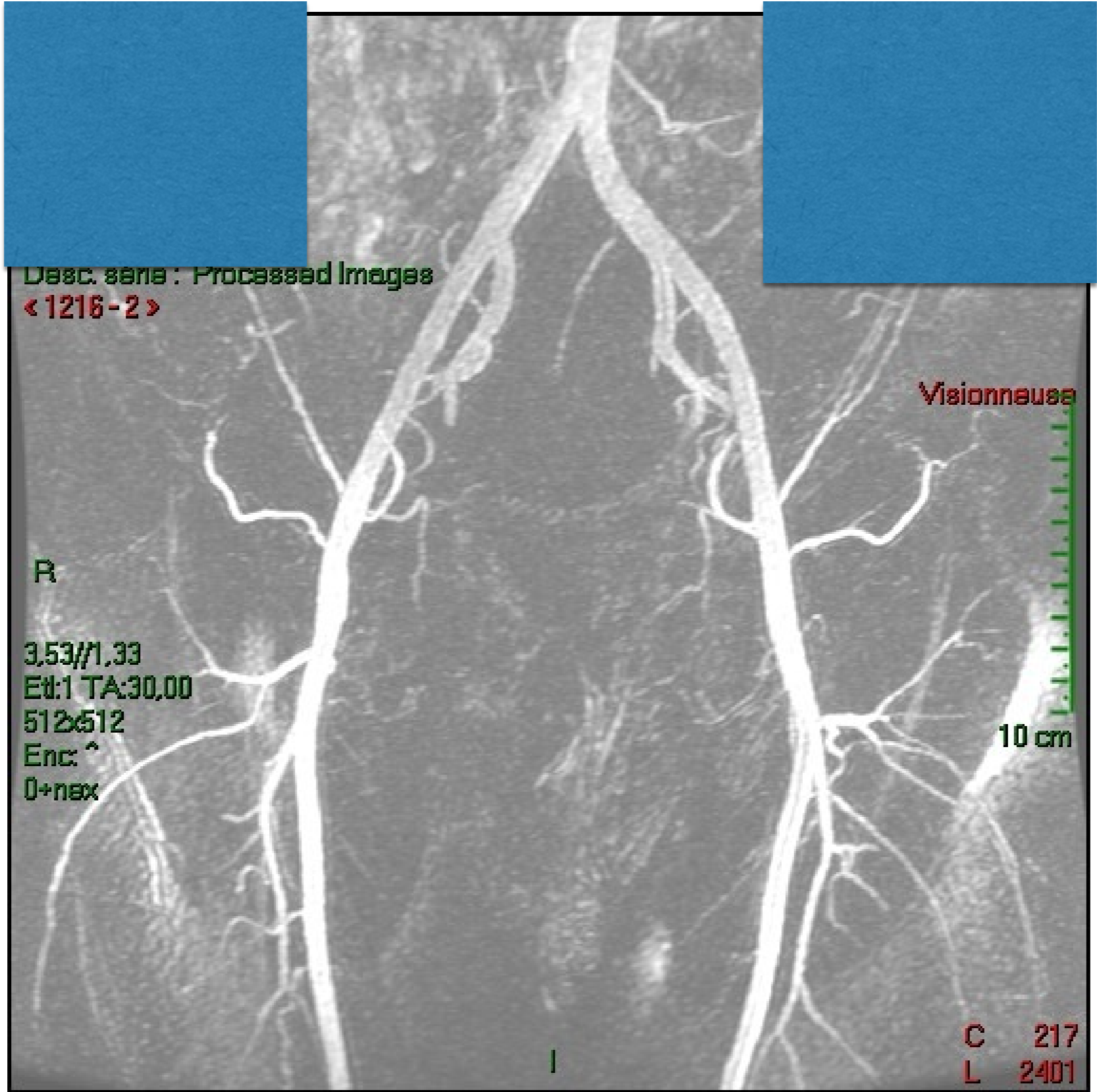
=> artères

=> veines

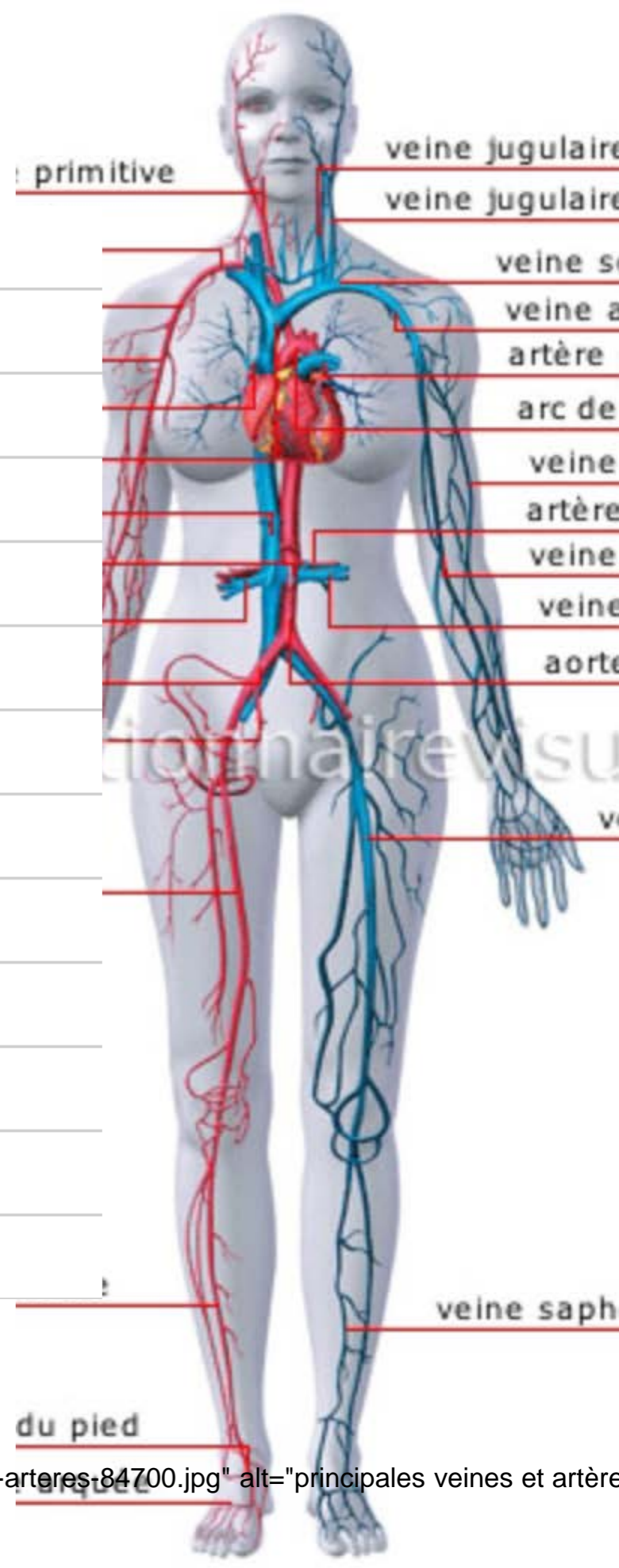


IRM





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

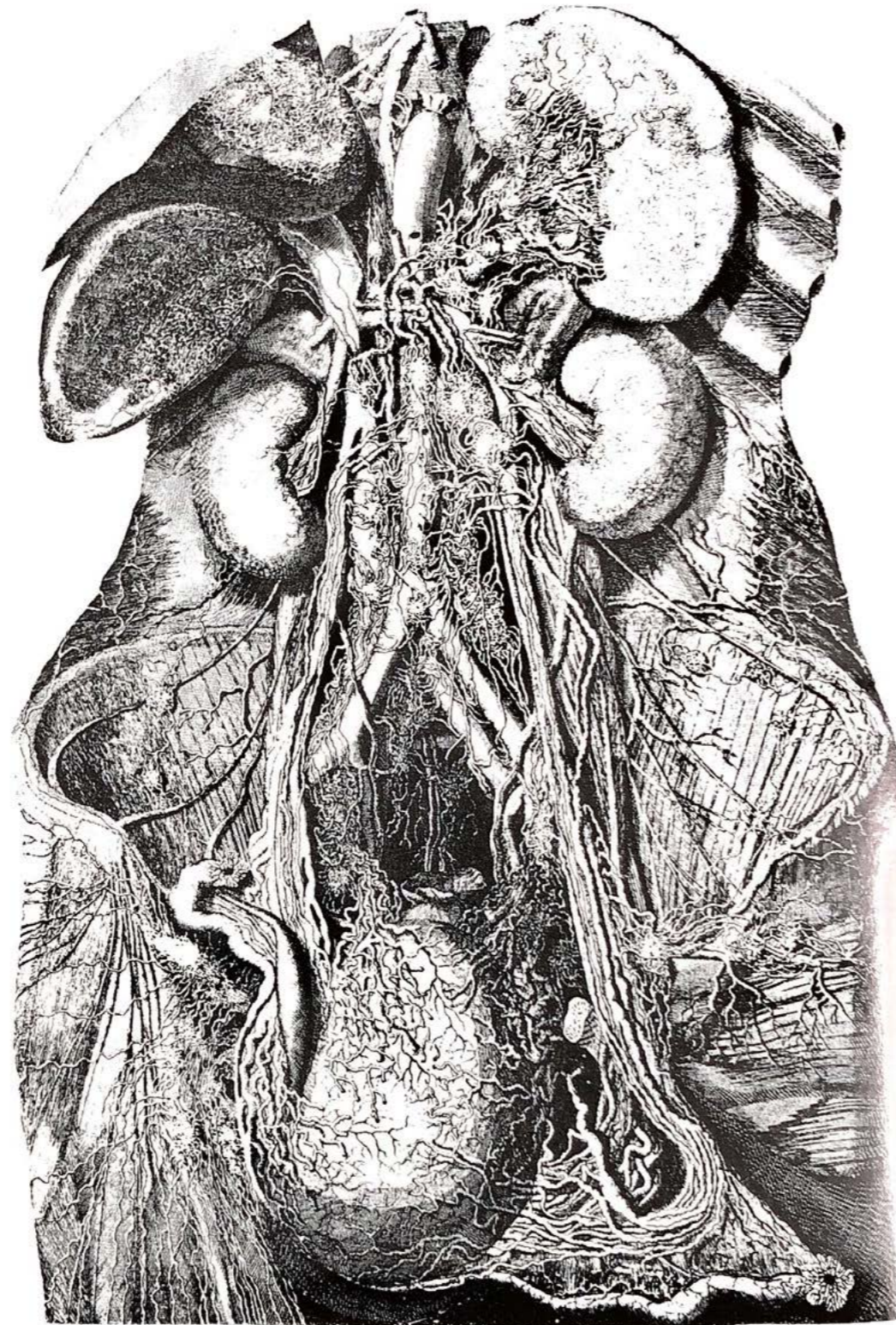
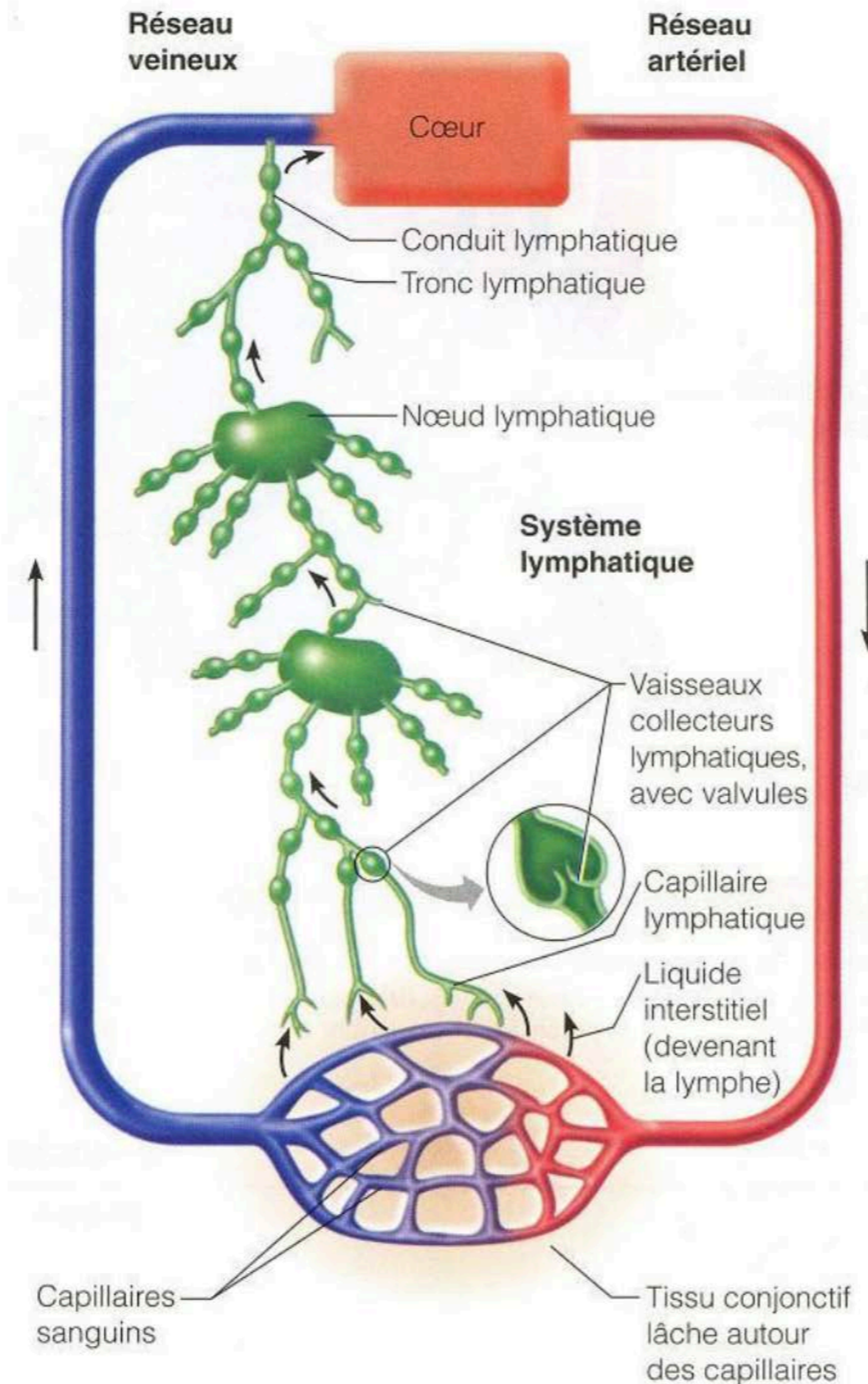


Fig. 1. A plate from Mascagni's *Vasorum lymphaticorum corporis humani*, showing details of the collecting lymph channels of the internal genitals [26]

P Mascagni,
1787

La circulation lymphatique



anne Zeller

Imagerie des voies lymphatiques

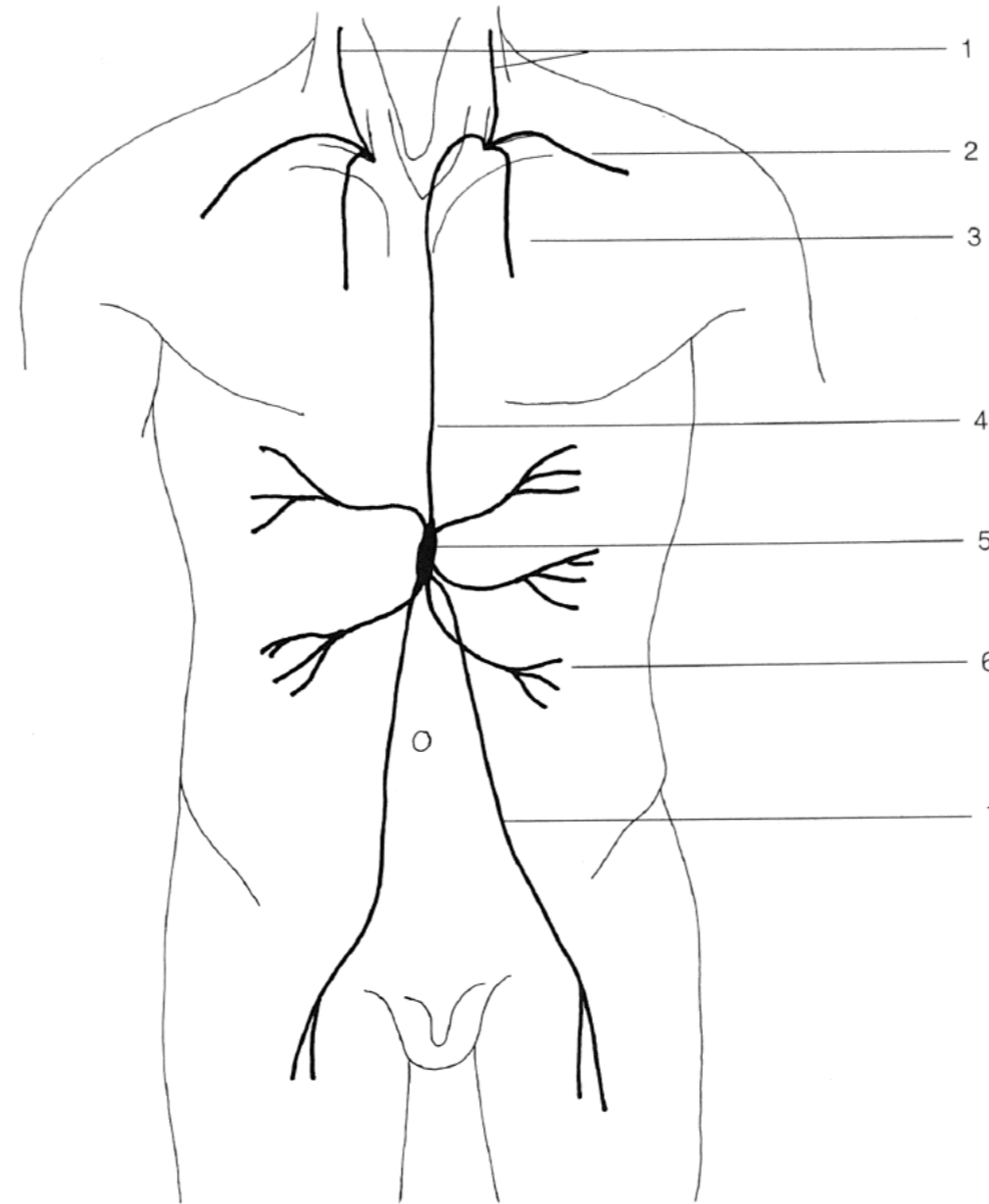


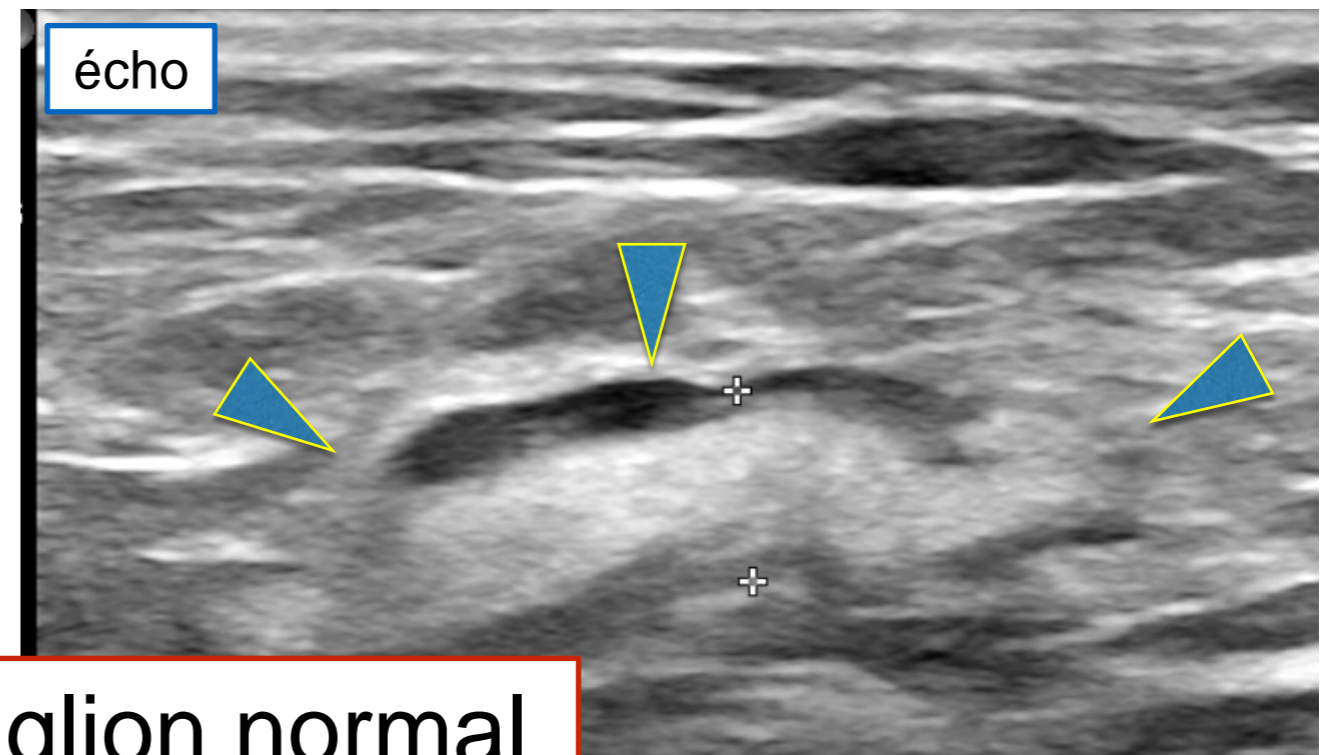
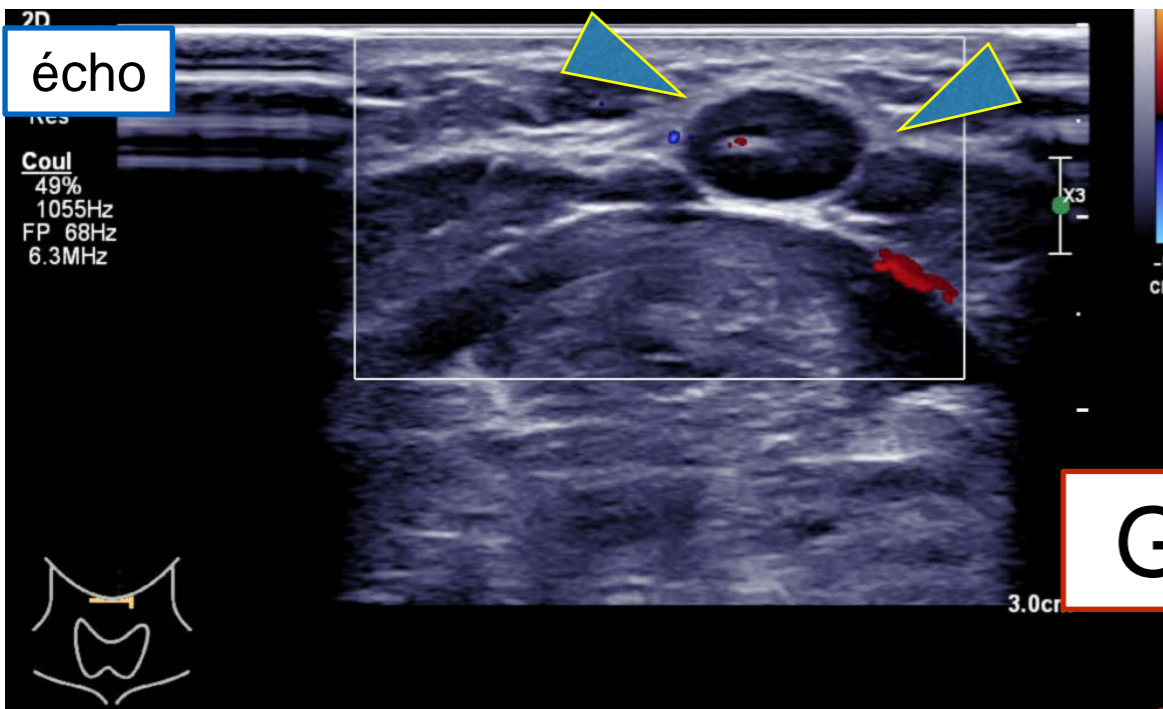
Fig. 3. The main lymph vessels of the human body

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

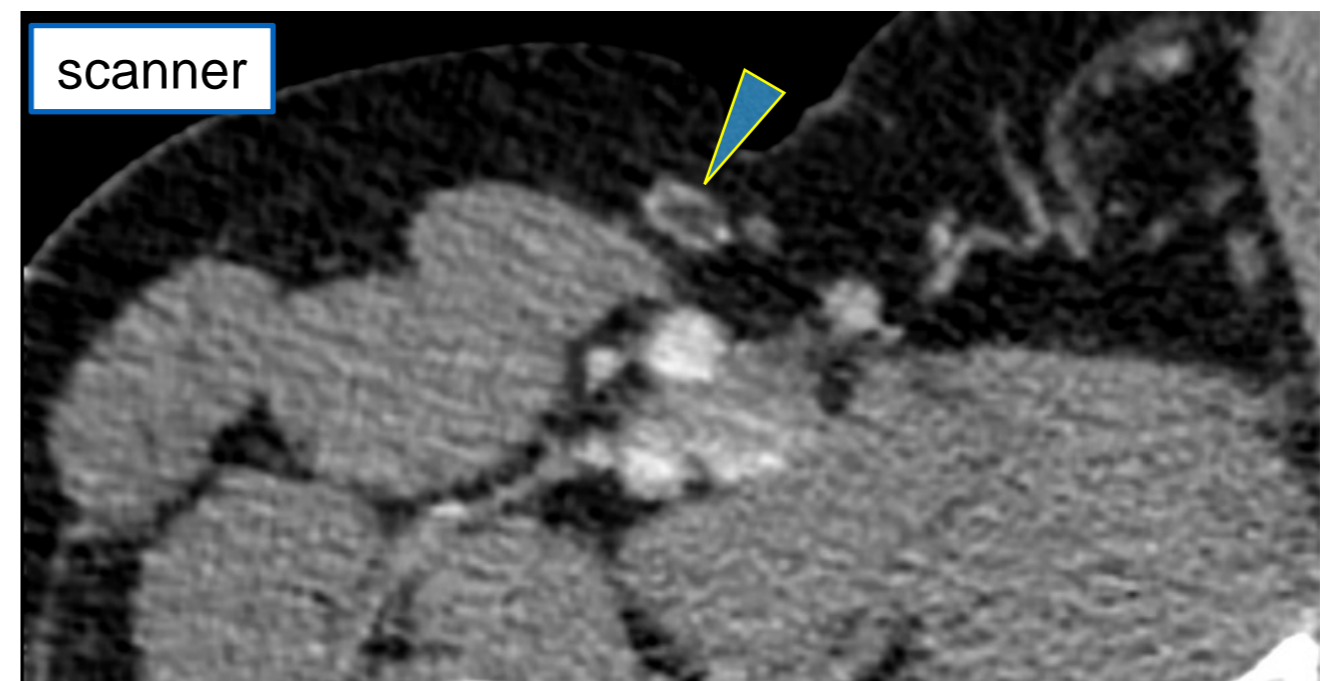
5 Cisterna chyli
6 Intestinal trunks
7 Lumbar trunk

Richter & Feyerabend
1991

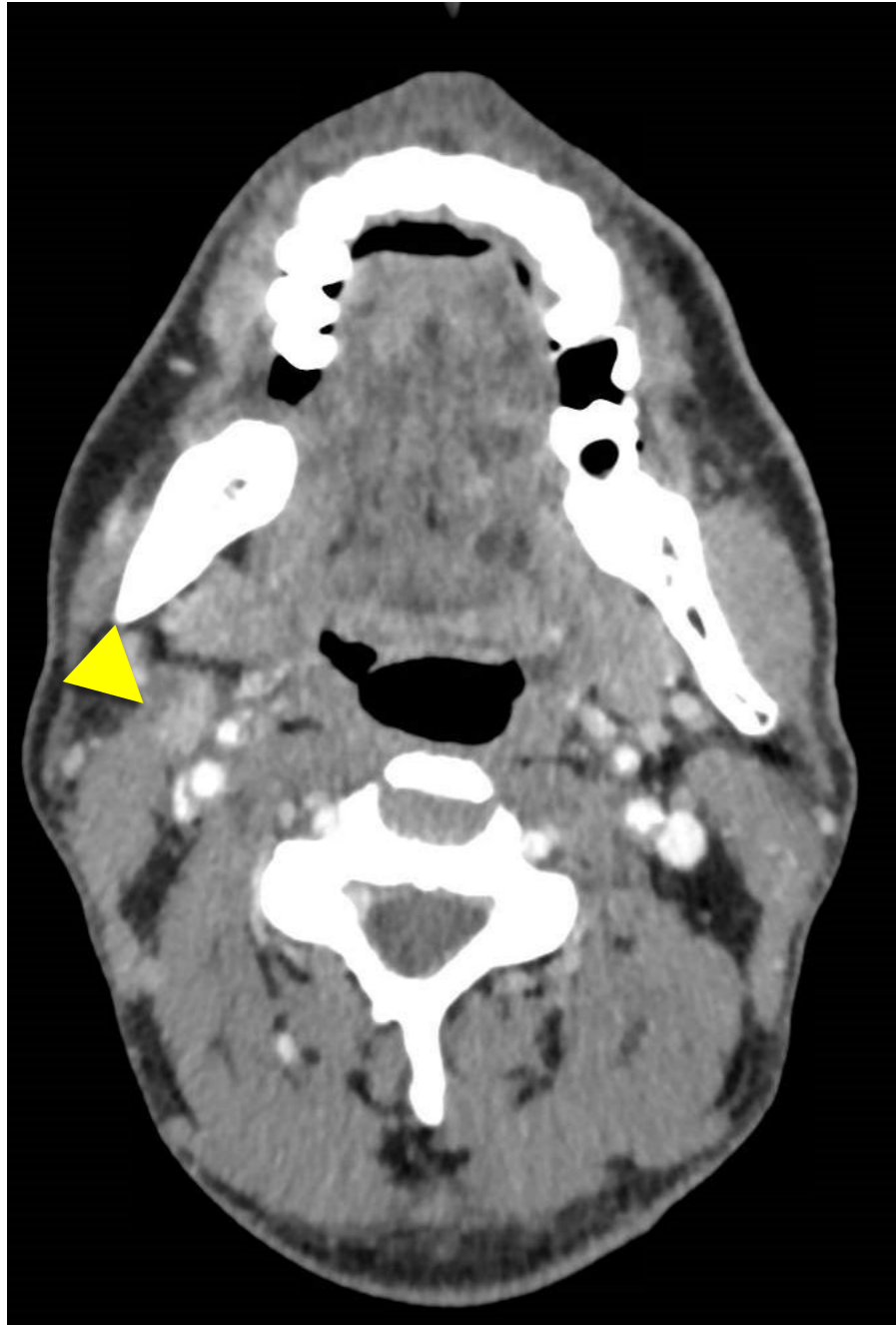
Imagerie des voies lymphatiques



Ganglion normal



- ECHO, CT, IRM
- (Lymphographie)



Ganglion normal,
région cervicale

Ahuja and Ying

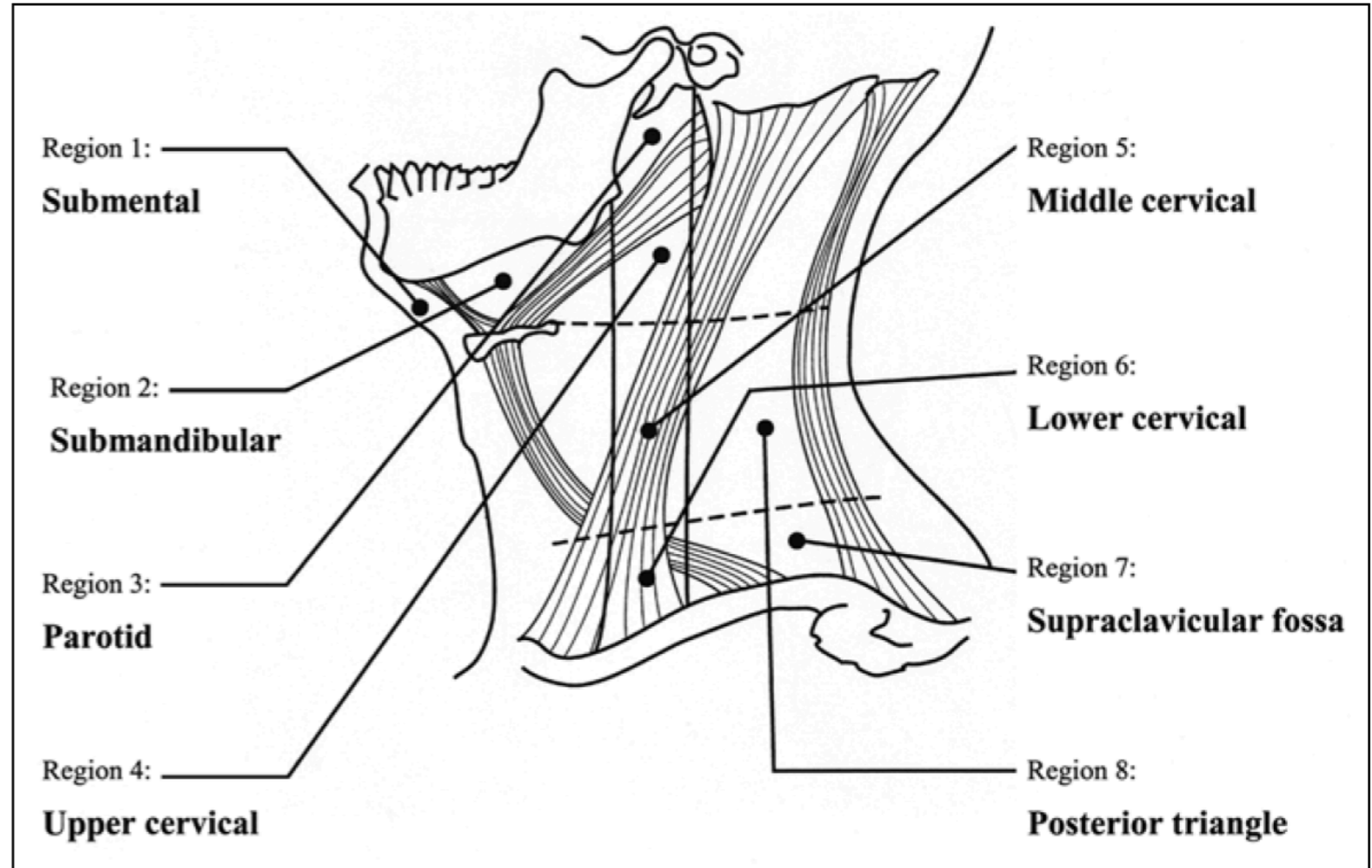
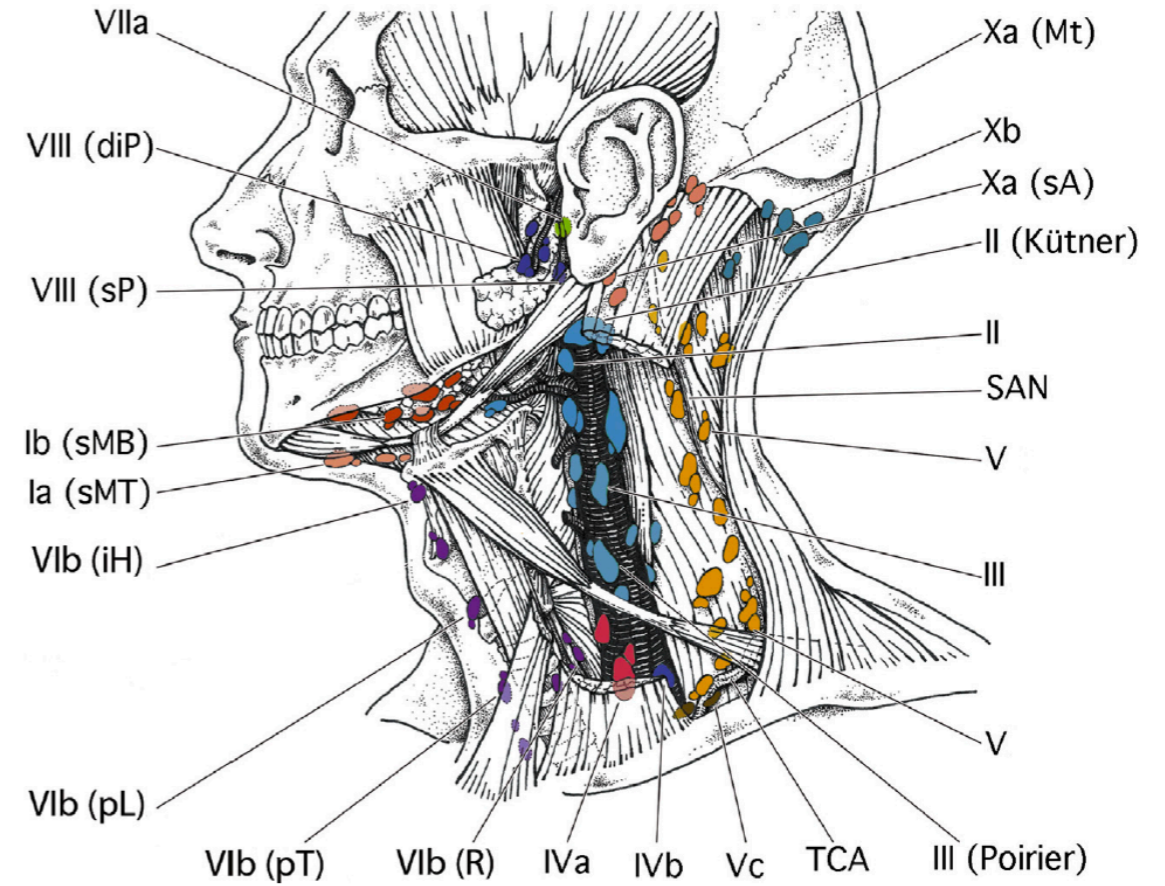
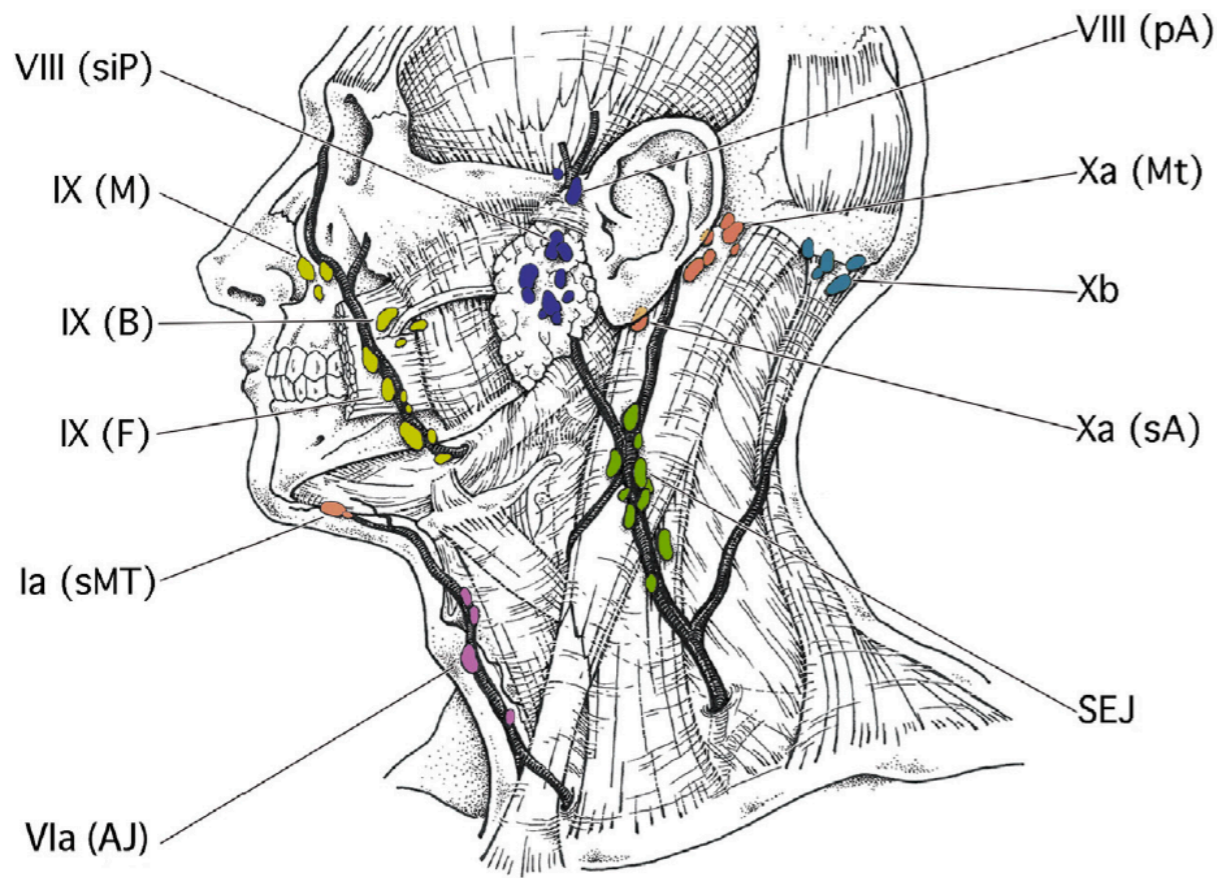


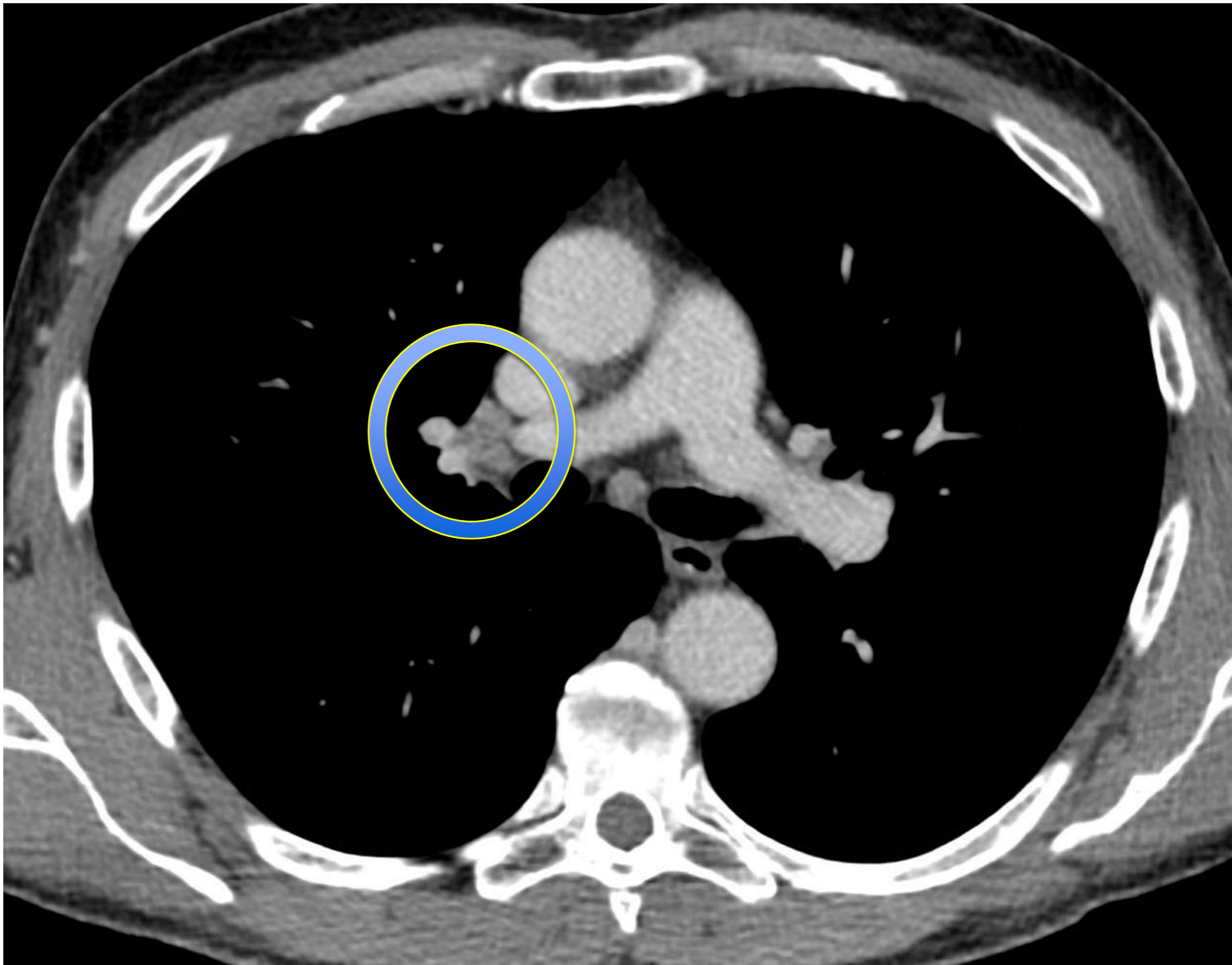
Fig. 1.—Schematic diagram of neck shows classification of cervical lymph nodes in sonography examinations.



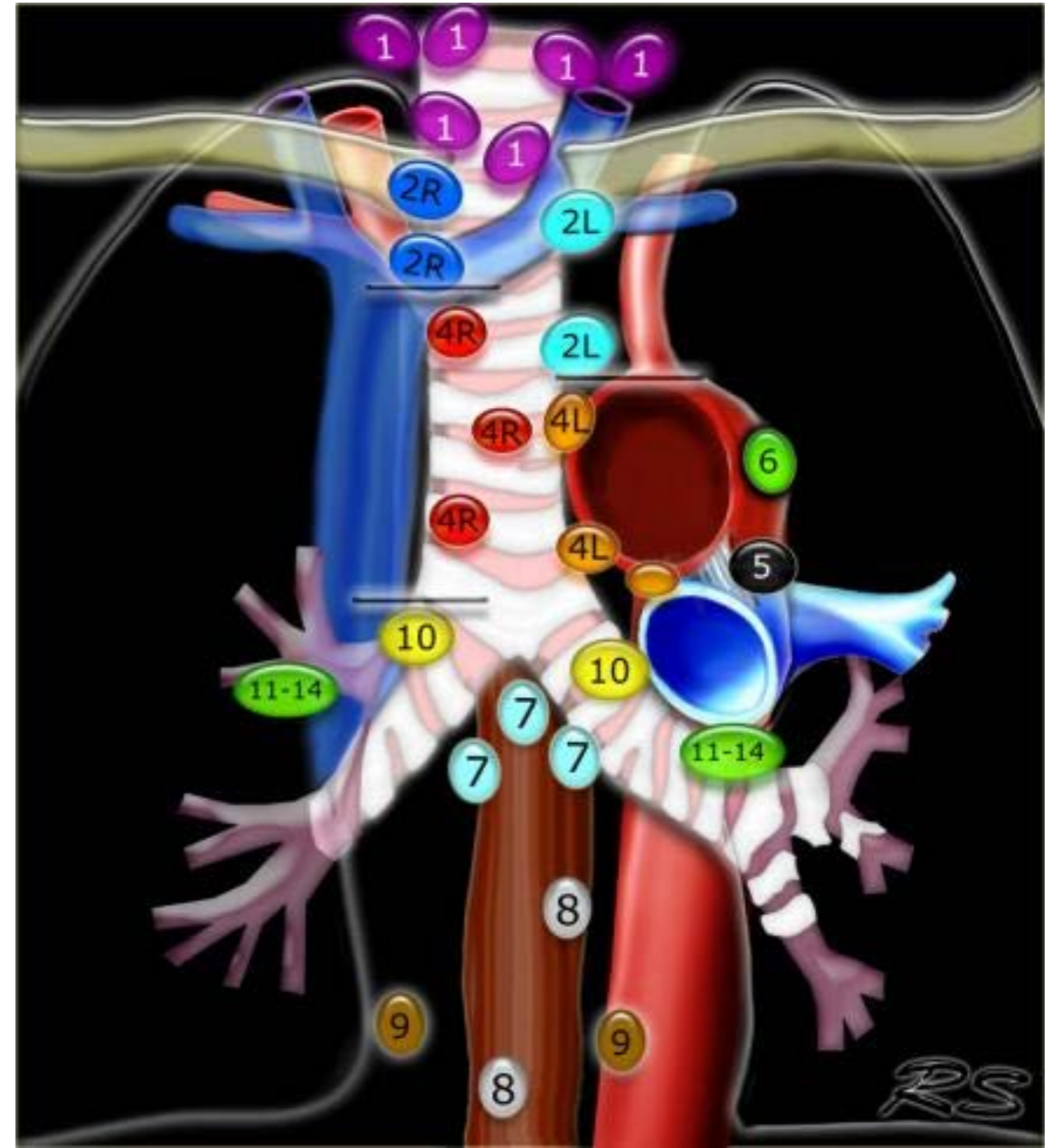
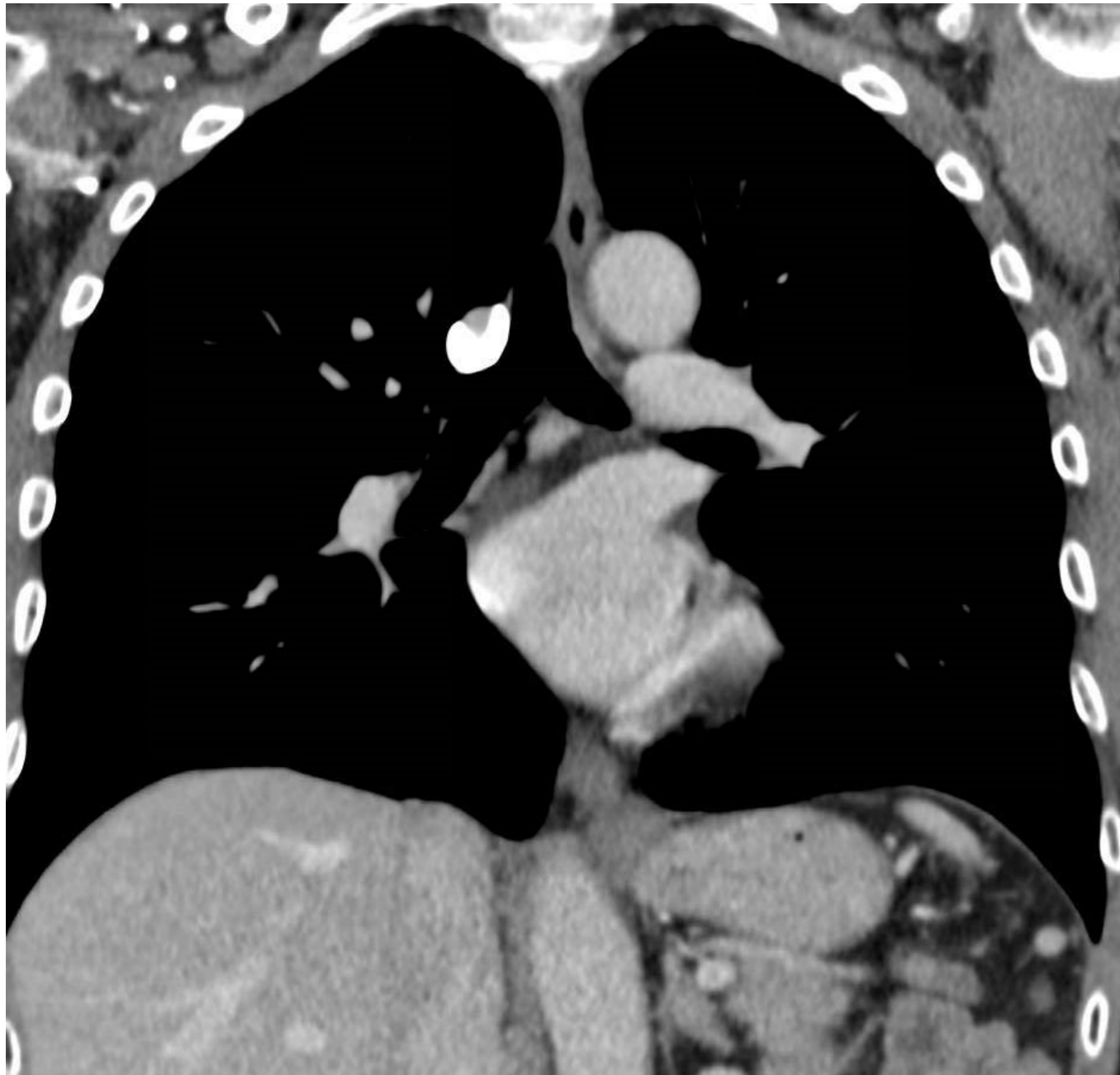
Original article

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

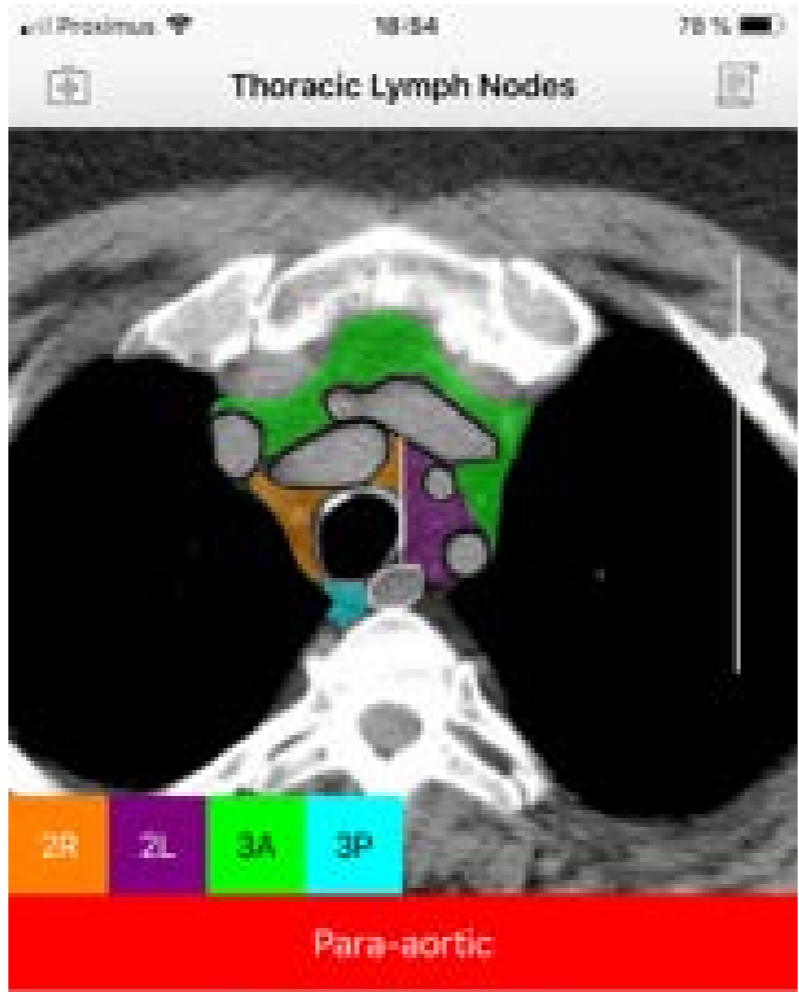
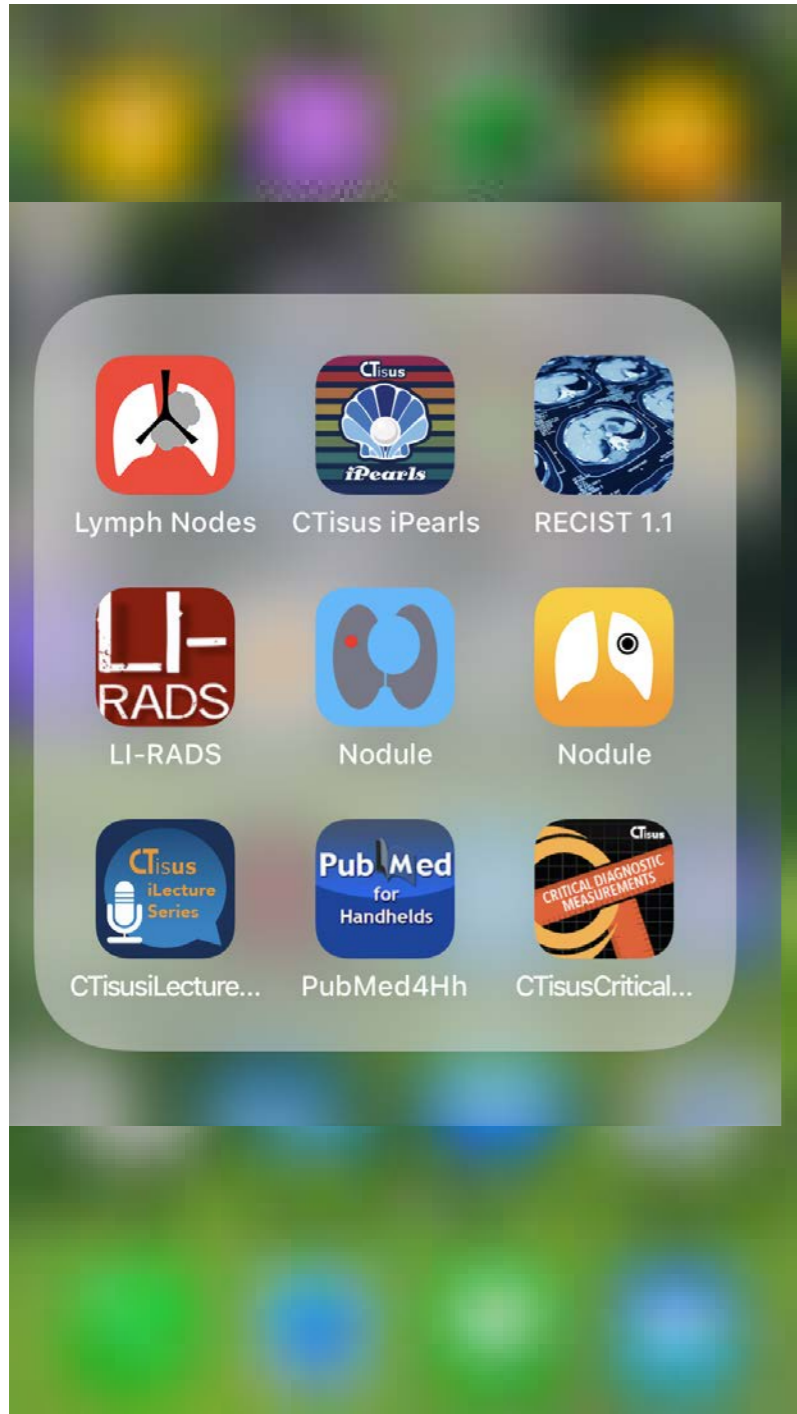
Vincent Grégoire ^{a,*}, Kian Ang ^b, Wilfried Budach ^c, Cai Grau ^d, Marc Hamoir ^e, Johannes A. Langendijk ^f, Anne Lee ^g, Quynh-Thu Le ^{h,i}, Philippe Maingon ^j, Chris Nutting ^k, Brian O'Sullivan ^l, Sandro V. Porceddu ^m, Benoit Lengele ⁿ



Ganglion thoracique, hile droit



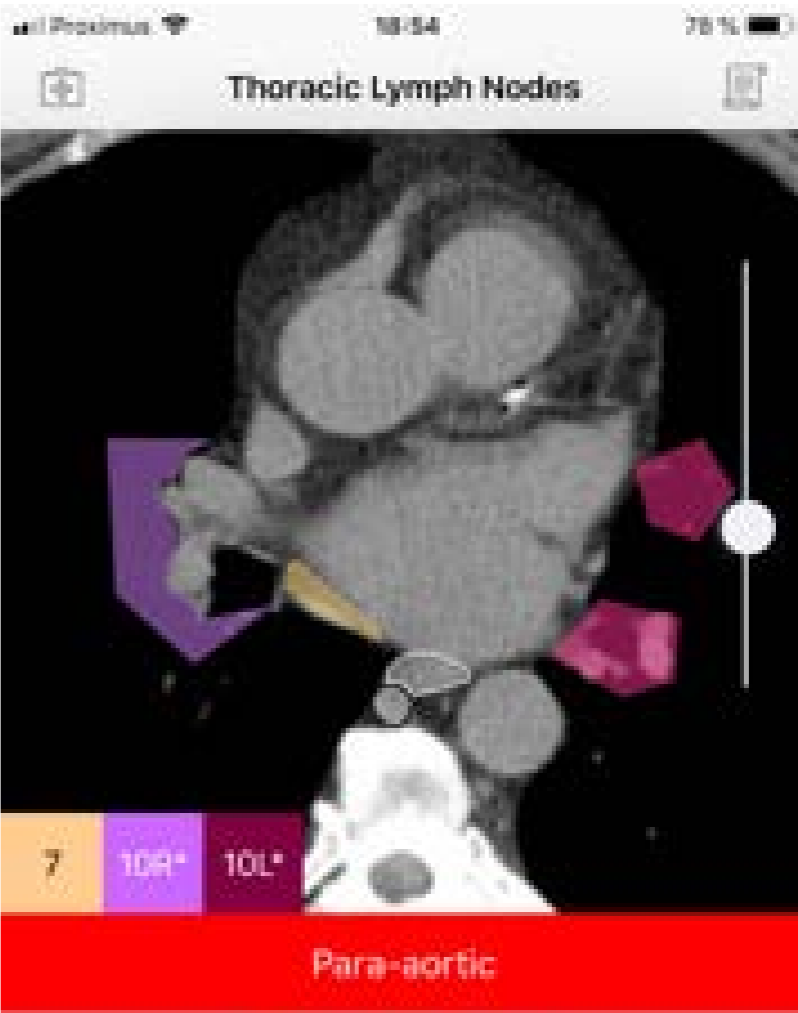
<https://radiologyassistant.nl/>



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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 - Left video-assisted thoracoscopic surgery (VATS).

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

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

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

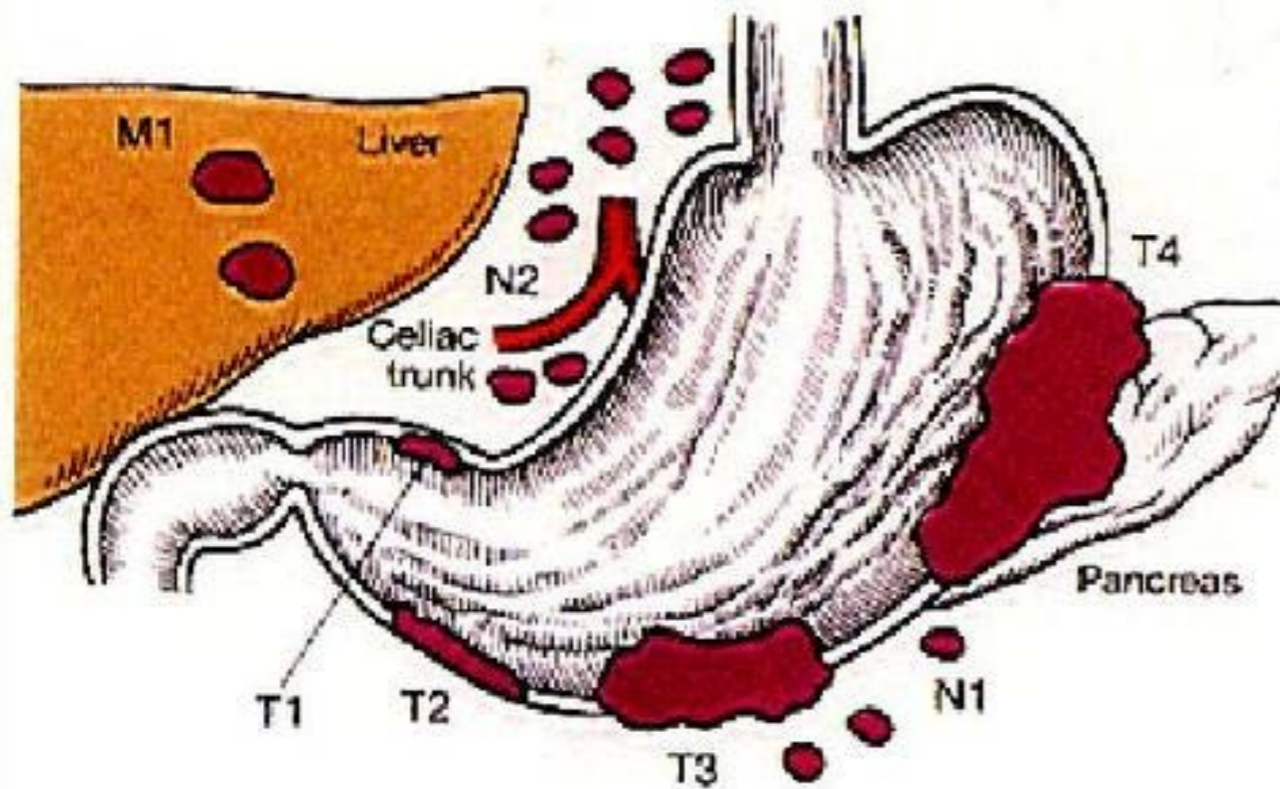
D. M. Koh, M. Hughes, J. E. Husband

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



Petit axe

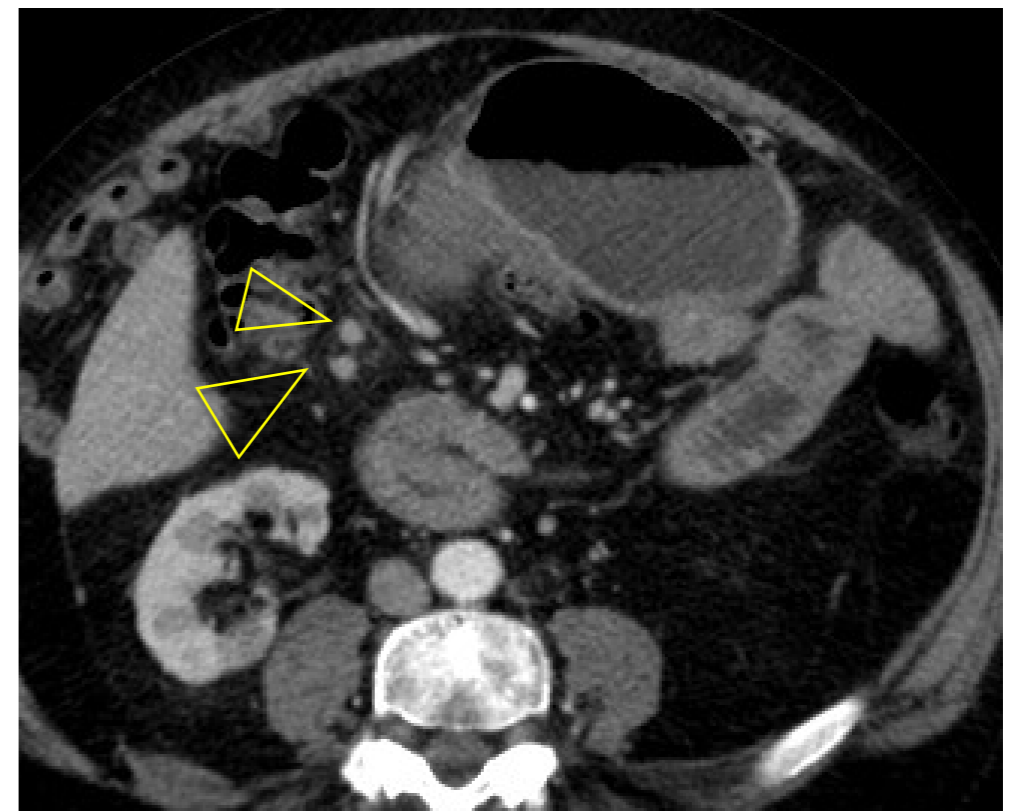
Ganglions péri-gastriques

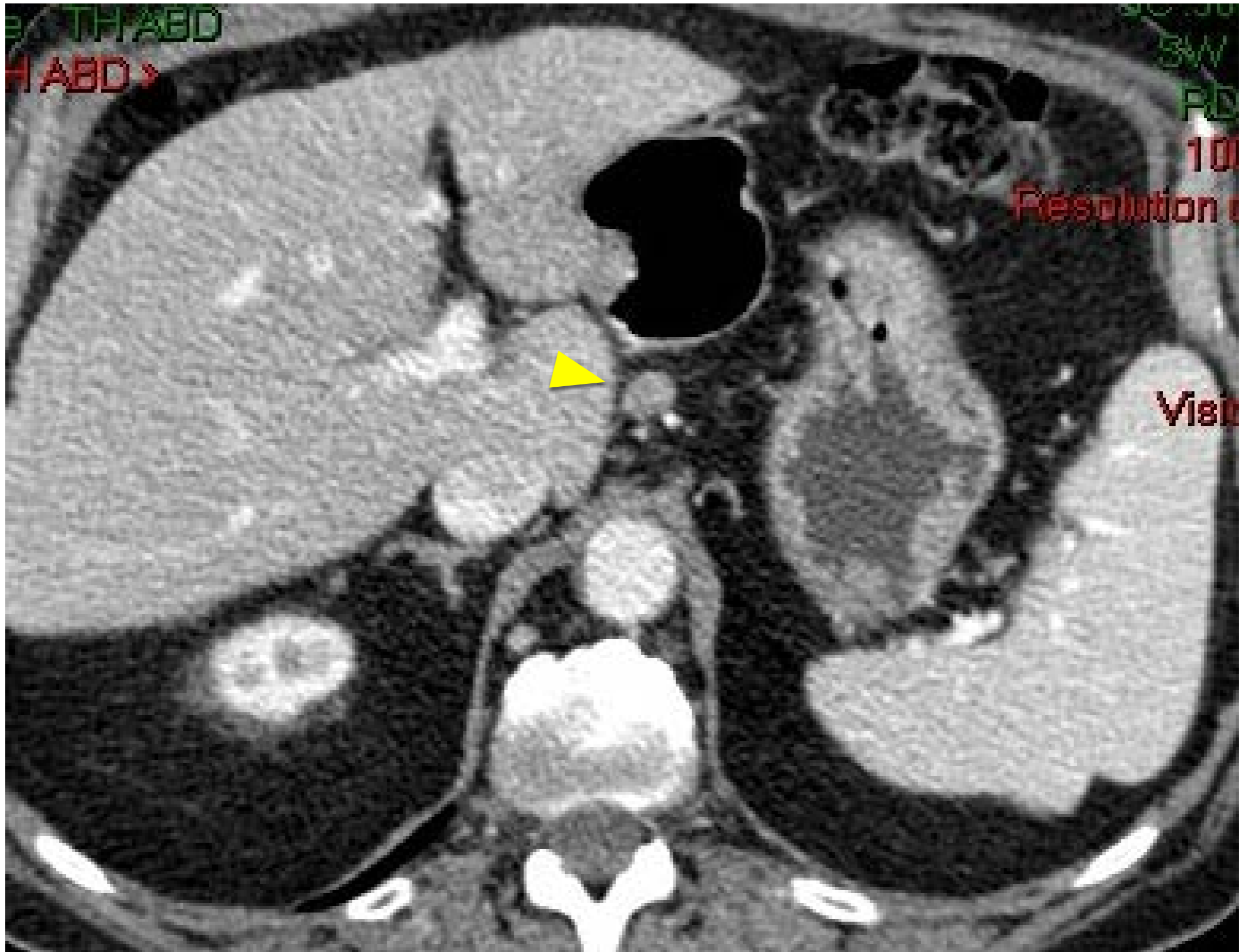


Medscape ®

<http://www.medscape.com>

Ganglions abdominaux





Ganglion coeliaque



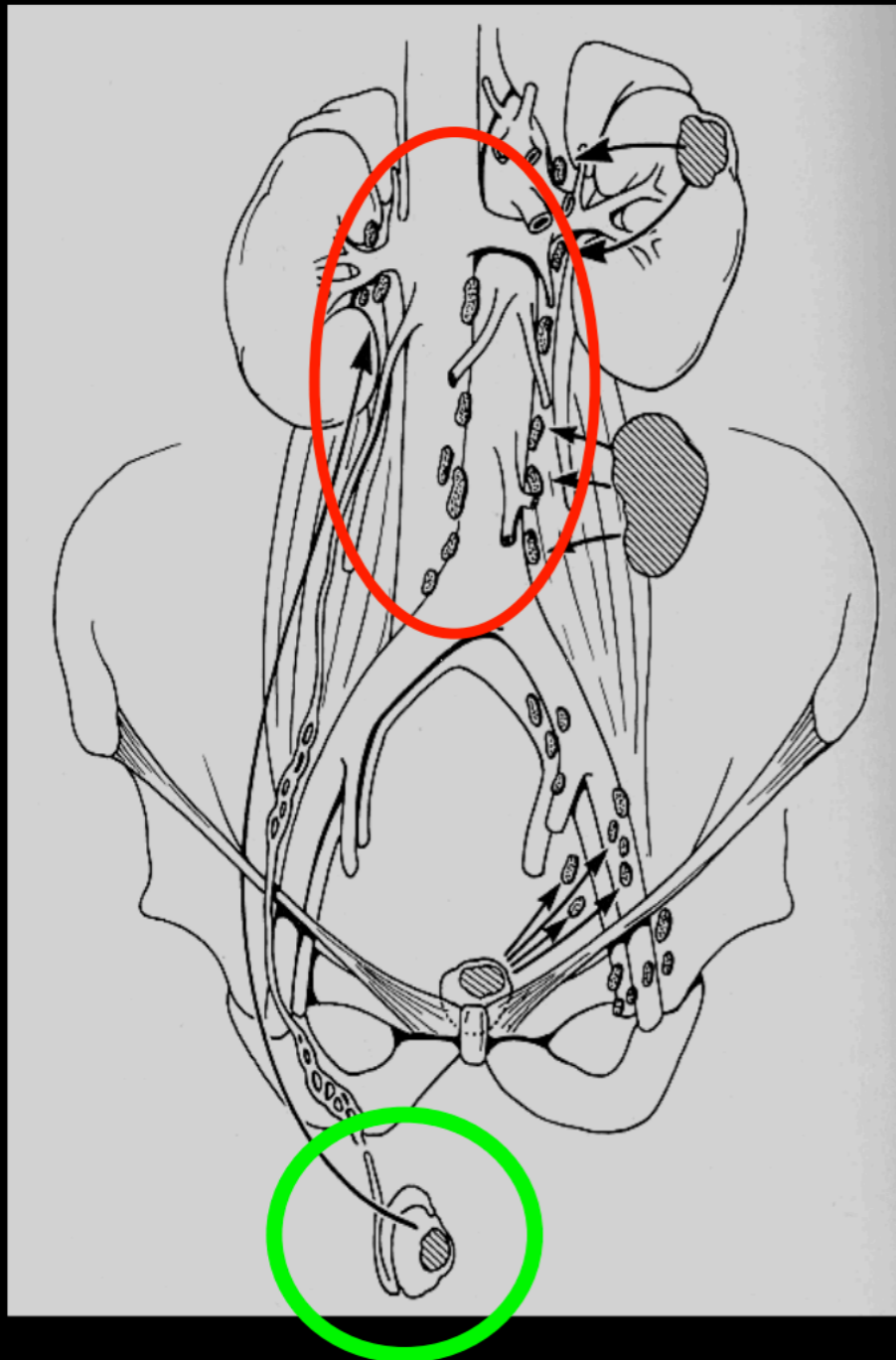
Ganglion coeliaque

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 +++

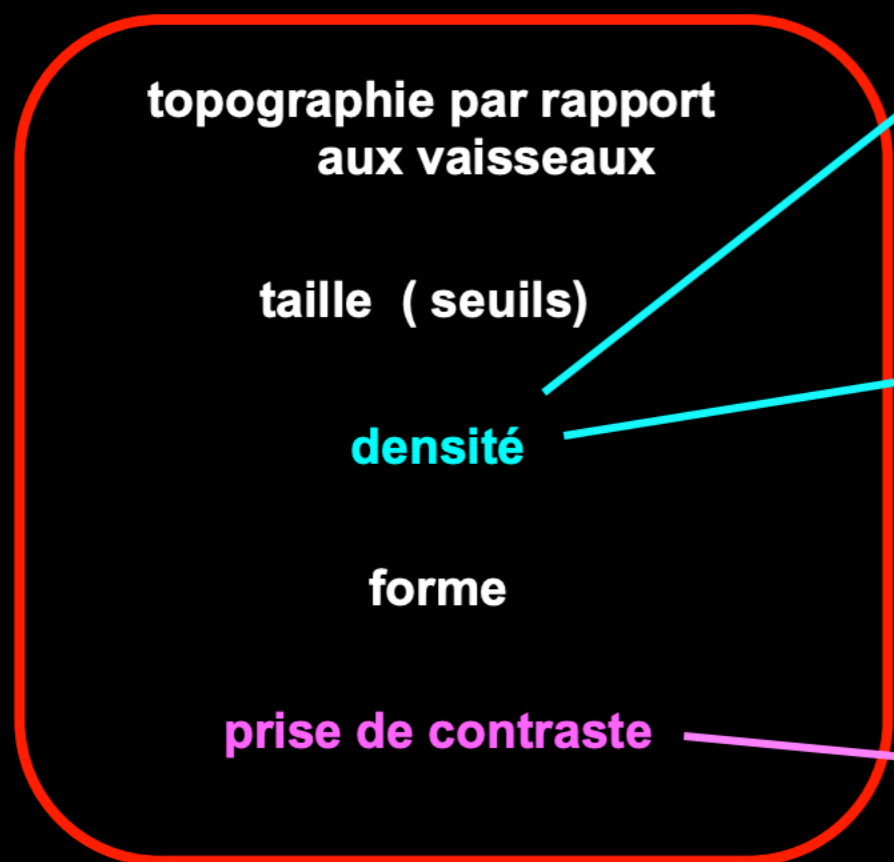
**drainage para
aortique**

**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 chez 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)



calcifications

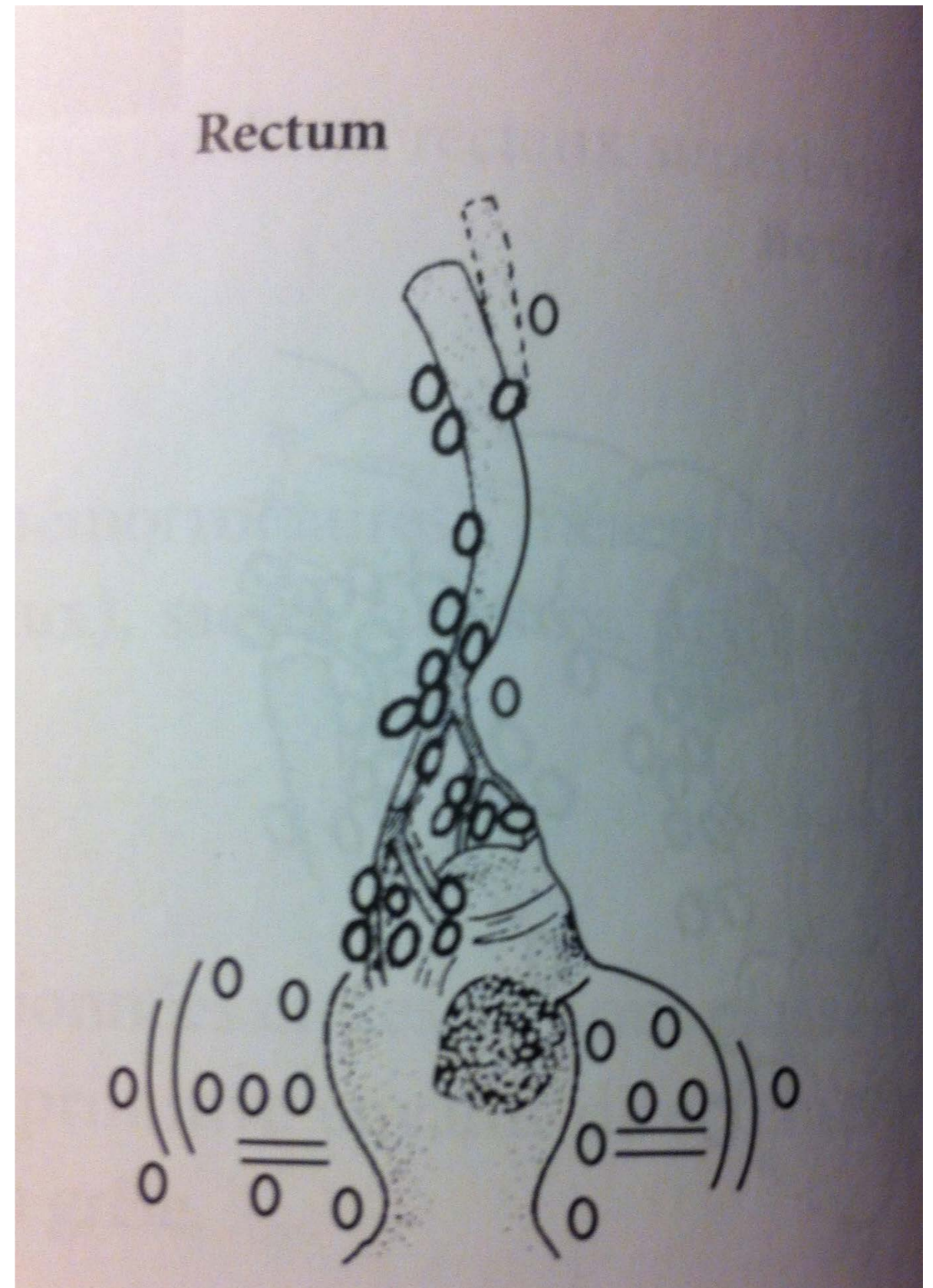
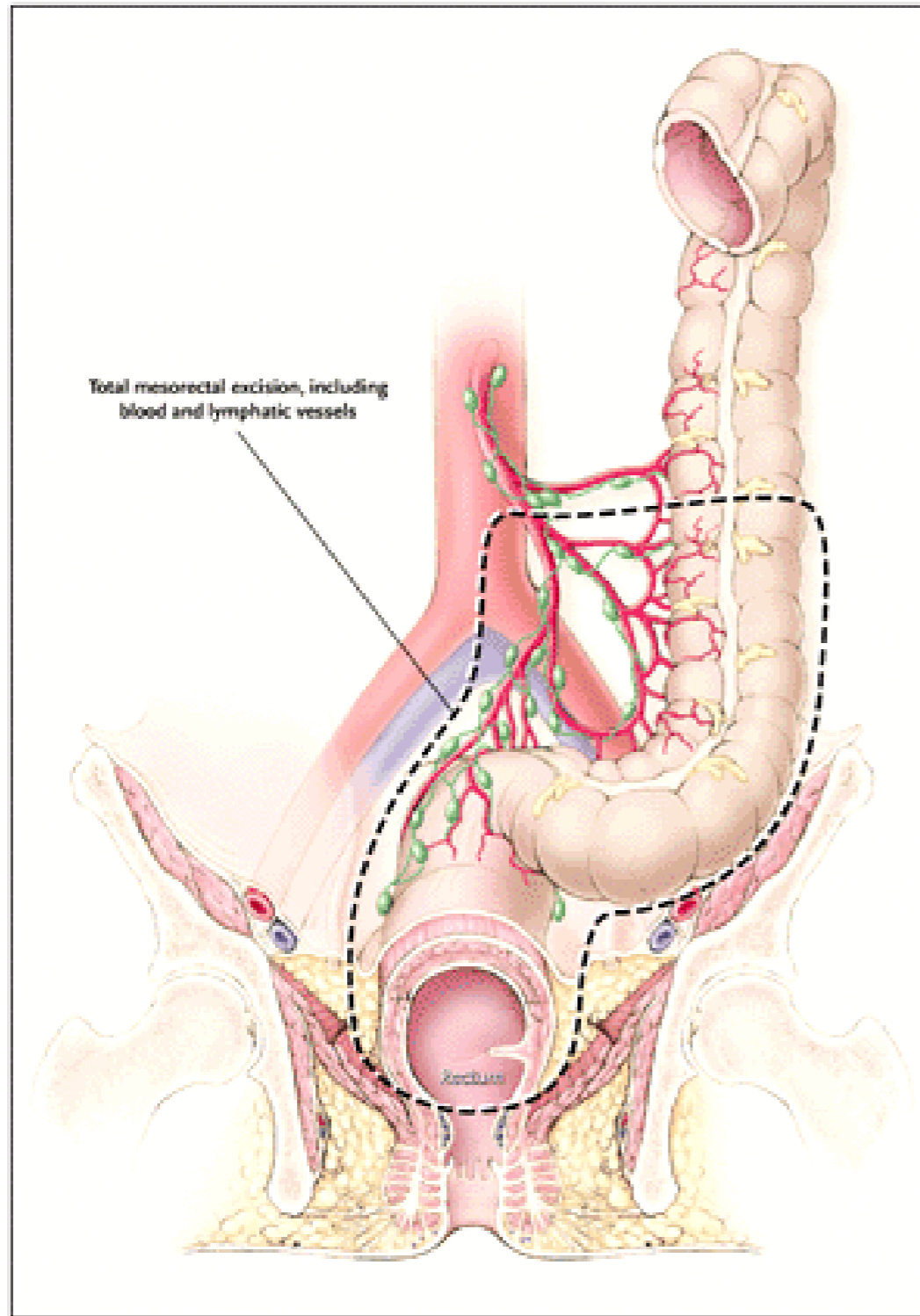
ganglions inflammatoires
cancers mucineux
cancers ovariens
sarcomes
cancers traités
amylose +

hypodensité

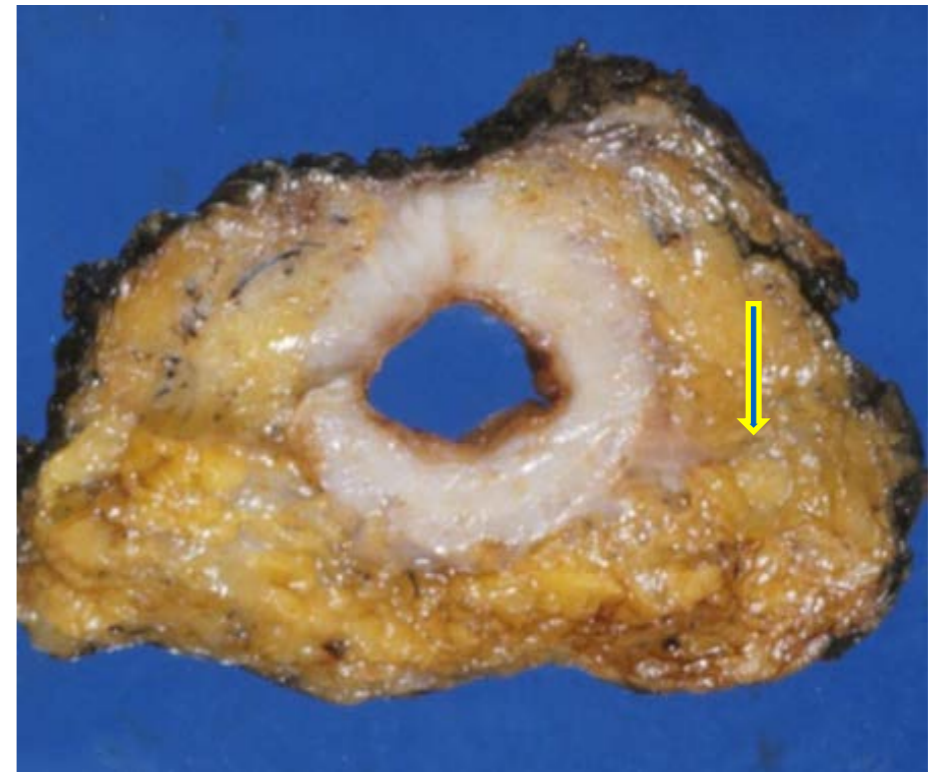
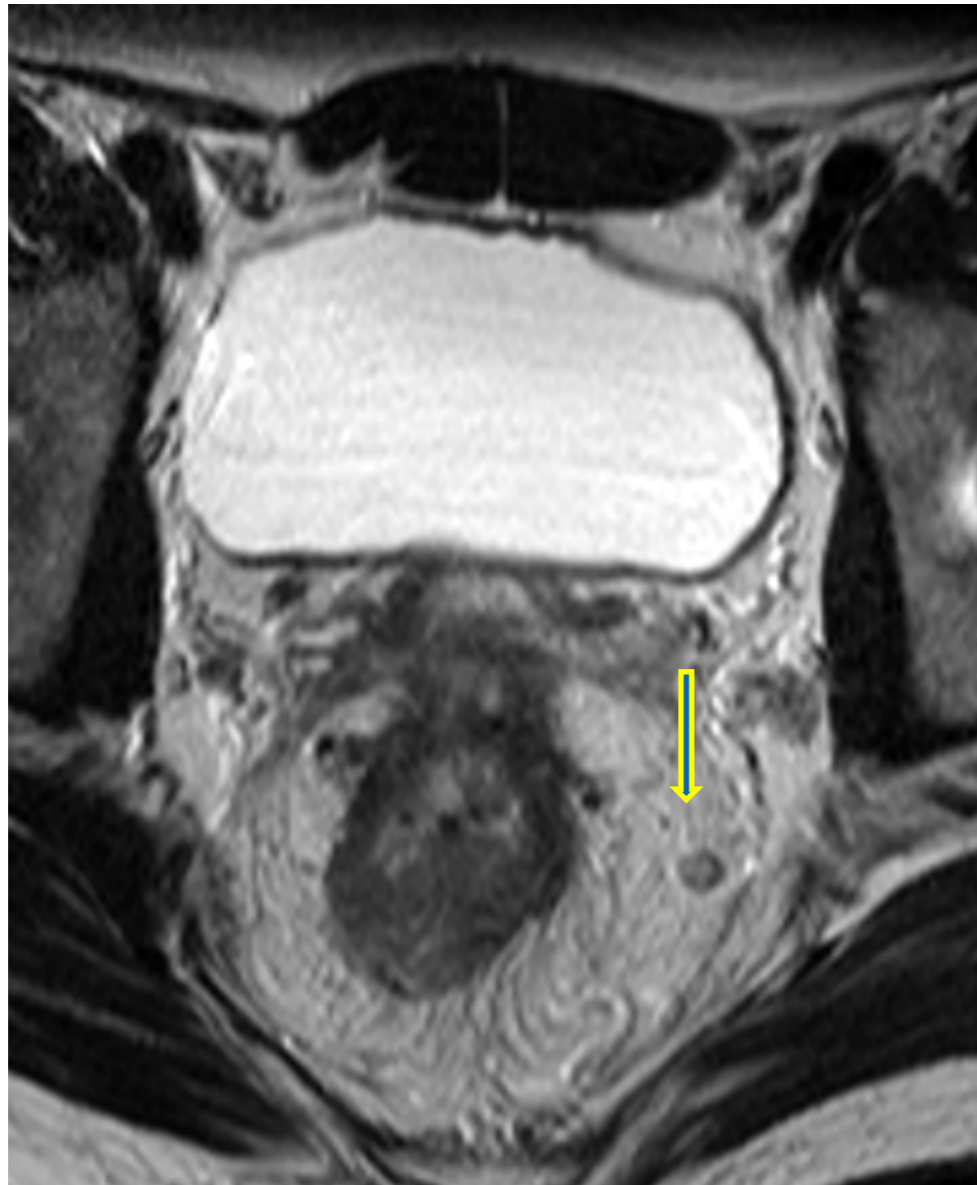
tuberculose (et MAC)
tumeurs non séminomateuses
carcinomes épidermoïdes et génito-urinaires
lymphomes de haut grade
maladie de Whipple

prise de contraste

maladie de Castelman
cancers du rein, de la thyroïde
mts de paragangliomes ou de phéo
lymphomes de haut grade



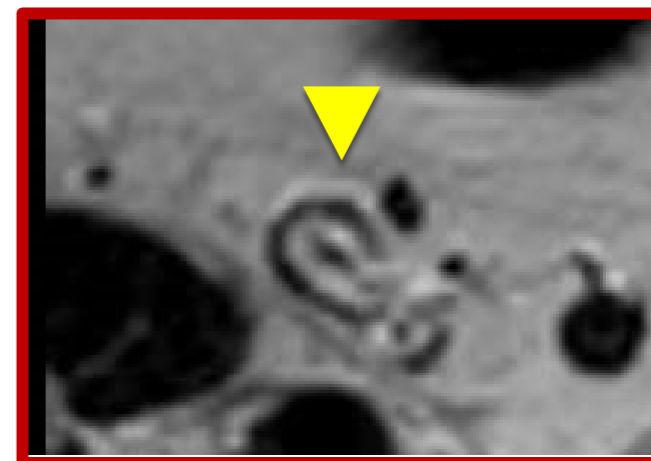
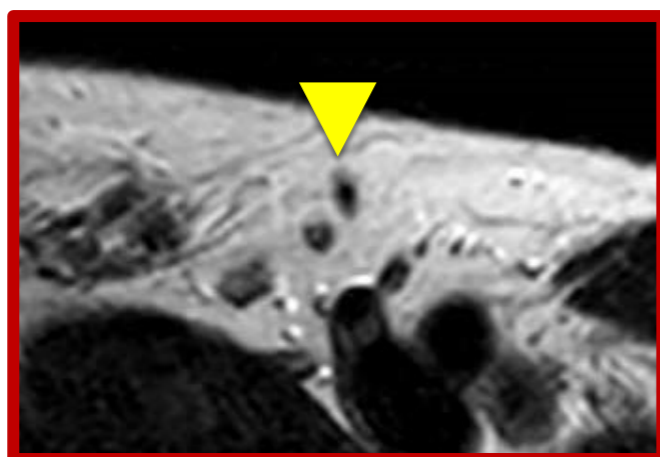
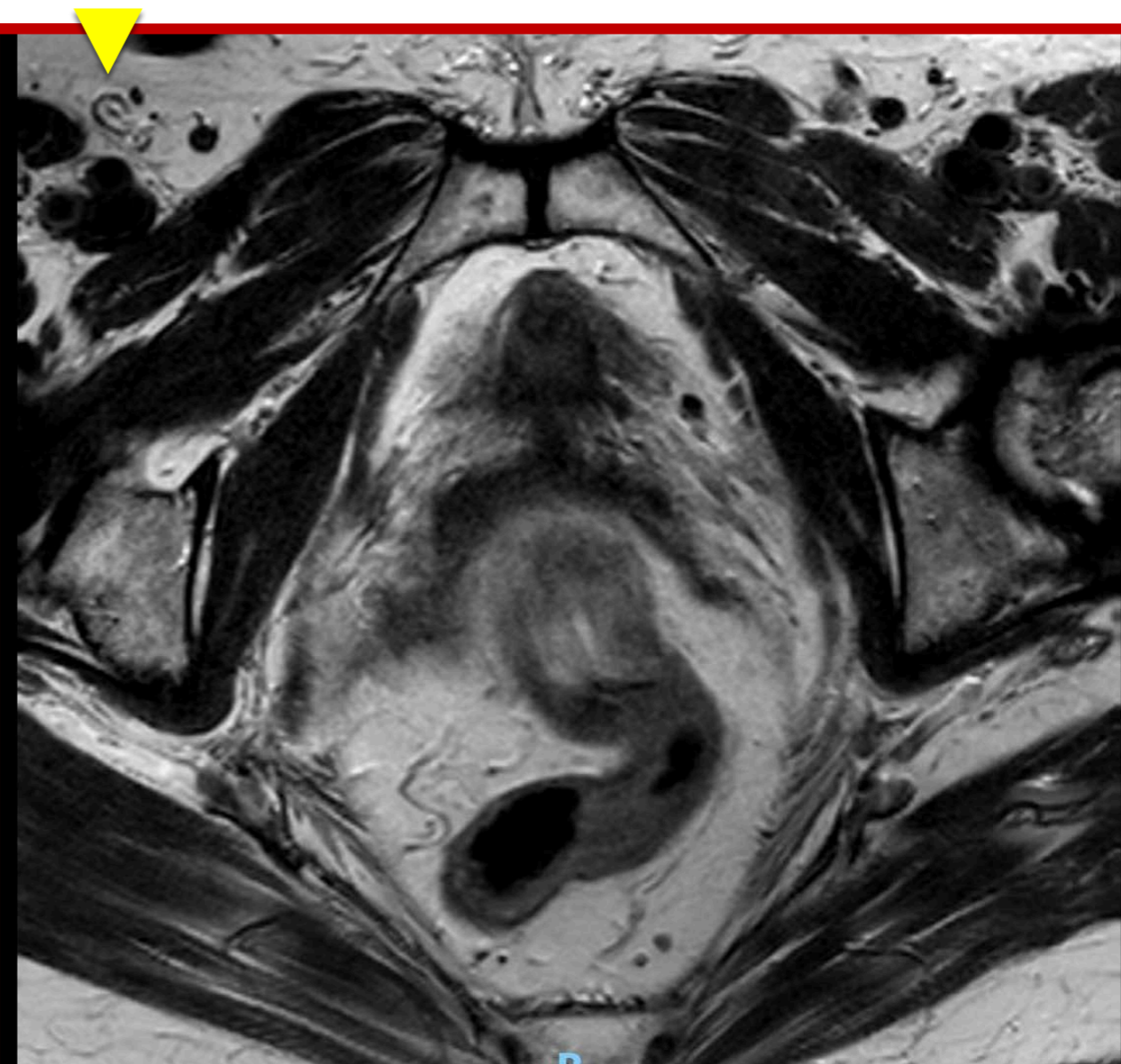
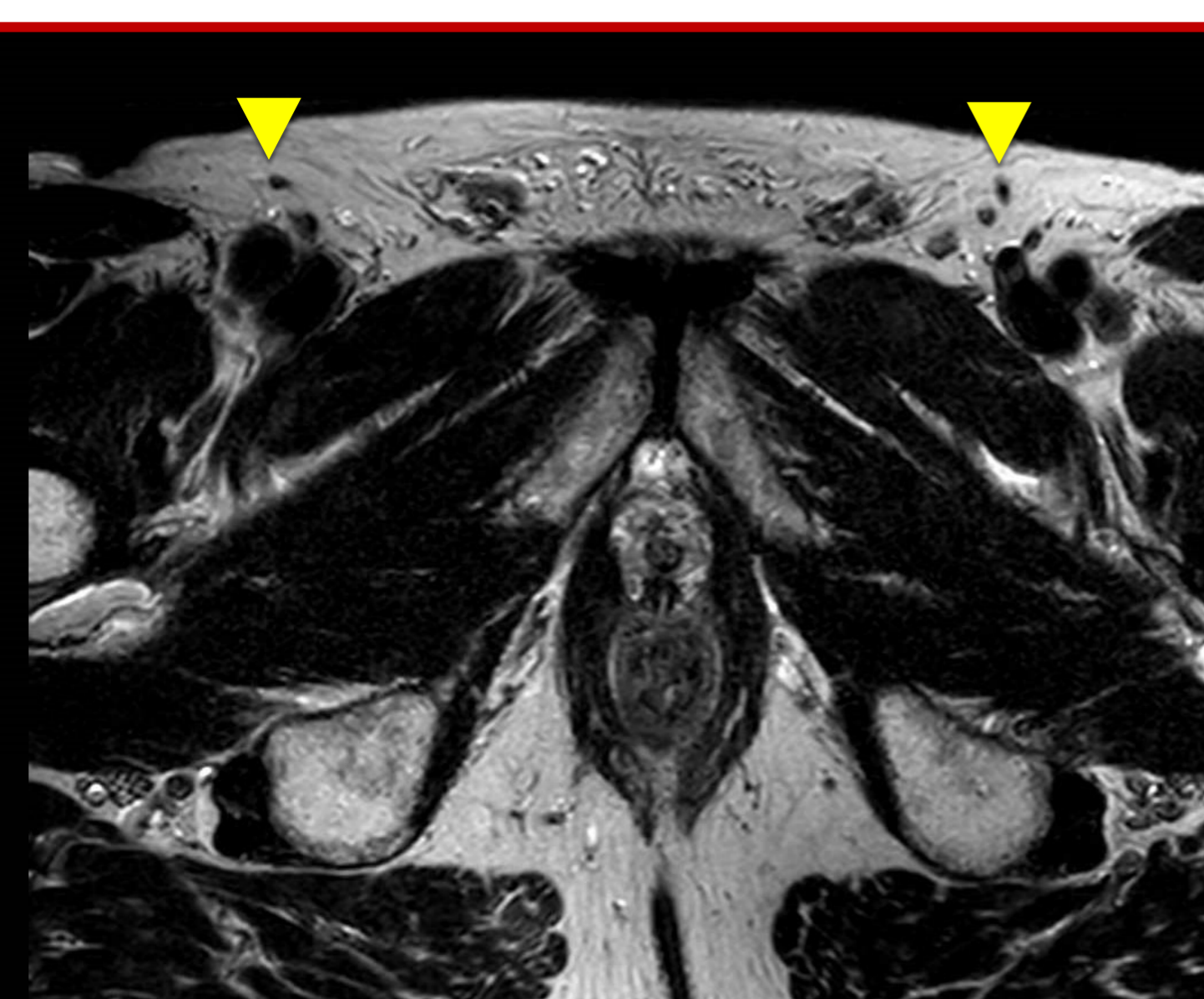
Ganglion dans le méso rectum, IRM



ypT3N2 marge 1 mm

Case 14

Ganglions inguinaux , IRM



Imagerie des vaisseaux



