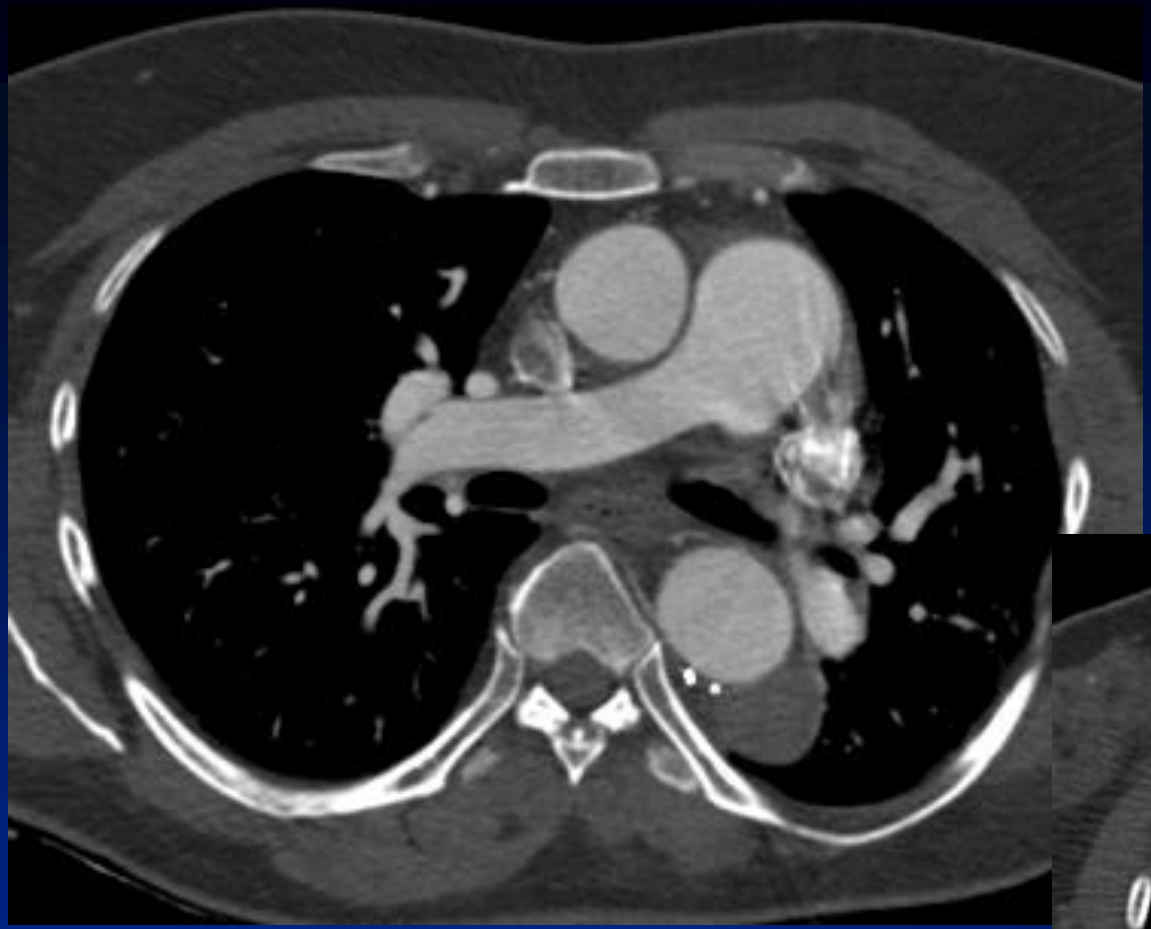
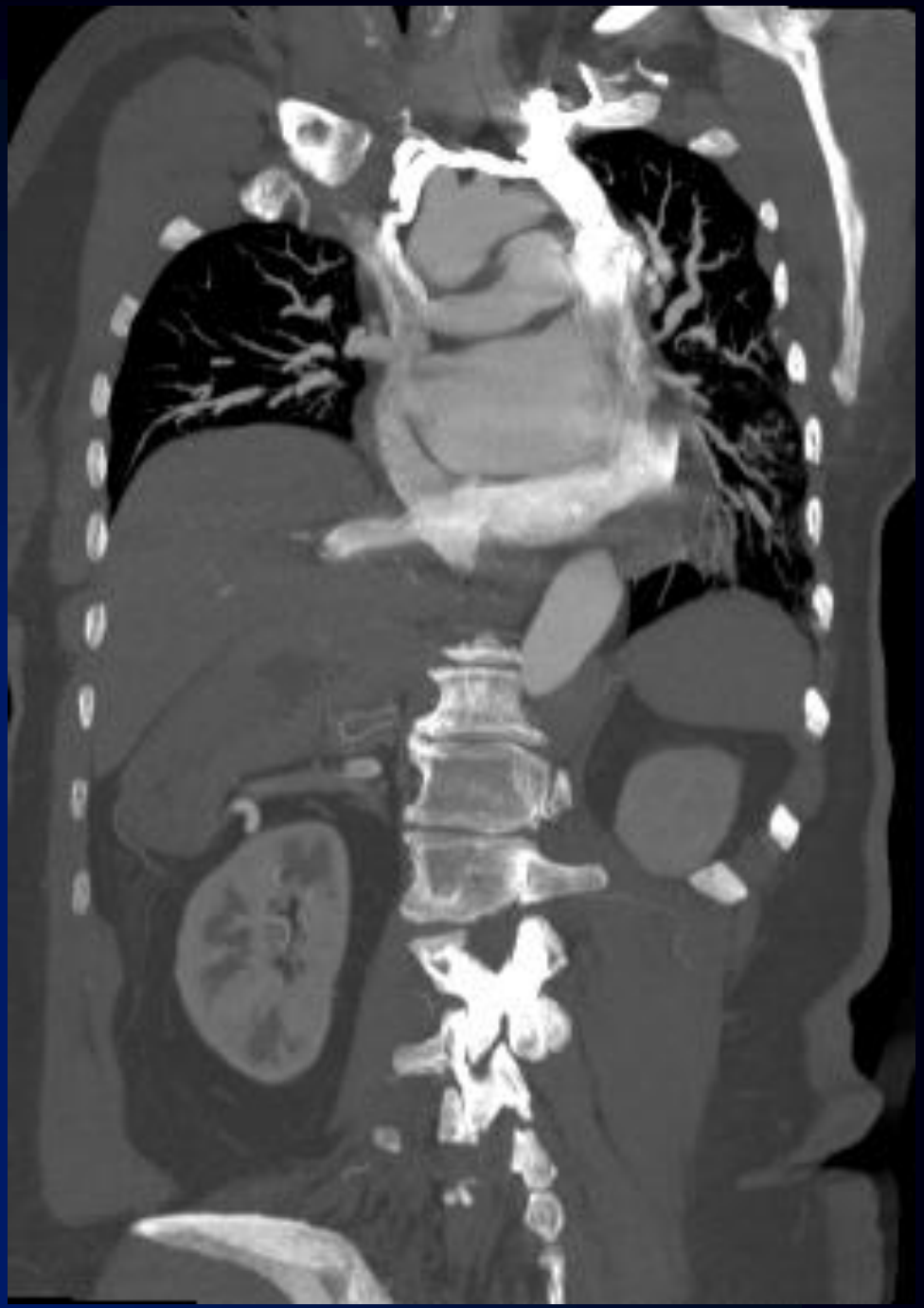
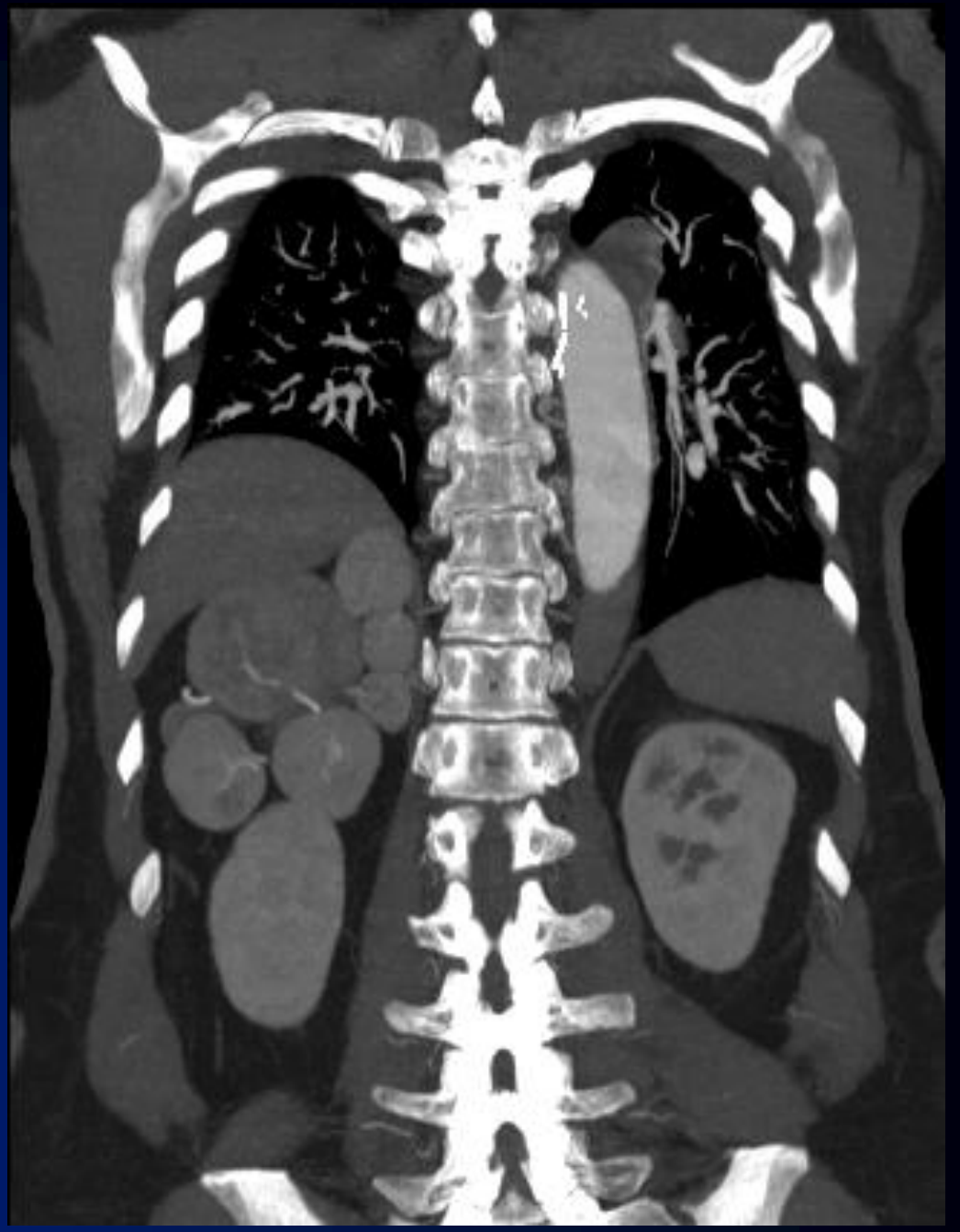
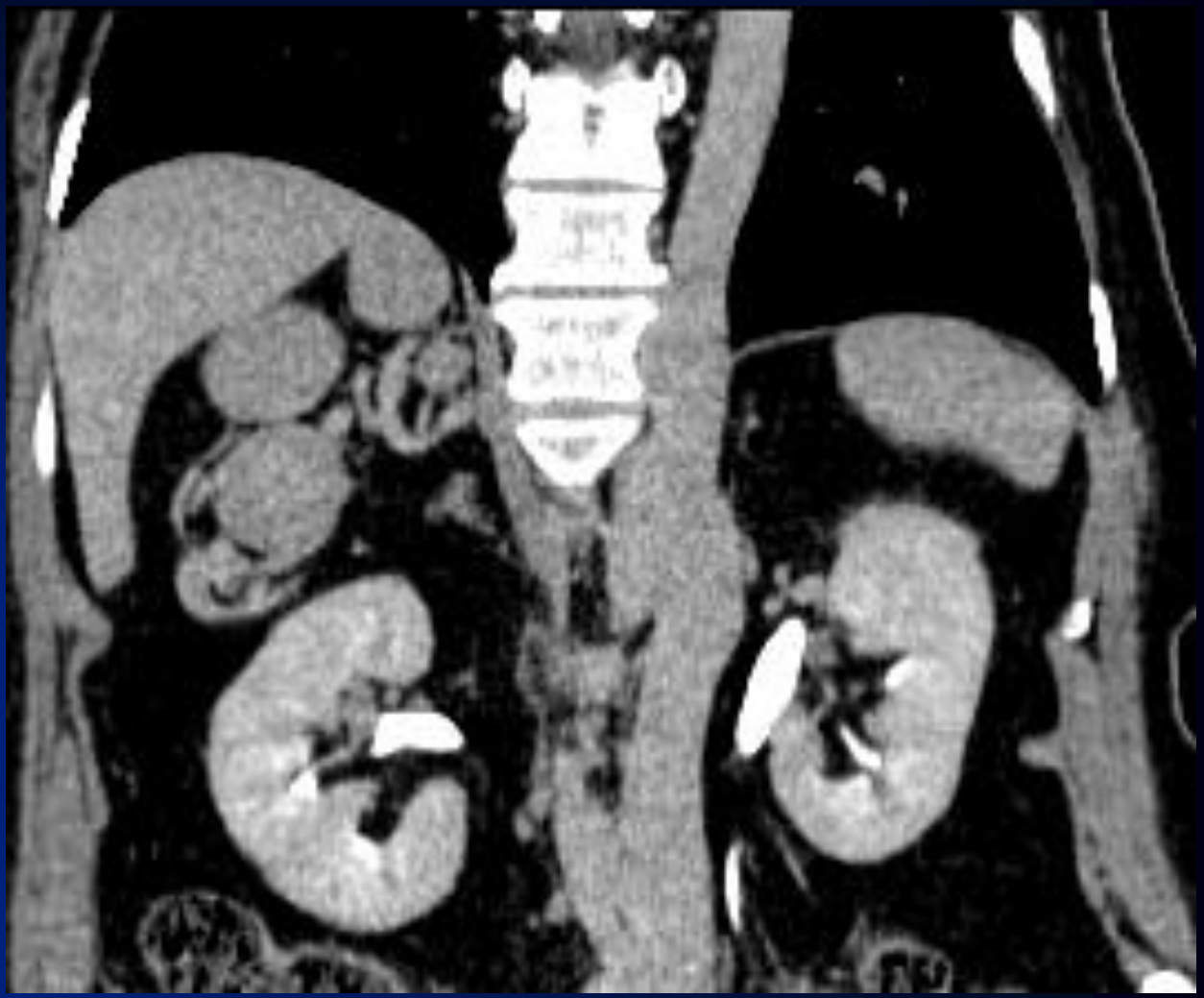
M EL HAJJAM
S DREMATCHEFF
P LACOMBE

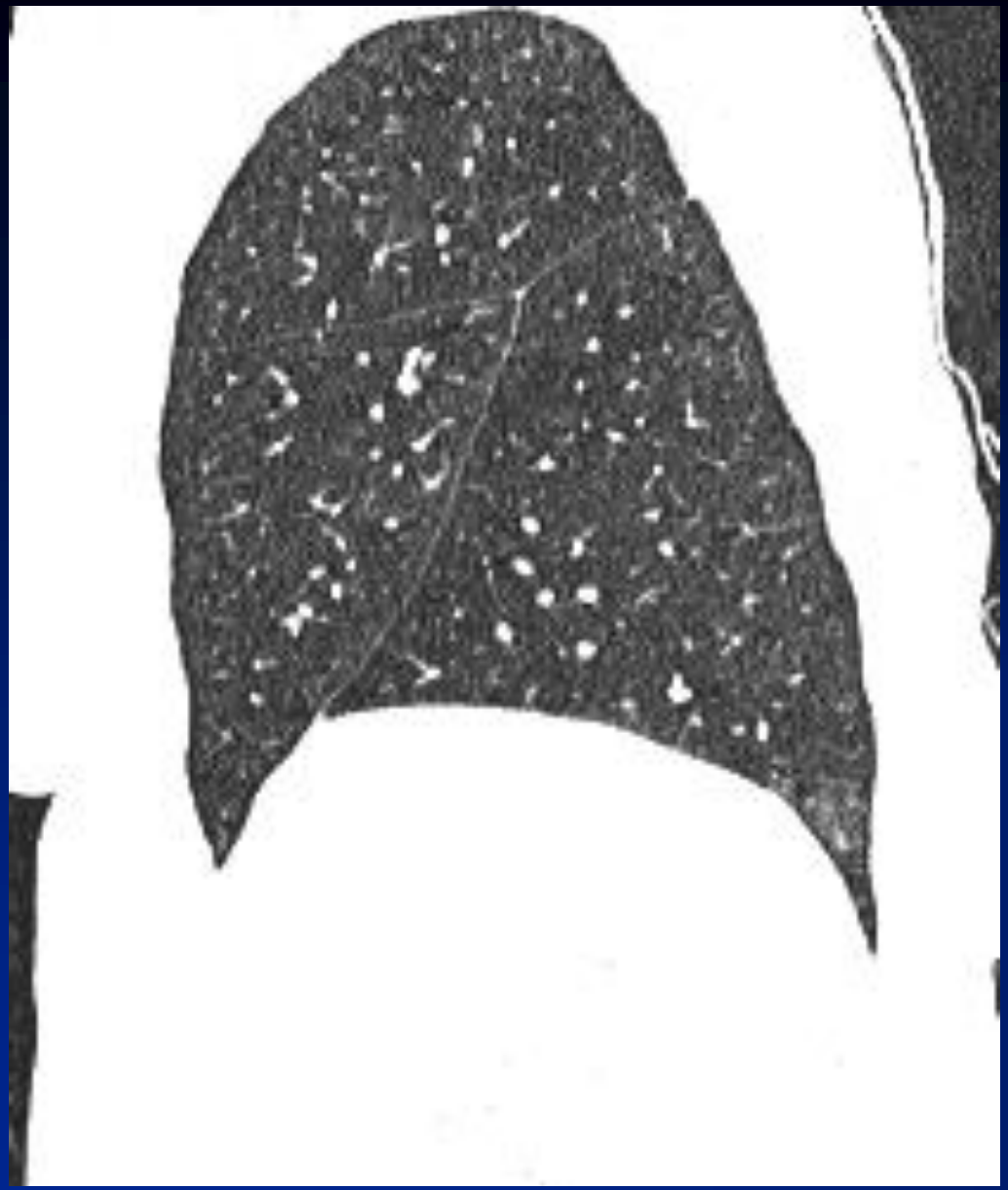
- Patiente de 63 ans
- Douleurs thoraciques

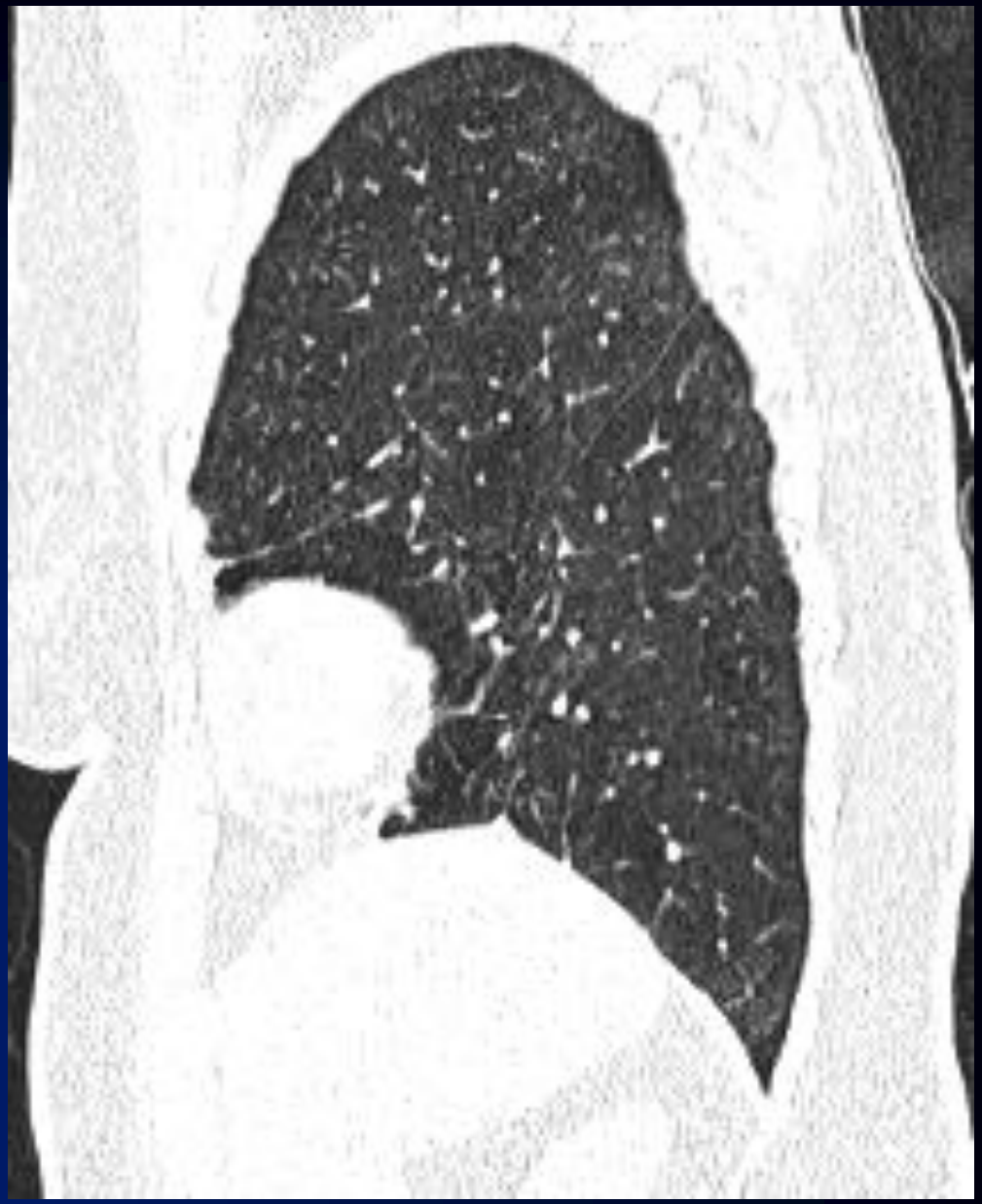












- Droit

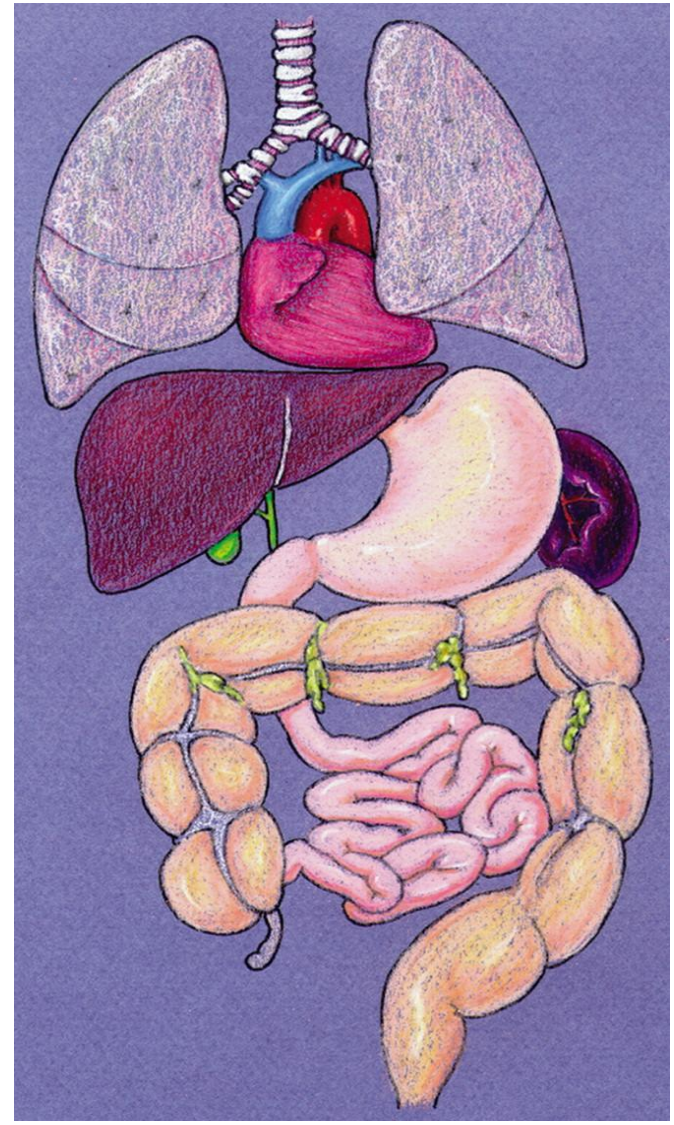
- Gauche

Diagnostic ?

Diagnostic

Situs ambiguous & Polysplénie

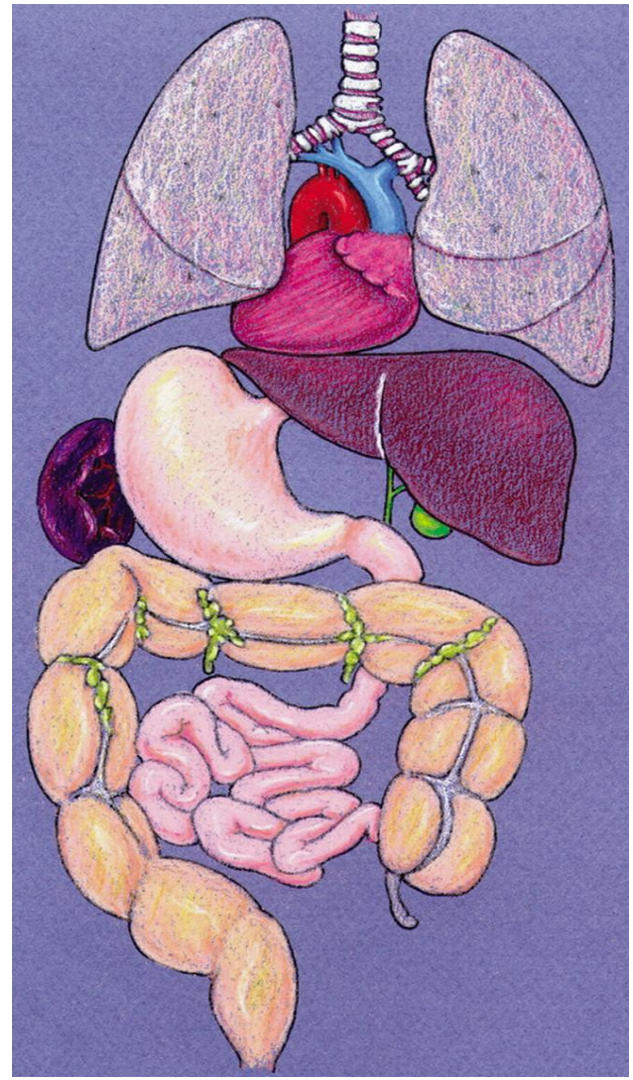
Drawing illustrates situs solitus



Fulcher A S , Turner M A Radiographics 2002;22:1439-1456

RadioGraphics

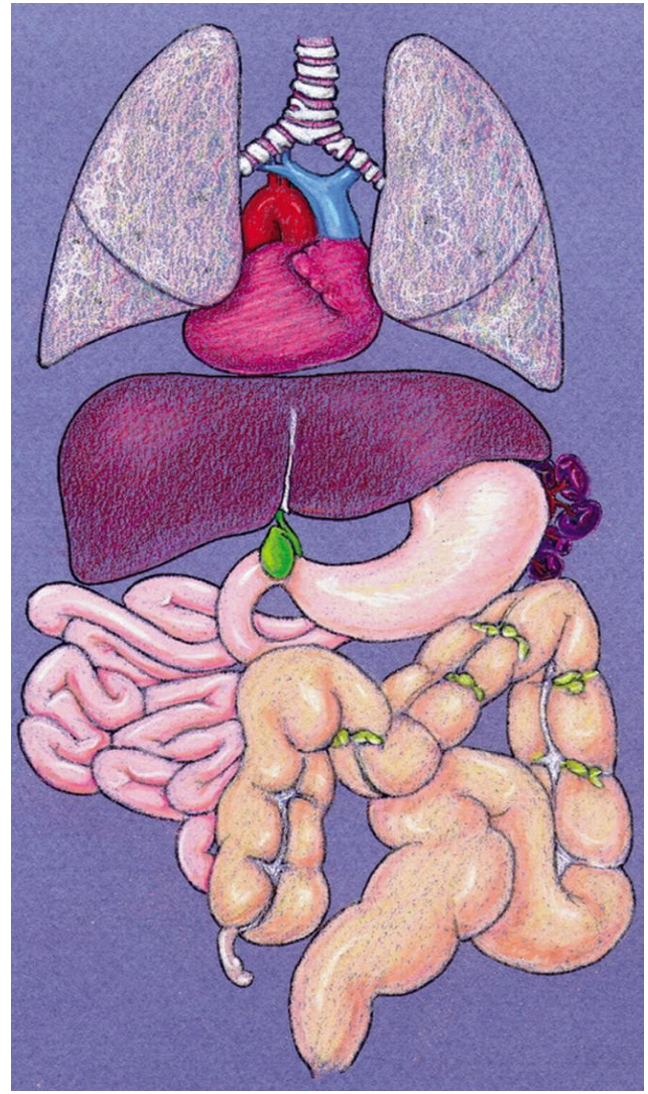
Drawing illustrates situs inversus



Fulcher A S , Turner M A Radiographics 2002;22:1439-1456

RadioGraphics

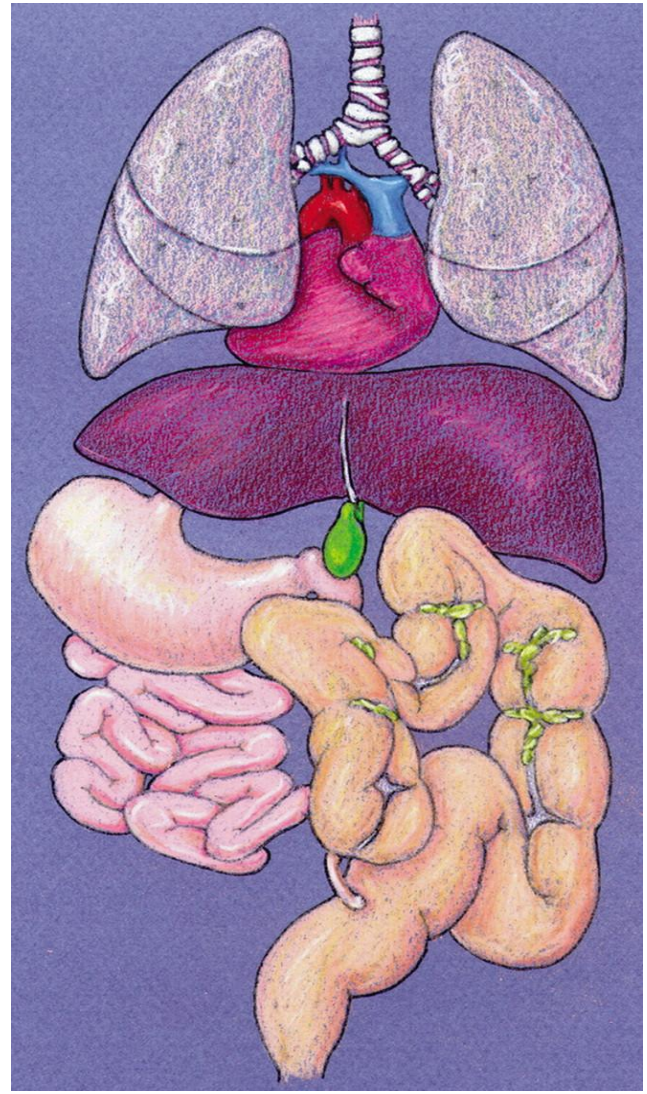
Drawing illustrates situs ambiguous with polysplenia



Fulcher A S , Turner M A Radiographics 2002;22:1439-1456

RadioGraphics

Drawing illustrates situs ambiguous with asplenia



Fulcher A S , Turner M A Radiographics 2002;22:1439-1456

RadioGraphics

Discussion - Bibliographie

EDUCATION EXHIBIT 1439

RadioGraphics

Abdominal Manifestations of Situs Anomalies in Adults[1]

Ann S. Fulcher, MD • Mary Ann Turner, MD

CME FEATURE

See accompanying test at http://www.rsna.org/education/rg_cme.html

LEARNING OBJECTIVES FOR TEST 4

After reading this article and taking the test, the reader will be able to:

- Recognize situs anomalies (situs inversus, situs ambiguous with polysplenia, situs ambiguous with asplenia) in adults.
- Describe the hepatic, splenic, pancreatic, biliary, gastrointestinal tract, and vascular findings associated with situs anomalies.
- Discuss the challenge of diagnosing disease processes such as appendicitis and cholecystitis in patients with situs anomalies.

A study was made of 19 adults with situs anomalies (situs inversus [n = 10], situs ambiguous with polysplenia [n = 8], situs ambiguous with asplenia [n = 1]). No patient had congenital heart disease, bowel obstruction related to malrotation, or immune deficiency disorders. All 10 patients with situs inversus had mirror-image location of the abdominal organs relative to situs solitus; nine had dextrocardia, and one had levocardia. The eight adults with situs ambiguous with polysplenia demonstrated a spectrum of abnormalities. All had some degree of abdominal heterotaxy, including midline livers and gallbladders (n = 5), right-sided stomachs and spleens (n = 3), and rotational abnormalities of the small bowel and colon (n = 7). Other findings included multiple spleens (n = 7), interruption of the inferior vena cava (IVC) with azygous or hemiazygous continuation (n = 7), truncation of the pancreas (n = 6), and ipsilateral location of the aorta and IVC (n = 1). In the one patient with asplenia, a midline liver, right-sided stomach, bowel rotation abnormality, IVC interruption, and pancreatic truncation were noted. Recognition of the spectrum of situs anomalies is important because the altered anatomy associated with these anomalies may result in confusing imaging findings when seen in conjunction with acquired diseases.

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Imaging Findings in 19 Adults with Situs Anomalies

Anomaly	Situs Inversus (n = 10)										Situs Ambiguous with Polysplenia (n = 8)								Situs Ambiguous with Asplenia (n = 1)
Patient no./sex	1/F	2/F	3/M	4/M	5/M	6/M	7/M	8/F	9/M	10/M	11/M	12/F	13/F	14/M	15/M	16/F	17/M	18/F	19/M
Examinations analyzed	CT	CT	CR	UGI, CR	MR, Ang	CT, CR	IC	MR	CR	CT, CR	CT, UGI, CR	CT	CT, CR	CT	UGI, BE, US, CR	CT	CT	MR	CT, Nucl
Anatomic location																			
Liver	L	L	L	L	L	L	L	L	L	L	ML	R	ML	ML	ML	ML	R	R	ML
Spleen*	R	R	R	R	R	R	R	R	R	R	L(1)	L(10)	R(4)	R(3)	R(>10)	L(8)	L(7)	L(6)	Abs
Stomach	R	R	R	R	R	R	R	R	R	R	L	L	R	R	R	L	L	L	R
Gallbladder	L	L	NA	NA	L	L	L	L	NA	L	ML	R	ML	ML	ML	ML	R	R	ML
Aorta	R	R	NA	NA	R	R	NA	R	NA	R	L	L	L	L	L	R	L	L	R
IVC	L	L	NA	NA	L	L	NA	L	NA	L	R	R	R	L	R	Dup	R	R	L
Cardiac apex	R	R	R	R	R	R	R	R	L	R	L	L	L	L	L	R	L	L	R
Aortic arch	R	R	R	R	R	R	R	R	L	R	L	L	L	L	L	R	L	L	R
Appearance of pancreas	Nor	Nor	NA	NA	Nor	Nor	Nor	Nor	NA	Nor	Nor	TH	NA	TH	TH	TH†	TH‡	TH	TH
Presence of abnormality																			
Azygous or hemizygous continuation	N	N	NA	NA	N	N	NA	N	NA	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Small-bowel rotational abnormality	NA	Y	NA	Y	Y	Y	Y	Y	NA	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
Colon reverse rotational abnormality	NA	Y	NA	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y

Abbreviations: Abs = absent, Ang = angiography, BE = barium enema study, CR = conventional radiography, Dup = duplicated, IC = intraoperative cholangiography, L = left, ML = midline, N = no, NA = not available, Nor = normal, Nucl = nuclear medicine study, R = right, TH = truncated (pancreatic) head, UGI = upper gastrointestinal series, Y = yes.

Note.—Congenital heart disease was not seen in any patient.

*Numbers in parentheses indicate number of spleens.

†Midline (in all other affected patients, the truncated head was on the right).

‡Clefted.