

# Dissection aortique de l'appel aux secours au bloc opératoire

## Phase diagnostique radiologique

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MCU-PH

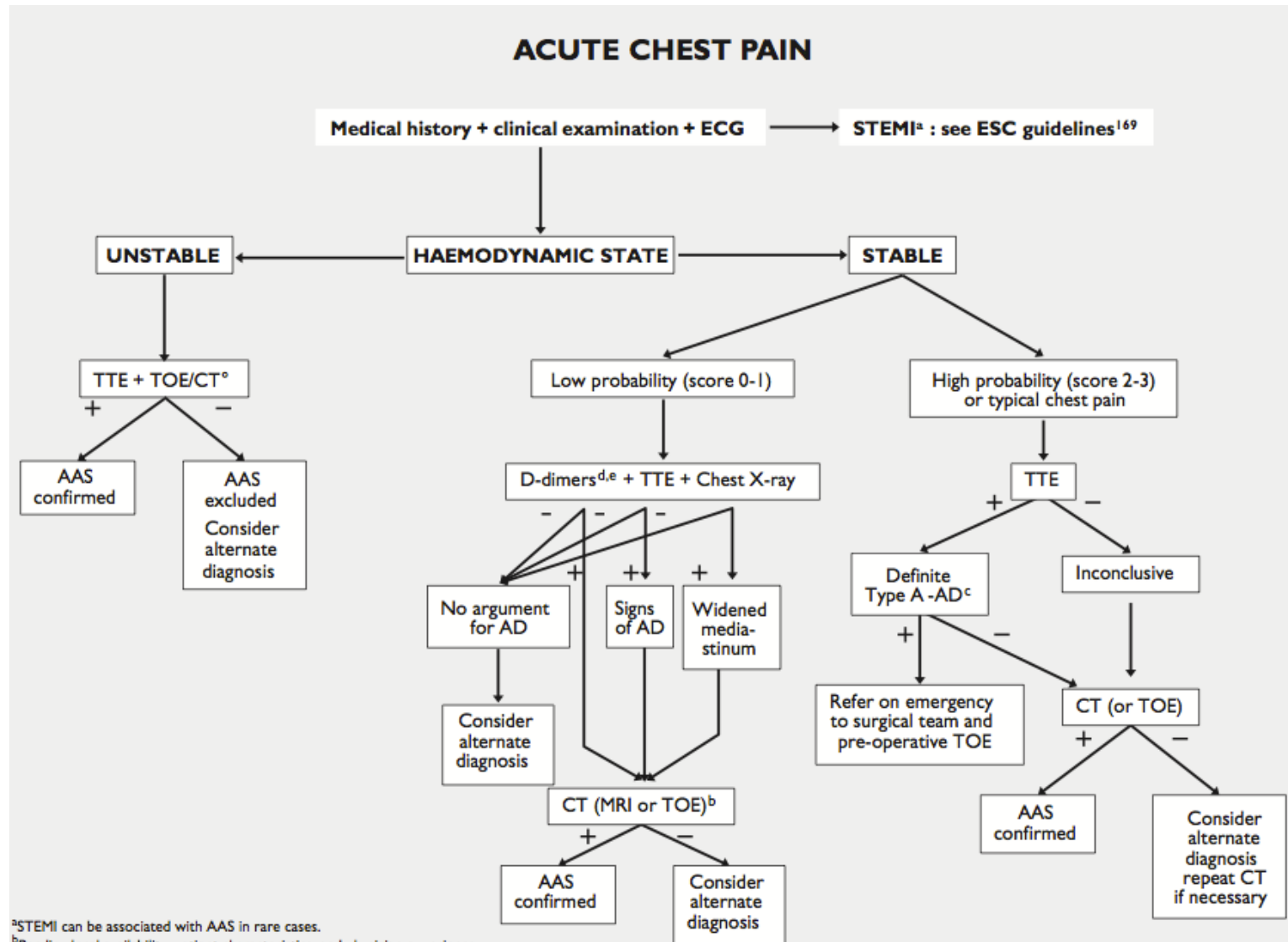
Service Imagerie, HEGP.  
DMU IMAGINA. APHP.centre Université Paris Cité

# Valeur diagnostique des différentes techniques

**Table 3. Results of Meta-analysis\***

Imaging Technique	Studies Included, No.	Sensitivity		Likelihood Ratio†		Diagnostic Odds Ratio
				Positive	Negative	
TEE	10	98 (95-99)	95 (92-97)§	14.1 (6.0-33.2)§	0.04 (0.02-0.08)	6.1 (5.0-7.2)
Helical CT	3	100 (96-100)§	98 (87-99)	13.9 (4.2-46.0)	0.02 (0.01-0.11)	6.5 (4.4-8.7)
MRI	7	98 (95-99)	98 (95-100)	25.3 (11.1-57.1)	0.05 (0.03-0.10)	6.8 (5.5-8.0)

# Suspicion de SAA



<sup>a</sup>STEMI can be associated with AAS in rare cases.

<sup>b</sup>Pending local availability, patient characteristics, and physician experience.

<sup>c</sup>Proof of type-A AD by the presence of flap, aortic regurgitation, and/or pericardial effusion.

<sup>d</sup>Preferably point-of-care, otherwise classical.

<sup>e</sup>Also troponin to detect non-ST-segment elevation myocardial infarction.

# TDM: acquisition

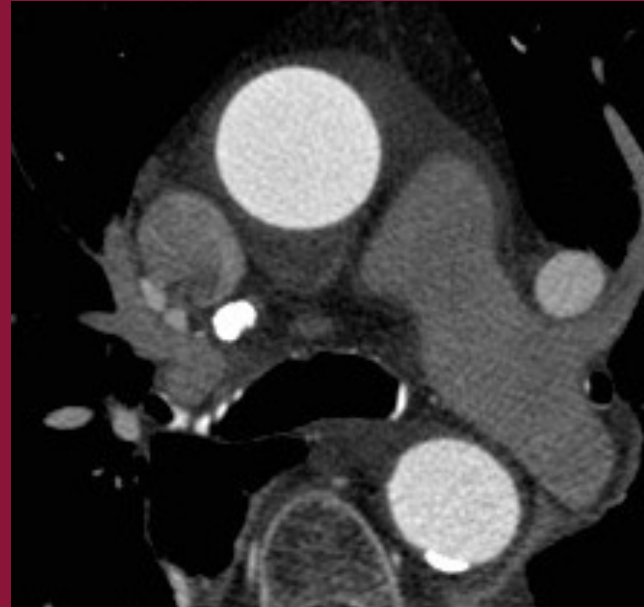
## 1. Sans injection

- Coupes 0.6-2.5mm
- Ca / matériel vs. Hématome
- SAA, post opératoire



## 2. Artériel

- Synchronisation ECG, Coupes 0.6mm
- Injection: 3 phases, temps artériel
- systématique

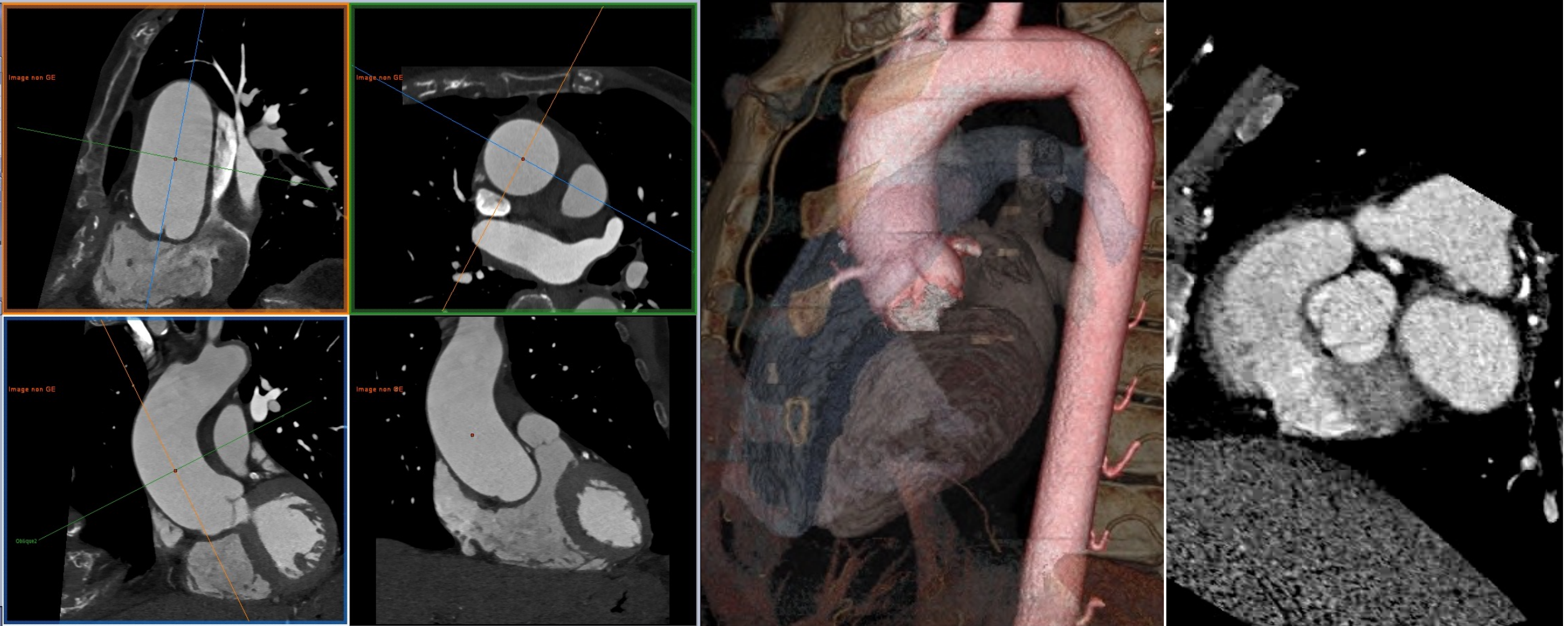


## 3. Tardif

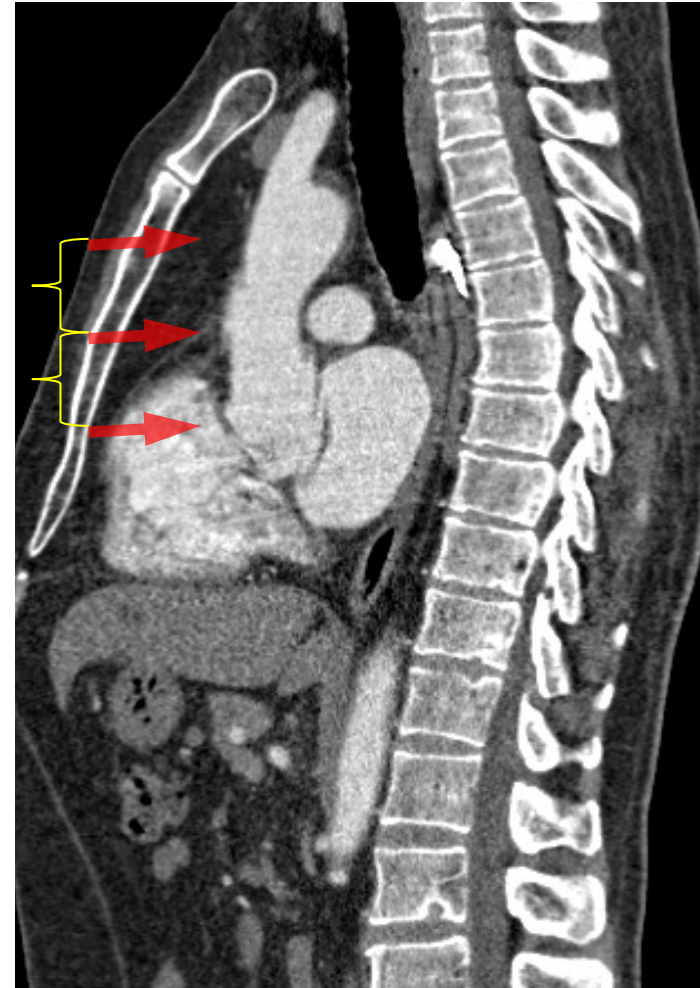
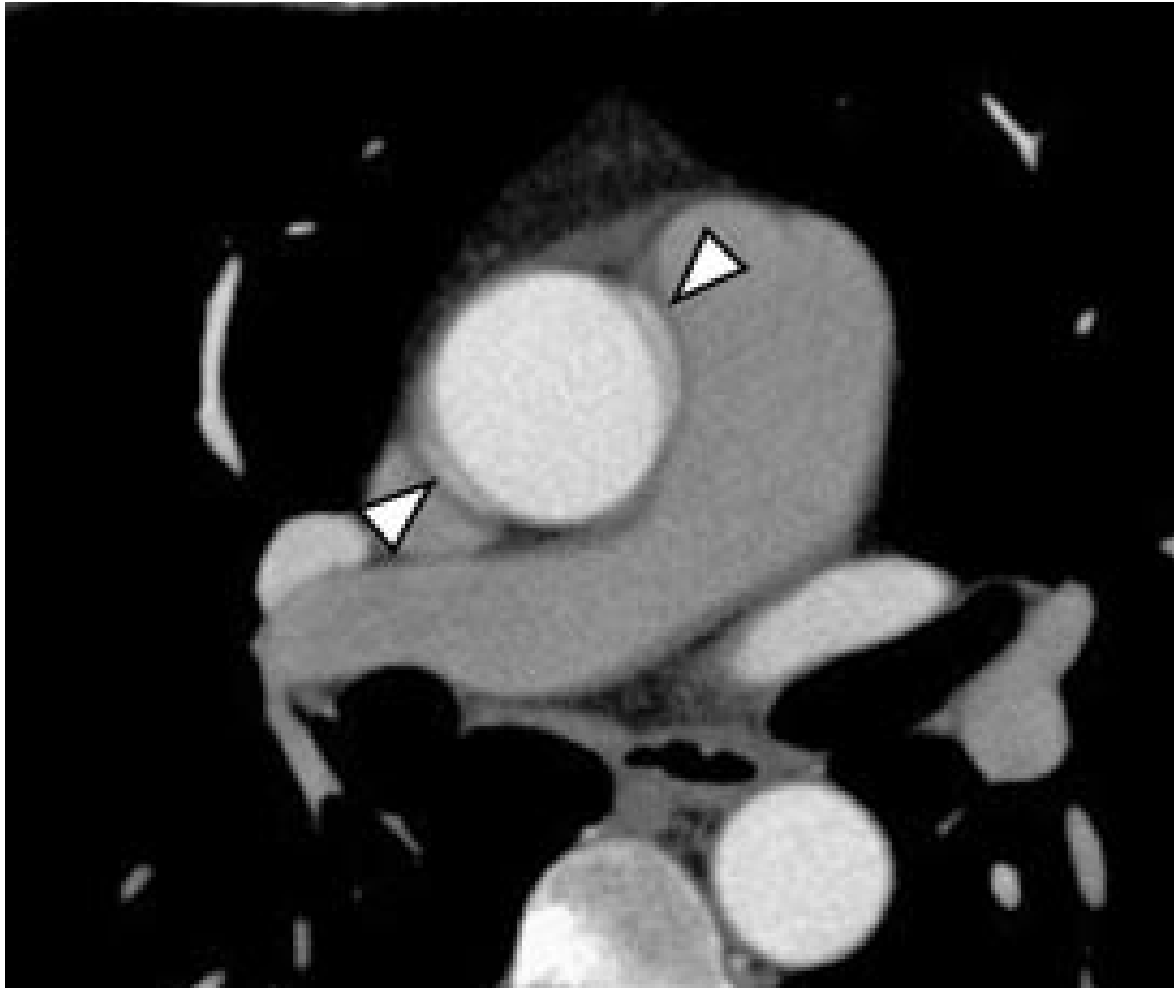
- Temps: 2-3'
- Contraste paroi/ fuite endoprothèse/ perfusion vicérale
- SAA, post op, Aortites



# TDM, reconstructions

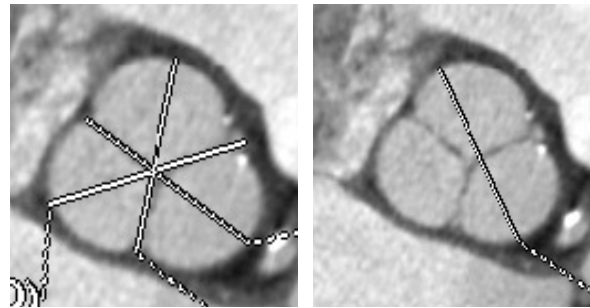
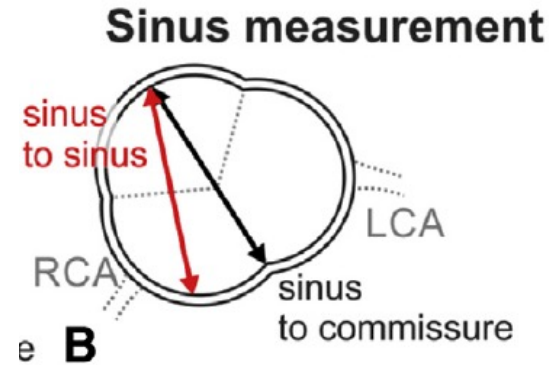
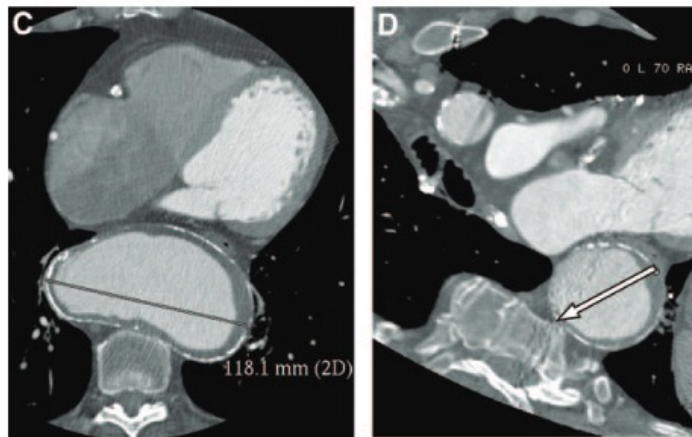
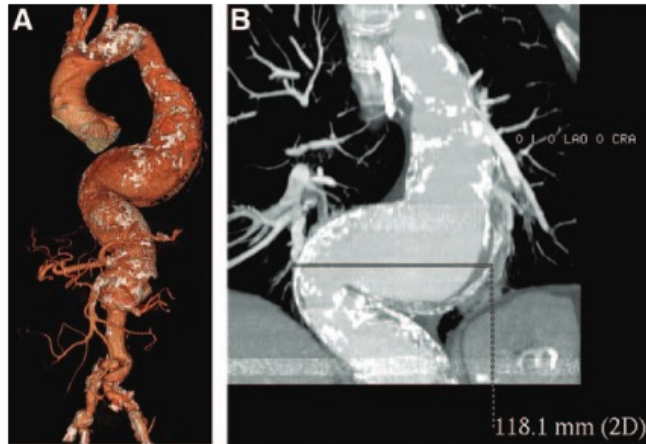


# Synchronisation cardiaque: toujours



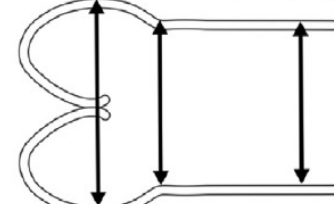
# Les mesures

Perpendiculaire à la ligne des centres

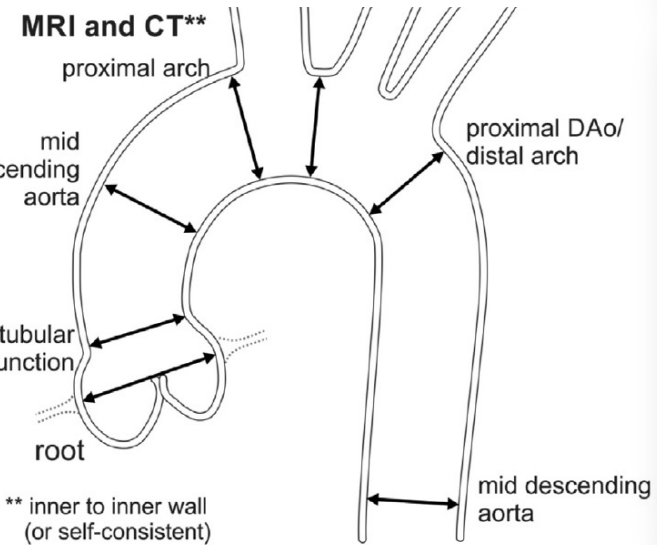


- ~~Cusp to commissure~~
- Cusp to cusp
- Measurement of the 3 sinuses

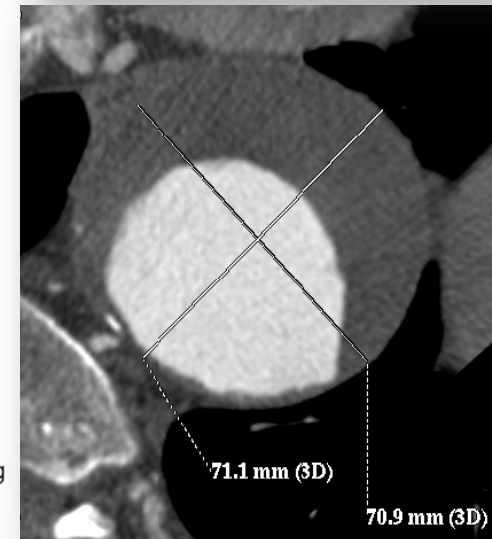
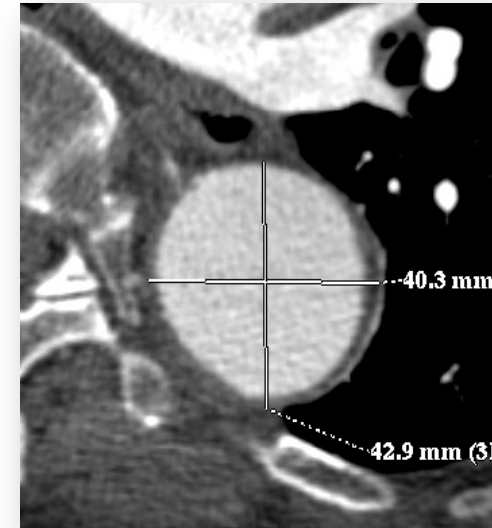
Echocardiography\*



A \* leading edge to leading edge

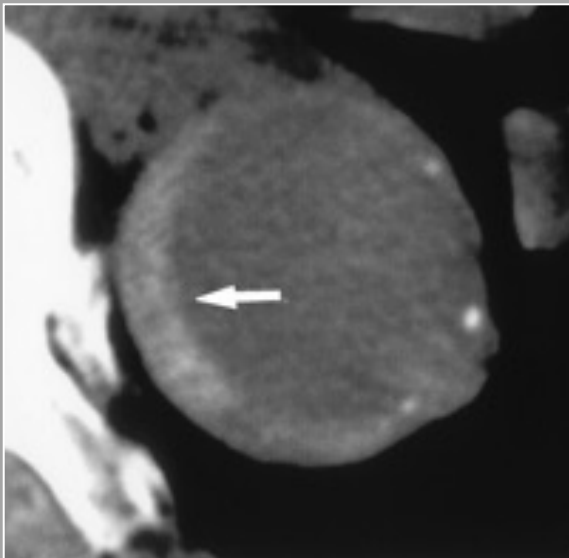


C \*\* inner to inner wall (or self-consistent)



# Syndromes Aortiques Aigus

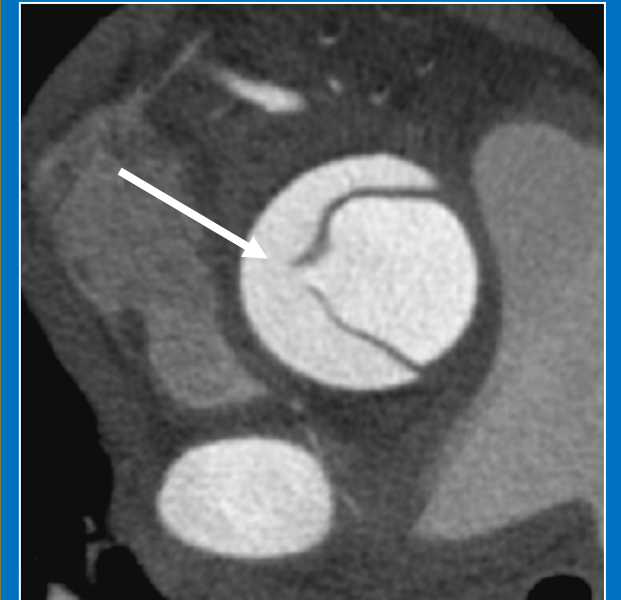
- HEMATOME DE PAROI AORTIQUE



- ULCERE  
ATHEROMATEUX  
PENETRANT

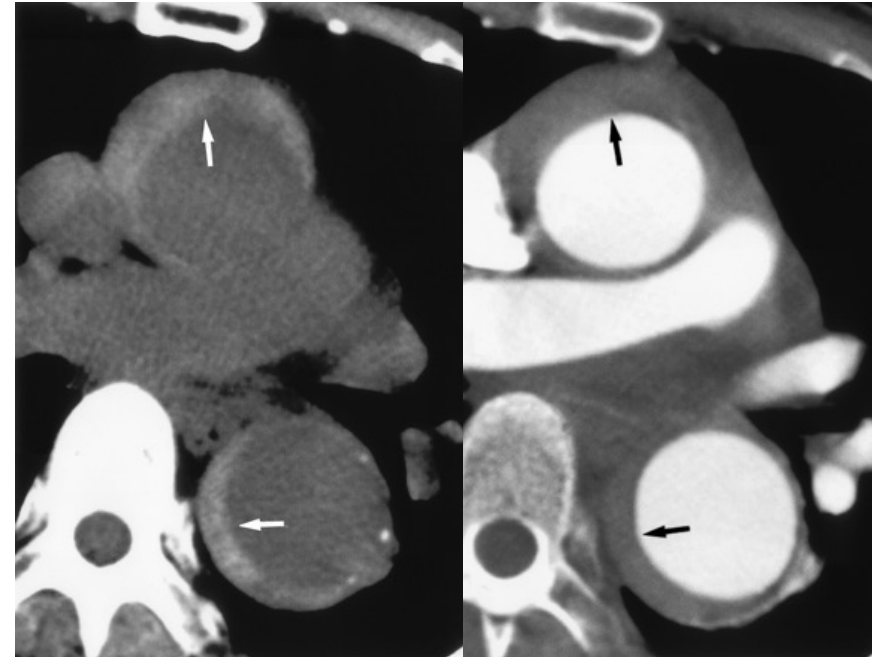
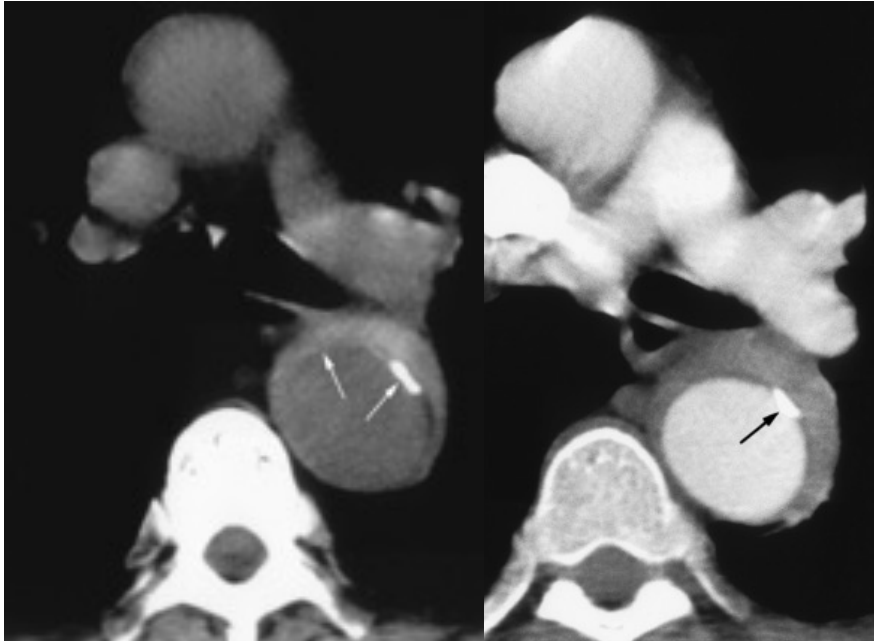


- DISSECTION  
AORTIQUE





# Hématome de paroi



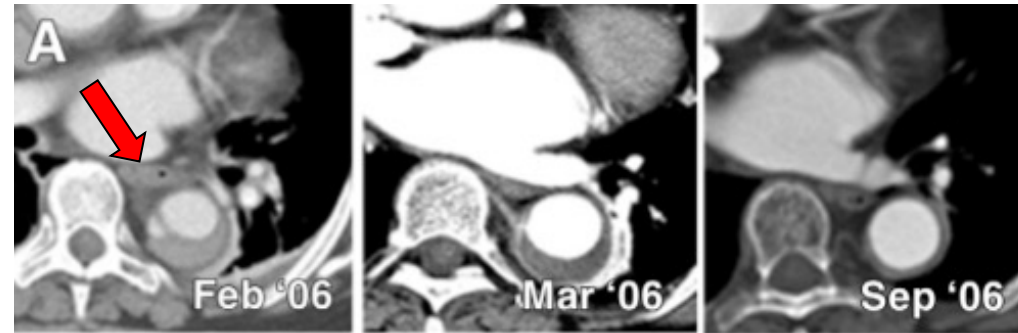
Scanner :

- épaissement pariétal
- spontanément hyperdense « en croissant »
- densité > sang circulant sans IV
- Pas de déchirure intimale visible

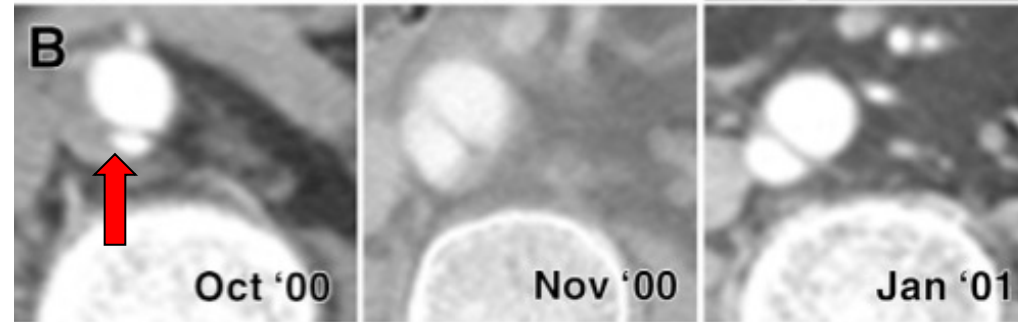
# Hématome de paroi aortique

## *Sémiologie radiologique – ulcères focaux*

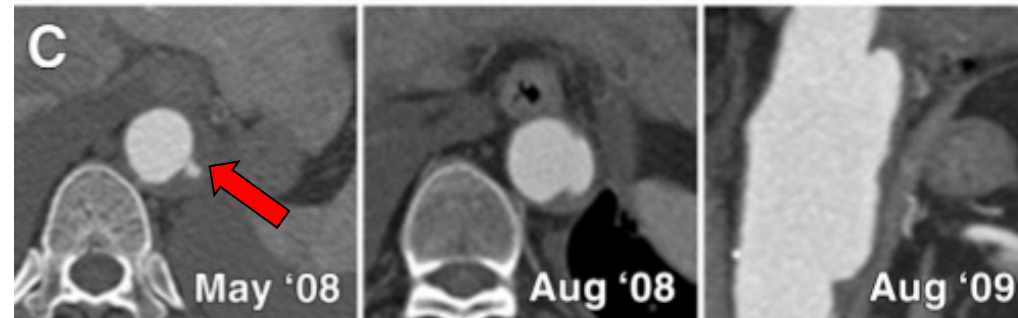
Régression complète



Progression  
locale

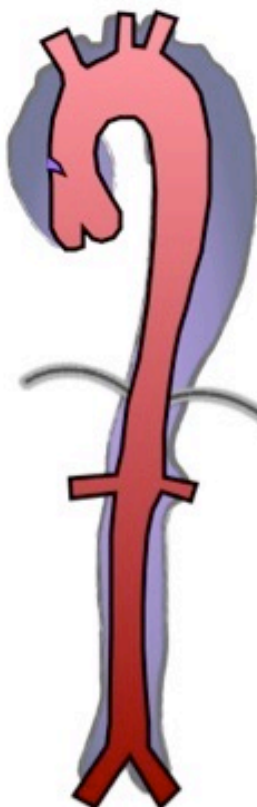
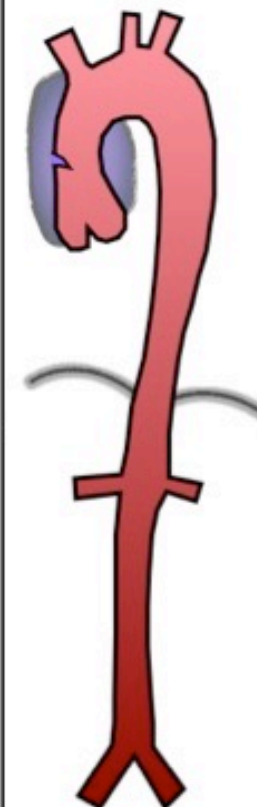
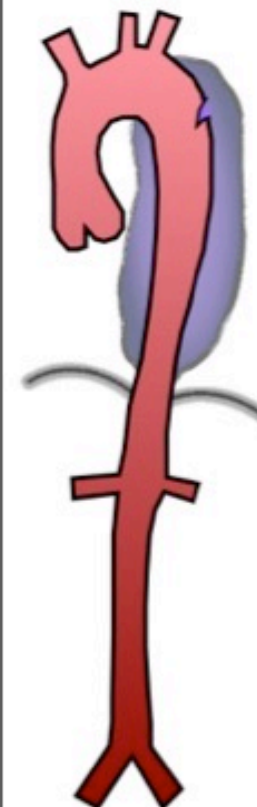
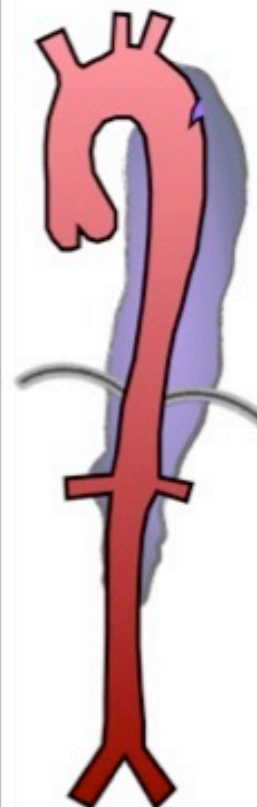


Progression  
locale + longitudinale



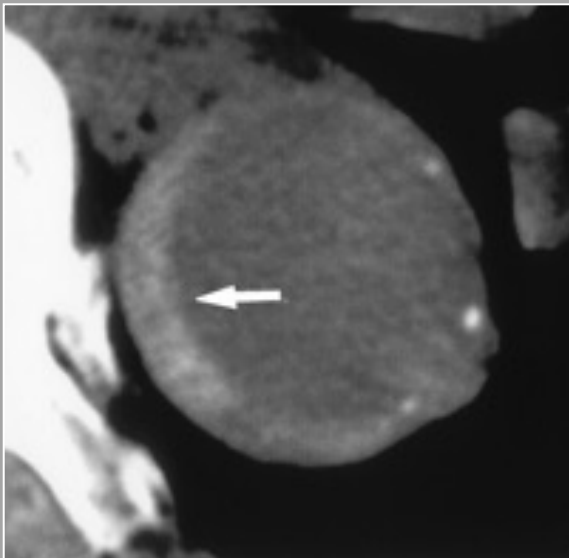
# SAA

## Classifications

Stanford	A		B	
De Bakey	I	II	IIIa	IIIb
Schéma				

# Syndromes Aortiques Aigus

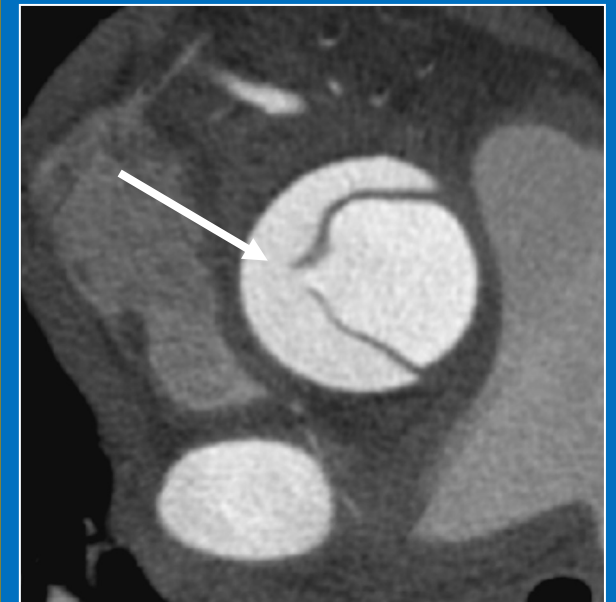
- HEMATOME DE PAROI AORTIQUE



- ULCERE  
ATHEROMATEUX  
PENETRANT

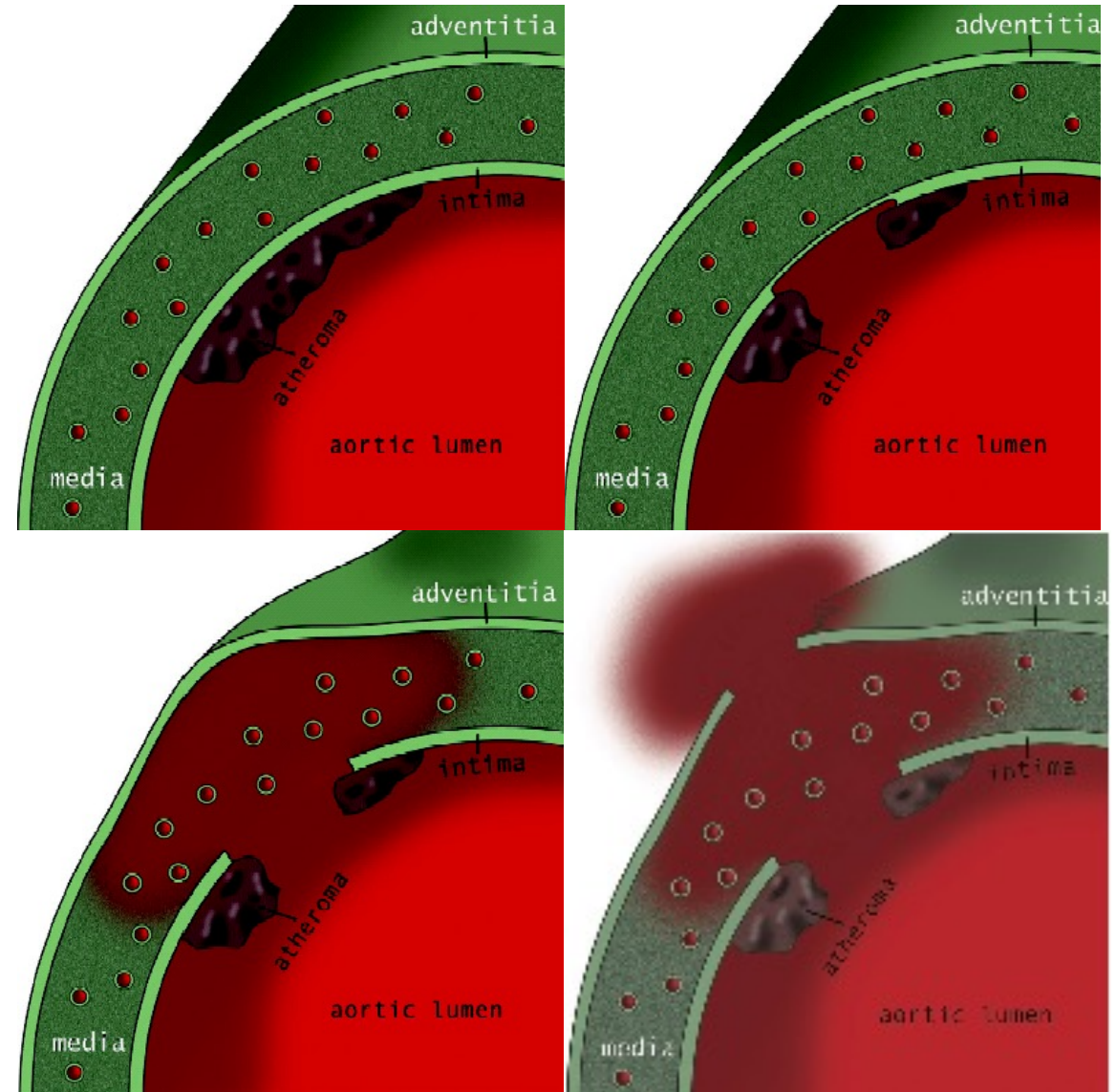


- DISSECTION  
AORTIQUE



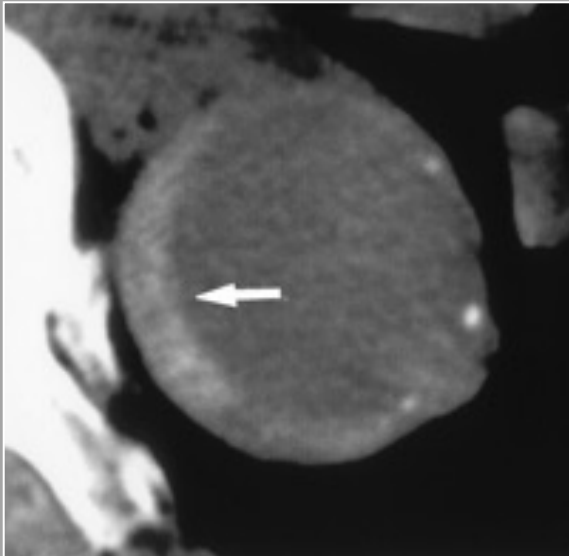
# Ulcère athéromateux pénétrant

- Aorte thoracique Hz et descendante (90%)
- Terrain : patient âgé, athéromateux, tabagique, HTA
- Évolution : péjorative ( *Faux anévrisme + rupture !!!* )
- Traitement : Endoprothèse pour les formes évolutives



# Syndromes Aortiques Aigus

- HEMATOME DE PAROI AORTIQUE



- ULCERE  
ATHEROMATEUX  
PENETRANT



- DISSECTION  
AORTIQUE



# Dissection aortique

## *Gravité du type A*

1. Insuffisance Aortique (41 à 75%)
  - Désinsertion
  - Dilatation (non coaptation)
  - Perturbation du jeu valvulaire
2. Obstruction coronaire (7 à 19%)
  - IDM massif, Mort subite
3. Epanchement péricardique (33%)
  - ***Risque d'hémopéricarde (8 à 10%) et de décès par tamponnade***
    - Le + souvent transudat à travers la paroi aortique disséquée

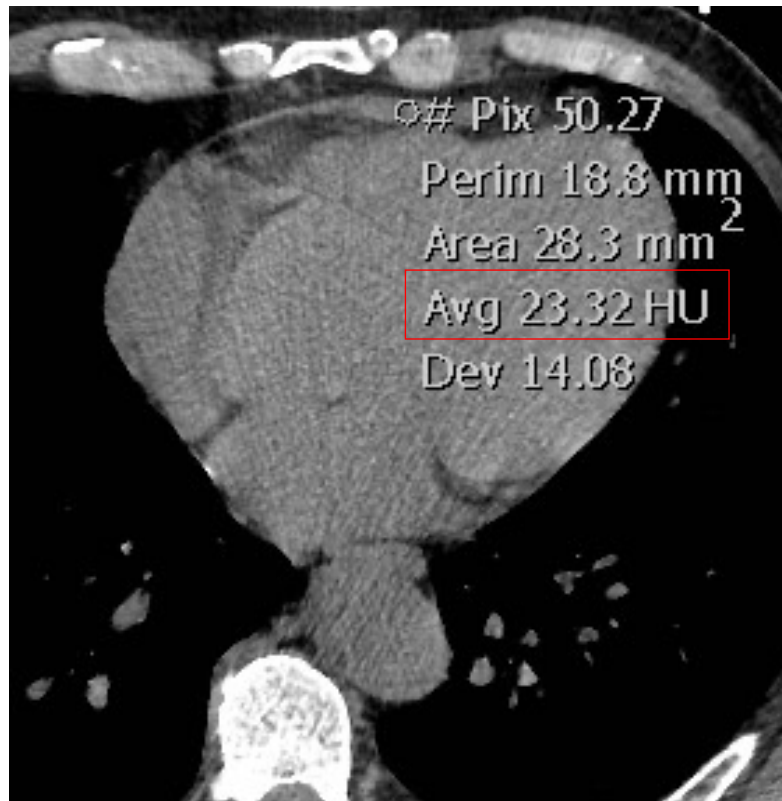
# Pericardial effusion





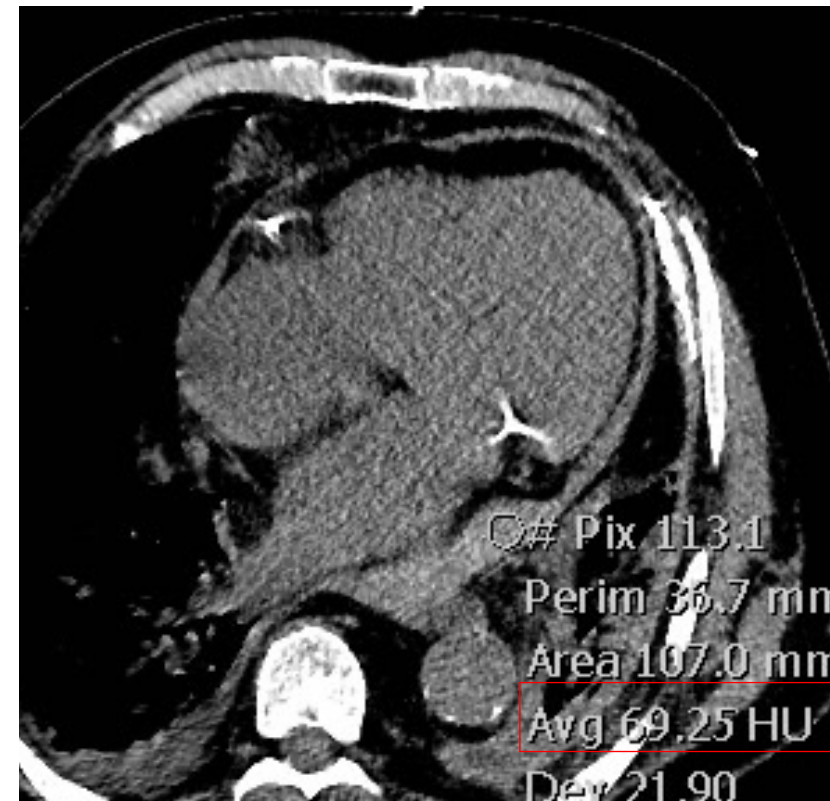
# Pericardial effusion

Low attenuation



Non hematic

High attenuation

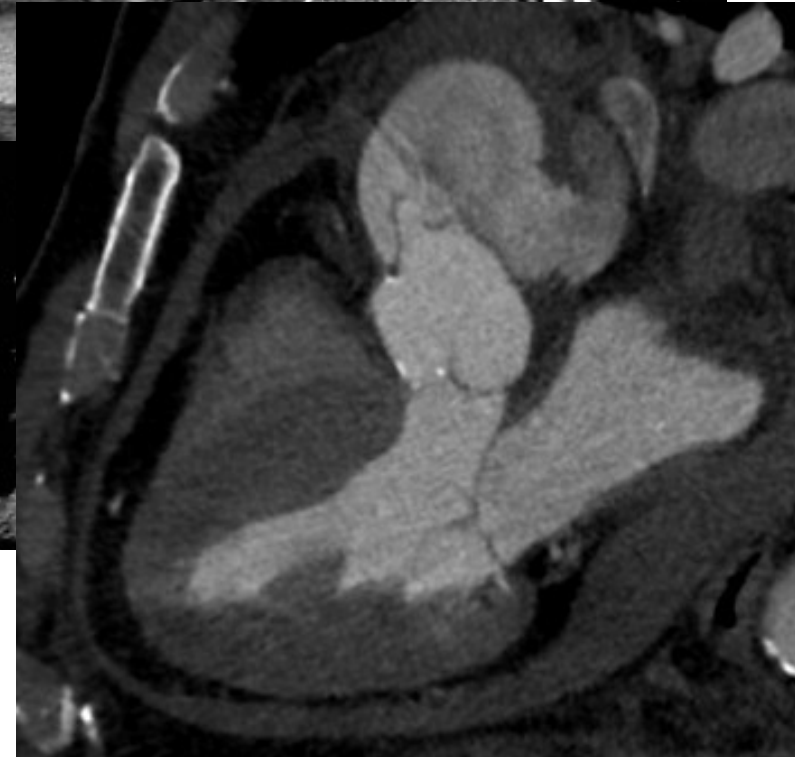
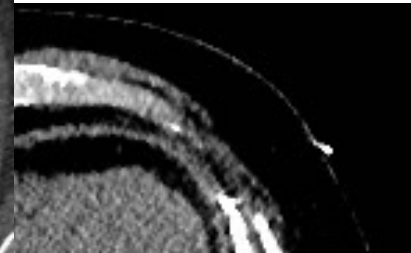
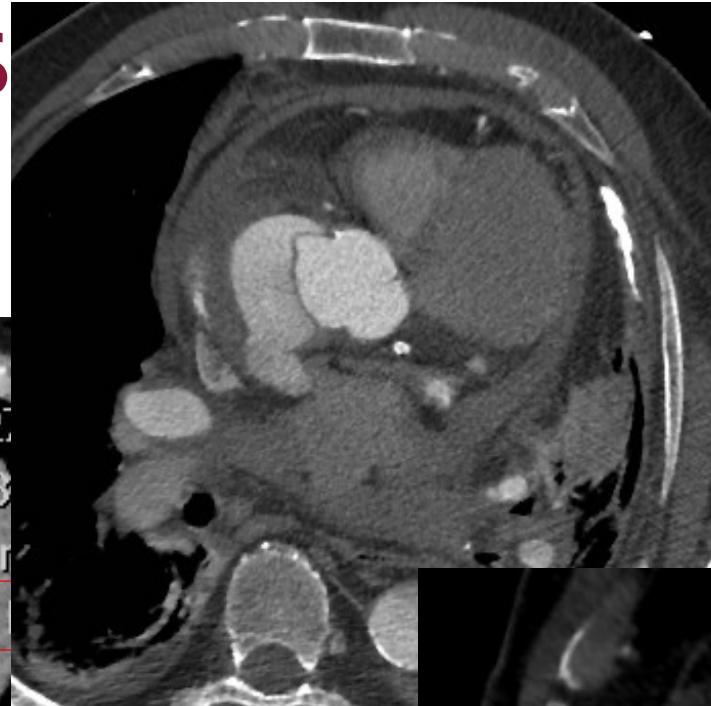
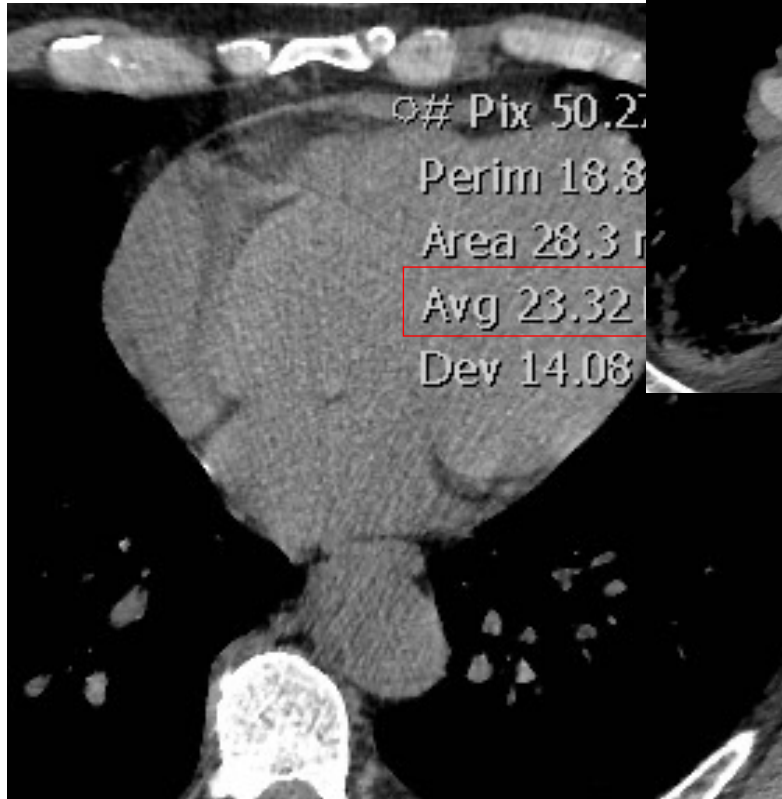


Hemopericardium

# Pericardial effus

Low attenuation

High attenuation

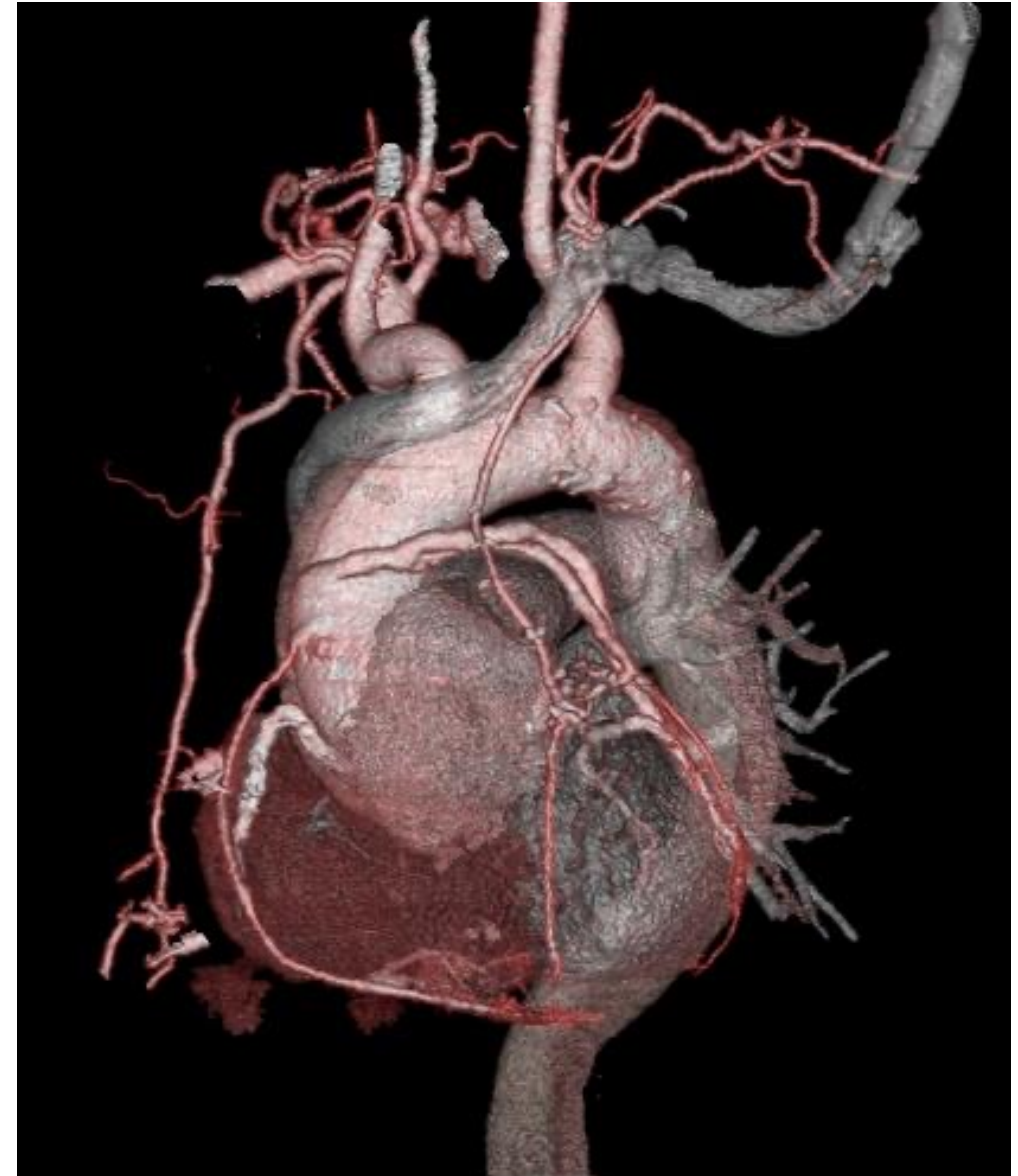
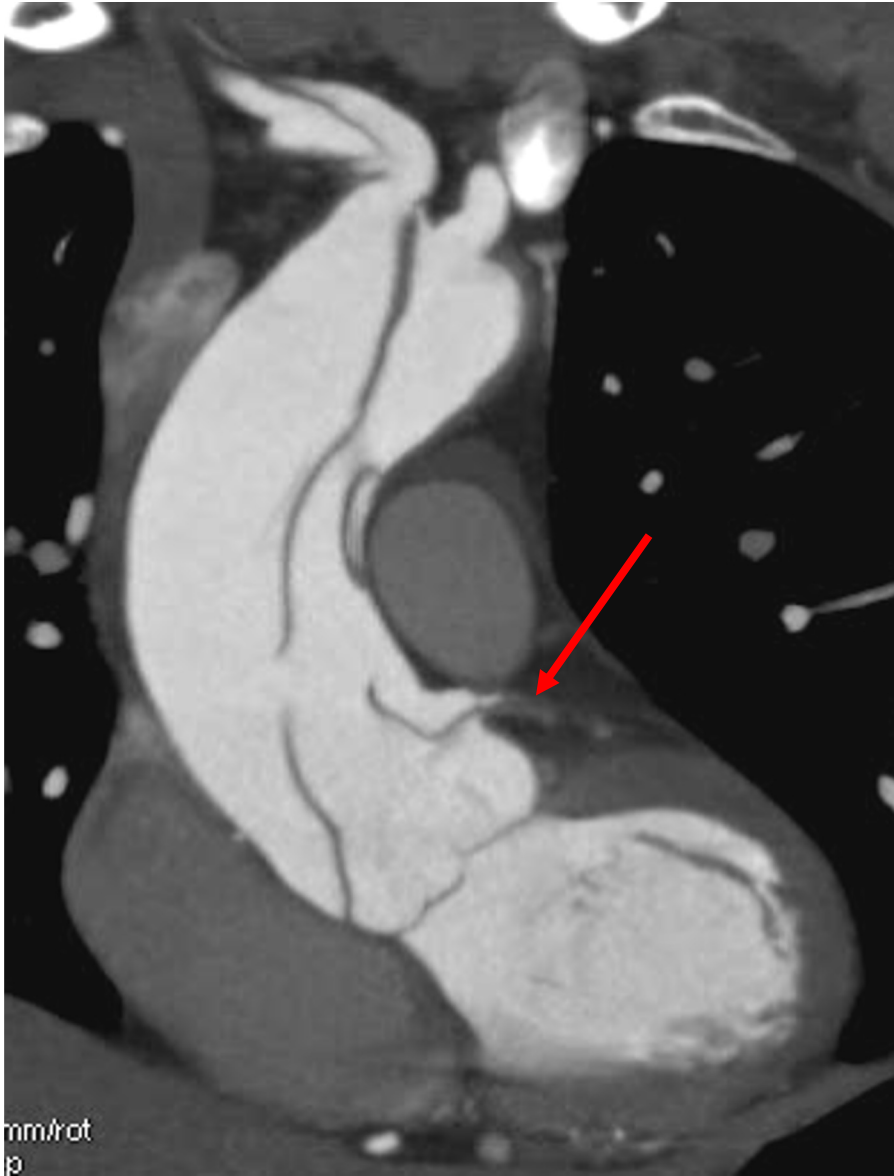


Non hematic

# Pleural effusion



# Coronary involvement








# Aortic Valve?



# Dissection Aortique aiguë

## *Distinguer Vrai et Faux chenal*

<b>VRAI CHENAL</b>	<ul style="list-style-type: none"> <li>• VC plus petit</li> <li>• Rehaussement plus précoce et plus homogène au temps artériel</li> <li>• Angles de raccordement en pente douce avec la membrane intimale (flèches)</li> </ul>	
	VC entouré de calcifications (sur la paroi non disséquée comme sur le versant de la membrane intimale)	
<b>FAUX CHENAL</b>	Angles de raccordement aigus au contact des zones de d'insertion de la membrane intimale	
	Thrombus souvent présent dans le faux chenal	
	Réseau de membranes fines donnant un aspect «en toile d'araignée»	

# Dissection Aortique aiguë

## *Axes iliaques*

- Possibilité d'accès pour techniques endovasculaires
  - Dissection / sténoses / occlusion
  - Diamètres iliaques P et E (>7mm)
  - Tortuosités excessive
- côté à canuler (canuler le VC)
  - « côté sans pouls »
  - Avec sténose du vrai chenal



# Organ malperfusion

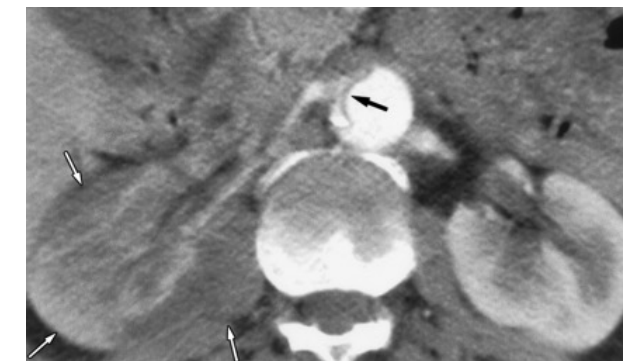
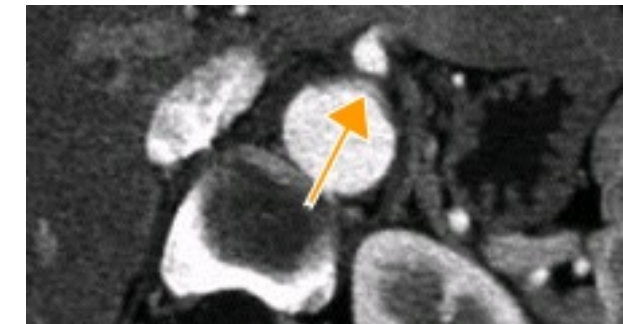
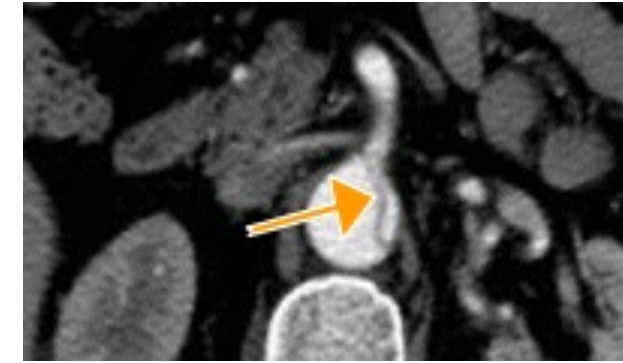
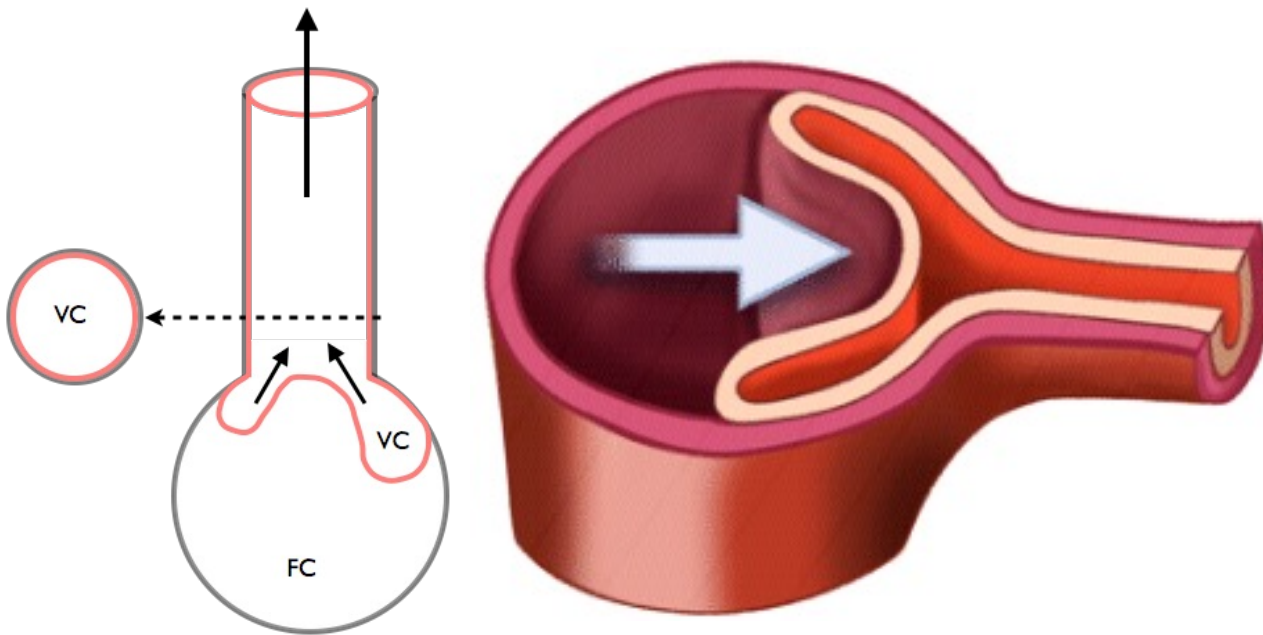


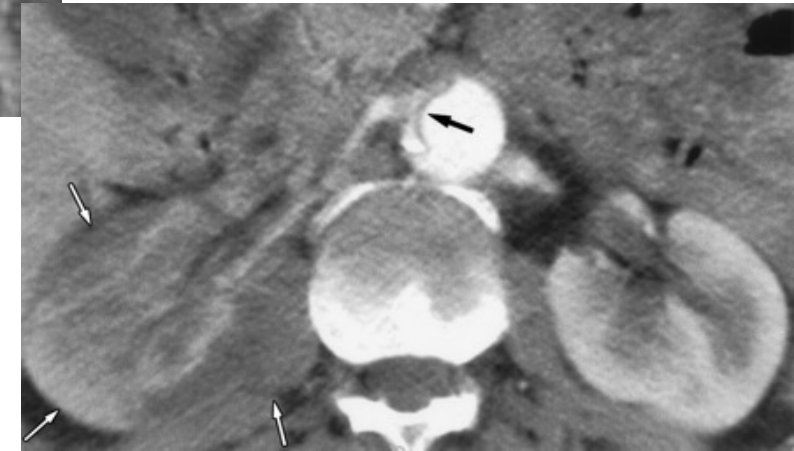
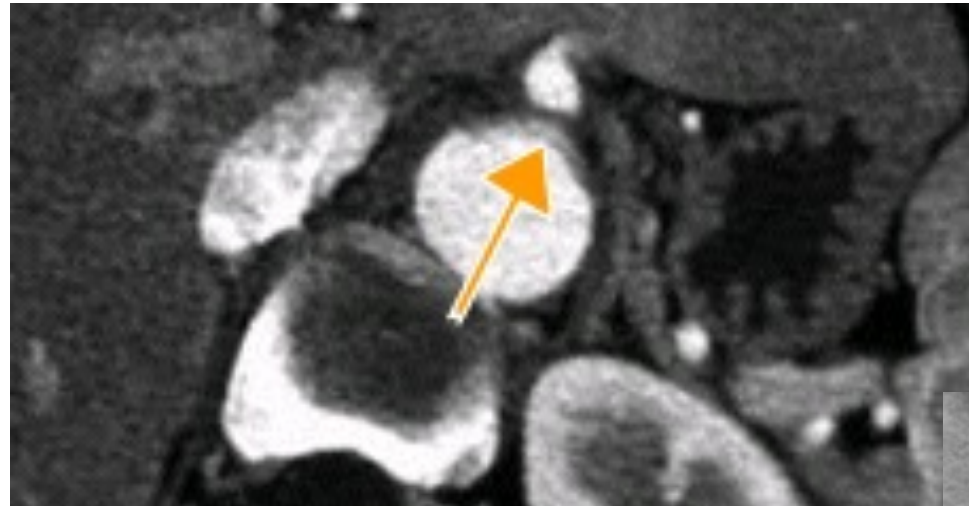


# Malperfusion

## *DYNAMIQUE vs STATIQUE*

- dynamique :  
pression  $FC > VC$  → collapsus du VC  
Collatérale non disséquée +++





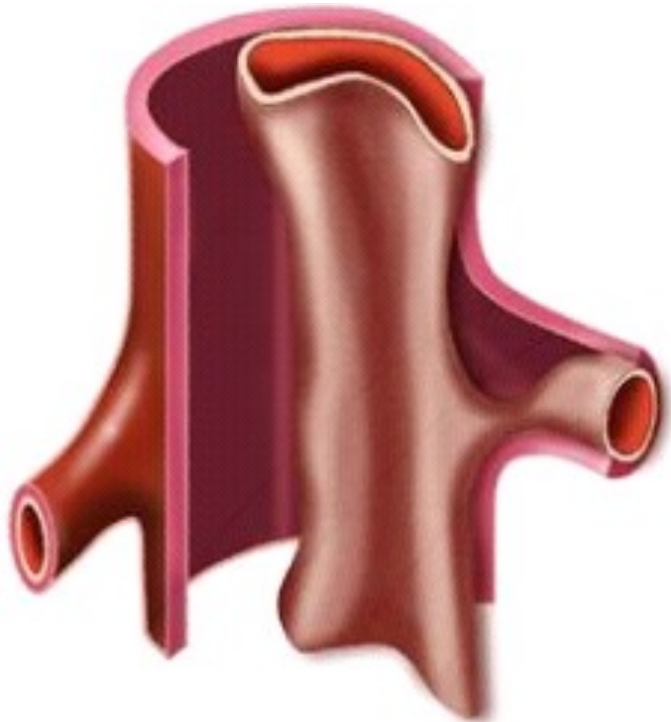
# Malperfusion

## *DYNAMIQUE vs STATIQUE*

- statique :

extension de la dissection dans la collatérale:

(Attention: pas toujours synonyme d'ischémie)



# Malperfusion

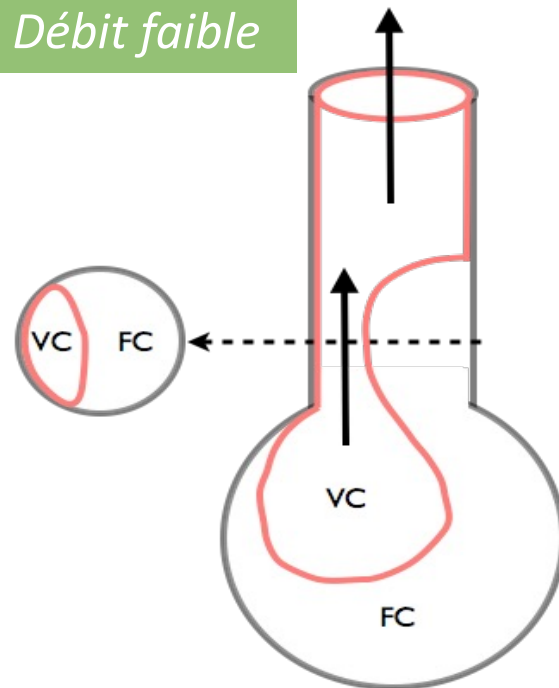
## DYNAMIQUE vs STATIQUE

- statique :

Perfusion viscérale d'aval : présence ou non d'une réentrée ?

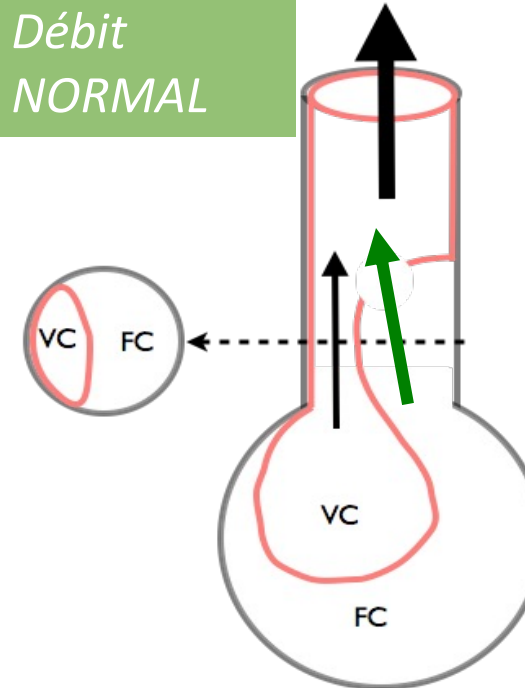
*Réentrée absente*

Débit faible



*Réentrée présente*

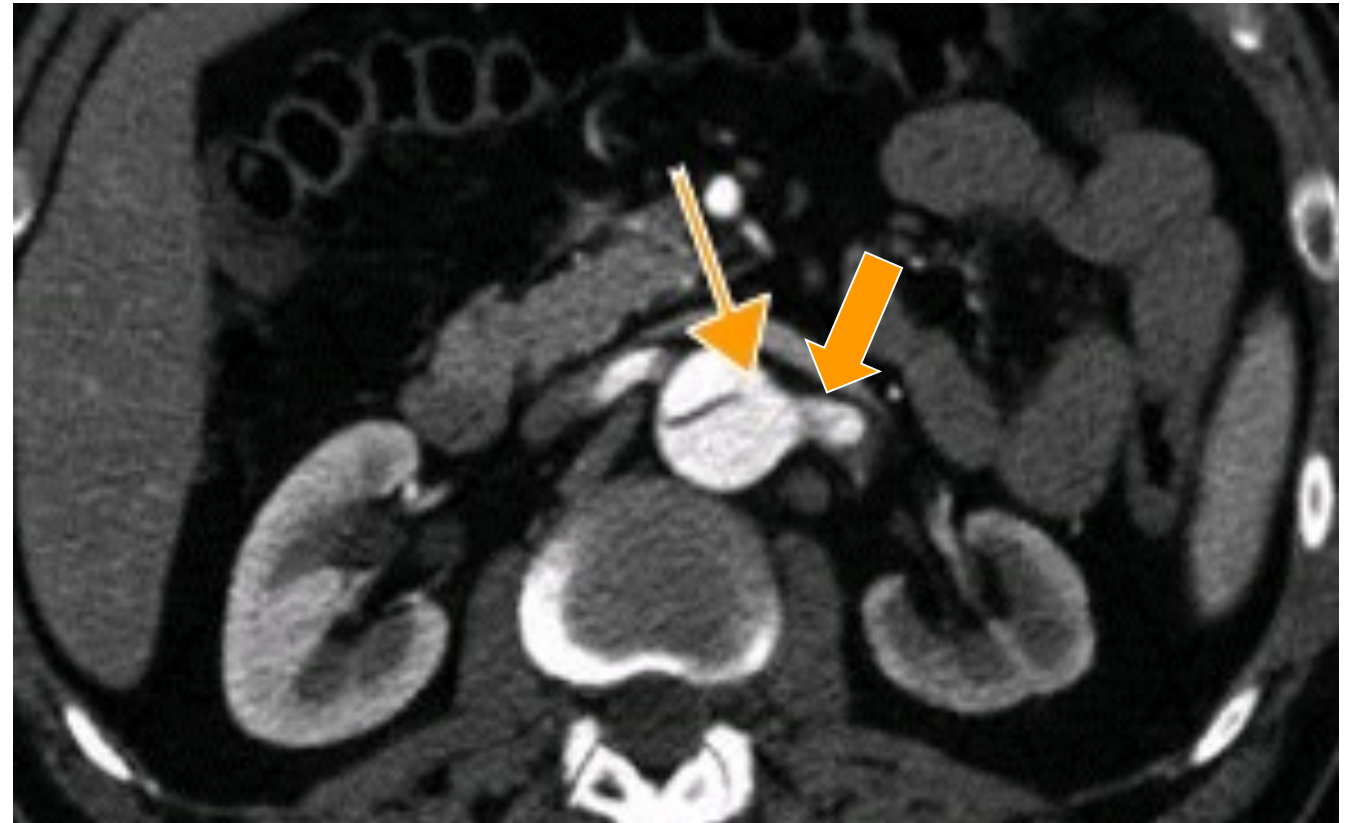
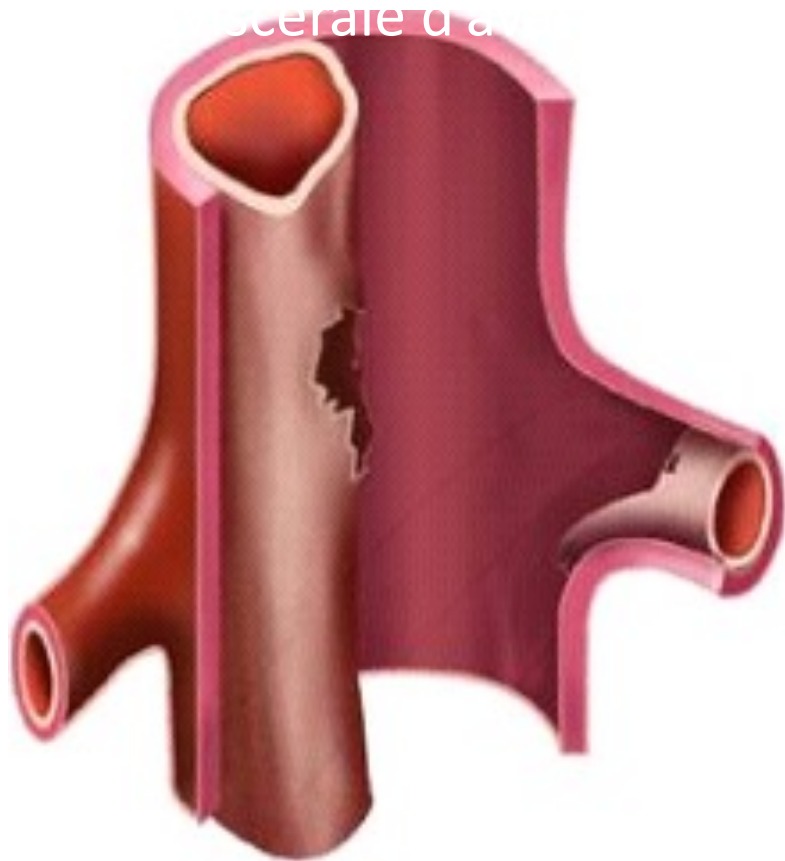
Débit  
NORMAL



# Malperfusion

## *DYNAMIQUE vs STATIQUE*

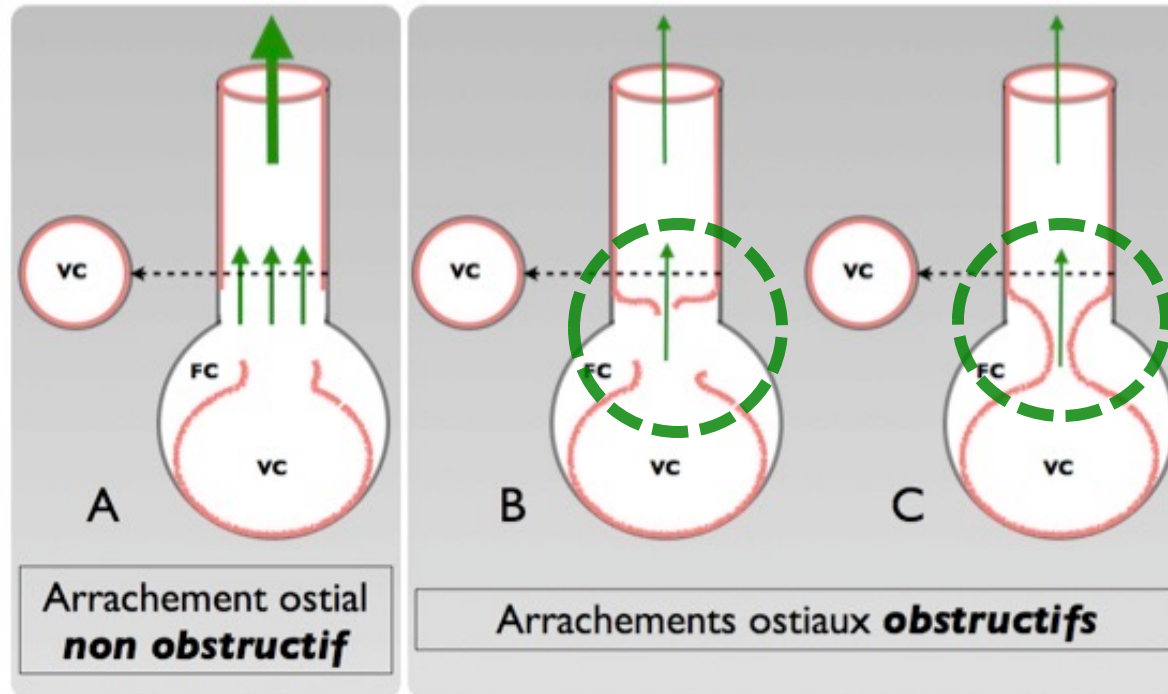
- Aspect d'arrachement ostial :



# Malperfusion

## DYNAMIQUE vs STATIQUE

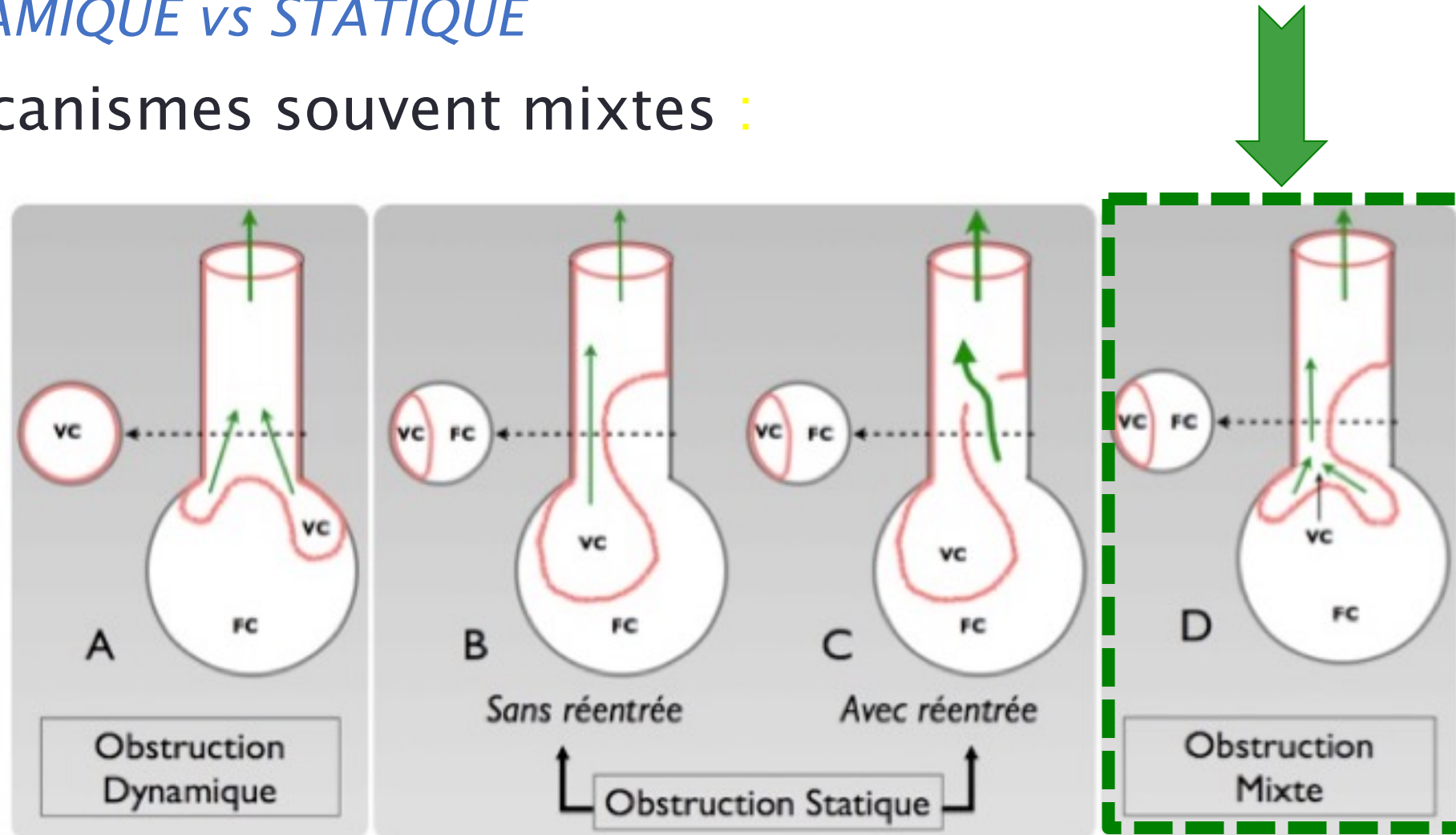
- Aspect d'arrachement ostial :
  - Perfusion viscérale d'aval : clapet ? sténose ?
  - Analyse parfois difficile en CT ; s'aider du doppler++



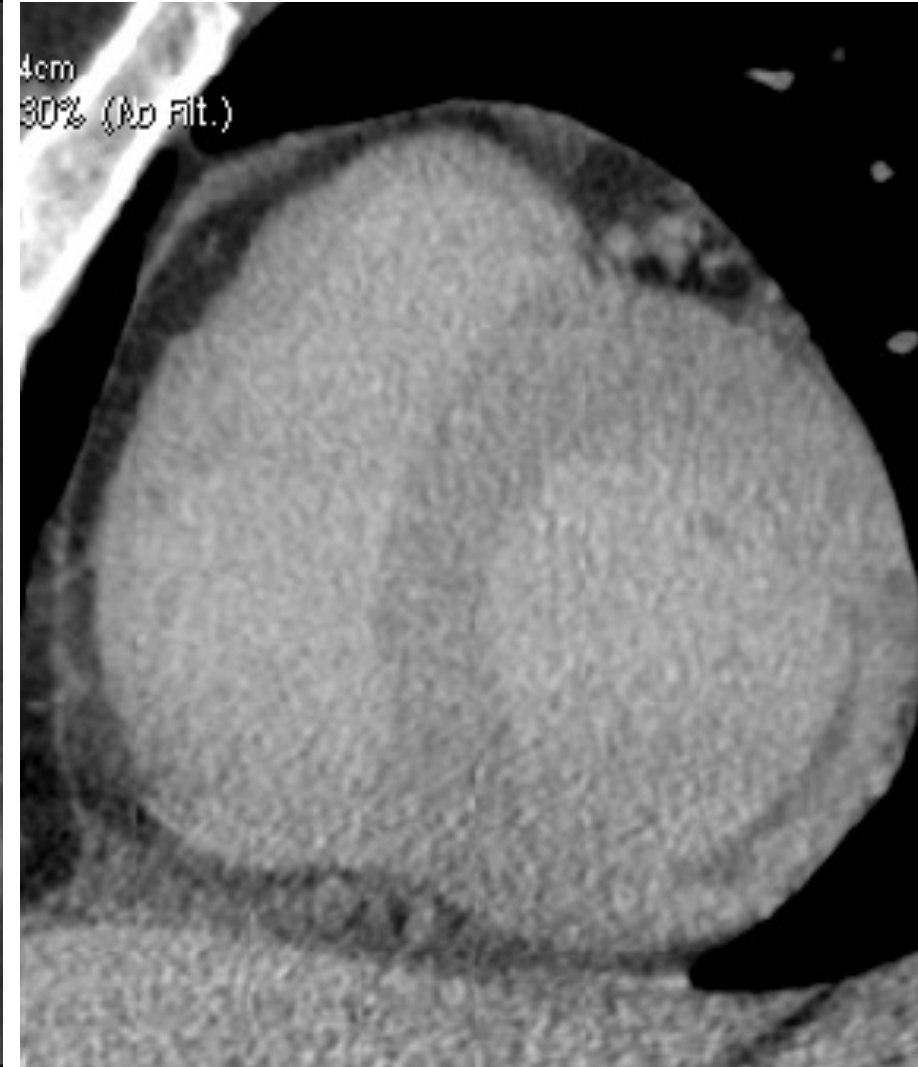
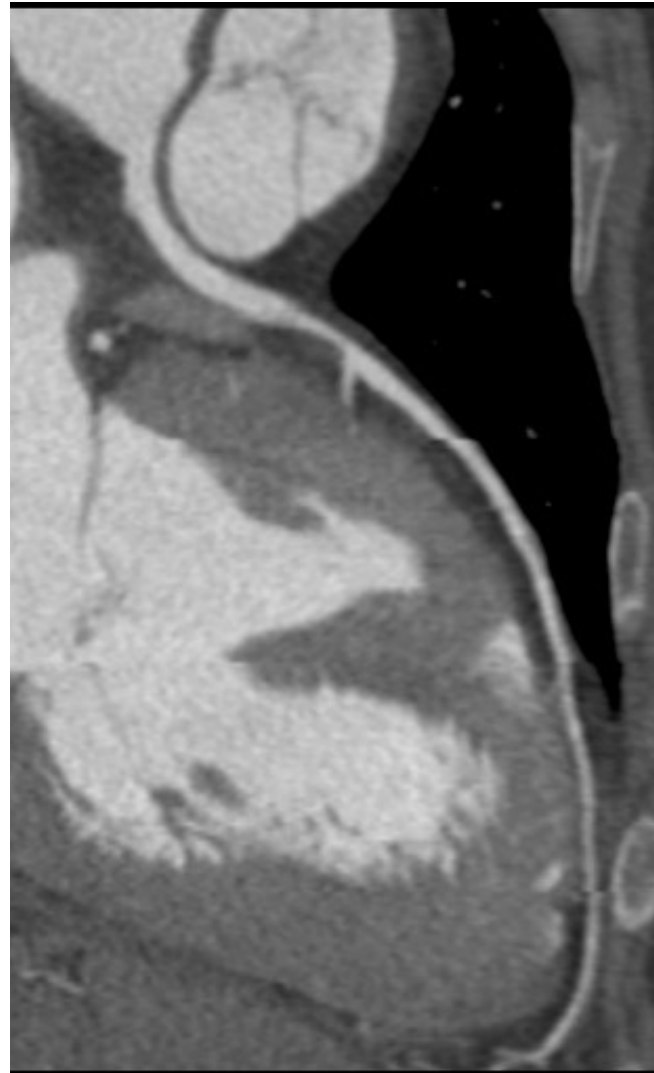
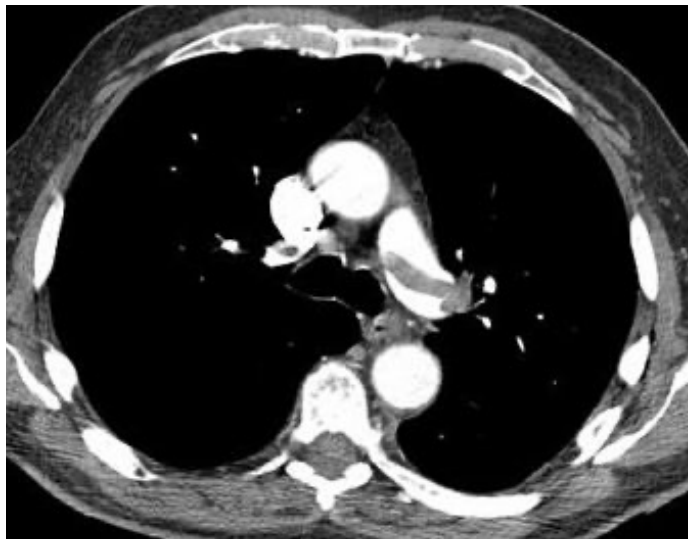
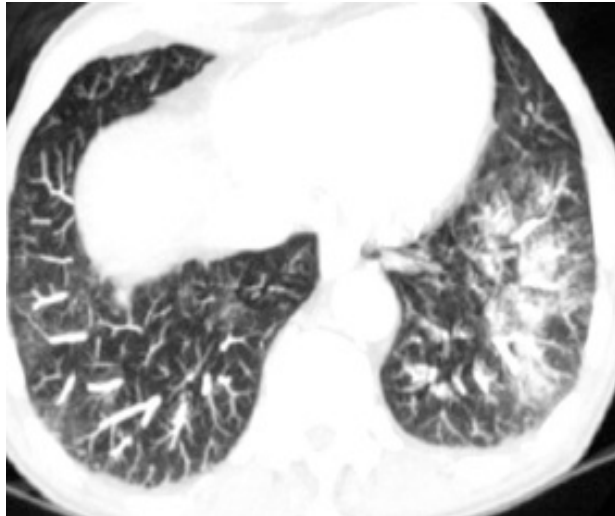
# Malperfusion

## DYNAMIQUE vs STATIQUE

- Mécanismes souvent mixtes :

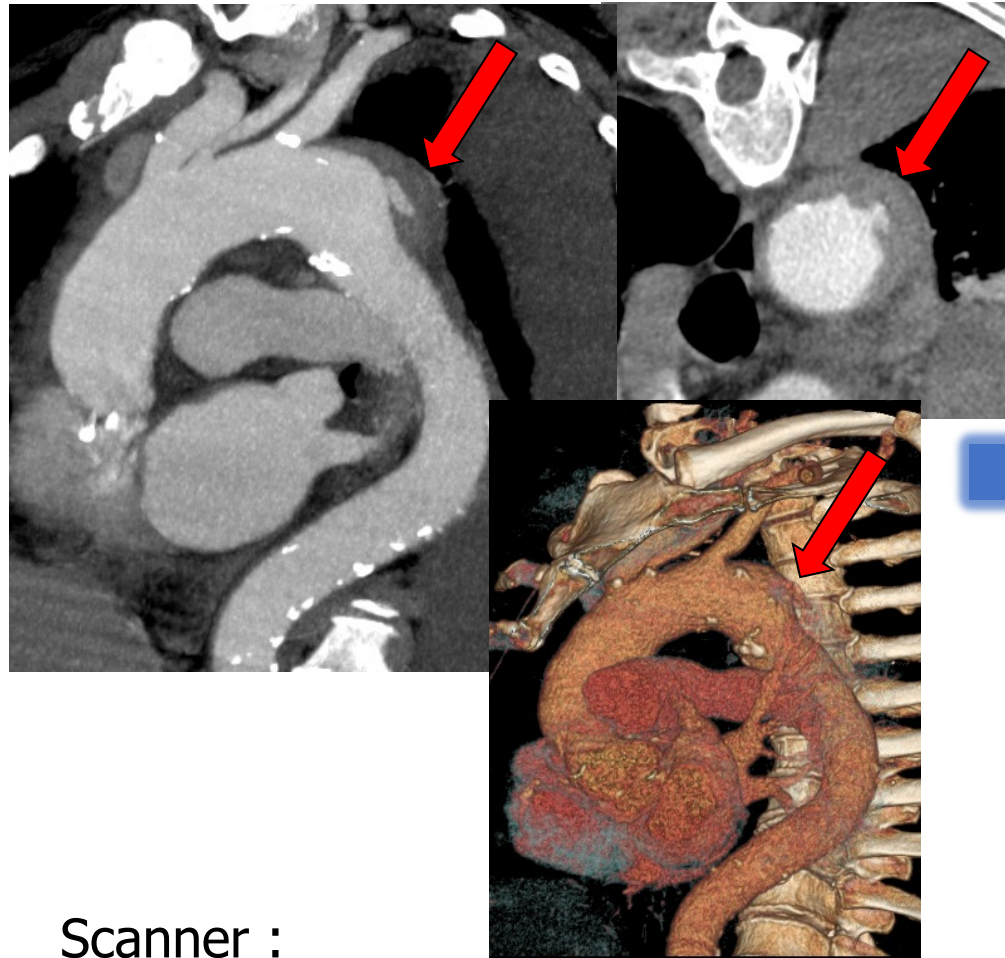


# Differential diagnosis?





# Ulcère athéromateux pénétrant



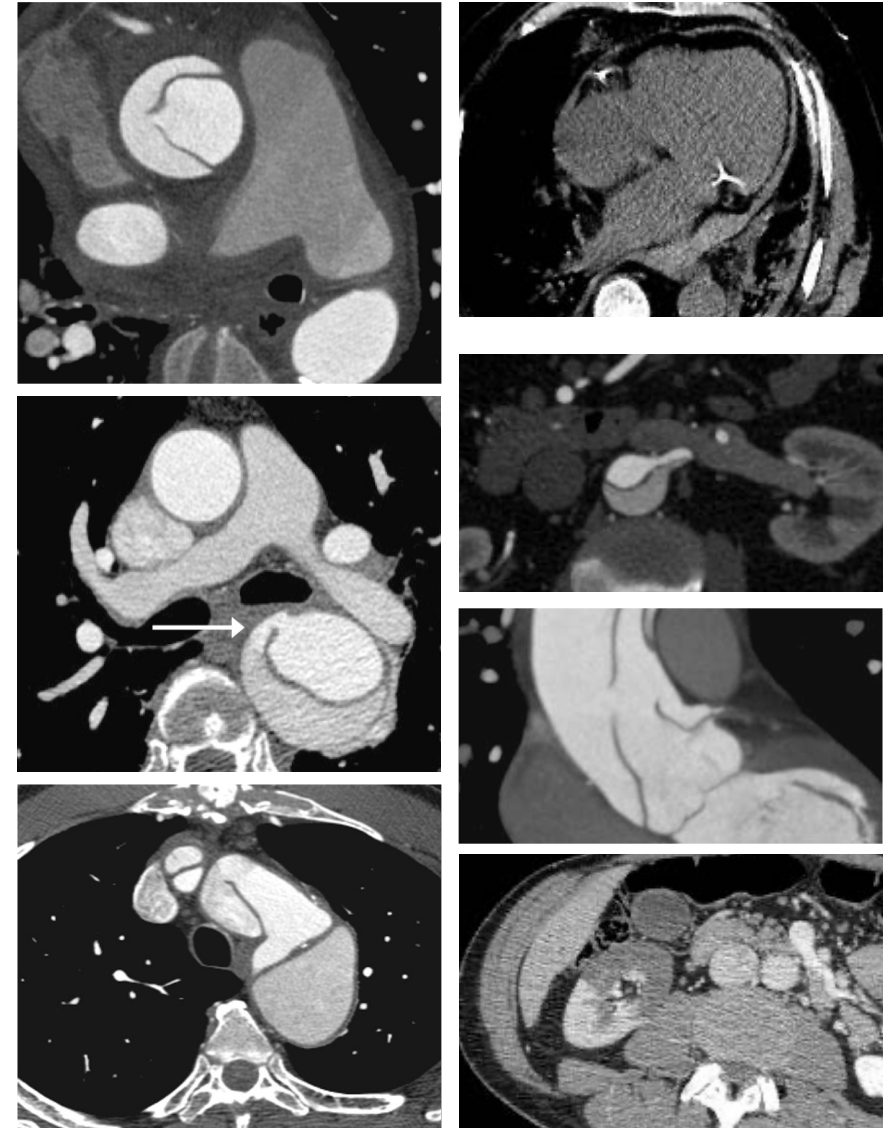
Scanner :

- Plaques d'athérome diffuses ++
- Hyperdensité intra-plaque
- Ulcération « en champignon »

# TDM dans le syndrome aortique aigu

Imaging Technique	Studies Included, No.	Sensitivity	Specificity
TEE	10	98 (95-99)	95 (92-97)§
Helical CT	3	100 (96-100)§	98 (87-99)
MRI	7	98 (95-99)	98 (95-100)

- Haute sensibilité et spécificité
- Disponible, acquisition rapide
- Classification, extension
- Localisation entrée and re-entrées
- Complications
  - Epanchement pleural ou péricardique
  - Atteinte valvulaire aortique
  - Atteintes des collatérales
  - Atteinte coronaire
  - Malperfusion vicérale



# Merci

Remerciements:

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