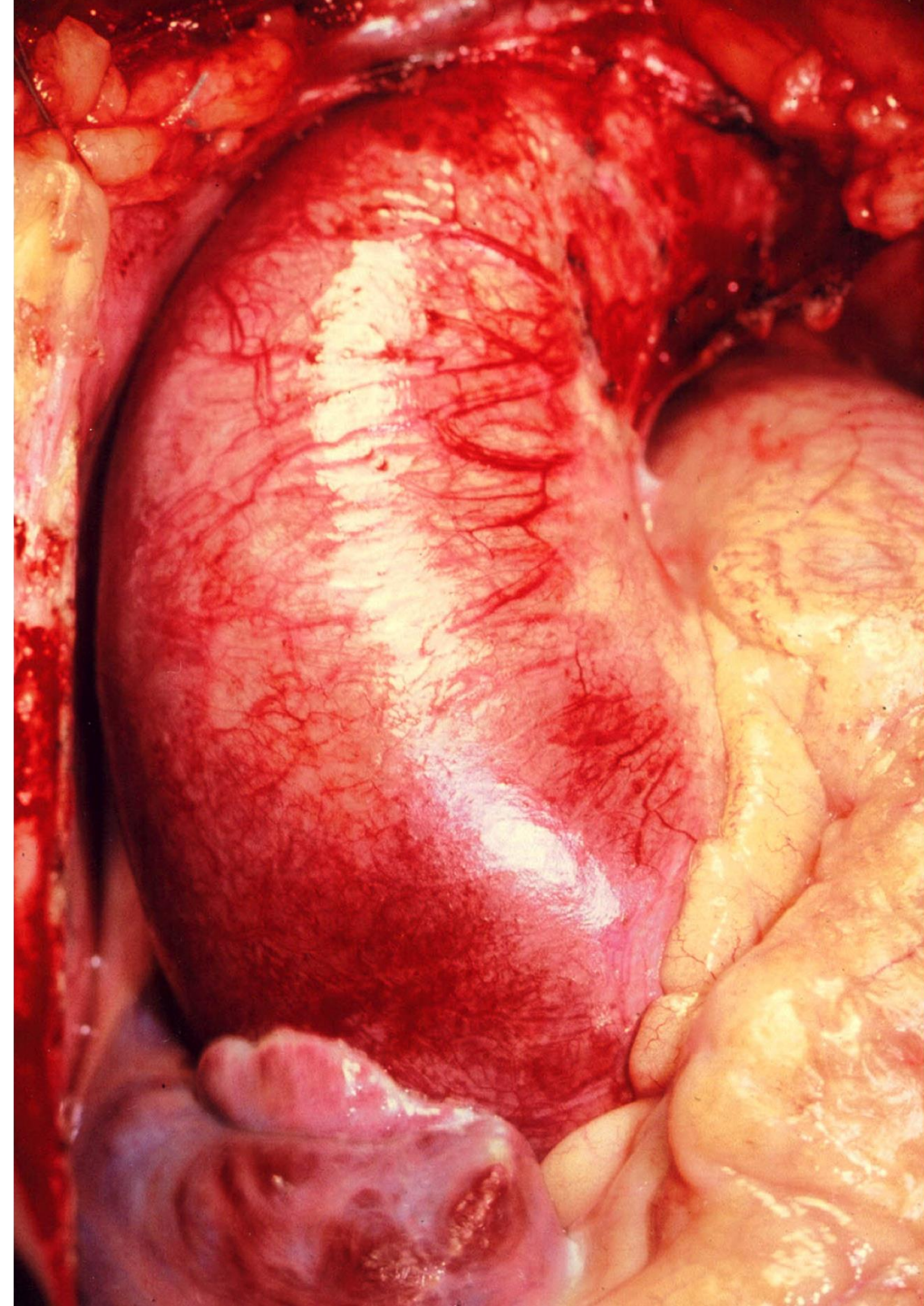




Dissection de l'aorte ascendante

Dr Causeret A., Dr Yan L.
Institut A. Tzanck

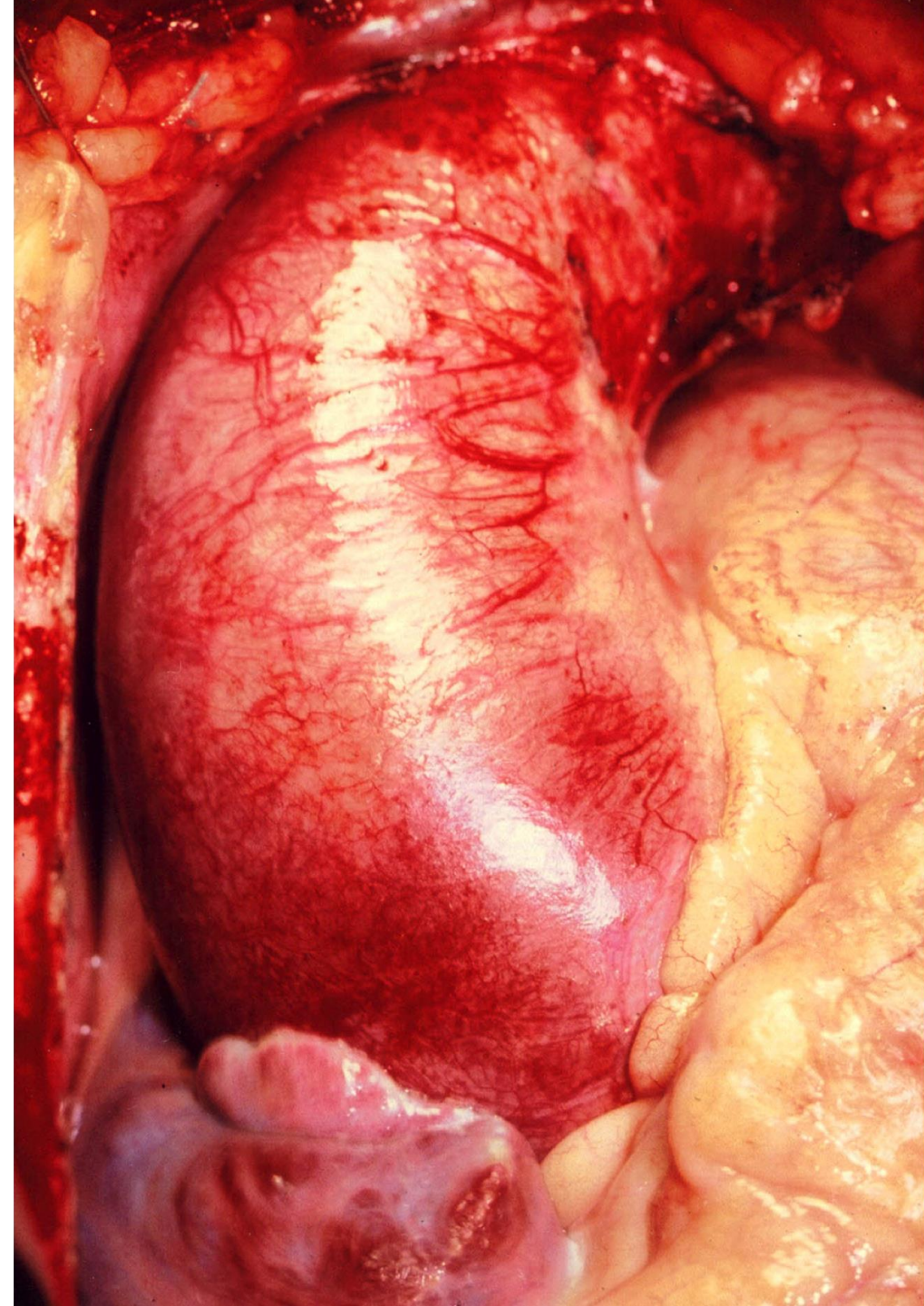
I - Epidémiologie



I - Epidémiologie

- Incidence entre 4 et 10 / 100 000
- 50% de décès dans les 48 heures (2%/h)
- Insuffisance aortique dans 75% des cas
- Urgence chirurgicale
- Mortalité intra-hospitalière : 18 à 22%

Evangelista et al, Circulation 2018





- Mortalité et réinterventions à long terme liées à la perméabilité du faux chenal et à l'évolution distale
 - 10 à 50 % de réinterventions
 - 10 à 20 % de mortalité
- Qualité de vie des patients altérée

Fattouch et al, Ann Thorac Surg 2009

Kimura et al, JTCVS 2015

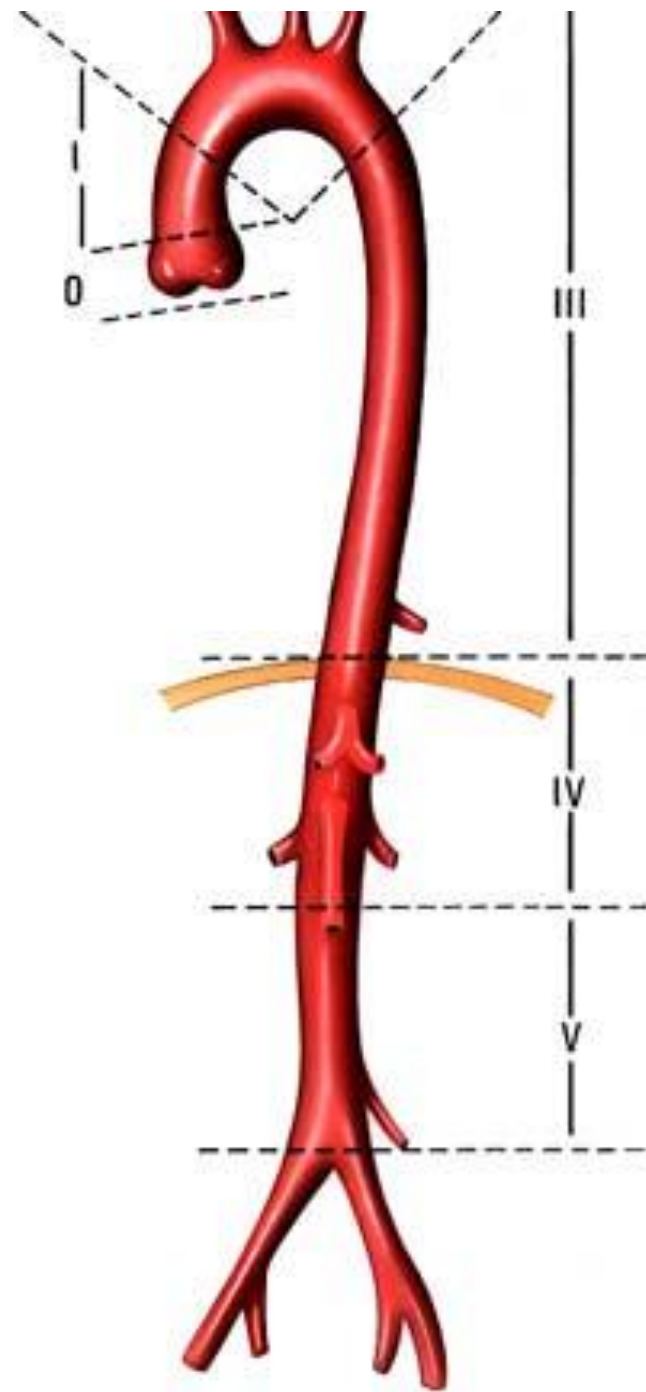
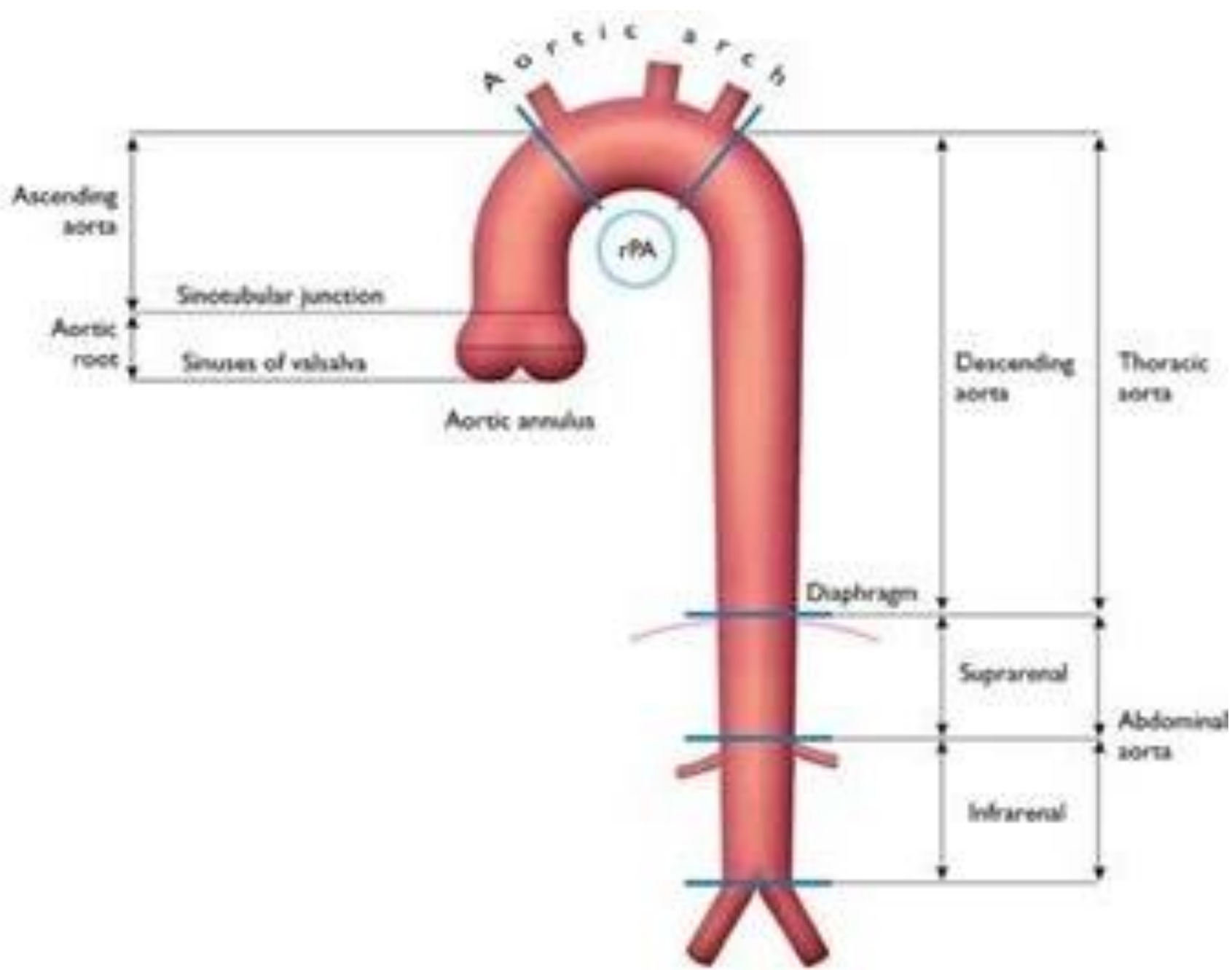
Tamura et al, Eur J Cardiothorac Surg 2017

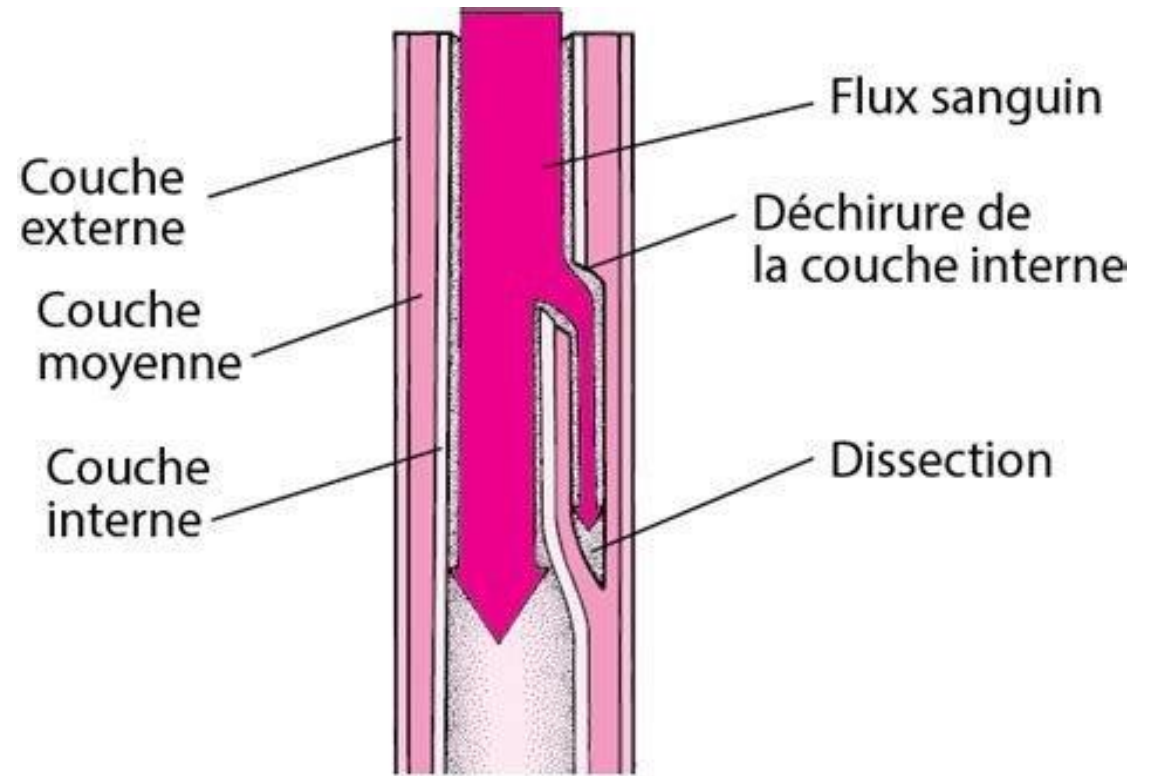
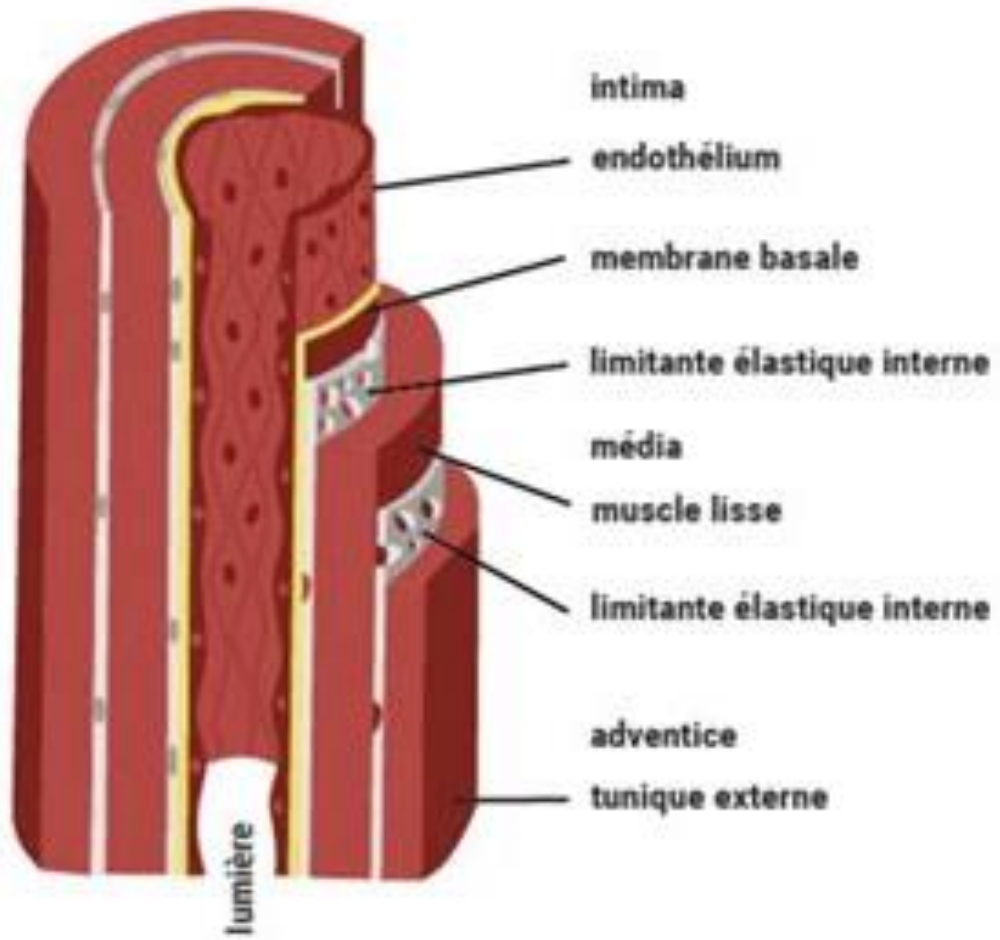
Etiologies

- **Age** +++
- **HTA** +++
- **Médianécrose** aortique, **ectasie** aortique
40% des cas de syndrome de **Marfan** développent une dissection
- **Athérosclérose** (athérome ulcéré)
- **Rupture de *vasa vasorum***
- **Traumatisme** thoracique
- Complication iatrogène de la **canulation** aortique de CEC

La **bicuspidie** valvulaire aortique est fréquemment associée.

II - Physiopathologie

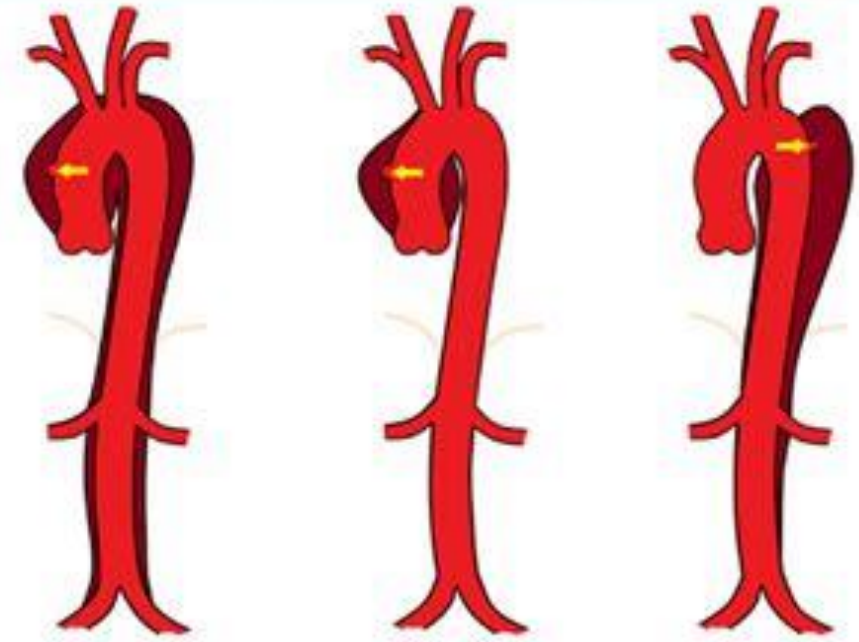




STANFORD	TYPE A		TYPE B
DE BAKEY	TYPE I	TYPE II	TYPE III



NORMAL



DE BAKEY CLASSIFICATION

- Type I** involves the ascending and descending aorta
- Type II** involves only the ascending aorta
- Type III** involves only the descending aorta

STANFORD CLASSIFICATION

- Type A** involves the aorta proximal to the origin of left subclavian artery
- Type B** involves the aorta distal to the origin of left subclavian artery

Revised recommendations (10)

2017 PAD and 2014 Aortic Guidelines	Class	Level	2024 PAAD Guidelines	Class	Level
<i>Recommendations for medical treatment in acute aortic syndromes</i>					
In all patients with AD, medical therapy, including pain relief and blood pressure control, is recommended.	I	C	Invasive monitoring with an arterial line and continuous three-lead ECG recording, as well as admission to an intensive care unit, is recommended.	I	B

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La pression artérielle

$$P = Q \times R$$

Pression artérielle

Débit
cardiaque

Résistance à l'écoulement
du sang

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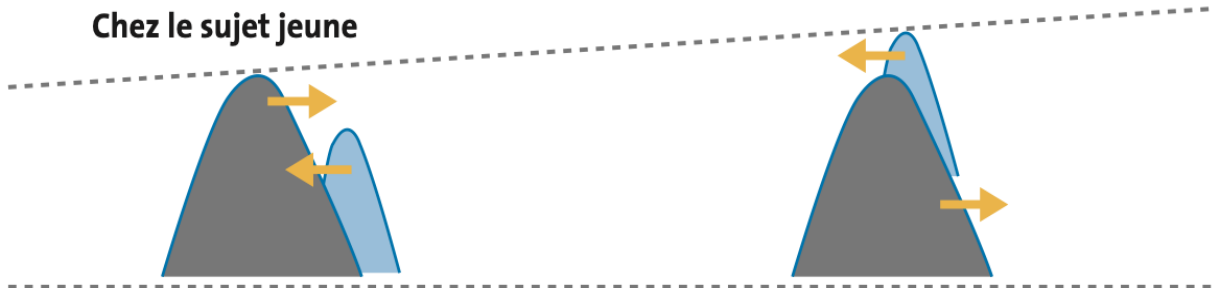
$$P = Q \times R$$

Pression artérielle

Débit
cardiaque




Résistance à l'écoulement
du sang

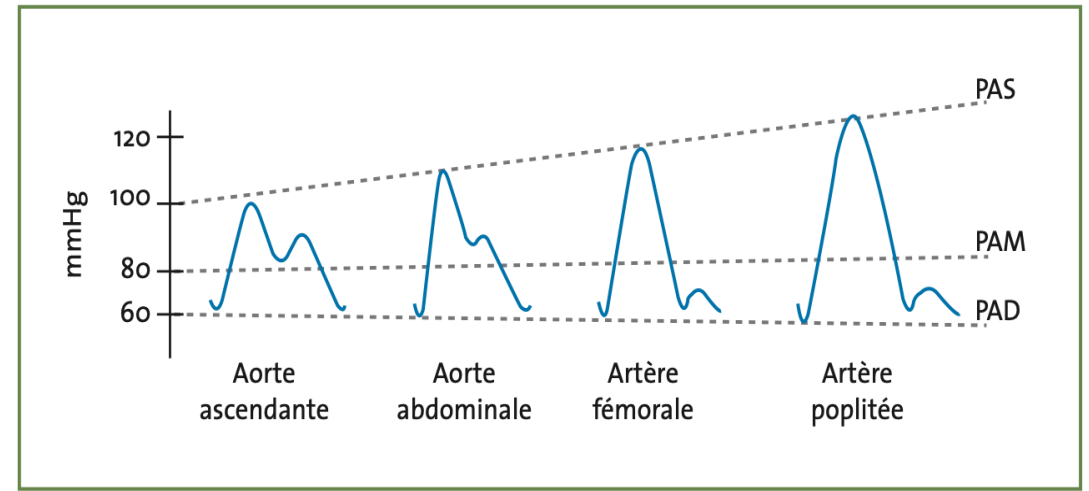
Chez le sujet jeune



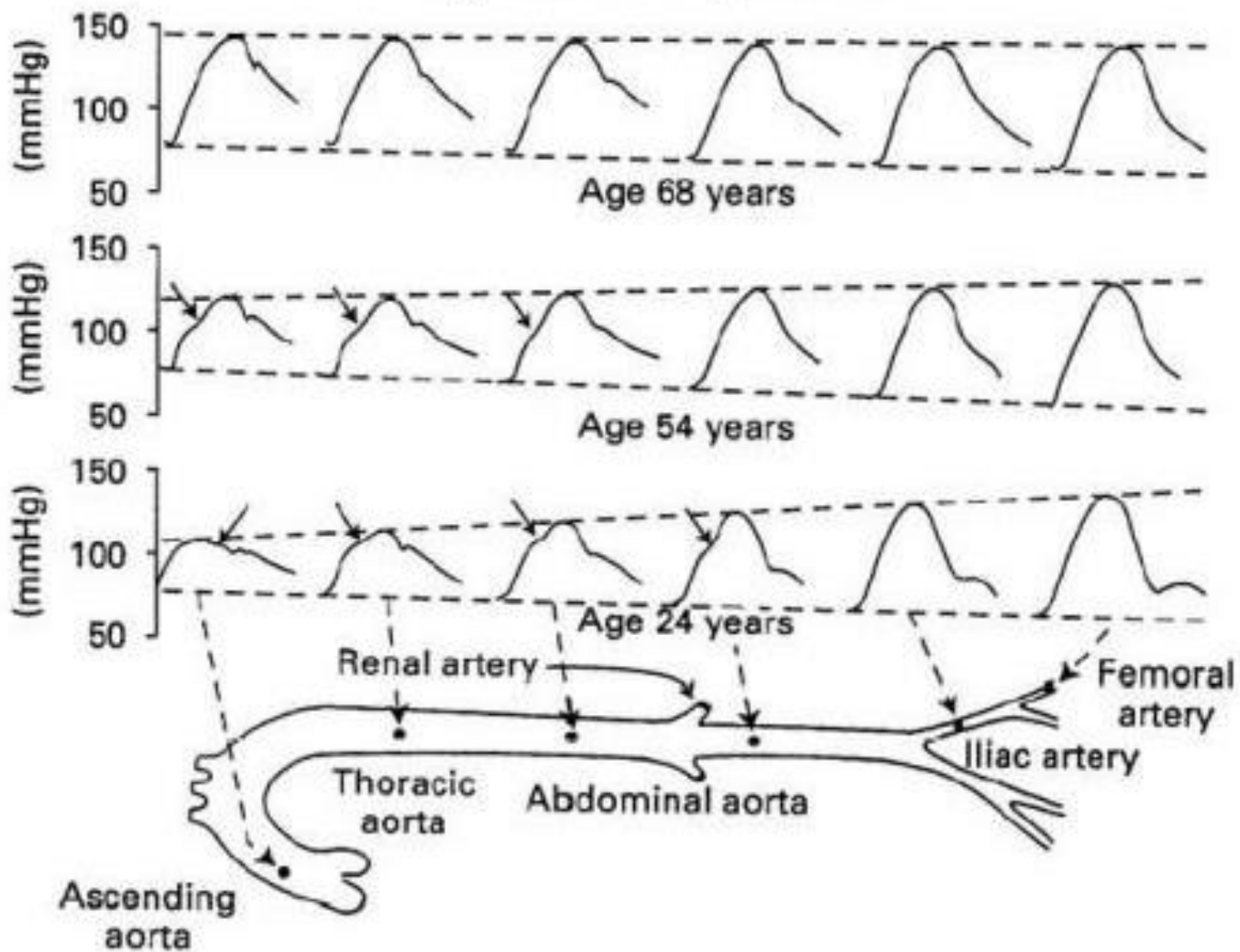
Chez le sujet âgé



-  Onde incidente
-  Onde réfléchie
-  Vitesse de l'onde de pouls



Age and PP amplification



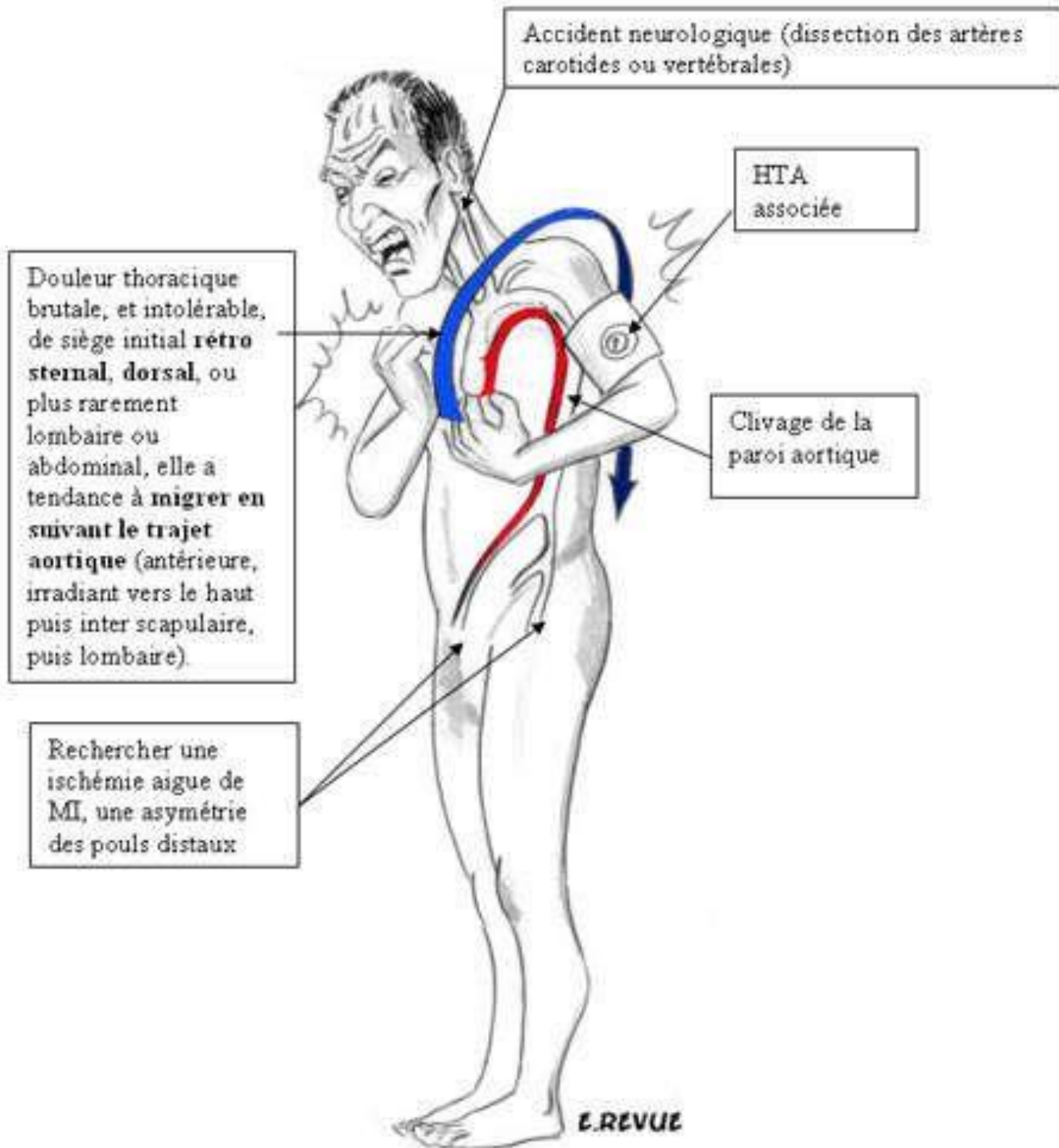


$$R = \frac{8 \times \eta \times l}{\pi \times r^4}$$

l : longueur des vaisseaux
 η : viscosité du sang
r : rayon des vaisseaux
 $\pi = 3,14159\dots$

Loi de Hagen-Poiseuille

III - Présentations cliniques



Tamponnade

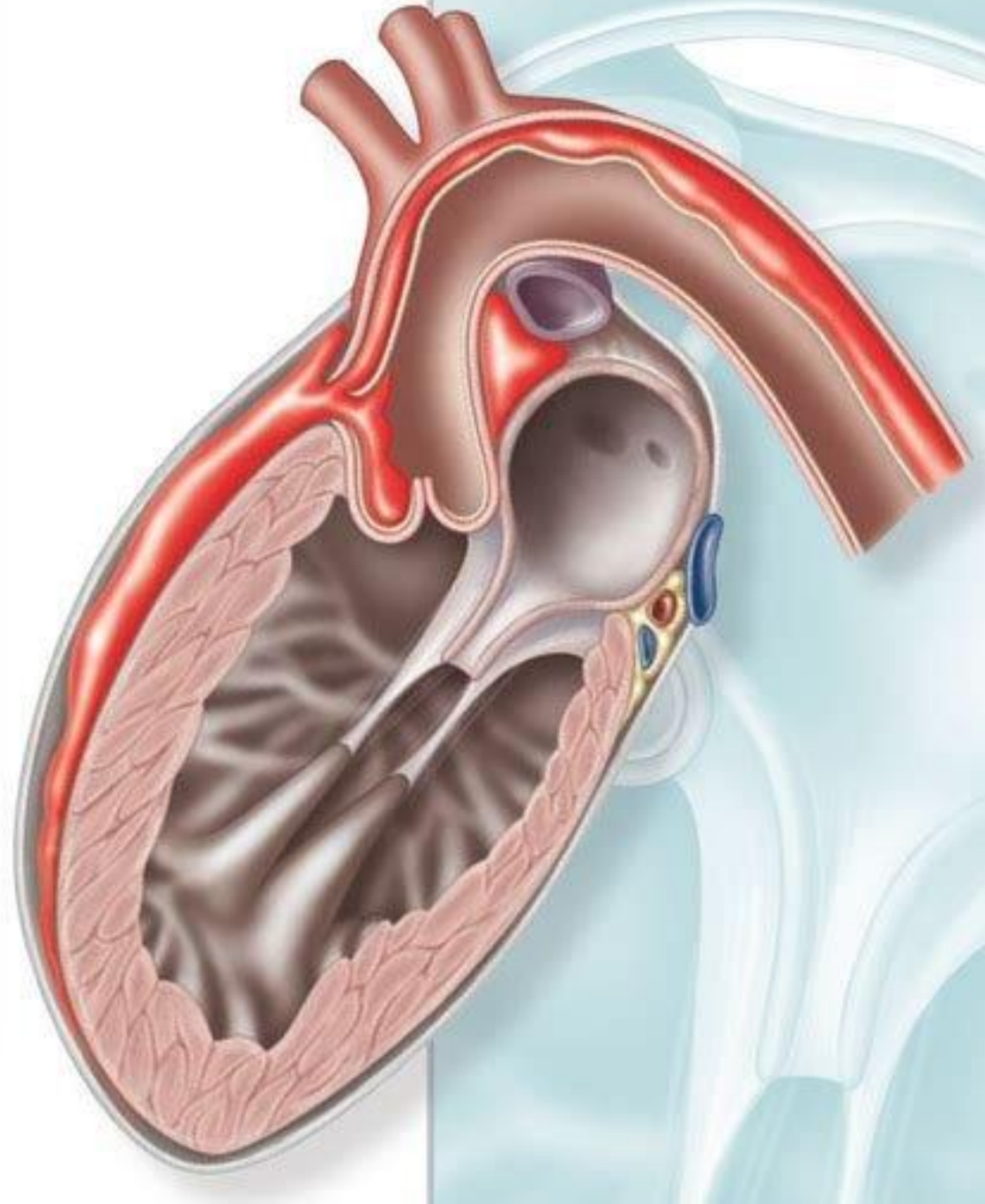
=> Remplissage

* Piège *

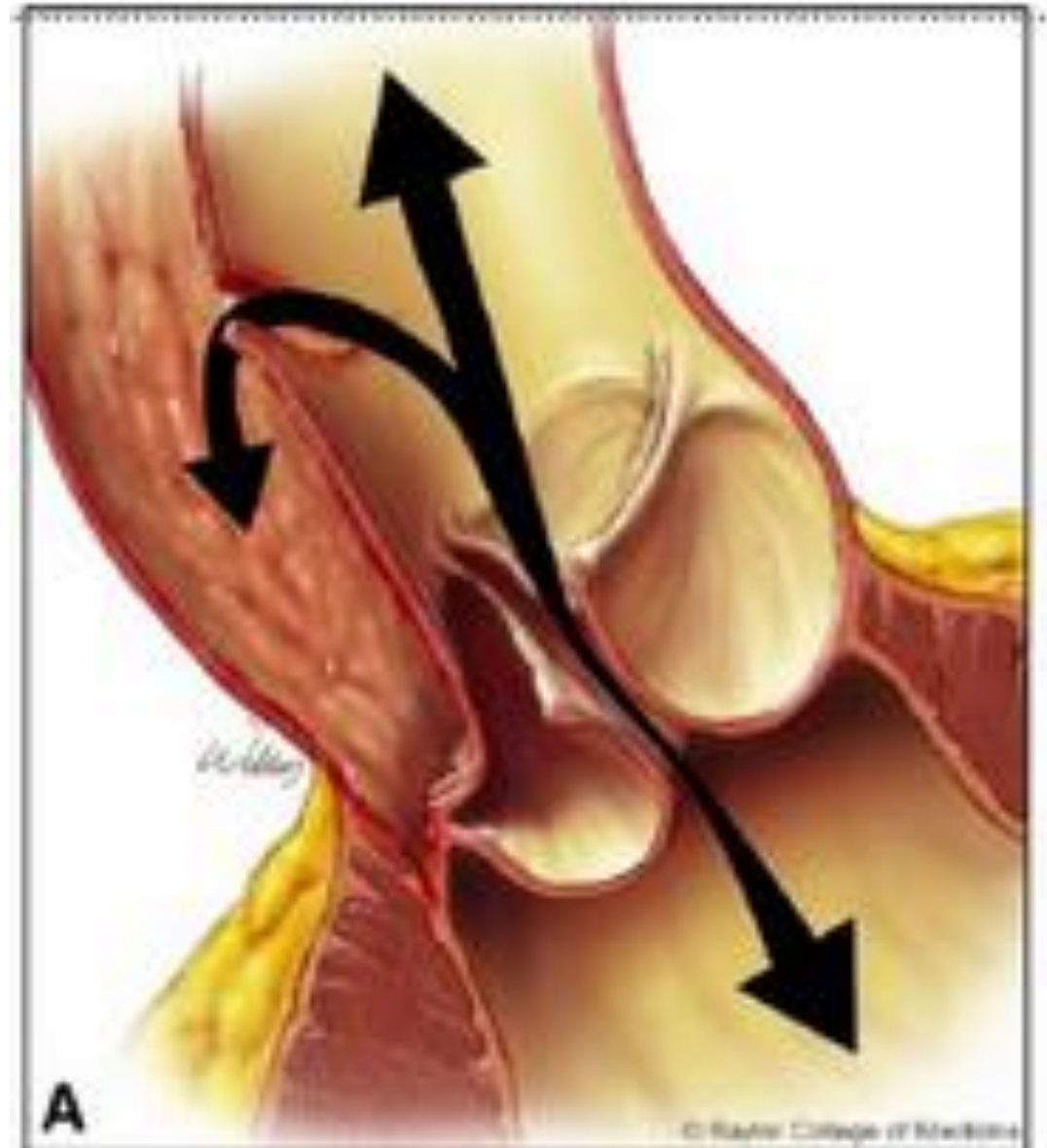
Si épanchement péricardique présent,

=> **Ne pas forcément drainer**

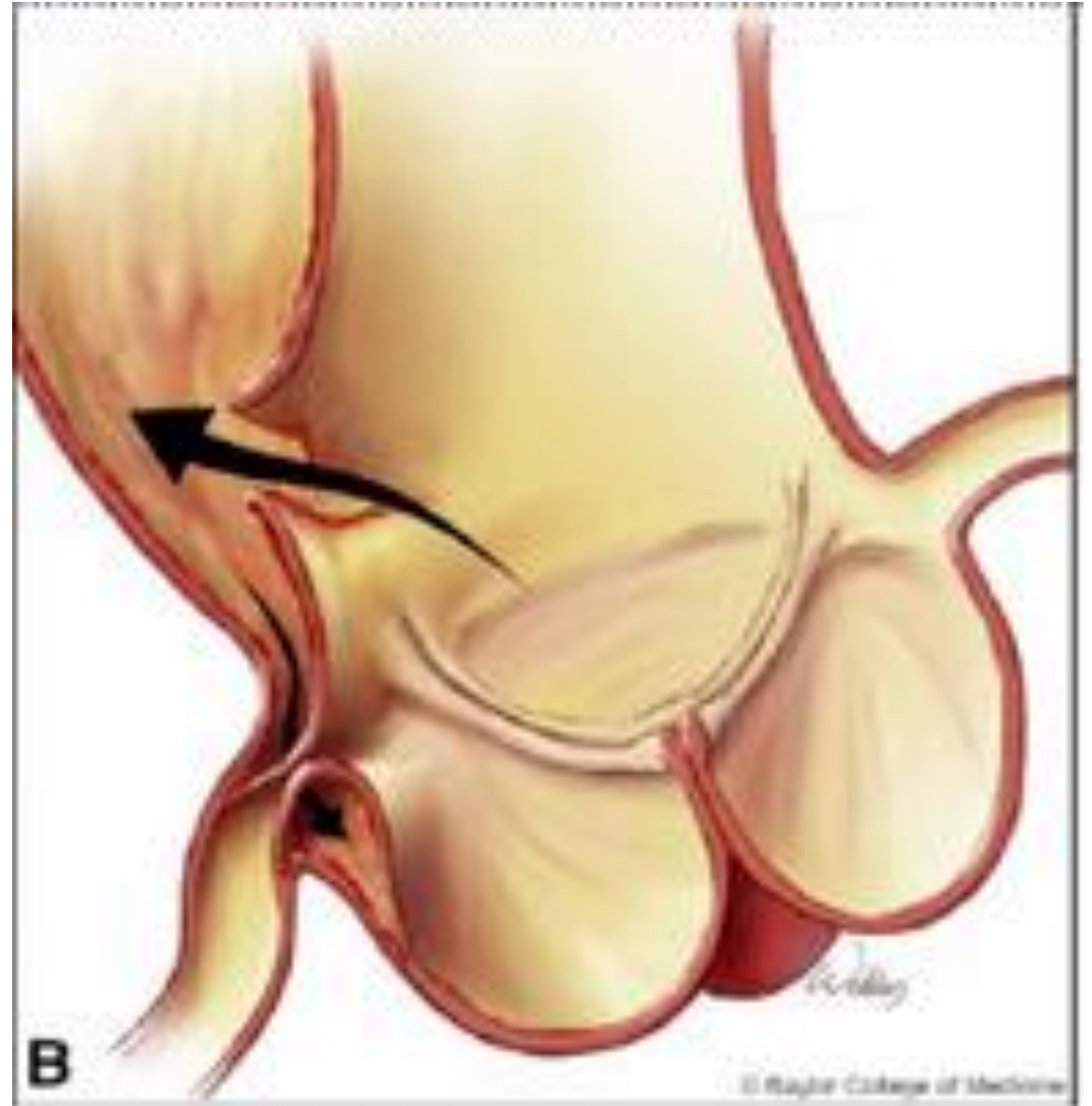
Car risque d'aggravation de la
dissection aortique



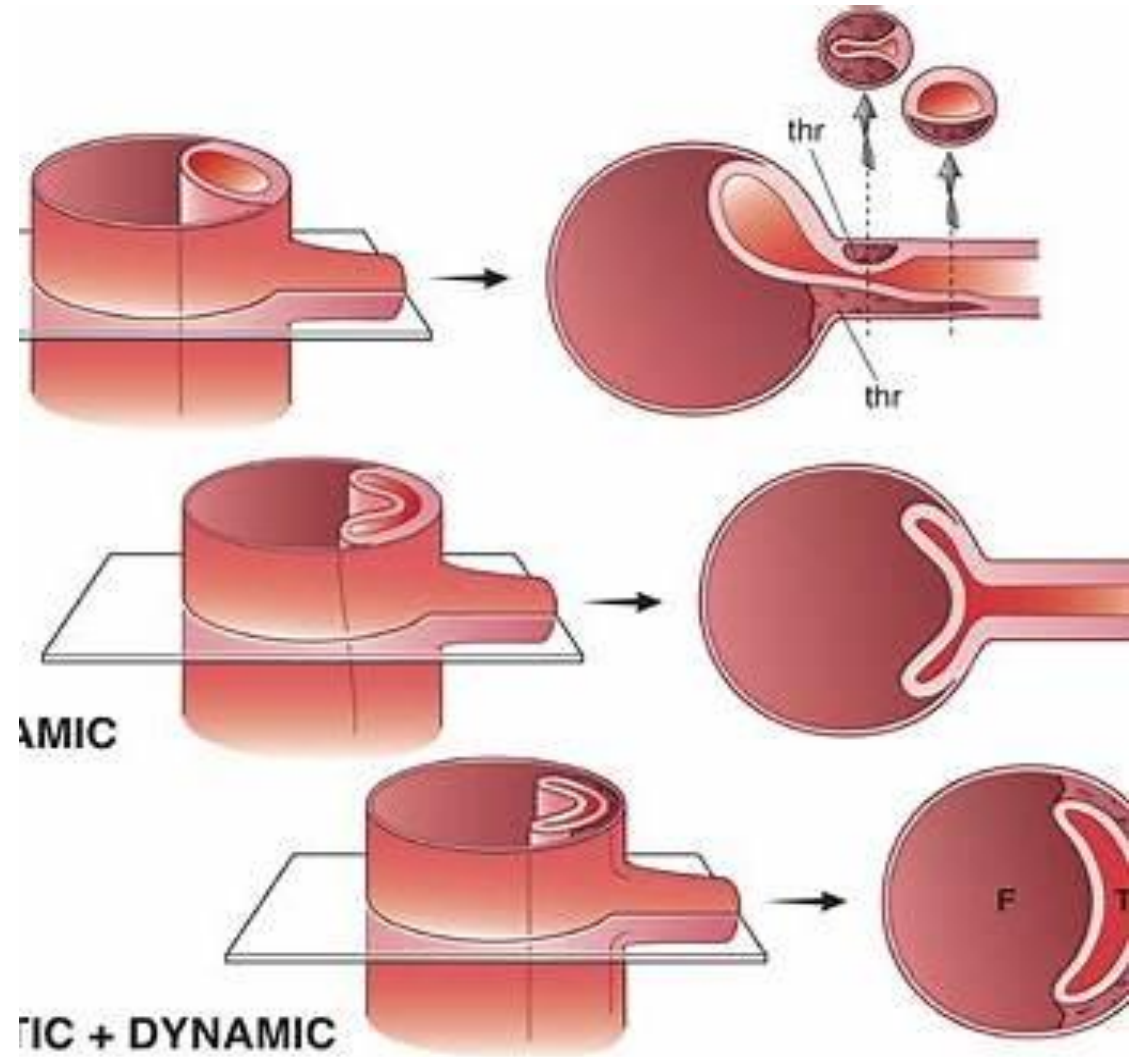
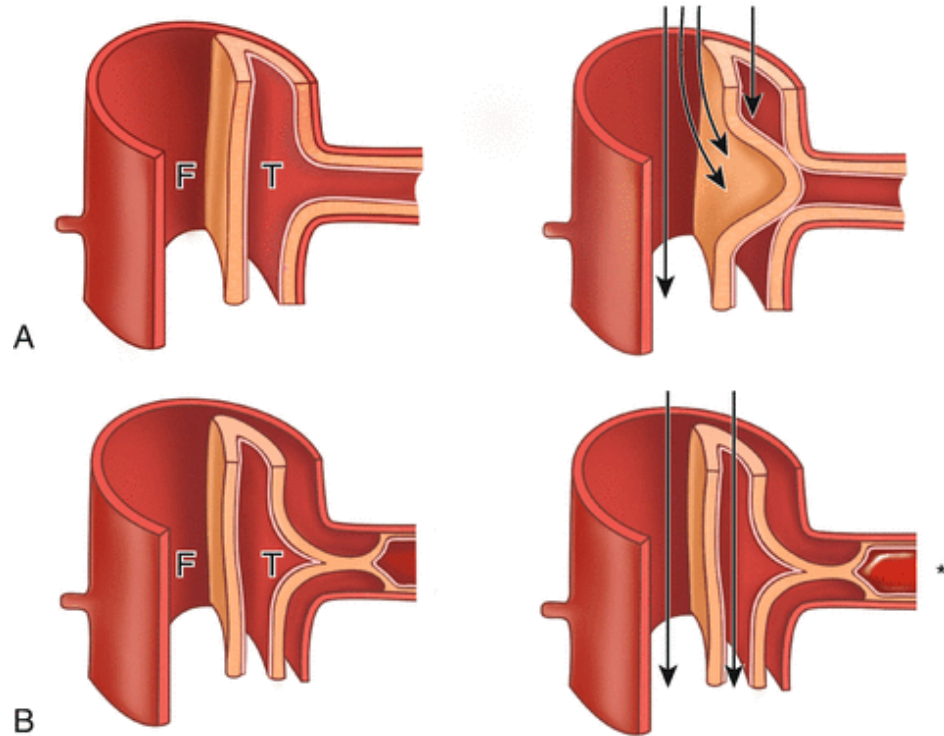
Insuffisance aortique



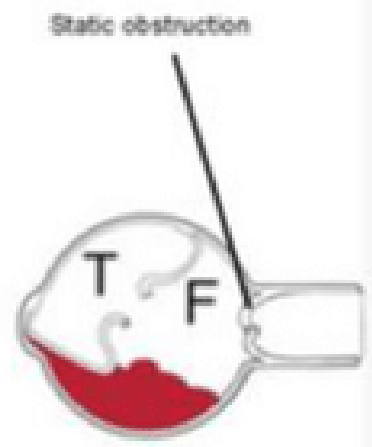
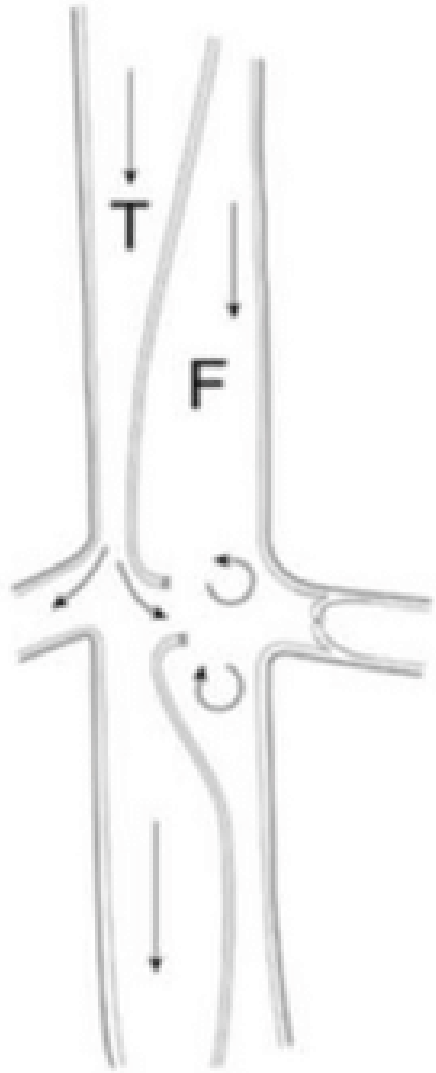
Malperfusion coronaire



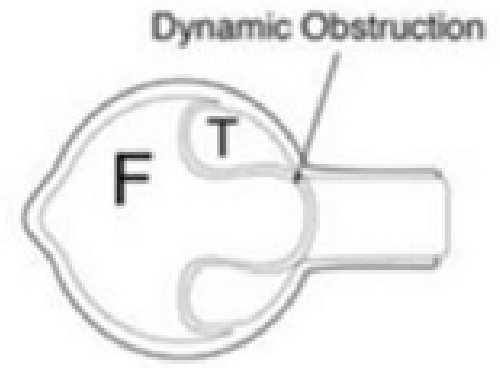
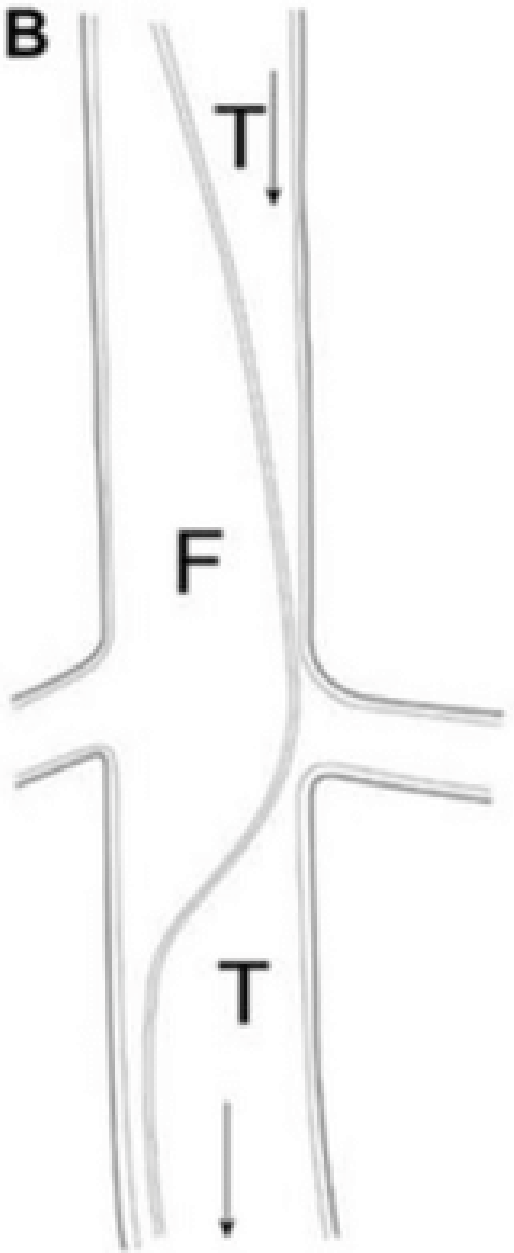
Syndrôme de malperfusion

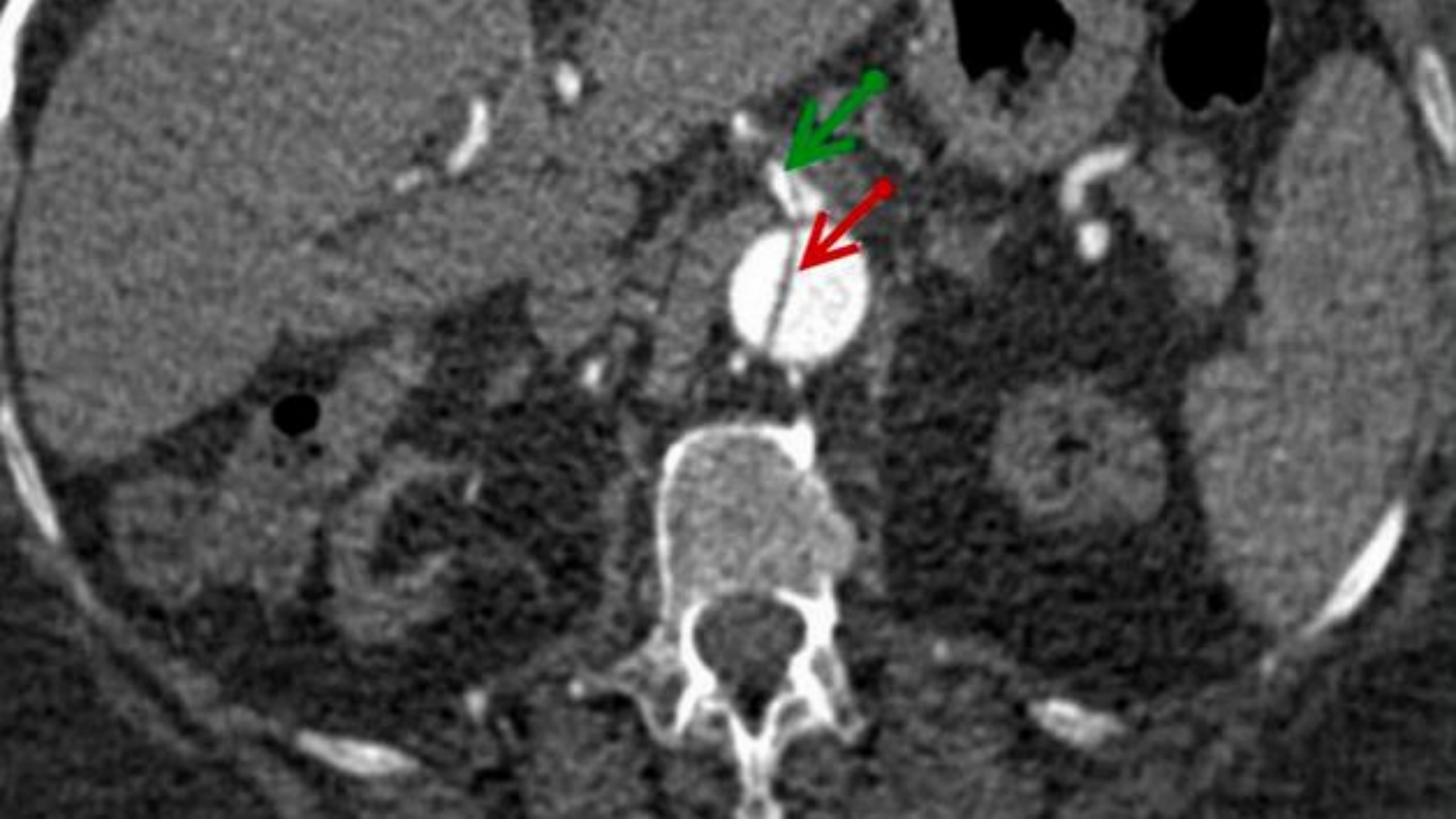


A



B





IV - Prise en charge

2021 The American Association for Thoracic Surgery expert consensus document: Surgical treatment of acute type A aortic dissection

TABLE 1. Initial medical therapy recommendations

Recommendations	COR	LOE	References
<i>Initial Medical Therapy</i>			
1. B-blockers are recommended in the initial management of ATAAD without severe aortic regurgitation.	I	B	1-3
2. Calcium channel blockers are a potential alternative.	IIa	B	1,3,4
3. When multiple agents are required, it is reasonable to start vasodilators after initial rate control.	IIa	C	1,3
4. In the setting of hypotension, volume resuscitation is reasonable to achieve systolic blood pressure of 90 mmHg.	IIa	C	5-7
5. Pain relief is recommended in patients with ATAAD.	I	C	8-10

COR, Class of recommendation; *LOE*, level of evidence; *ATAAD*, acute type A aortic dissection.

Traitement médical

- Contrôle de fréquence : **obj Fc 60bpm**
 - **Bêta-bloquant IVSE**
 - Landiolol (RAPIBLOC)
 - Esmolol (BREVIBLOC)
- Contrôle de tension : **obj PAS<120mmHg**
 - **Nicardipine (LOXEN) IVSE**
 - **Urapidil (EUPRESSYL) IVSE**
 - **Dérivés nitrés (RISORDAN) IVSE**
- **Remplissage**
- **Antalgie**

✱ Piège ✱

Si notre patient est hypotendu

Ne pas corriger par l'introduction
de support vasopresseur

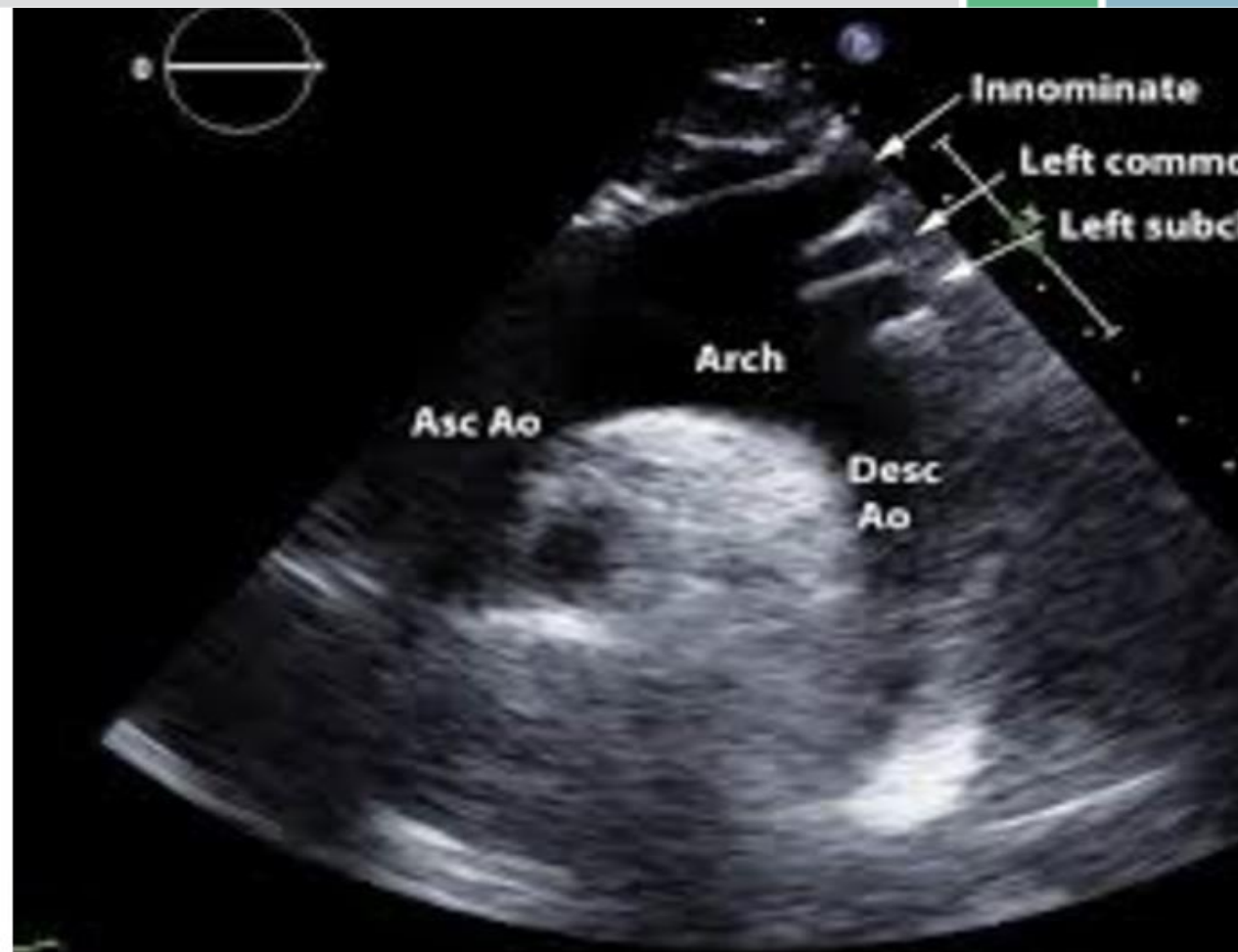
=> **Monitoring neurologique**

Recommendations for thoracic aortic measurements (1)

Recommendations

TTE is recommended as the first-line imaging technique in evaluating thoracic aortic diseases.

Class	Level
I	B

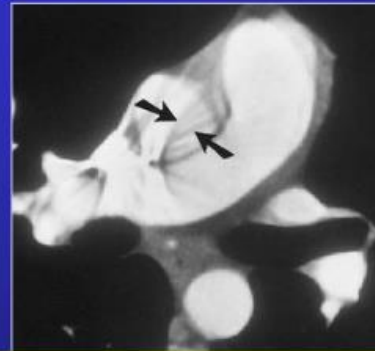


Recommendations for thoracic aortic measurements (1)

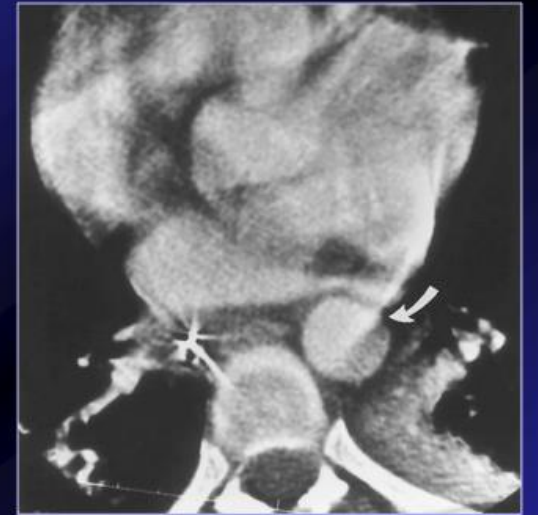
Recommendations	Class	Level
TTE is recommended as the first-line imaging technique in evaluating thoracic aortic diseases.	I	B
It is recommended to report aortic diameters using the leading-to-leading edge convention in end-diastole by echocardiography.	I	C
It is recommended to report aortic diameters using the inner-to-inner edge convention in end-diastole by CCT or CMR.	I	C
It is recommended to report aortic diameters from images obtained with the double-oblique technique (not axial images) by CCT or CMR.	I	C
ECG-triggered CCT is recommended for comprehensive diagnosis, follow-up, and pre-invasive treatment assessment of the entire aorta, particularly the root and ascending aorta.	I	C
CMR is recommended for diagnosis and follow-up of thoracic aortic diseases, especially when chronic follow-up is required.	I	C

Faux positifs

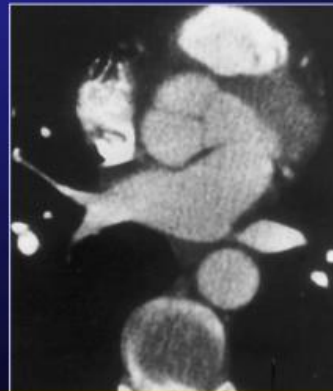
Image piège de pseudo-dissection



Artéfacts cinétiques cardiaques

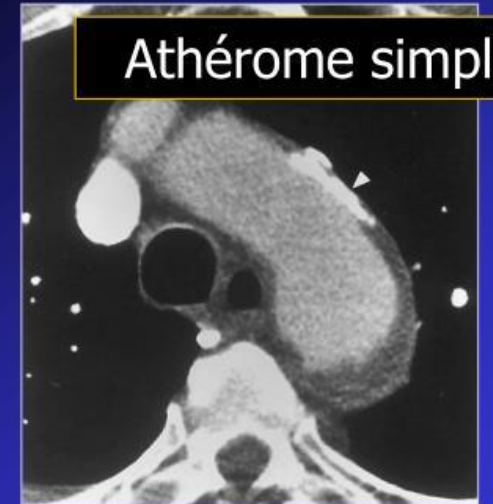


Athérome simple



Valves sigmoïdes

Solution :
synchronisation ECG



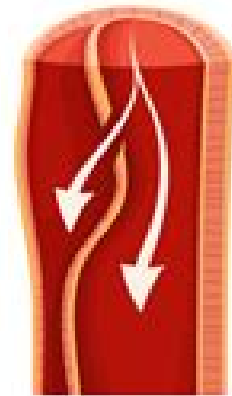
Traitement chirurgical



Mécanisme



HEMATON INTRAMURAL
AORTIQUE



DISSECTION
DE L'AORTE

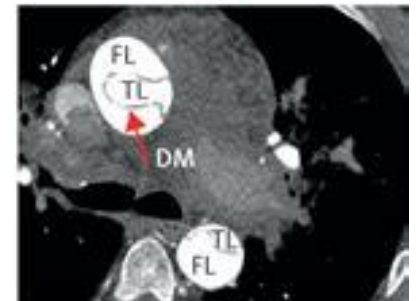
IMH



PAU



AAO



Circulation extra-corporelle

- **Canulation artérielle**

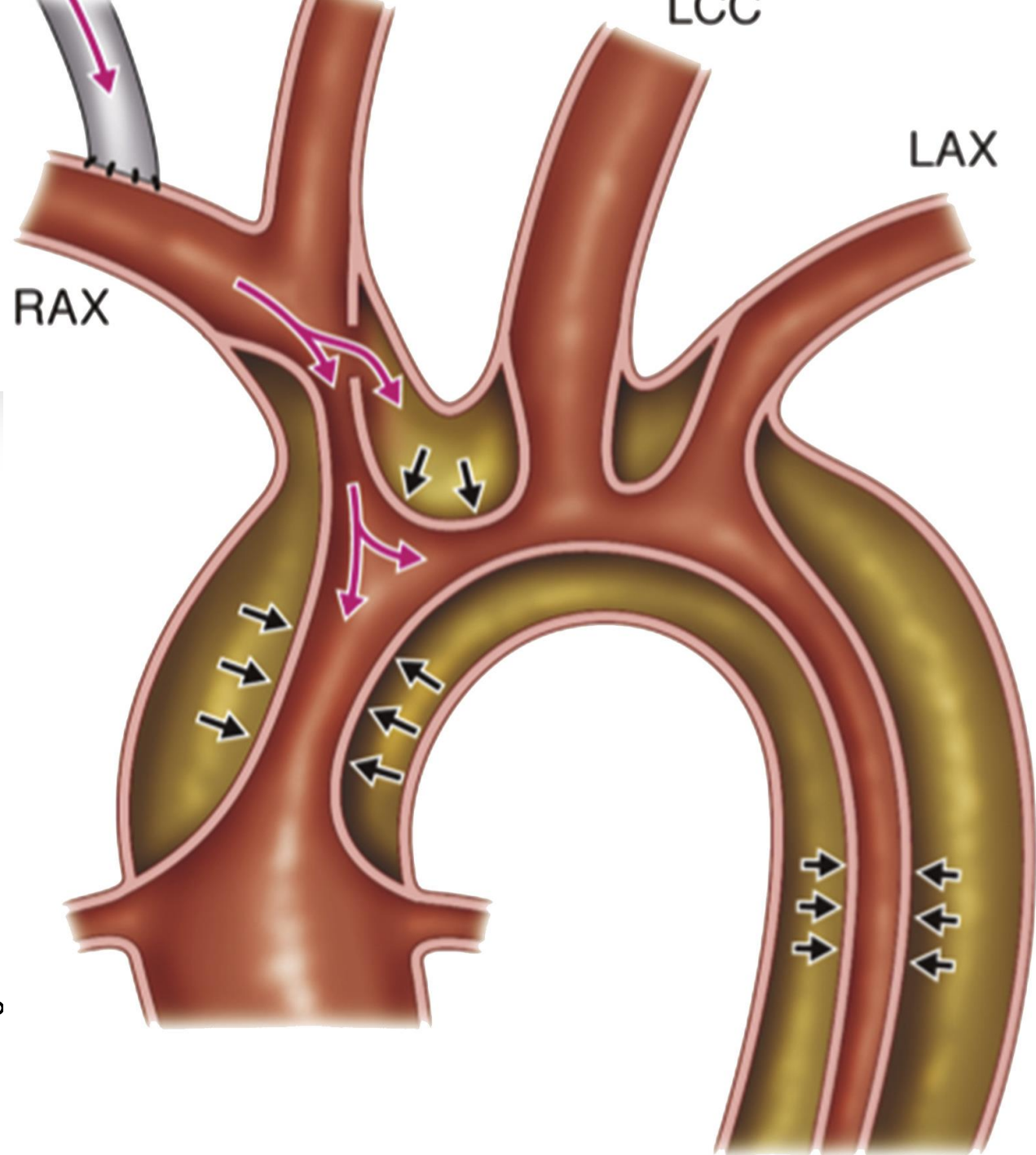
- Aorte ascendante
- Artère sous-clavière droite
- Artère fémorale

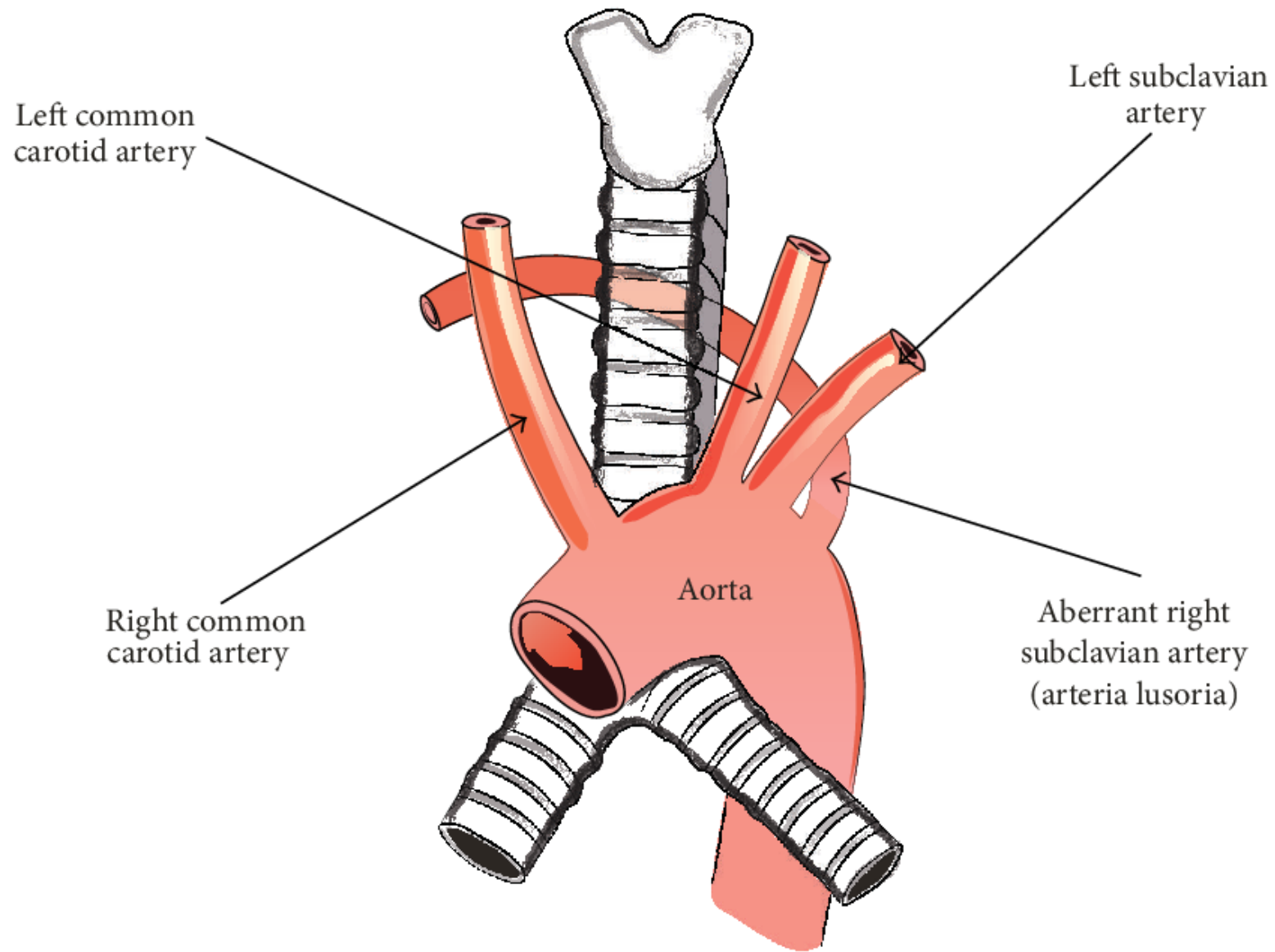
- **Canulation veineuse**

- Oreillette droite
- Veine fémorale

- **Protection cérébrale**

- Arrêt circulatoire
 - Hypothermie profonde à 18°C
 - Perfusion cérébrale antérograde à 28°





Revised recommendations (12)

2017 PAD and 2014 Aortic Guidelines	Class	Level	2024 PAAD Guidelines	Class	Level
<i>Recommendations for genetic testing and aortic screening in aortic disease</i>					
It is recommended to investigate FDRs (siblings and parents) of a subject with TAAD to identify a familial form in which relatives all have a 50% chance of carrying the family mutation/disease.	I	C	Imaging screening of family members of patients with TAD with risk factors for HTAD in whom no (likely) pathogenic variant is identified should be considered starting at age 25, or 10 years below the youngest case, whichever is younger. If the initial screening is normal, continued screening every 5 years until the age of 60 should be considered.	IIa	C

V – En conclusion

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Quelques *take home messages*

- **Priorité du contrôle de la fréquence et de la pression artérielle**
- **Pas de vasopresseur => monitoring neurologique**
- **Limiter le retard thérapeutique => scanner entier de l'aorte avec gating cardiaque**

Merci de votre attention