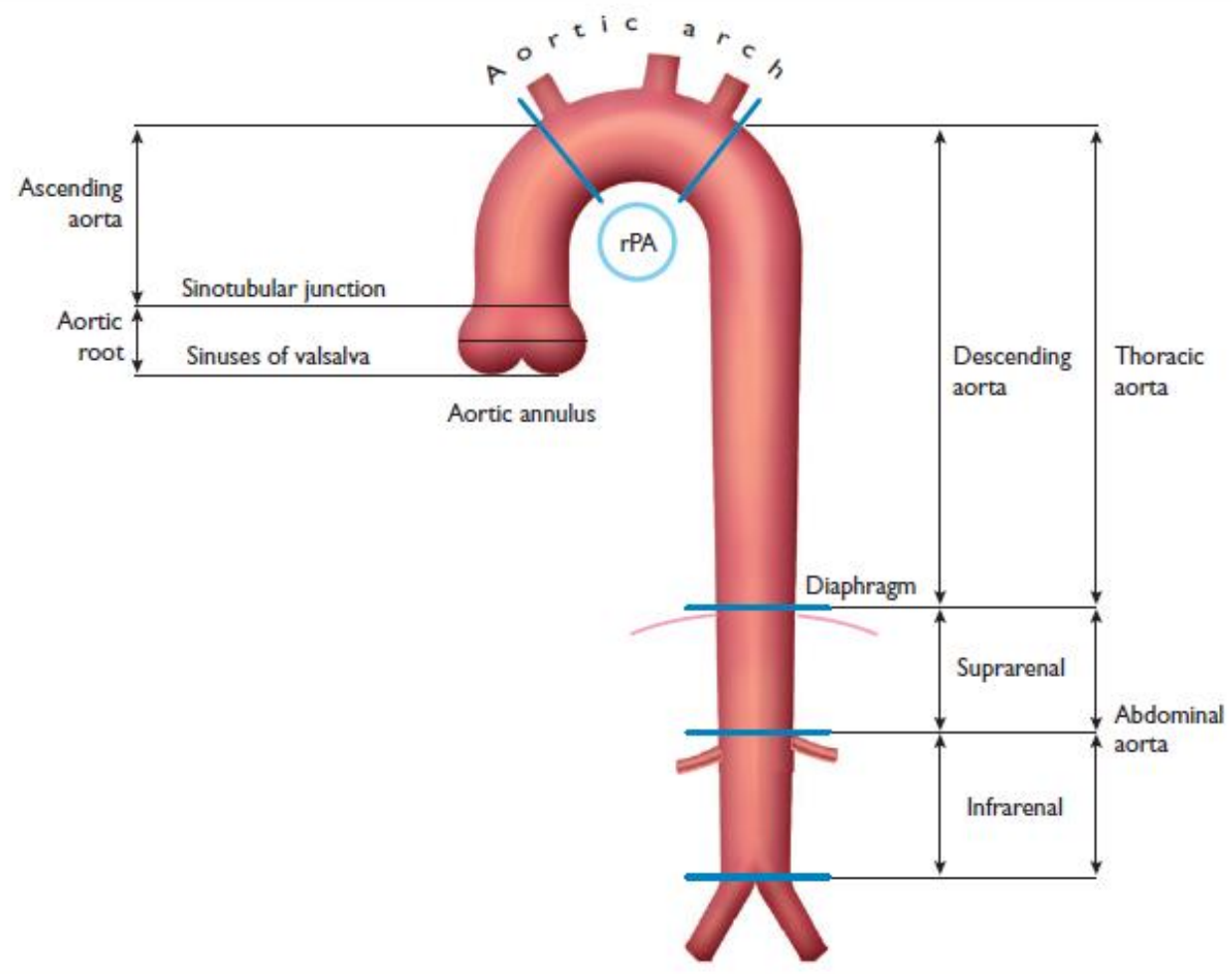


KHUYẾN CÁO NĂM 2014 CỦA HỘI TIM CHÂU ÂU VỀ ĐIỀU TRỊ BỆNH ĐỘNG MẠCH CHỦ

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Giải phẫu học ĐMC



Các triệu chứng cơ năng/bệnh lý ĐMC

- Đau cấp, nhức vùng ngực hay bụng; lan sau lưng, mông, căng chân- “cảm giác vỡ”
- Ho, khó thở, nuốt nghẹn hay nuốt đau
- Đau liên tục hay từng cơn vùng bụng, cảm giác mạch đập vùng bụng hoặc đầy bụng dù ăn rất ít (Phình ĐMC bụng)
- Đột quy, cơn TM não thoáng qua, đau cách hồi
- Nói khàn

So sánh các phương pháp hình ảnh học khảo sát ĐMC

Advantages/disadvantages	TTE	TOE	CT	MRI	Aortography
Ease of use	+++	++	+++	++	+
Diagnostic reliability	+	+++	+++	+++	++
Bedside/interventional use ^a	++	++	–	–	++
Serial examinations	++	+	++(+) ^b	+++	–
Aortic wall visualization ^c	+	+++	+++	+++	–
Cost	–	–	--	---	---
Radiation	0	0	---	–	--
Nephrotoxicity	0	0	---	--	---

+ means a positive remark and—means a negative remark. The number of signs indicates the estimated potential value

^aIVUS can be used to guide interventions (see web addenda)

^b+++ only for follow-up after aortic stenting (metallic struts), otherwise limit radiation

^cPET can be used to visualize suspected aortic inflammatory disease

CT = computed tomography; MRI = magnetic resonance imaging; TOE = transoesophageal echocardiography; TTE = transthoracic echocardiography.

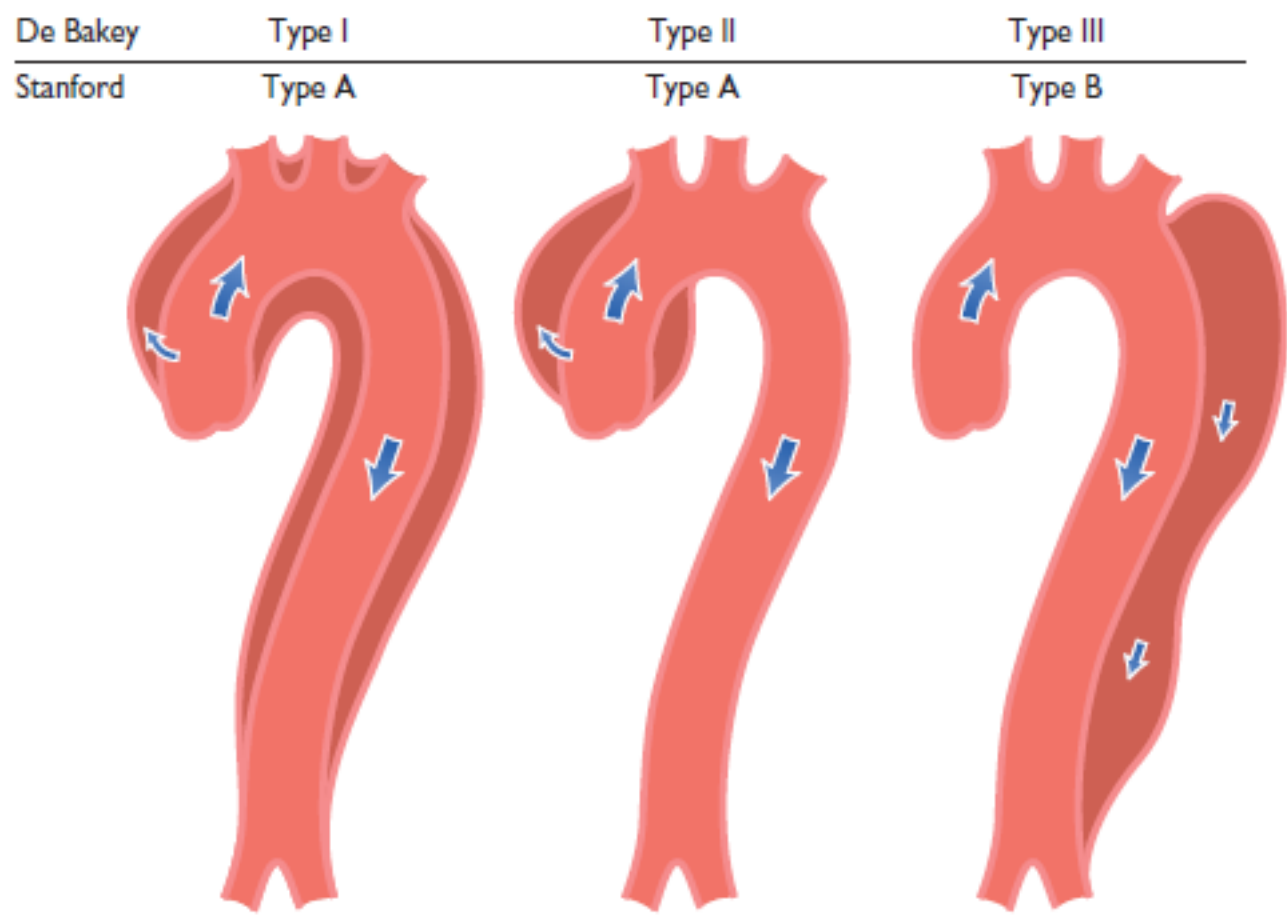
Giá trị chẩn đoán của các phương tiện hình ảnh/ hội chứng ĐMC cấp

Lesion	TTE	TOE	CT	MRI
Ascending aortic dissection	++	+++	+++	+++
Aortic arch dissection	+	+	+++	+++
Descending aortic dissection	+	+++	+++	+++
Size	++	+++	+++	+++
Mural thrombus	+	+++	+++	+++
Intramural haematoma	+	+++	++	+++
Penetrating aortic ulcer	++	++	+++	+++
Involvement of aortic branches	± ^a	(+)	+++	+++

^aCan be improved when combined by vascular ultrasound (carotid, subclavian, vertebral, celiac, mesenteric and renal arteries).

++ + = excellent; ++ = moderate; + = poor; (+) = poor and inconstant; CT = computed tomography; MRI = magnetic resonance imaging; TOE = transoesophageal echocardiography; TTE = transthoracic echocardiography.

Phân loại vị trí bóc tách ĐMC

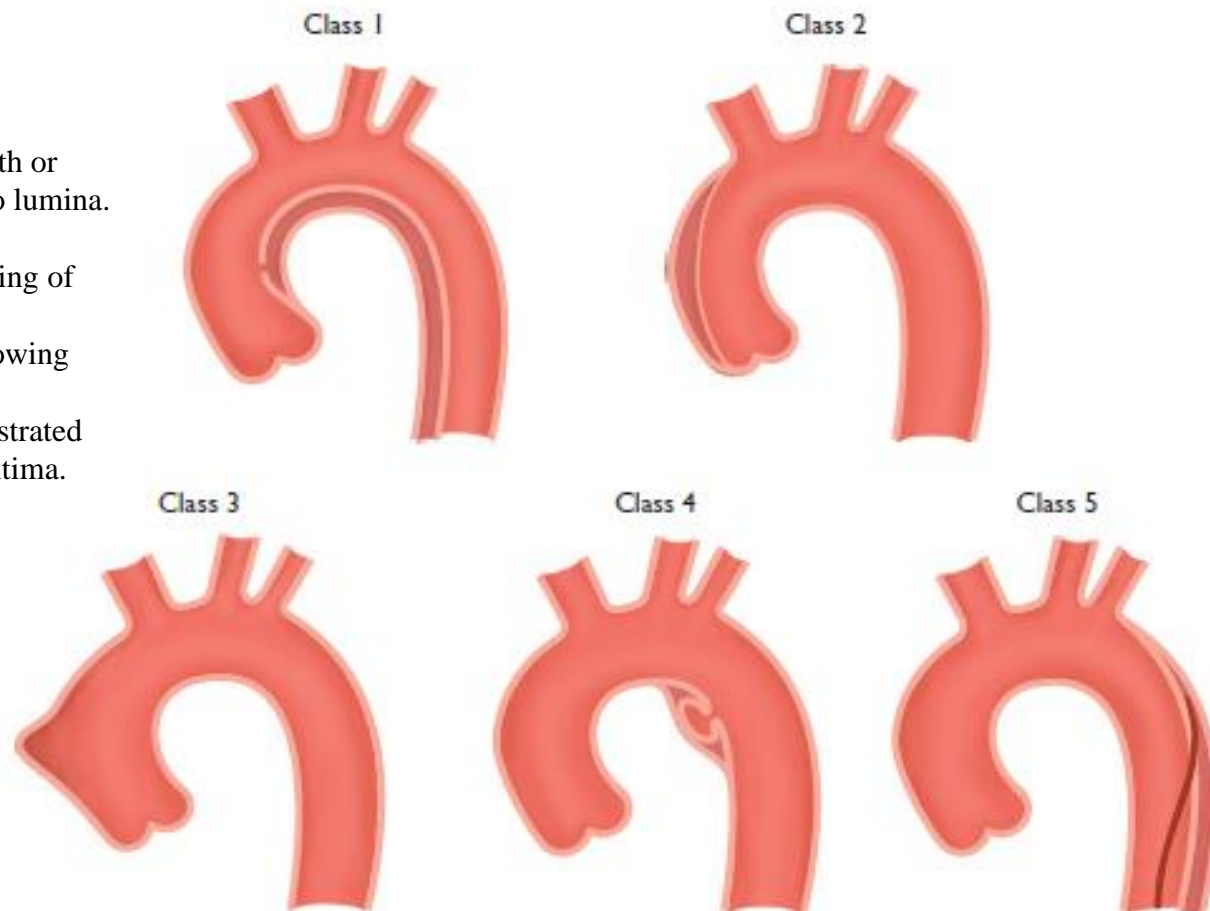


Classification of aortic dissection localization. Schematic drawing of aortic dissection class 1, subdivided into De Bakey Types I, II, and III. Also depicted are Stanford classes A and B. Type III is differentiated in subtypes III A to III C. (sub-type depends on the thoracic or abdominal involvement according to Reul et al.140)



Phân loại hội chứng ĐMC cấp trong bóc tách ĐMC

- Class 1: Classic AD with true and FL with or without communication between the two lumina.
- Class 2: Intramural haematoma.
- Class 3: Subtle or discrete AD with bulging of the aortic wall.
- Class 4: Ulceration of aortic plaque following plaque rupture.
- Class 5: Iatrogenic or traumatic AD, illustrated by a catheterinduced separation of the intima.



Biểu hiện lâm sàng chính và biến chứng của BTĐMC cấp

NR = not reported; NA = not applicable. Percentages are approximated.

	Type A	Type B
Chest pain	80%	70%
Back pain	40%	70%
Abrupt onset of pain	85%	85%
Migrating pain	<15%	20%
Aortic regurgitation	40–75%	N/A
Cardiac tamponade	<20%	N/A
Myocardial ischaemia or infarction	10–15%	10%
Heart failure	<10%	<5%
Pleural effusion	15%	20%
Syncope	15%	<5%
Major neurological deficit (coma/stroke)	<10%	<5%
Spinal cord injury	<1%	NR
Mesenteric ischaemia	<5%	NR
Acute renal failure	<20%	10%
Lower limb ischaemia	<10%	<10%

Các xét nghiệm cần thiết cho BTĐMC cấp

Laboratory tests	To detect signs of:
Red blood cell count	Blood loss, bleeding, anaemia
White blood cell count	Infection, inflammation (SIRS)
C-reactive protein	Inflammatory response
ProCalcitonin	Differential diagnosis between SIRS and sepsis
Creatine kinase	Reperfusion injury, rhabdomyolysis
Troponin I or T	Myocardial ischaemia, myocardial infarction
D-dimer	Aortic dissection, pulmonary embolism, thrombosis
Creatinine	Renal failure (existing or developing)
Aspartate transaminase/ alanine aminotransferase	Liver ischaemia, liver disease
Lactate	Bowel ischaemia, metabolic disorder
Glucose	Diabetes mellitus
Blood gases	Metabolic disorder, oxygenation



SIRS = systemic inflammatory response syndrome.

Các dữ kiện cần có về hình ảnh học trên b/n BTĐMC cấp (1)

Aortic dissection
Visualization of intimal flap
Extent of the disease according to the aortic anatomic segmentation
Identification of the false and true lumens (if present)
Localization of entry and re-entry tears (if present)
Identification of antegrade and/or retrograde aortic dissection
Identification grading, and mechanism of aortic valve regurgitation
Involvement of side branches
Detection of malperfusion (low flow or no flow)
Detection of organ ischaemia (brain, myocardium, bowels, kidneys, etc.)
Detection of pericardial effusion and its severity
Detection and extent of pleural effusion
Detection of peri-aortic bleeding
Signs of mediastinal bleeding

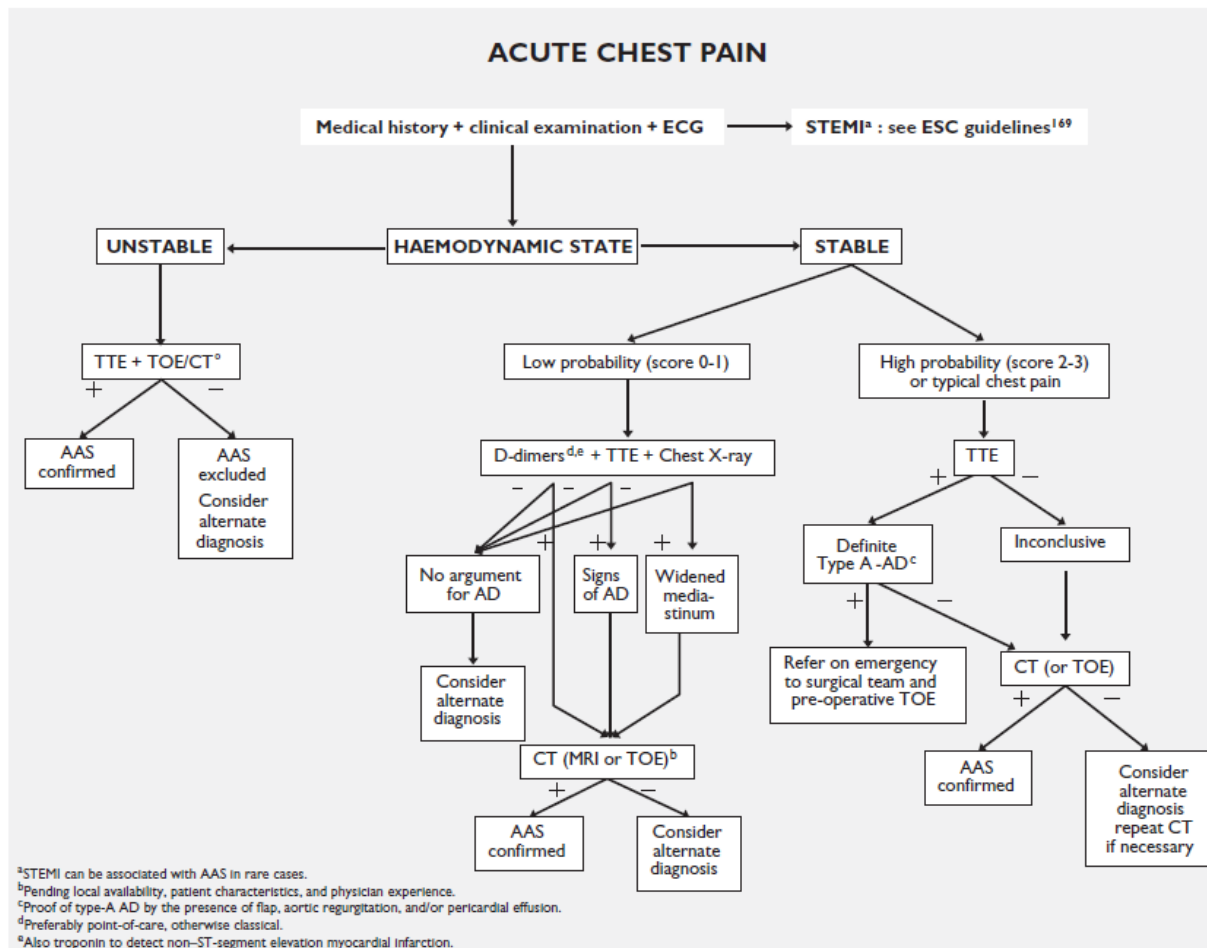
Các dữ kiện cần có về hình ảnh học trên b/n BTĐMC cấp (2)

Intramural haematoma
Localization and extent of aortic wall thickening
Co-existence of atheromatous disease (calcium shift)
Presence of small intimal tears
Penetrating aortic ulcer
Localization of the lesion (length and depth)
Co-existence of intramural haematoma
Involvement of the peri-aortic tissue and bleeding
Thickness of the residual wall
In all cases
Co-existence of other aortic lesions: aneurysms, plaques, signs of inflammatory disease, etc.

Các dữ kiện lâm sàng hữu ích giúp chẩn đoán HCĐMC cấp

High-risk conditions	High-risk pain features	High-risk examination features
<ul style="list-style-type: none"> • Marfan syndrome (or other connective tissue diseases) • Family history of aortic disease • Known aortic valve disease • Known thoracic aortic aneurysm • Previous aortic manipulation (including cardiac surgery) 	<ul style="list-style-type: none"> • Chest, back, or abdominal pain described as any of the following: <ul style="list-style-type: none"> - abrupt onset - severe intensity - ripping or tearing 	<ul style="list-style-type: none"> • Evidence of perfusion deficit: <ul style="list-style-type: none"> - pulse deficit - systolic blood pressure difference - focal neurological deficit (in conjunction with pain) • Aortic diastolic murmur (new and with pain) • Hypotension or shock

Quy trình chẩn đoán hội chứng ĐMC cấp dựa trên độ nhạy trước trắc nghiệm (pre-test sensitivity)



Flowchart for decision-making based on pre-test sensitivity of acute aortic syndrome. AAS = abdominal aortic aneurysm; AD = aortic dissection; CT = computed tomography; MRI = magnetic resonance imaging; TOE = transoesophageal echocardiography; TTE = transthoracic echocardiography.

TL: Erbel R et al. 2014 ESC Guidelines on the diagnosis and treatment of arttic disease. Eur. HJ, August 29, 2014, p 1-62

Khuyến cáo chẩn đoán HC ĐMC cấp (1)

Recommendations	Class ^a	Level ^b	Ref. ^c
History and clinical assessment			
In all patients with suspected AAS, pre-test probability assessment is recommended, according to the patient's condition, symptoms, and clinical features.	I	B	142
Laboratory testing			
In case of suspicion of AAS, the interpretation of biomarkers should always be considered along with the pre-test clinical probability.	IIa	C	
In case of low clinical probability of AAS, negative D-dimer levels should be considered as ruling out the diagnosis.	IIa	B	154–156, 159
In case of intermediate clinical probability of AAS with a positive (point-of-care) D-dimer test, further imaging tests should be considered.	IIa	B	154, 159
In patients with high probability (risk score 2 or 3) of AD, testing of D-dimers is not recommended.	III	C	
Imaging			
TTE is recommended as an initial imaging investigation.	I	C	
In unstable ^d patients with a suspicion of AAS, the following imaging modalities are recommended according to local availability and expertise:			
• TOE	I	C	
• CT	I	C	

TL: Erbel R et al. 2014 ESC Guidelines on the diagnosis and treatment of aortic disease. Eur. HJ, August 29, 2014, p 1-62

Khuyến cáo chẩn đoán HC ĐMC cấp (2)

Recommendations	Class ^a	Level ^b	Ref. ^c
In unstable patients with a suspicion of AAS, the following imaging modalities are recommended (or should be considered) according to local availability and expertise:			
• CT	I	C	
• MRI	I	C	
• TOE	IIa	C	
In case of initially negative imaging with persistence of suspicion of AAS, repetitive imaging (CT or MRI) is recommended.	I	C	
Chest X-ray may be considered in cases of low clinical probability of AAS.	IIb	C	
In case of uncomplicated Type B AD treated medically, repeated imaging (CT or MRI) ^e during the first days is recommended.	I	C	

^aClass of recommendation.

^bLevel of evidence.

^cReference(s) supporting recommendations.

^dUnstable means very severe pain, tachycardia, tachypnoea, hypotension, cyanosis, and/or shock.

^ePreferably MRI in young patients, to limit radiation exposure.

AAS = abdominal aortic aneurysm; AD = aortic dissection; CT = computed tomography; MRI = magnetic resonance imaging; TOE = transoesophageal echocardiography; TTE = transthoracic echocardiography.

TL: Erbel R et al. 2014 ESC Guidelines on the diagnosis and treatment of aortic disease. Eur. HJ, August 29, 2014, p 1-62

Khuyến cáo điều trị bóc tách ĐMC

Recommendations	Class ^a	Level ^b	Ref. ^c
In all patients with AD, medical therapy including pain relief and blood pressure control is recommended.	I	C	
In patients with Type A AD, urgent surgery is recommended.	I	B	1,2
In patients with acute Type A AD and organ malperfusion, a hybrid approach (i.e. ascending aorta and/or arch replacement associated with any percutaneous aortic or branch artery procedure) should be considered.	IIa	B	2,118, 202–204, 227
In uncomplicated Type B AD, medical therapy should always be recommended.	I	C	
In uncomplicated Type B AD, TEVAR should be considered.	IIa	B	218,219
In complicated Type B AD, TEVAR is recommended.	I	C	
In complicated Type B AD, surgery may be considered.	IIb	C	

TL: Erbel R et al. 2014 ESC Guidelines on the diagnosis and treatment of aortic disease. Eur. HJ, August 29, 2014, p 1-62



^aClass of recommendation.

^bLevel of evidence.

^cReference(s) supporting recommendations.

AD = aortic dissection; TEVAR = thoracic endovascular aortic repair.

Các yếu tố tiên đoán huyết khối trong thành sẽ có biến chứng

Persistent and recurrent pain despite aggressive medical treatment ²⁴¹
Difficult blood pressure control ²²⁸
Ascending aortic involvement ^{228, 237, 242}
Maximum aortic diameter >50 mm ^{178, 242}
Progressive maximum aortic wall thickness (>11 mm) ²⁴³
Enlarging aortic diameter ²⁴³
Recurrent pleural effusion ²⁴¹
Penetrating ulcer or ulcer-like projection secondary to localized dissections in the involved segment ^{241, 244-246}
Detection of organ ischaemia (brain, myocardium, bowels, kidneys, etc)

Khuyến cáo xử trí huyết khối trong thành ĐMC

Recommendations	Class ^a	Level ^b
In all patients with IMH, medical therapy including pain relief and blood pressure control is recommended.	I	C
In cases of Type A IMH , urgent surgery is indicated.	I	C
In cases of Type B IMH, initial medical therapy under careful surveillance is recommended.	I	C
In uncomplicated ^c Type B IMH, repetitive imaging (MRI or CT) is indicated.	I	C
In complicated ^c Type B IMH, TEVAR should be considered.	IIa	C
In complicated ^c Type B IMH, surgery may be considered.	IIb	C

^aClass of recommendation.

^bLevel of evidence.

^cUncomplicated/complicated IMH means absence or present recurrent pain, expansion of the IMH, periaortic haematoma, intimal disruption.

CT = computed tomography; IMH = intramural haematoma; MRI = magnetic resonance imaging; TEVAR = thoracic endovascular aortic repair.

Khuyến cáo xử trí loét xuyên thấu ĐMC

Recommendations	Class ^a	Level ^b
In all patients with PAU, medical therapy including pain relief and blood pressure control is recommended.	I	C
In the case of Type A PAU, surgery should be considered.	IIa	C
In the case of Type B PAU, initial medical therapy under careful surveillance is recommended.	I	C
In uncomplicated Type B PAU, repetitive imaging (MRI or CT) is indicated.	I	C
In complicated Type B PAU, TEVAR should be considered.	IIa	C
In complicated Type B PAU, surgery may be considered.	IIb	C

^aClass of recommendation.

^bLevel of evidence.

CT = computed tomography; MRI = magnetic resonance imaging;

PAU = penetrating aortic ulcer; TEVAR = thoracic endovascular aortic repair.



Khuyến cáo xử trí tổn thương ĐMC do chấn thương

Recommendations	Class ^a	Level ^b
In case of suspicion of TAI, CT is recommended.	I	C
If CT is not available, TOE should be considered	IIa	C
In cases of TAI with suitable anatomy requiring intervention, TEVAR should be preferred to surgery.	IIa	C

^aClass of recommendation.

^bLevel of evidence.

CT = computed tomography; TAI = traumatic aortic injury; TEVAR = thoracic endovascular aortic repair; TOE = transoesophageal echocardiography.

Khuyến cáo chăm sóc b/n phình ĐMC

Recommendations	Class ^a	Level ^b
When an aortic aneurysm is identified at any location, assessment of the <u>entire aorta</u> and aortic valve is recommended at baseline and during follow-up.	I	C
In cases of aneurysm of the abdominal aorta, <u>duplex ultrasound for screening of peripheral artery disease</u> and peripheral aneurysms should be considered.	IIa	C
Patients with aortic aneurysm are at increased risk of cardiovascular disease: general principles of cardiovascular prevention should be considered.	IIa	C

^aClass of recommendation.

^bLevel of evidence.

Khuyến cáo can thiệp phình ĐMC lên (1)

Recommendations	Class ^a	Level ^b
Surgery is indicated in patients who have aortic root aneurysm, with maximal aortic diameter ≥ 50 mm for patients with Marfan syndrome.	I	C
Surgery should be considered in patients who have aortic root aneurysm, with maximal ascending aortic diameters: <ul style="list-style-type: none"> ≥ 45 mm for patients with Marfan syndrome with risk factors.^d ≥ 50 mm for patients with bicuspid valve with risk factors.^{e,f} ≥ 55 mm for other patients with no elastopathy.^{g,h} 	IIa	C
Lower thresholds for intervention may be considered according to body surface area in patients of small stature or in the case of rapid progression, aortic valve regurgitation, planned pregnancy, and patient's preference.	IIb	C

Khuyến cáo can thiệp phình ĐMC lên (2)

^aClass of recommendation.

^bLevel of evidence.

^cDecision should also take into account the shape of the different parts of the aorta. Lower thresholds can be used for combining surgery on the ascending aorta for patients who have an indication for surgery on the aortic valve.

^dFamily history of AD and/or aortic size increase .3 mm/year (on repeated measurements using the same imaging technique, at the same aorta level, with side-by-side comparison and confirmed by another technique), severe aortic or mitral regurgitation, or desire for pregnancy.

^eCoarctation of the aorta, systemic hypertension, family history of dissection, or increase in aortic diameter .3 mm/year (on repeated measurements using the same imaging technique, measured at the same aorta level, with side-by-side comparison and confirmed by another technique).

^fPending comorbidities in the elderly.

^gSee text in section 8.

^hFor patients with LDS or vascular type IV Ehlers-Danlos syndrome (EDS), lower thresholds should be considered, possibly even lower than in Marfan syndrome.

There are no data to provide figures and a sensible case-by-case approach is the only option.

Interventions on aortic arch aneurysms		
Surgery should be considered in patients who have isolated aortic arch aneurysm with maximal diameter ≥ 55 mm.	IIa	C
Aortic arch repair may be considered in patients with aortic arch aneurysm who already have an indication for surgery of an adjacent aneurysm located in the ascending or descending aorta.	IIb	C
Interventions on descending aortic aneurysms		
TEVAR should be considered, rather than surgery, when anatomy is suitable.	IIa	C
TEVAR should be considered in patients who have descending aortic aneurysm with maximal diameter ≥ 55 mm.	IIa	C
When TEVAR is not technically possible, surgery should be considered in patients who have descending aortic aneurysm with maximal diameter ≥ 60 mm.	IIa	C
When intervention is indicated, in cases of Marfan syndrome or other elastopathies, surgery should be indicated rather than TEVAR.	IIa	C



Khuyến cáo tầm soát phình ĐMC bụng

Recommendations	Class ^a	Level ^b	Ref. ^c
Population screening for AAA with ultrasound:			
<ul style="list-style-type: none"> is recommended in all men >65 years of age. 	I	A	357,367
<ul style="list-style-type: none"> may be considered in women >65 years of age with history of current/past smoking. 	IIb	C	
<ul style="list-style-type: none"> is not recommended in female non-smokers without familial history. 	III	C	
Targeted screening for AAA with ultrasound should be considered in first-degree siblings of a patient with AAA.	IIa	B	338,339
Opportunistic screening for AAA during TTE:			
<ul style="list-style-type: none"> should be considered in all men >65 years of age. 	IIa	B	346,347
<ul style="list-style-type: none"> may be considered in women >65 years with a history of current/past smoking. 	IIb	C	

^aClass of recommendation.
^bLevel of evidence.
^cReference(s) supporting recommendations.
 AAA = abdominal aortic aneurysm; TTE = transthoracic echocardiography.



Khuyến cáo xử trí dẫn hoặc phình ĐMC bụng không TC/cơ năng (1)

Recommendations	Class ^a	Level ^b	Ref. ^c
In patients with abdominal aortic diameter of 25–29 mm, new ultrasound imaging should be considered 4 years later.	Ila	B	367
Surveillance is indicated and safe in patients with AAA with a maximum diameter of <55 mm and slow (<10 mm/year) growth. ^a	I	A	340,373
In patients with small (30–55 mm) AAAs, the following time interval for imaging should be considered: ^d <ul style="list-style-type: none"> • every 3 years for AAA of 30–39 mm diameter. • every 2 years for AAA of 40–44 mm diameter. • every year for AAA >45 mm^e diameter. 	Ila	B	365
Smoking cessation is recommended to slow growth of the AAA.	I	B	351

Khuyến cáo xử trí dẫn hoặc phình ĐMC bụng không TC/cơ năng (2)

Recommendations	Class ^a	Level ^b	Ref. ^c
To reduce aortic complications in patients with small AAAs, the use of statins and ACE-inhibitors may be considered.	IIb	B	355,345
AAA repair is indicated if: <ul style="list-style-type: none"> • AAA diameter exceeds 55 mm.^d • Aneurysm growth exceeds 10 mm/year.^e 	I	B	373,363
If a large aneurysm is anatomically suitable for EVAR, either open or endovascular aortic repair is recommended in patients with acceptable surgical risk.	I	A	397,398
If a large aneurysm is anatomically unsuitable for EVAR, open aortic repair is recommended.	I	C	
In patients with asymptomatic AAA who are unfit for open repair, EVAR, along with best medical treatment, may be considered. ^g	IIb	B	388,399

^aClass of recommendation.

^bLevel of evidence.

^cReference(s) supporting recommendations.

^dWith <1% risk of rupture between two AAA imaging assessments.

^eThis interval may be shortened in women or in the case of rapid growth between previous assessments.

^fIndividual decision for operative aneurysm correction should also be influenced by the patient's gender. At a given size, AAAs in women are up to four times as likely to rupture under surveillance, thus aortic repair can be discussed at a lower threshold of probably 50 mm. The patient's life expectancy should also be considered prior to decision for intervention.

^gSince only aneurysm-related and not all-cause mortality is improved, informed patient choice is to be taken into account.

AAA = abdominal aortic aneurysm; ACE = angiotensin-converting enzyme; EVAR = endovascular aortic repair.

Khuyến cáo xử trí phình ĐMC bụng có TC/cơ năng

Recommendations	Class ^a	Level ^b	Ref. ^c
In patients with suspected rupture of AAA, immediate abdominal ultrasound or CT is recommended.	I	C	
In case of ruptured AAA, emergency repair is indicated.	I	C	
In case of symptomatic but non-ruptured AAA, urgent repair is indicated.	I	C	
In case of symptomatic AAA anatomically suitable for EVAR, either open or endovascular aortic repair is recommended. ^d	I	A	403

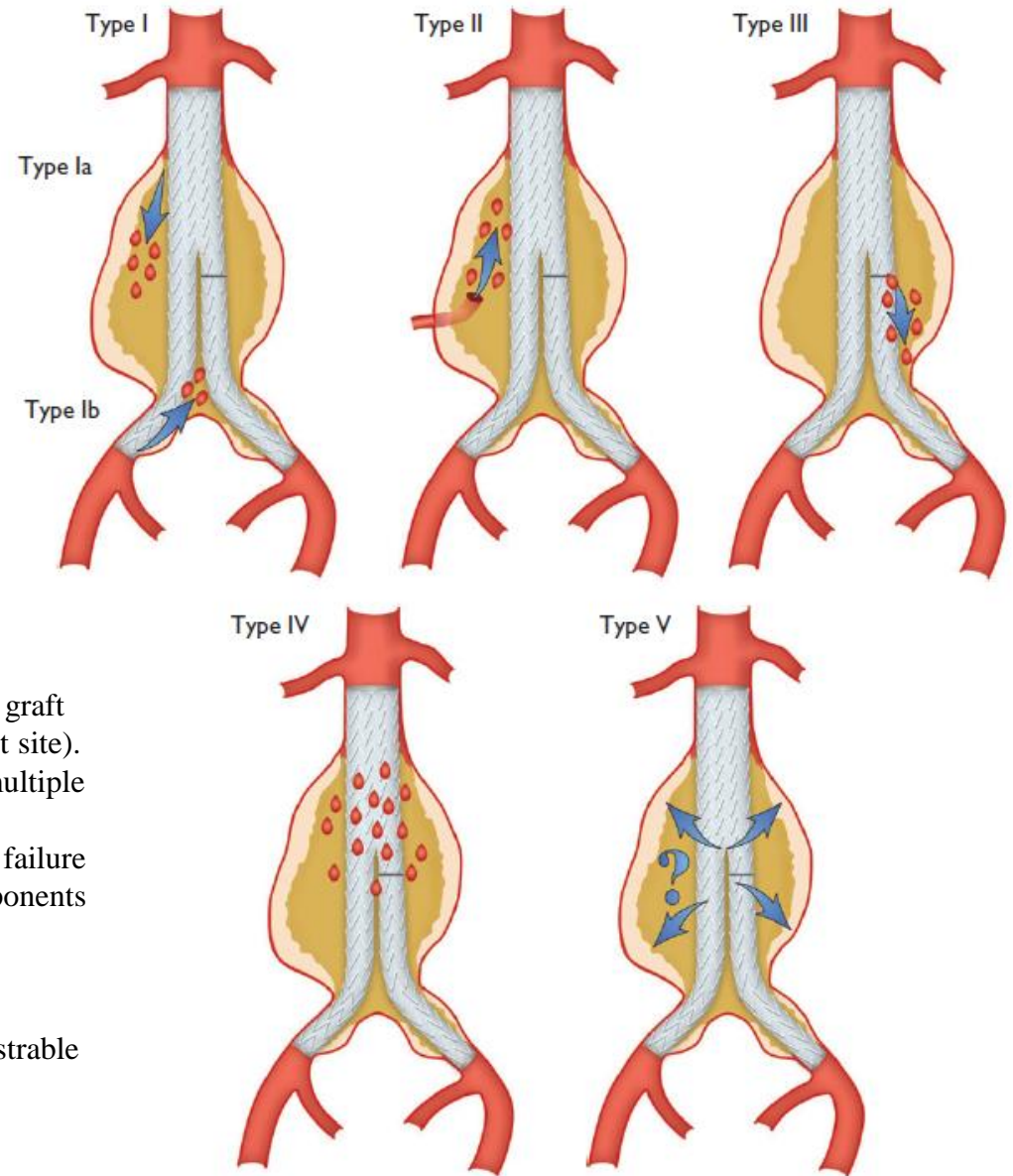
^aClass of recommendation. ^bLevel of evidence. ^cReference(s) supporting recommendations.

^dDepending on the expertise of the interventional team and patient's level of risk.

AAA = abdominal aortic aneurysm; CT = computed tomography; EVAR = endovascular aortic repair.



Classification of endoleaks



Type I: Leak at graft attachment site above, below, or between graft components (Ia: proximal attachment site; Ib: distal attachment site).

Type II: Aneurysm sac filling retrogradely via single (IIa) or multiple branch vessels (IIb).

Type III: Leak through mechanical defect in graft, mechanical failure of the stent-graft by junctional separation of the modular components (IIIa), or fractures or holes in the endograft (IIIb).

Type IV: Leak through graft fabric as a result of graft porosity.

Type V: Continued expansion of aneurysm sac without demonstrable leak on imaging (endotension, controversial).



Khuyến cáo khảo sát di truyền bệnh ĐMC

Recommendations	Class ^a	Level ^b
It is recommended to investigate first-degree relatives (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
Once a familial form of TAAD is highly suspected, it is recommended to refer the patient to a geneticist for family investigation and molecular testing.	I	C
Variability of age of onset warrants screening every 5 years of 'healthy' at-risk relatives until diagnosis (clinical or molecular) is established or ruled out.	I	C
In familial non-syndromic TAAD, screening for aneurysm should be considered, not only in the thoracic aorta, but also throughout the arterial tree (including cerebral arteries).	IIa	C

^aClass of recommendation. ^bLevel of evidence.

TAAD = thoracic aortic aneurysms and dissection.



Khuyến cáo xử trí dãn gốc ĐMC trên b/n có van ĐMC 2 mảnh (1)

Recommendations	Class ^a	Level ^b
Patients with known BAV should undergo an initial TTE to assess the diameters of the aortic root and ascending aorta.	I	C
Cardiac MRI or CT is indicated in patients with BAV when the morphology of the aortic root and the ascending aorta cannot be accurately assessed by TTE.	I	C
Serial measurement of the aortic root and ascending aorta is indicated in every patient with BAV, with an interval depending on aortic size, increase in size and family history	I	C
In the case of a diameter of the aortic root or the ascending aorta >45 mm or an increase >3 mm/year measured by echocardiography, annual measurement of aortic diameter is indicated.	I	C
In the case of aortic diameter >50 mm or an increase >3 mm/year measured by echocardiography, confirmation of the measurement is indicated, using another imaging modality (CT or MRI).	I	C

Khuyến cáo xử trí dãn gốc ĐMC trên b/n có van ĐMC 2 mảnh (2)

Recommendations	Class ^a	Level ^b
<p>In cases of BAV, surgery of the ascending aorta is indicated in case of:</p> <ul style="list-style-type: none"> aortic root or ascending aortic diameter >55 mm. aortic root or ascending aortic diameter >50 mm in the presence of other risk factors.^c aortic root or ascending aortic diameter >45 mm when surgical aortic valve replacement is scheduled. 	I	C
Beta-blockers may be considered in patients with BAV and dilated aortic root >40 mm.	IIb	C
Because of familial occurrence, screening of first-degree relatives should be considered.	IIa	C
In patients with any elastopathy or BAV with dilated aortic root (>40 mm), isometric exercise with a high static load (e.g. weightlifting) is not indicated and should be discouraged.	III	C

^aClass of recommendation.

^bLevel of evidence.

^cCoarctation of the aorta, systemic hypertension, family history of dissection, or increase in aortic diameter .3 mm/year (on repeated measurements using the same imaging technique, measured at the same aortic level, with side-by-side comparison and confirmed by another technique).

BAV = bicuspid aortic valve; CT = computed tomography; MRI = magnetic resonance imaging; TTE = transthoracic echocardiography.



Khuyến cáo can thiệp hẹp eo ĐMC

Recommendations	Class ^a	Level ^b
In all patients with a non-invasive pressure difference >20 mm Hg between upper and lower limbs, regardless of symptoms but with upper limb hypertension ($>140/90$ mm Hg in adults), abnormal blood pressure response during exercise, or significant left ventricular hypertrophy, an intervention is indicated.	I	C
Independent of the pressure gradient, hypertensive patients with $>50\%$ aortic narrowing relative to the aortic diameter at the diaphragm level (on MRI, CT, or invasive angiography) should be considered for intervention.	IIa	C
Independent of the pressure gradient and presence of hypertension, patients with $>50\%$ aortic narrowing relative to the aortic diameter at the diaphragm level (on MRI, CT, or invasive angiography) may be considered for intervention.	IIb	C

^aClass of recommendation. ^bLevel of evidence.

CT = computed tomography; MRI = magnetic resonance imaging



Khuyến cáo xử trí mảng xơ vữa ĐMC

Recommendations	Class ^a	Level ^b
In the presence of aortic atherosclerosis, general preventive measures to control risk factors are indicated.	I	C
In the case of aortic plaque detected during the diagnostic work-up after stroke or peripheral embolism, anticoagulation or antiplatelet therapy should be considered. The choice between the two strategies depends on comorbidities and other indications for these treatments.	IIa	C
Prophylactic surgery to remove high-risk aortic plaque is not recommended.	III	C

^aClass of recommendation.

^bLevel of evidence.

Khuyến cáo theo dõi và xử trí bệnh ĐMC mạn (1)

Recommendations	Class ^a	Level ^b
Chronic aortic dissection		
Contrast CT or MRI is recommended, to confirm the diagnosis of chronic AD.	I	C
Initial close imaging surveillance of patients with chronic AD is indicated, to detect signs of complications as soon as possible.	I	C
In asymptomatic patients with chronic dissection of the ascending aorta, elective surgery should be considered. ^c	IIa	C
In patients with chronic AD, tight blood pressure control <130/80 is indicated.	I	C
Surgical repair or TEVAR is recommended for complicated Type B AD (aortic diameter >60 mm, >10 mm/year growth, malperfusion or recurrent pain).	I	C

Khuyến cáo theo dõi và xử trí bệnh ĐMC mạn (2)

Recommendations	Class ^a	Level ^b
Follow-up after endovascular treatment for aortic diseases		
After TEVAR or EVAR, surveillance is recommended after 1 month, 6 months, 12 months, and then yearly. Shorter intervals can be proposed in the event of abnormal findings requiring closer surveillance.	I	C
CT is recommended as the <u>first choice imaging</u> technique for follow-up after TEVAR or EVAR.	I	C
If <u>neither endoleak</u> nor AAA sac enlargement is documented during first year after EVAR, then colour DUS, with or without contrast agents, should be considered for annual post-operative surveillance, with non-contrast CT imaging <u>every 5 years</u> .	IIa	C

Khuyến cáo theo dõi và xử trí bệnh ĐMC mạn (3)

Recommendations	Class ^a	Level ^b
For patients with TAA <45 mm, annual imaging is recommended; while in patients with TAA ≥45 mm and <55 mm, imaging every 6 months is recommended, unless the stability of the lesions is confirmed by serial imaging	I	C
For follow-up after (T)EVAR in young patients, MRI should be preferred to CT for magnetic resonance-compatible stent grafts, to reduce radiation exposure.	IIa	C
Long-term surveillance of open abdominal aortic repair may be considered at loose (5-year) intervals using colour DUS or CT imaging.	IIb	C



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^aClass of recommendation. ^bLevel of evidence. ^cPending comorbidities and perioperative risk.

AAA = abdominal aortic aneurysm; AD = aortic dissection; CT = computed tomography; DUS ¼ duplex ultrasonography; EVAR = endovascular aortic repair; MRI = magnetic resonance imaging; TAA = thoracic aortic aneurysm; TEVAR = thoracic endovascular aortic repair.