Fermeture de l'Auricule Gauche et Fibrillation Atriale Paroxystique

XVIe congrès CARDIORUN
19 Septembre 2024, La Réunion

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LA FIBRILLATION ATRIALE EN FRANCE

Accident Vasculaire Cérébral après 80 ans

1 Million de patients arythmiques

100 000 nouveaux cas par an

10% des français de plus de 80 ans sont en arythmie

Ces nombres vont doubler d'ici 2050
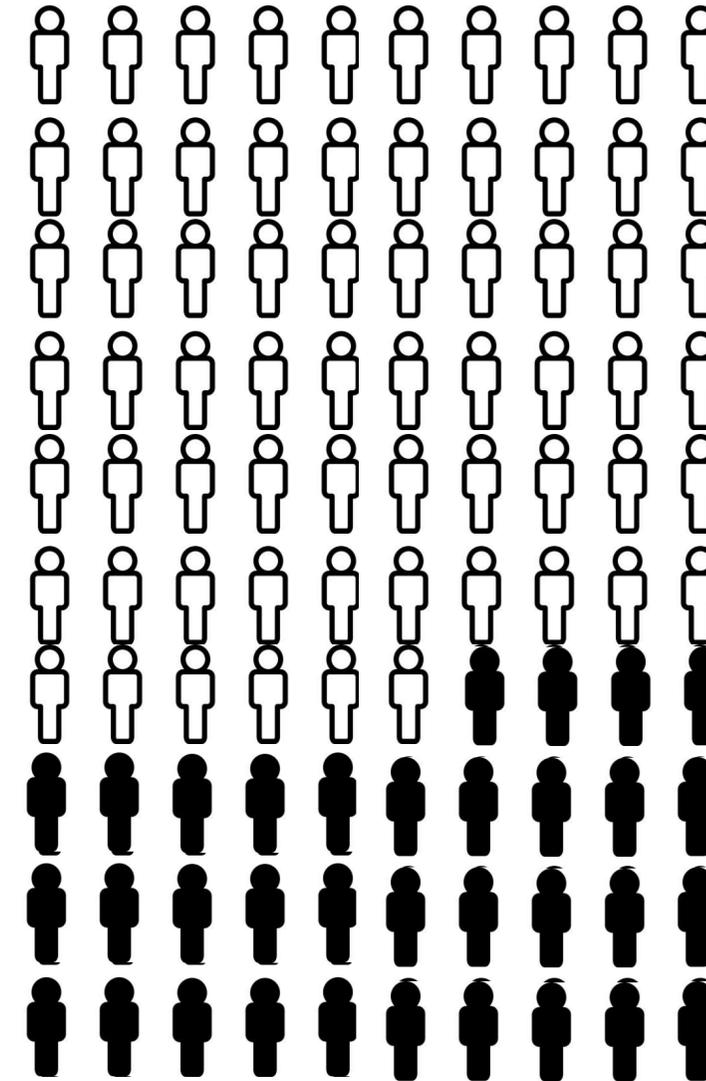
1 AVC toutes les 30 minutes
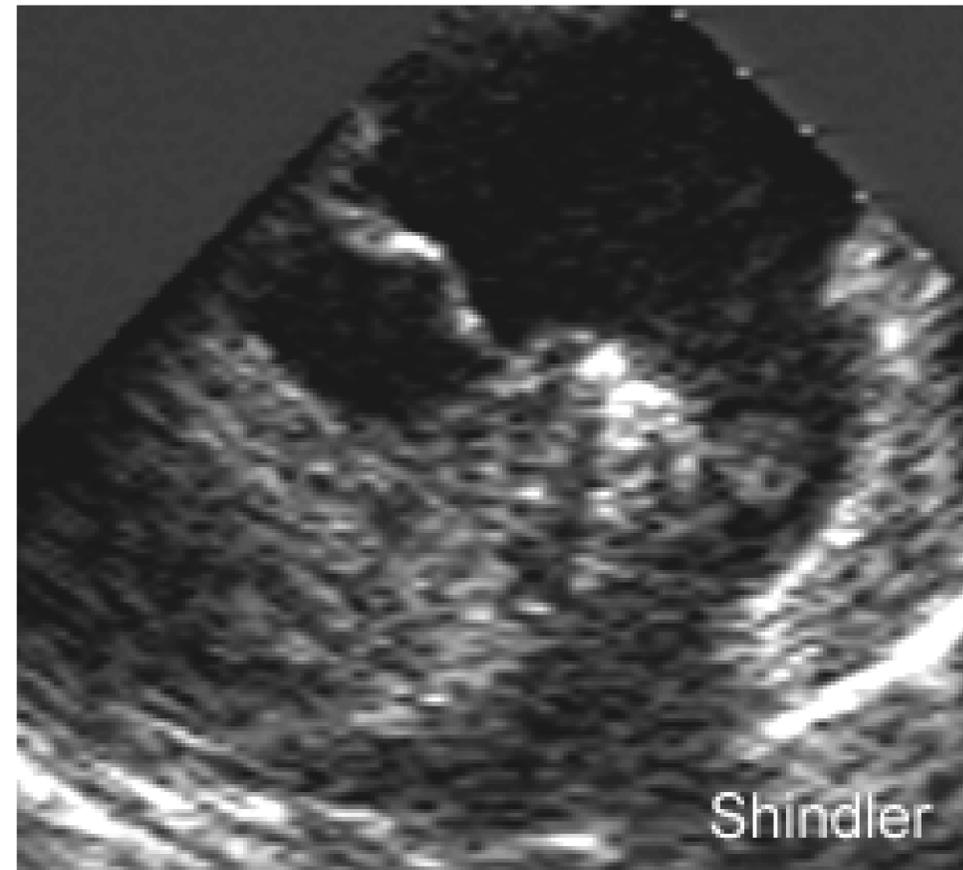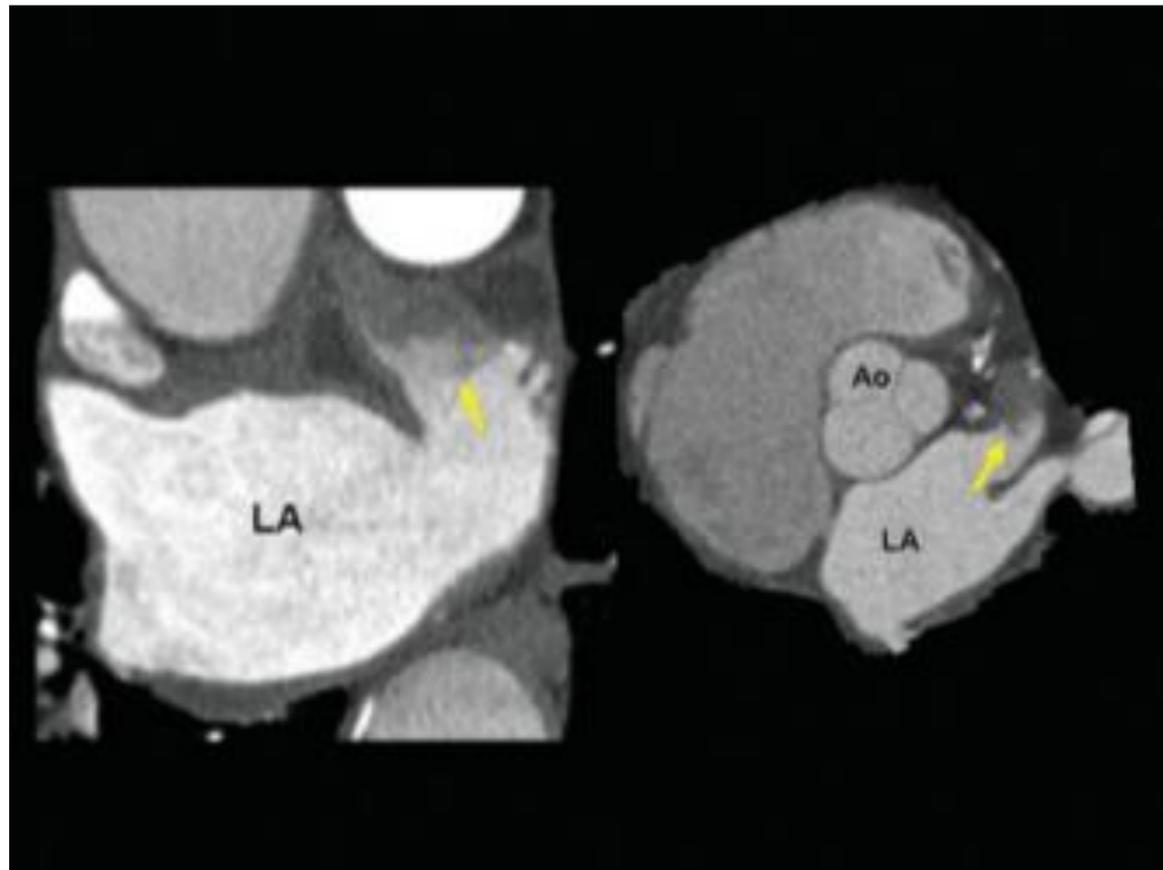
90% des thrombus se retrouvent dans l'auricule gauche

Avoid stroke and thromboembolism

A

| Risk of thrombo-embolism	→ Use locally-validated risk score or CHA$_2$DS$_2$-VA	→ Choice of anticoagulant	→ Assess bleeding risk	→ Prevent bleeding
Start oral anticoagulation (Class I)	OAC if CHA$_2$DS$_2$-VA score = 2 or more (Class I)	Use DOAC, except mechanical valve or mitral stenosis (Class I)	Assess and manage all modifiable risk factors for bleeding (Class I)	Do not combine antiplatelets and OAC for stroke prevention (Class III)
Temporal pattern of AF not relevant (Class III)	OAC if CHA$_2$DS$_2$-VA score = 1 (Class IIa)	If VKA: Target INR 2.0–3.0; (Class I) >70% INR range; (Class IIa) or switch to DOAC (Class I)	Do not use risk scores to withhold anticoagulation (Class III)	Avoid antiplatelets beyond 12 months in OAC treated CCS/PVD (Class III)
Antiplatelet therapy not an alternative (Class III)				

ESC 2024

Comprehensive medical history to determine all bleeding risk factors at OAC initiation/follow-up
(Class I)

Do not use bleeding risk scores to decide starting or withdrawing OAC
(Class III)

Manage all **modifiable bleeding risk factors** with shared decision-making
(Class I)

Hypertension	Antiplatelet drugs	Alcohol intake	Unstable/variable INR
Optimize blood pressure lowering treatment (Class I)	Do not use antiplatelet therapy beyond 12 months in stable OAC-treated patients with chronic coronary/vascular disease (Class III)	Reduce alcohol to <3 standard drinks per week (Class I)	Keep INR 2.0–3.0 (Class I) and TTR >70% (Class IIa)

NSAIDs

Other factors

Switch to DOAC if eligible

Consider the impact of **non-modifiable bleeding risk factors** with shared decision-making

- Age
- Previous major bleeding
- Severe renal impairment, dialysis or renal transplant
- Severe hepatic dysfunction or cirrhosis
- Malignancy
- Genetic factors (e.g. *CYP2C9* polymorphisms)
- Previous stroke
- Cognitive impairment or dementia
- Intracerebral pathology

Review patient more regularly
Work with multidisciplinary team
to monitor risk factors

If clear contraindications for OAC[a], consider left atrial appendage occlusion
(Class IIb)

- Severe renal impairment, dialysis or renal transplant
- Severe hepatic dysfunction or cirrhosis
- Malignancy
- Genetic factors (e.g. *CYP2C9* polymorphisms)
- Previous stroke
- Cognitive impairment or dementia
- Intracerebral pathology

Work with multidisciplinary team
to monitor risk factors

If clear contraindications for OAC[a], consider left atrial appendage occlusion
(Class IIb)

Re-assess at next interaction with patient

ESC

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A | Ischemic stroke

RR (95% CI), 1.26 (0.72-3.28)
$P = .49$

Device

Warfarin

Reddy et al. JAMA 2014;312:1988
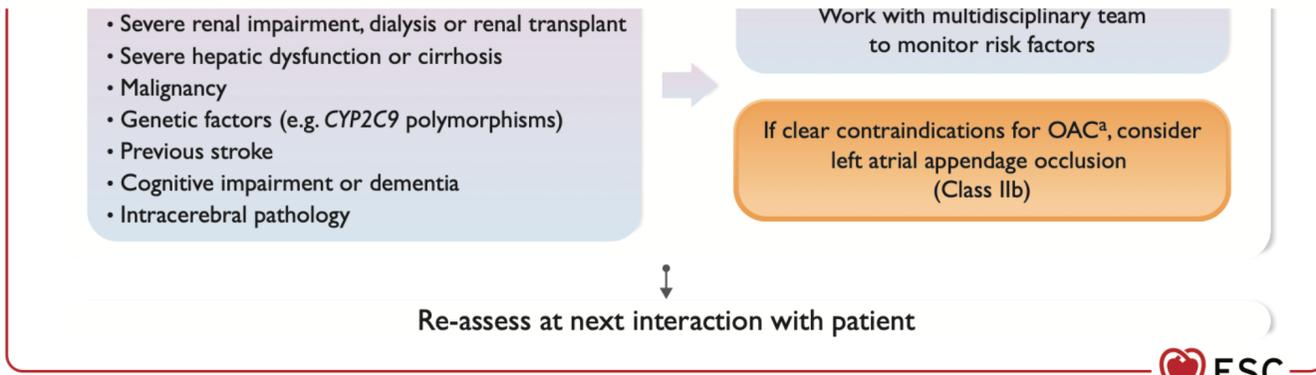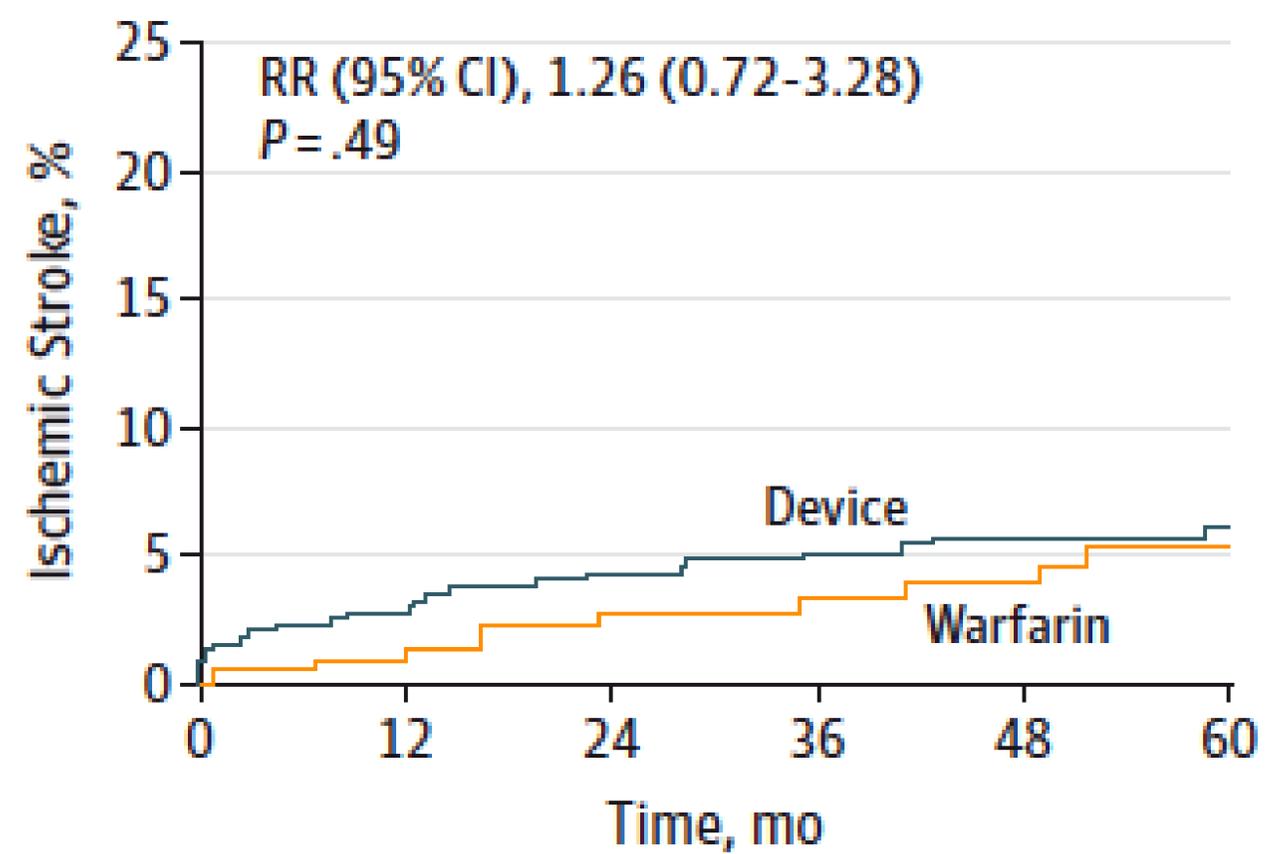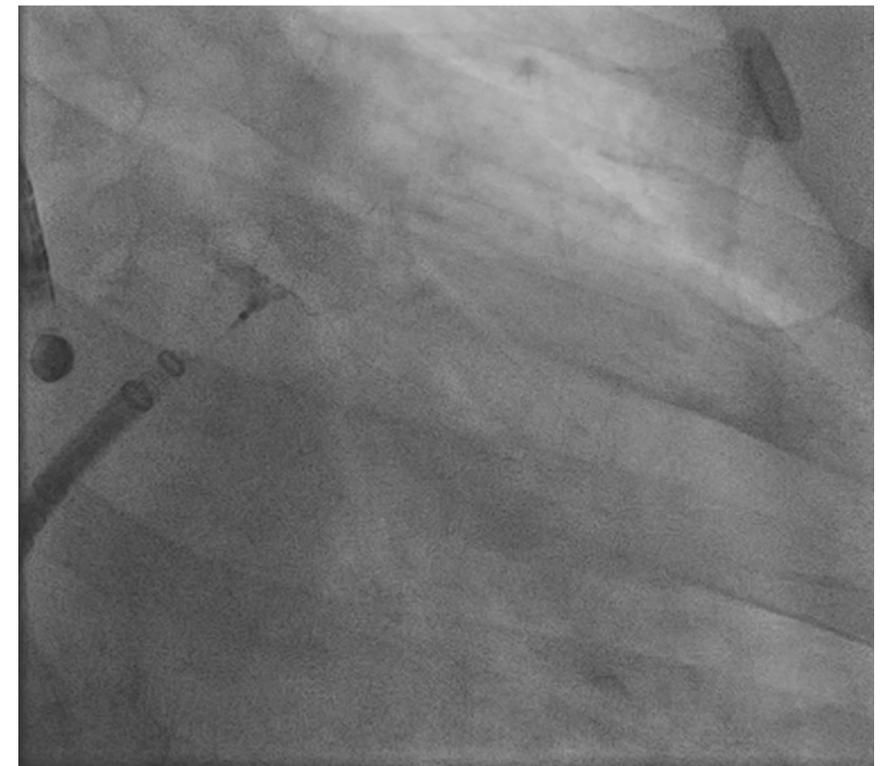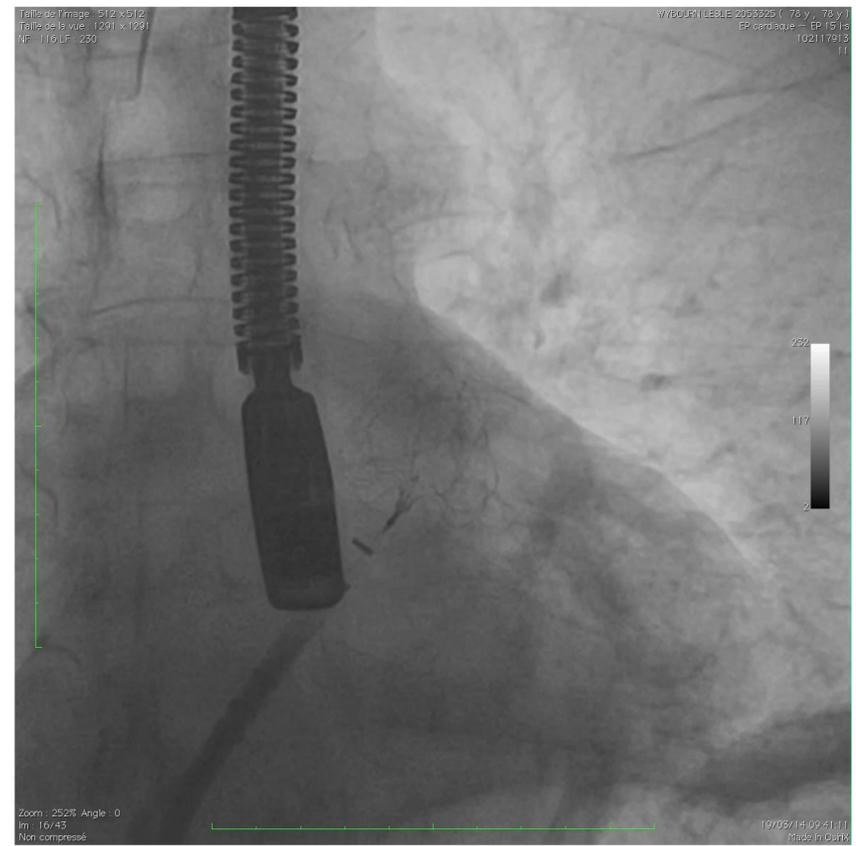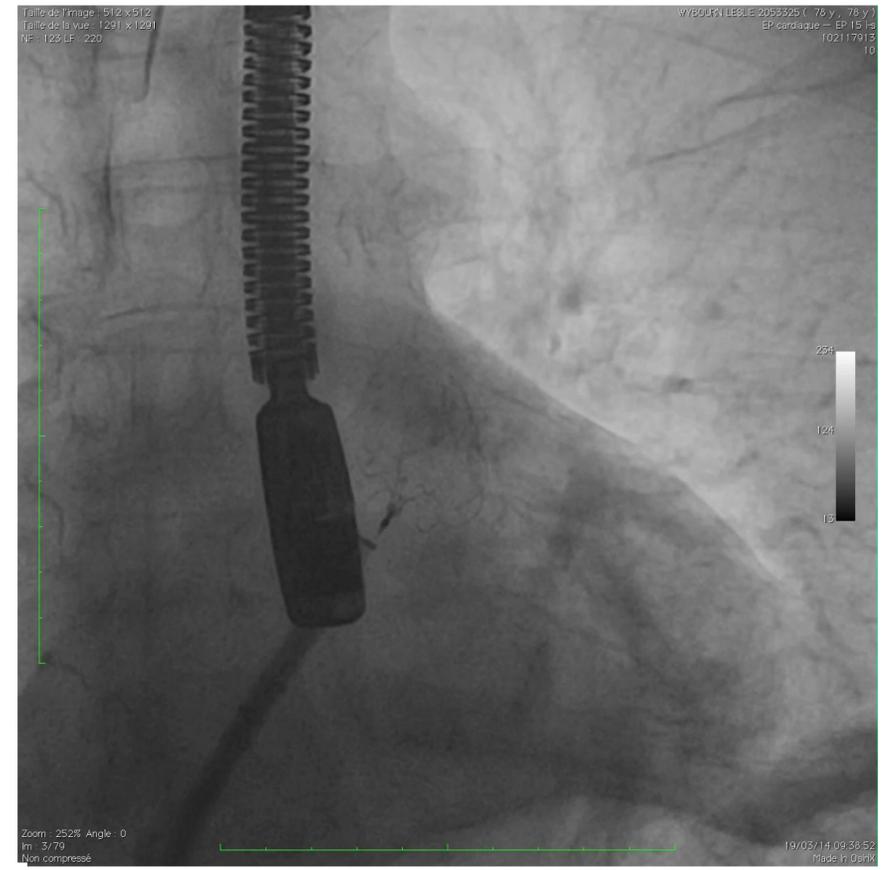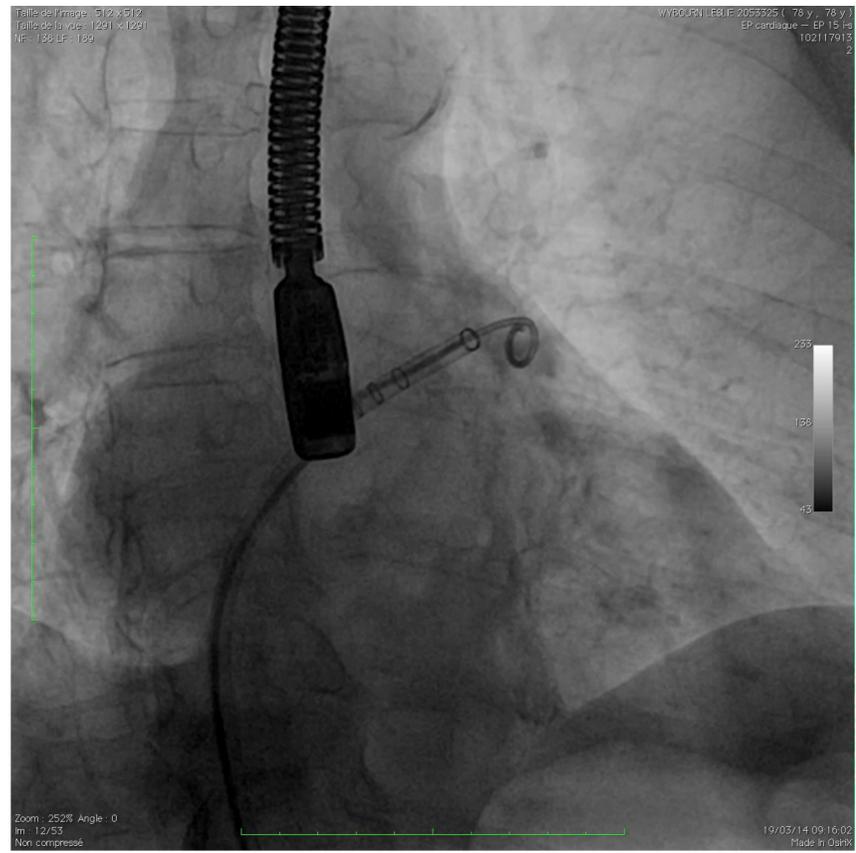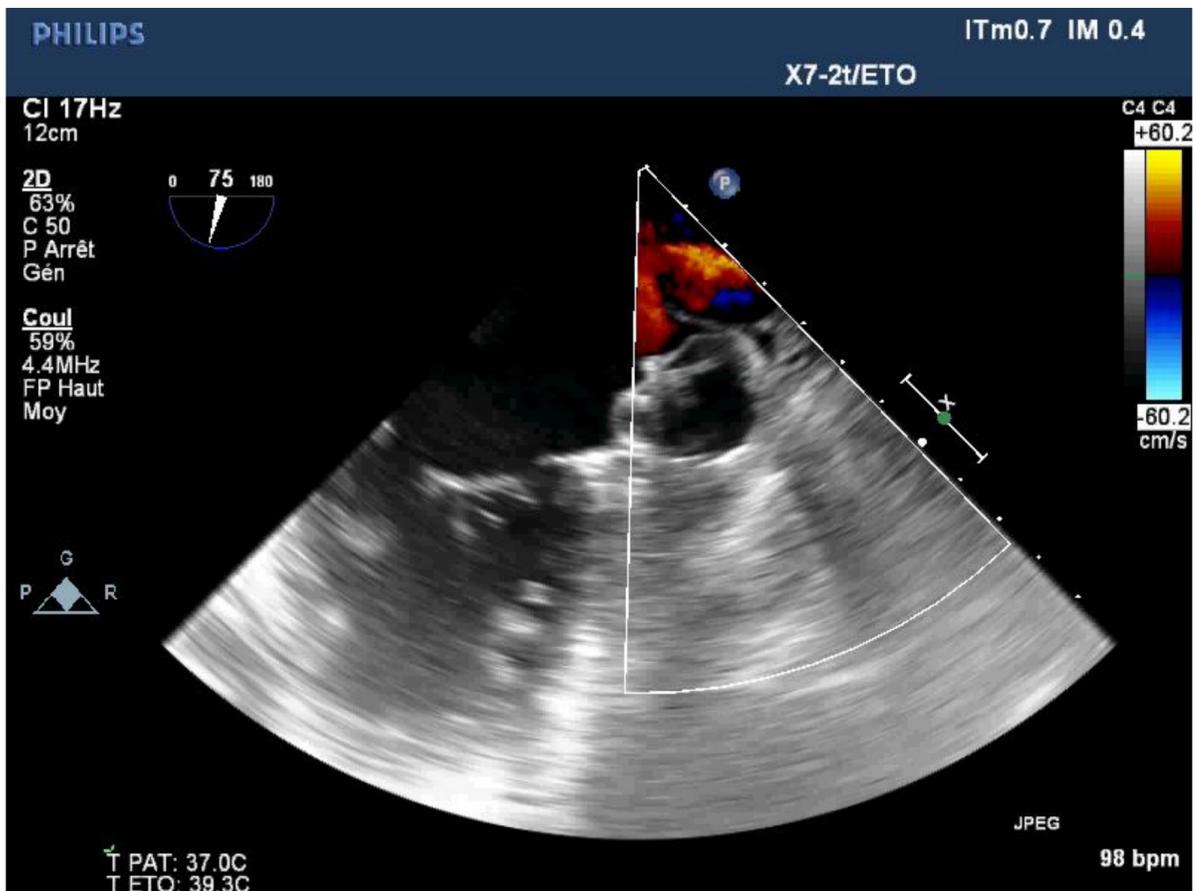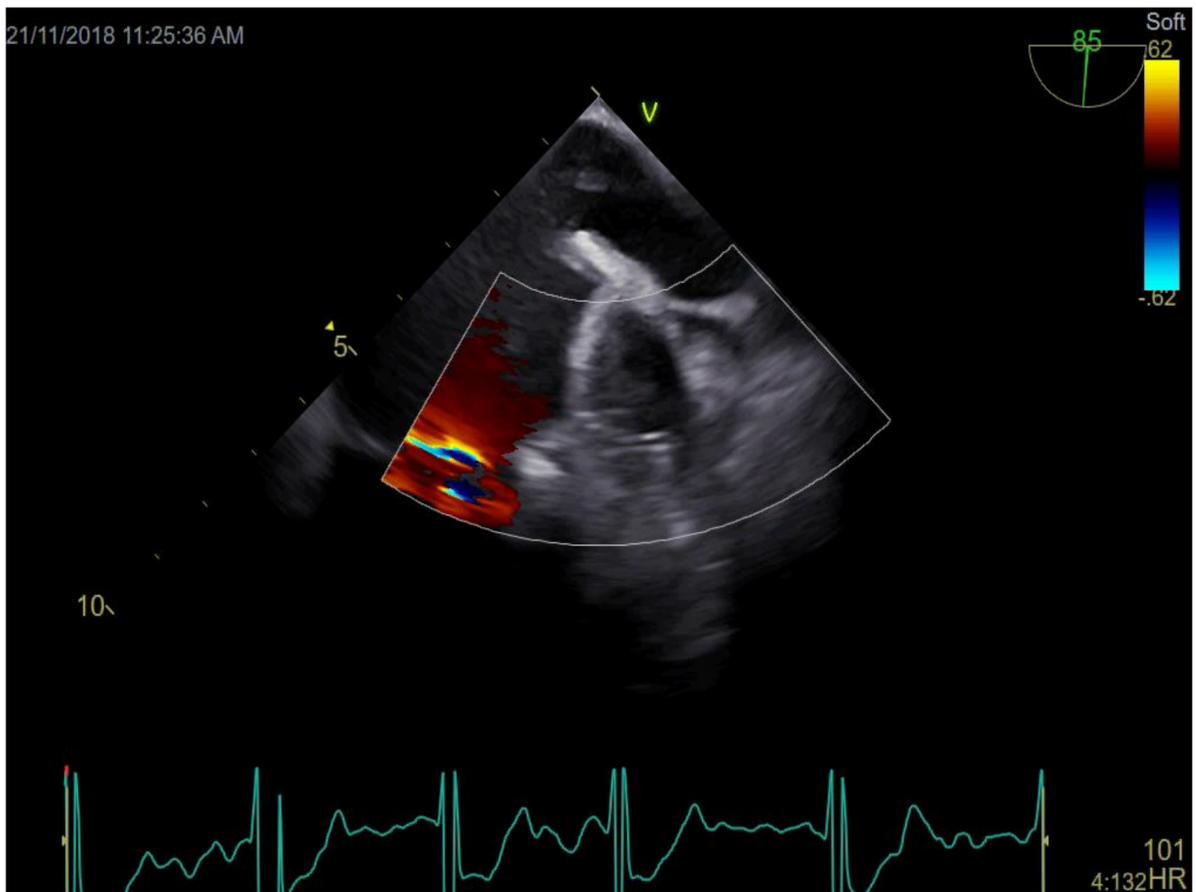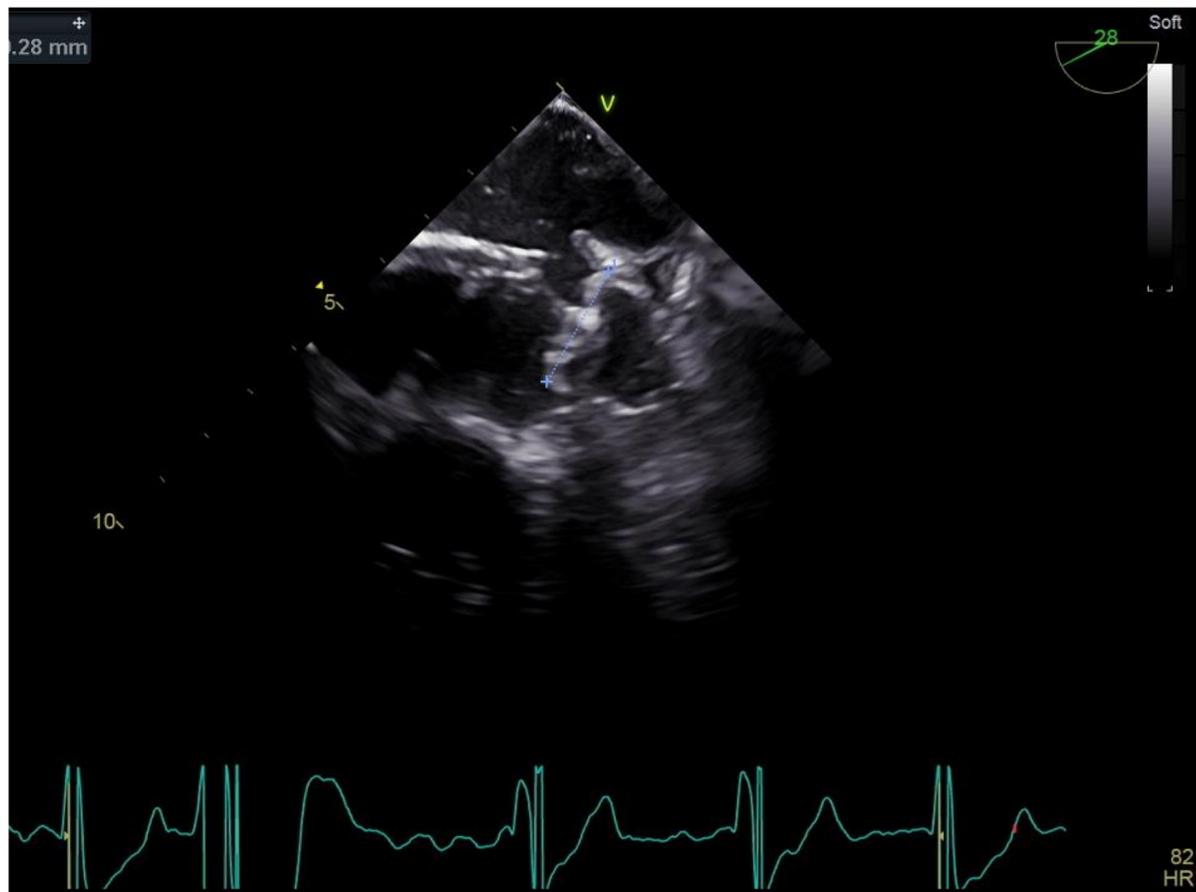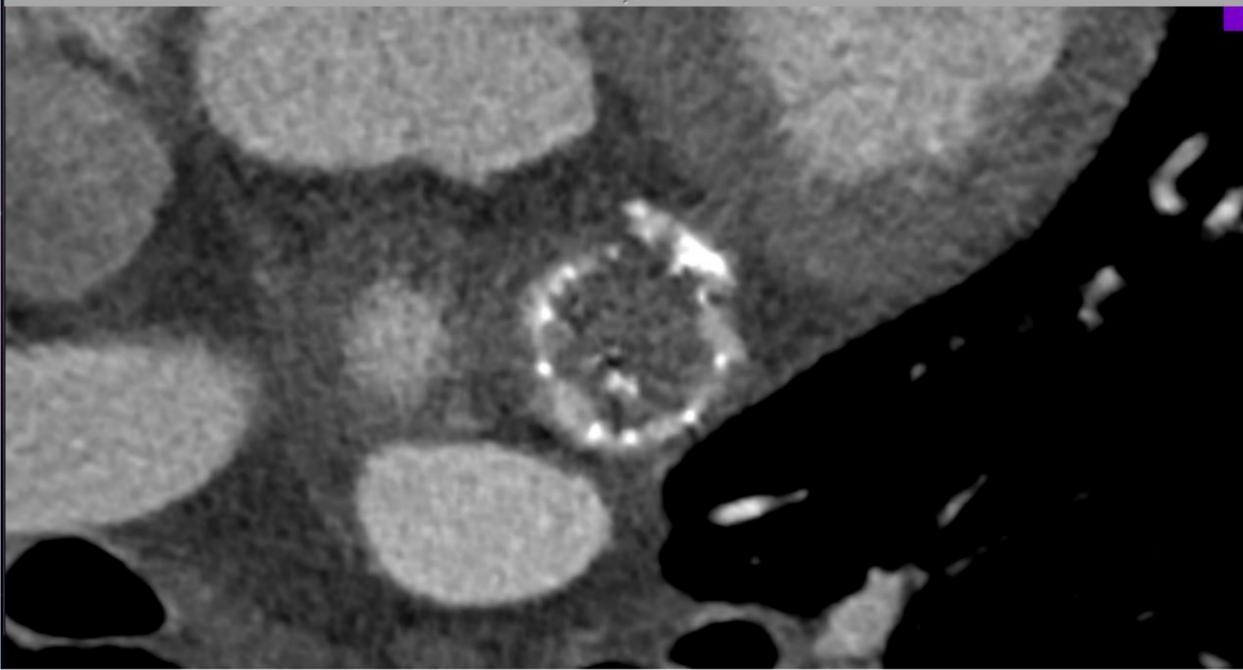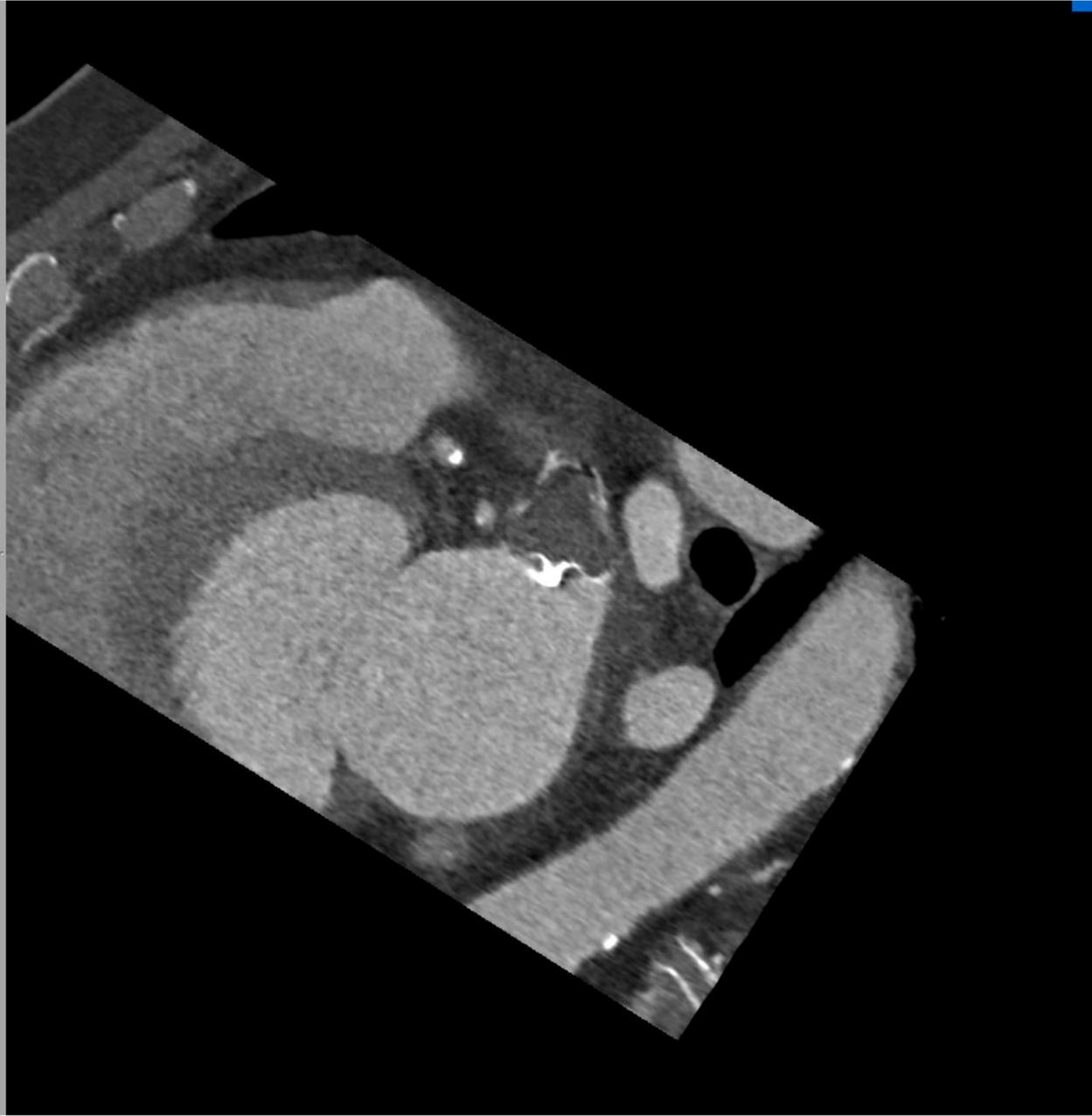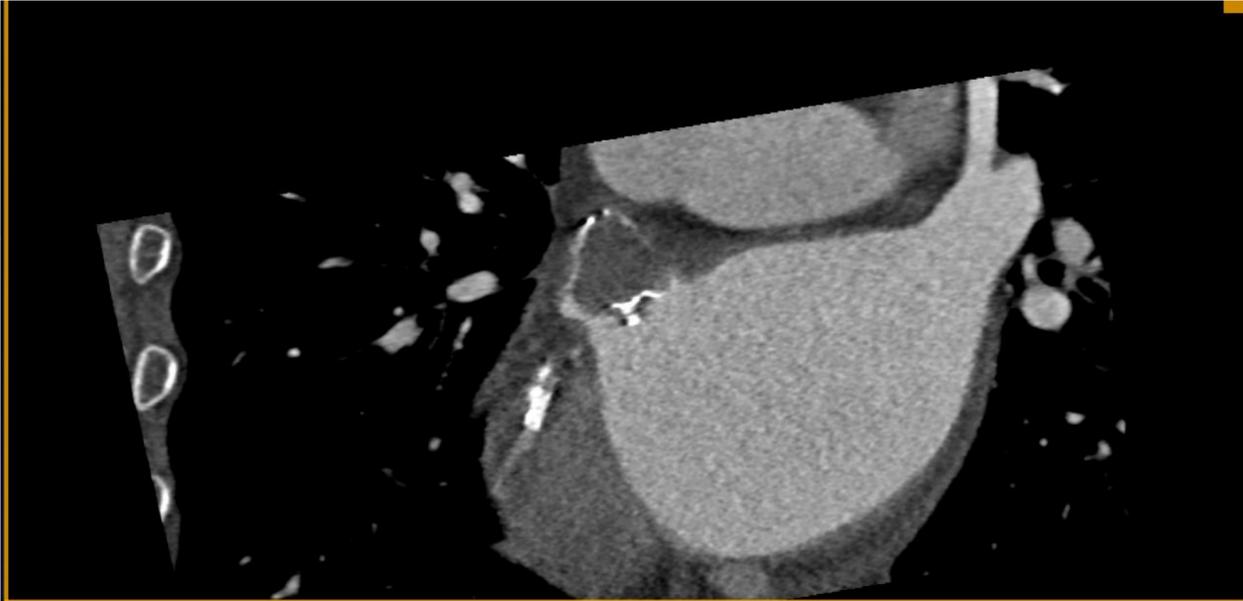
| Patient Characteristics	n=436
Age, y*	75.4±0.4
Male gender, n (%)	271 (62.2)
Atrial fibrillation, n (%)	285 (65.4)
Risk factors, n (%)	
Hypertension	374 (85.8)
Diabetes mellitus	130 (29.8)
Smoker (current or past)	123 (28.2)
Dyslipidemia	196 (45.0)
Cardiovascular history, n (%)	
Heart failure	113 (25.9)
Valvular surgery	15 (3.4)
Coronary artery disease	140 (32.1)
Myocardial infarction	45 (10.3)
Previous deep vein thrombosis/pulmonary embolism	44 (10.1)
Previous ischemic stroke, n (%)	168 (38.5)
Previous hemorrhagic event, n (%)	394 (90.4)

Teiger Circ Cardiovasc Interv 2018

Table 1. Baseline Clinical and Procedural Characteristics of the Study Population

|	N=65 355
Clinical characteristic	
Age (mean±SD)	76.2±8.1
Female sex, n (%)	27 008 (41.3%)
LV dysfunction, n (%)	8274 (12.7%)
Hypertension, n (%)	60 182 (92.1%)
Diabetes, n (%)	24 554 (37.6%)
Renal dysfunction, n (%)	9150 (14.0%)
Hepatic dysfunction, n (%)	2077 (3.2%)
CHA_2DS_2-VASc score (mean±SD)	4.6±1.5
HAS-BLED score (mean±SD)	3.0±1.1
Clinically relevant prior bleeding	44 292 (67.9%)
AF classification, paroxysmal, n (%)	35 894 (54.9%)
Body mass index (mean±SD)	30.1±10.4
Platelet count (mean±SD)	208 358±71 558
Albumin (mean±SD)	3.84±0.5
Creatinine (mean±SD)	1.3±1.1
INR (mean±SD)	1.41±1.0
Hemoglobin (mean±SD)	12.7±2.1
Procedural characteristic	
Number of devices used per case (mean±SD)	1.2±0.6
Multiple delivery sheaths used	2977 (4.6%)
Largest device size attempted (median)	27 mm
General anesthesia, N (%)	63 812 (97.6%)

Price Circ Cardiovasc Interv 2022
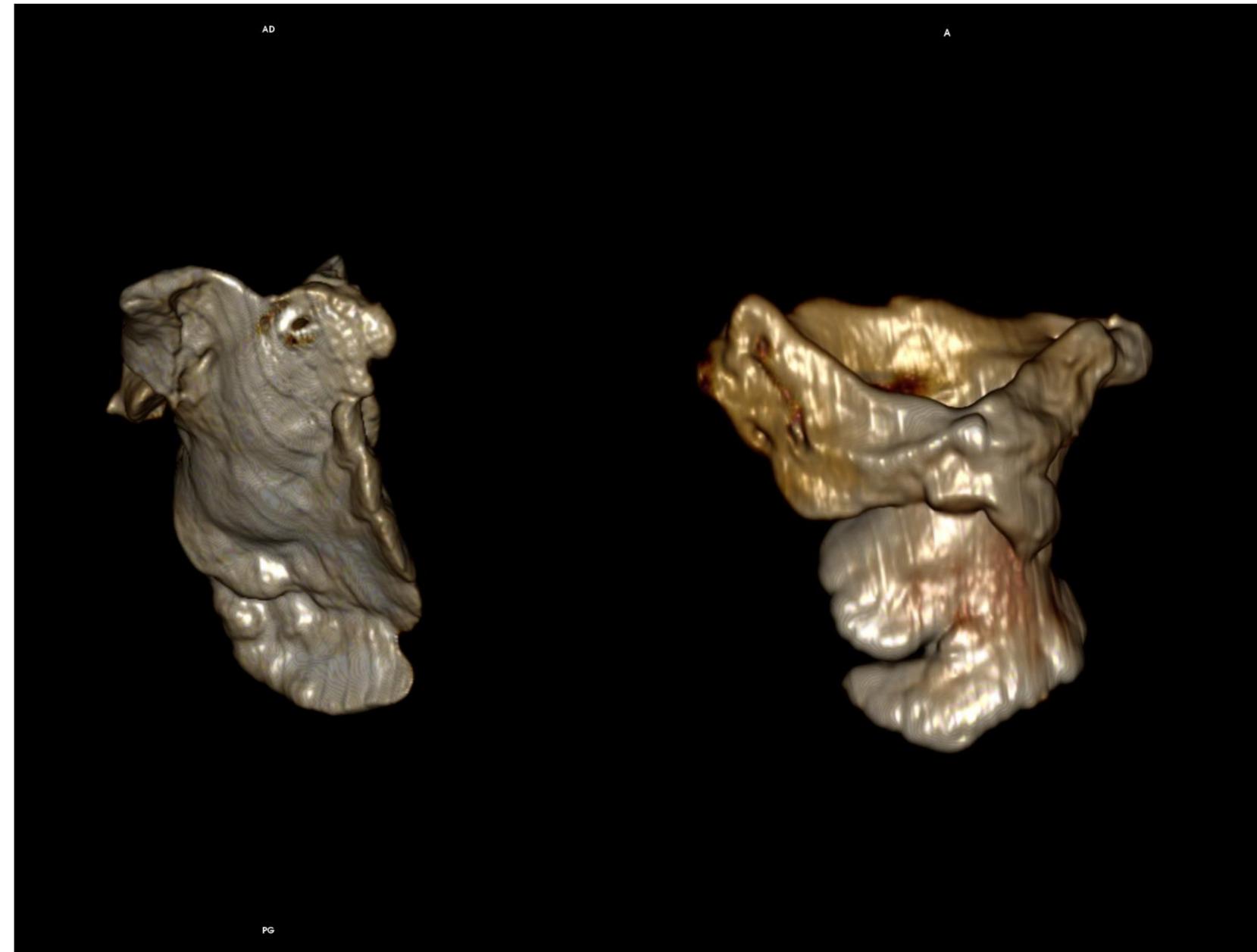
diamètre ostium 7-40mm
volume 5-30 ml

SYSTOLE   DIASTOLE

Isovolumic relaxation
Rapid inflow
Diastasis
Atrial systole

Ejection

Isovolumic contraction

Aortic valve opens

Aortic valve closes

A-V valve closes

A-V valve opens

a   c   v

Aortic pressure

Atrial pressure
Ventricular pressure

Ventricular volume

Electrocardiogram

P   Q   S   T

Stephanadis, Eur Heart J 2001;22:22
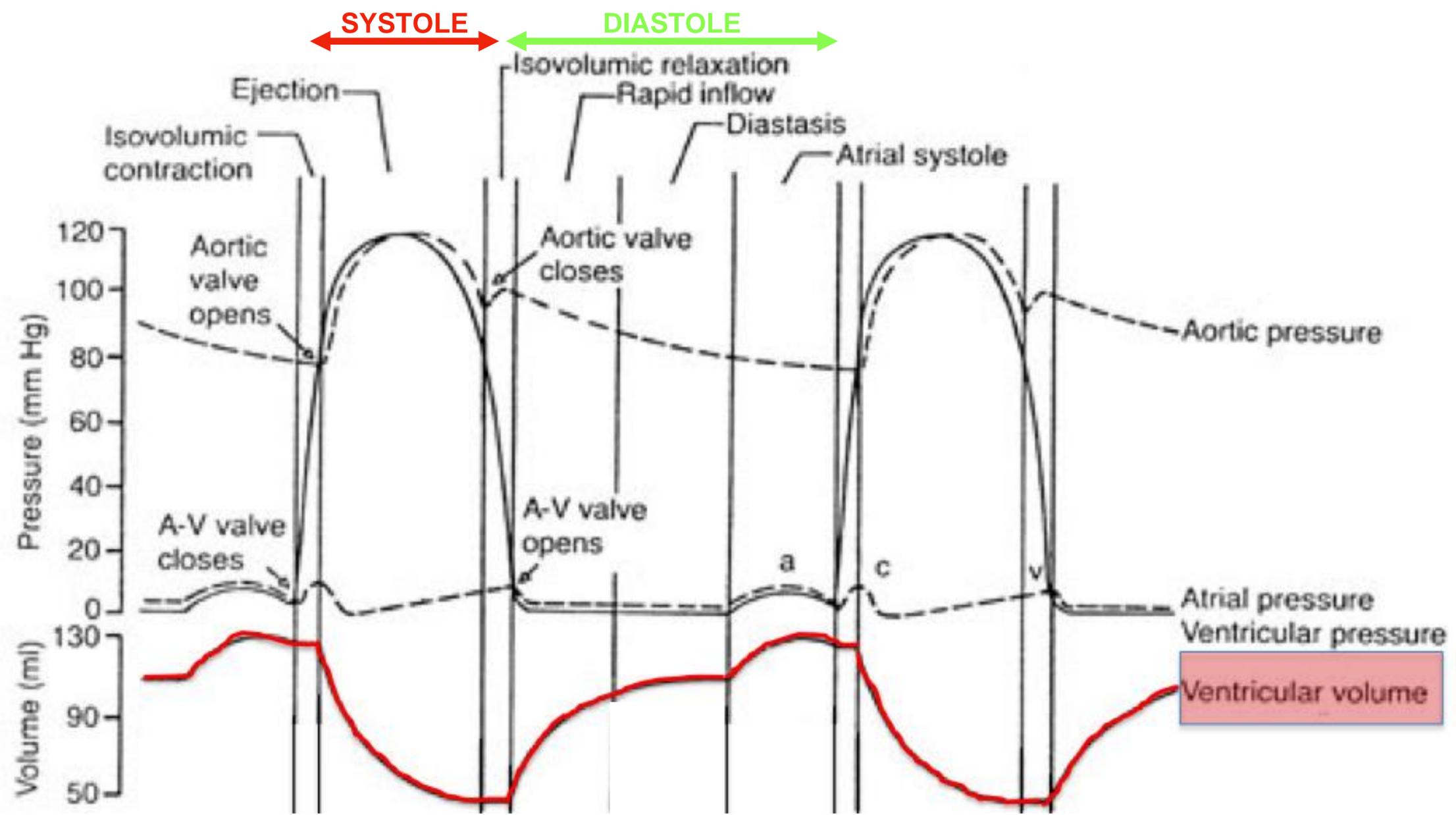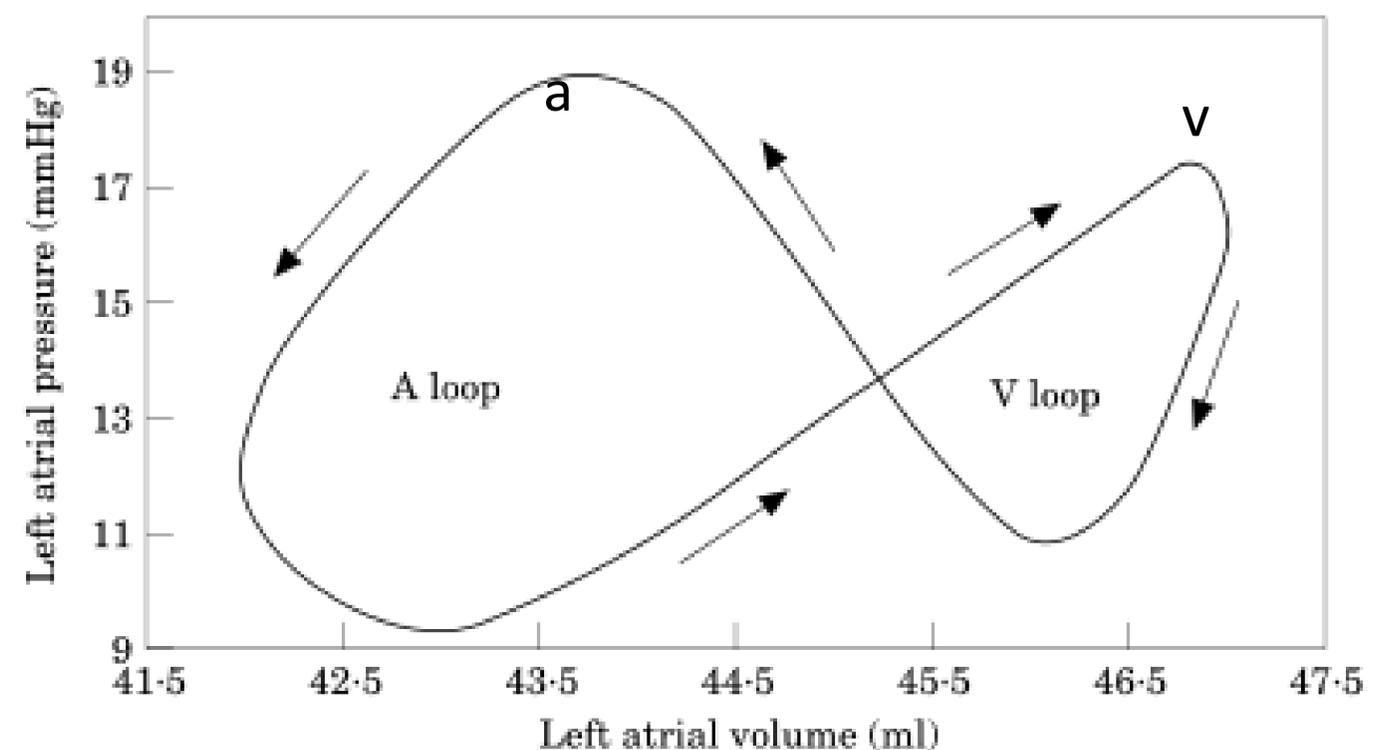
Figure 3 The left atrial pressure–volume relationship is composed of two loops: the A loop, expressing the left atrial pump function and the V loop, expressing the reservoir function of the left atrium. During the filling period, the curve is directed upward and to the right, and after maximal pressure and volume of the filling period have been reached, the curve turns clockwise and downward corresponding to the passive emptying, and subsequently, active emptying phases.

Stephanadis et al. Eur Heart J 2001;22:22

Hrabia Adv Interv Cardiol 2018
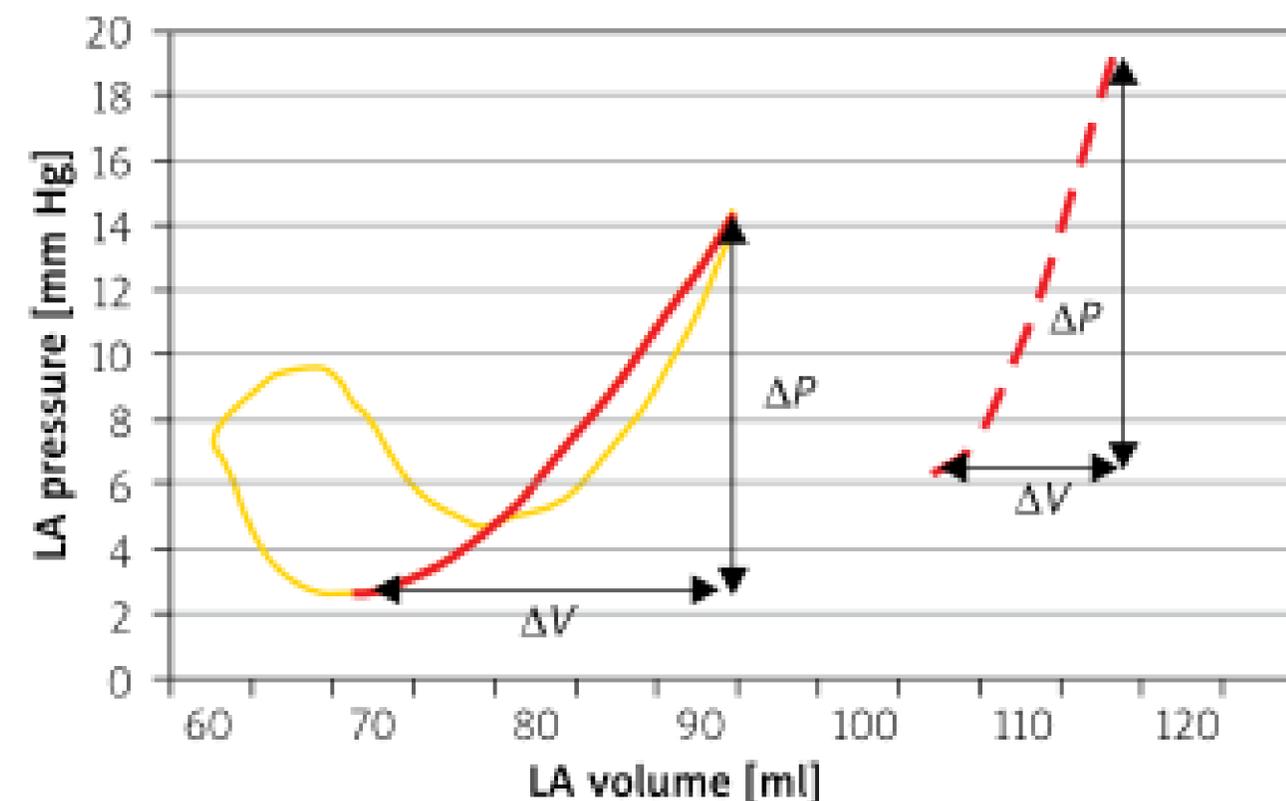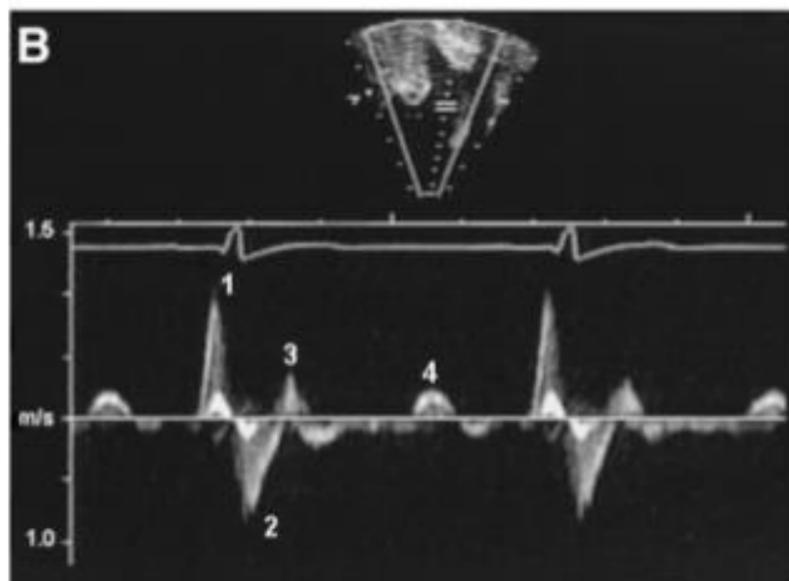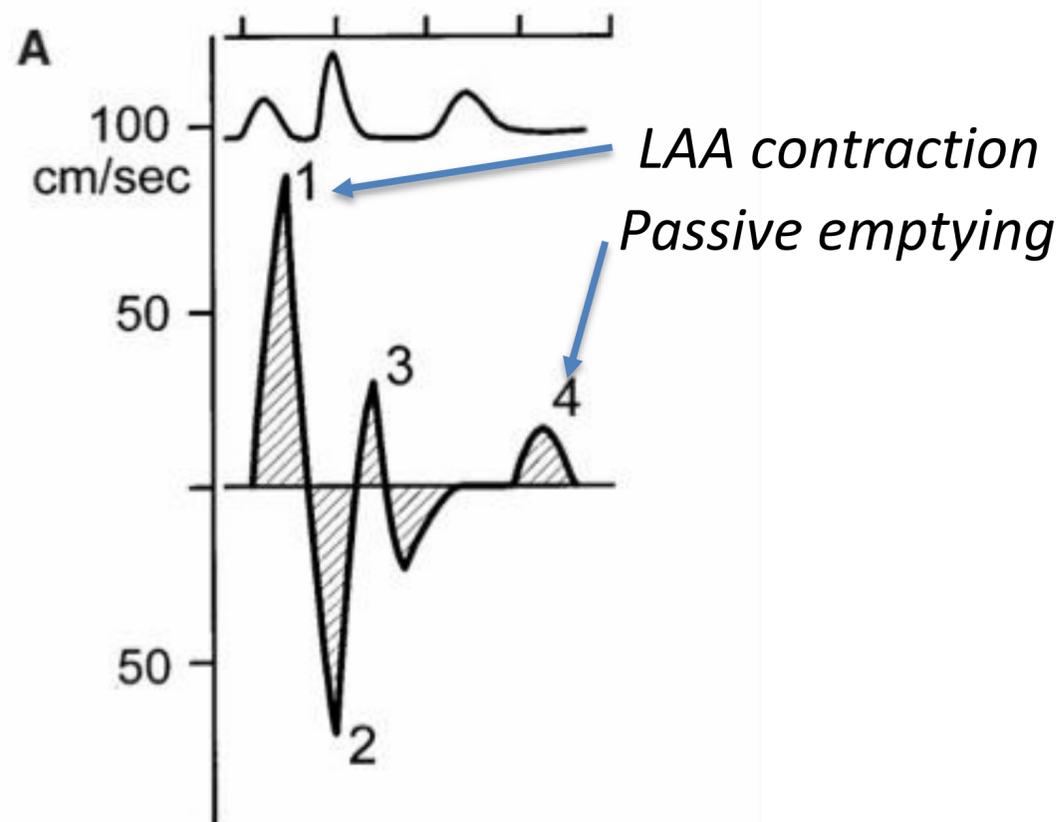
Figure 2. A, Diagram of LAA flow in sinus rhythm. **1,** LAA contraction; **2,** LAA filling; **3,** systolic reflection waves (positive and negative); **4,** early diastolic LAA outflow (see text for details).

Agmon et al. JACC 1999;34:1867
Al Saady et al. Heart 1999;82:547

LAA in sinus rhythm
- Contractility
LA filling – increased CO
- Distensibility
increased LA compliance
- Stretch receptors
mediating thirst
- Endocrin organ
ANF

LAA exclusion
- CO decreases (?)
- LA pressure rises
- LA compliance decreases
- sensitive to deshydratation (?)
- Water retention

Stöllberger et al. Chest 2003;124:235

AFib ablation
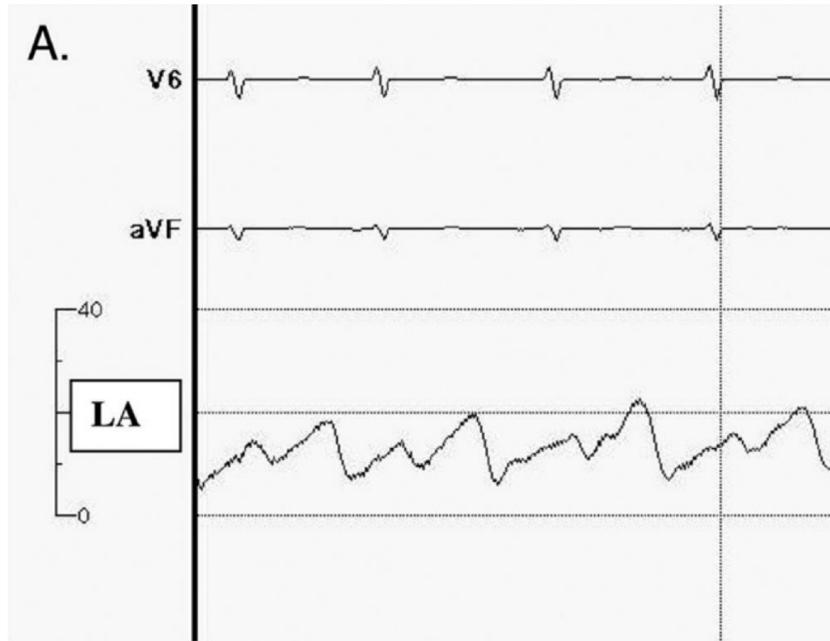
Table 4 Predictors of pulmonary arterial hypertension (n = 1,058)

|	Odds ratio	95% CI	P-value
Diabetes mellitus	9.49	2.0–44.2	.004
OSA	6.23	1.6–24.4	.009
LA size ≤45 mm	6.13	1.2–32.5	.033
Mean LA pressure	1.14	1.1–1.4	.025
Atrial scarring (severe)	4.4	1.1–22.2	.046

Stiff Atrial Syndrome post AFib ablation # 1.4%

Gibson, Heart Rhythm 2011
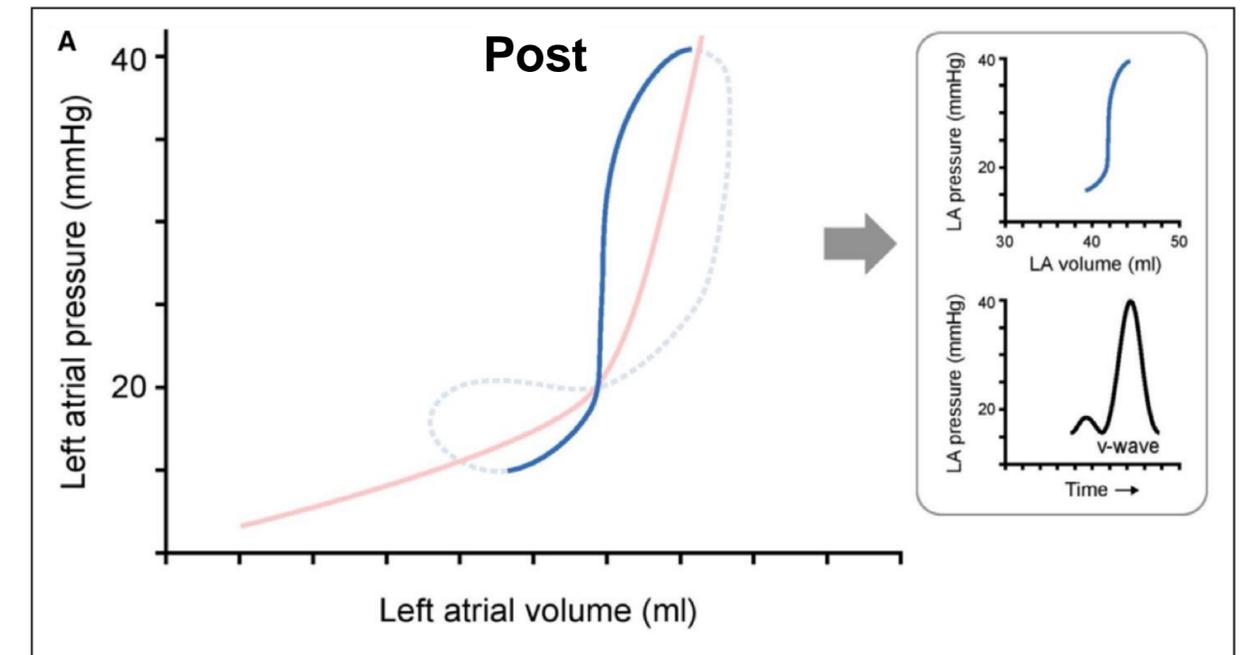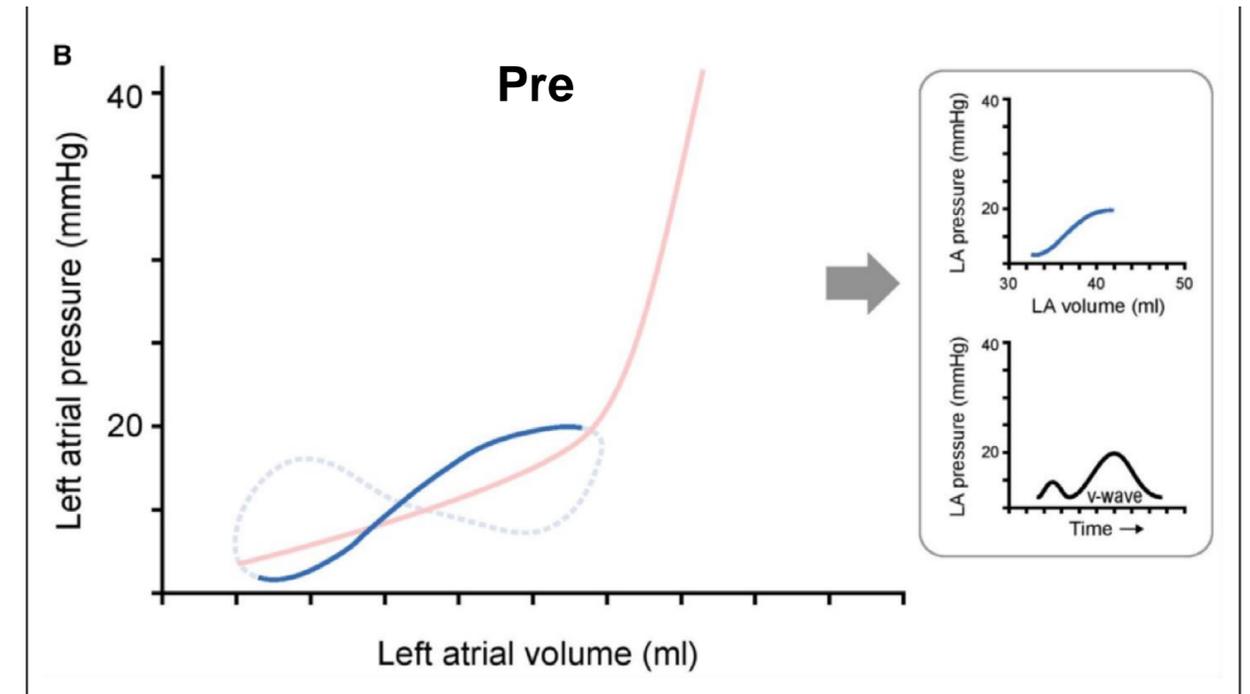
Chandrashekar, Circ Heart Fail 2017

C   AHF   6.4%
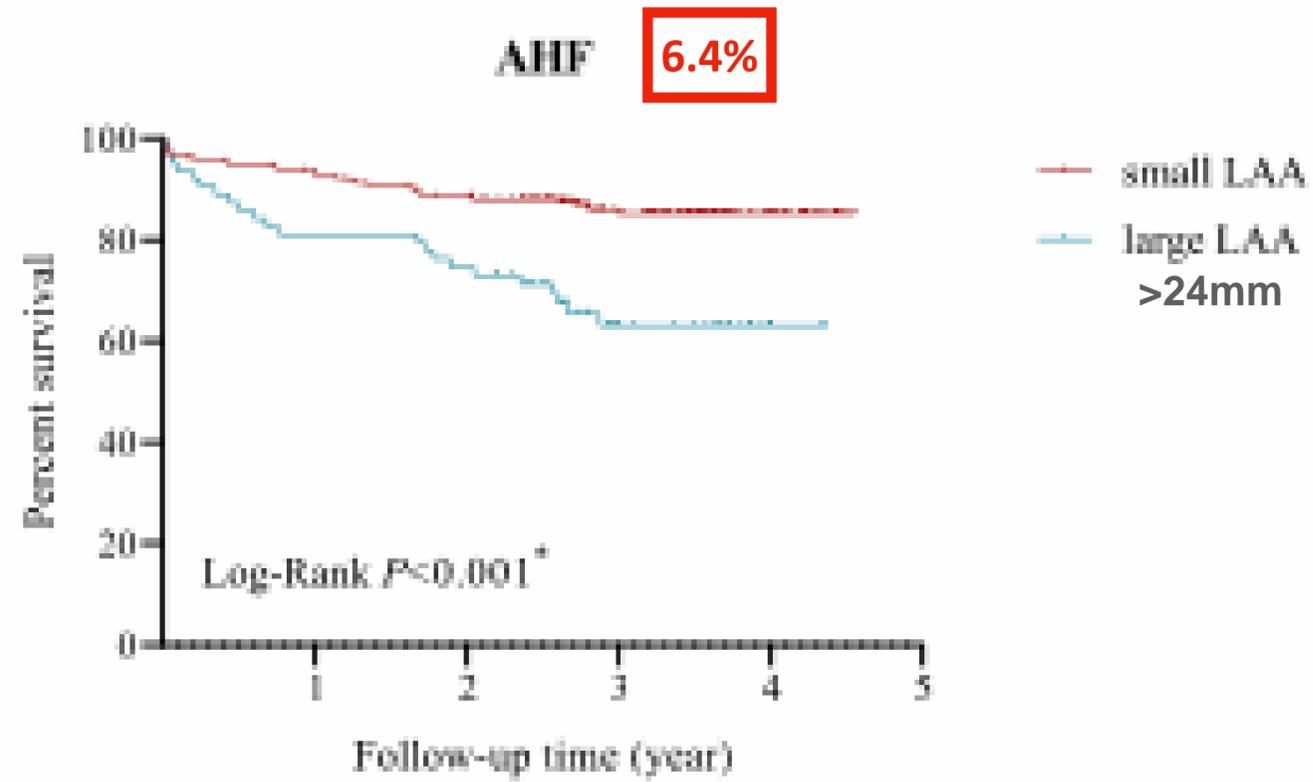
E   AHF (NYHA III-IV)   3.8%

1/6 HF post LAAC
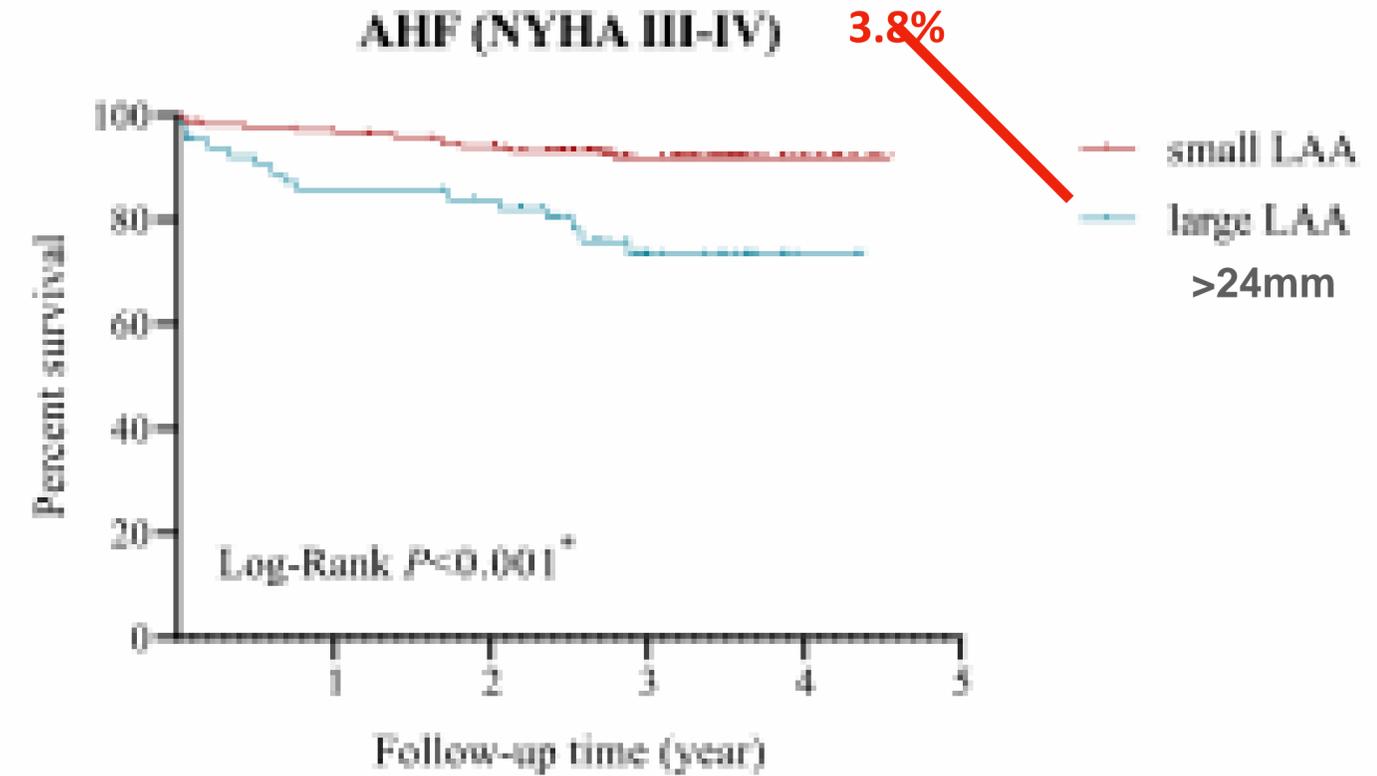
1/10 NYHA 3-4

MACCE OR=3.7 for large LAA

Ren JAHA 2022

Conclusions

Paroxysmal AFib = same thromboembolic risk

Paroxysmal AFib = same thromboembolic prevention

Paroxysmal AFib = same indication for LAAC

**Paroxysmal AFib = watch-out appendage dimensions**

Paroxysmal AFib + LAAC = watch-out dyspnea

More studies are needed
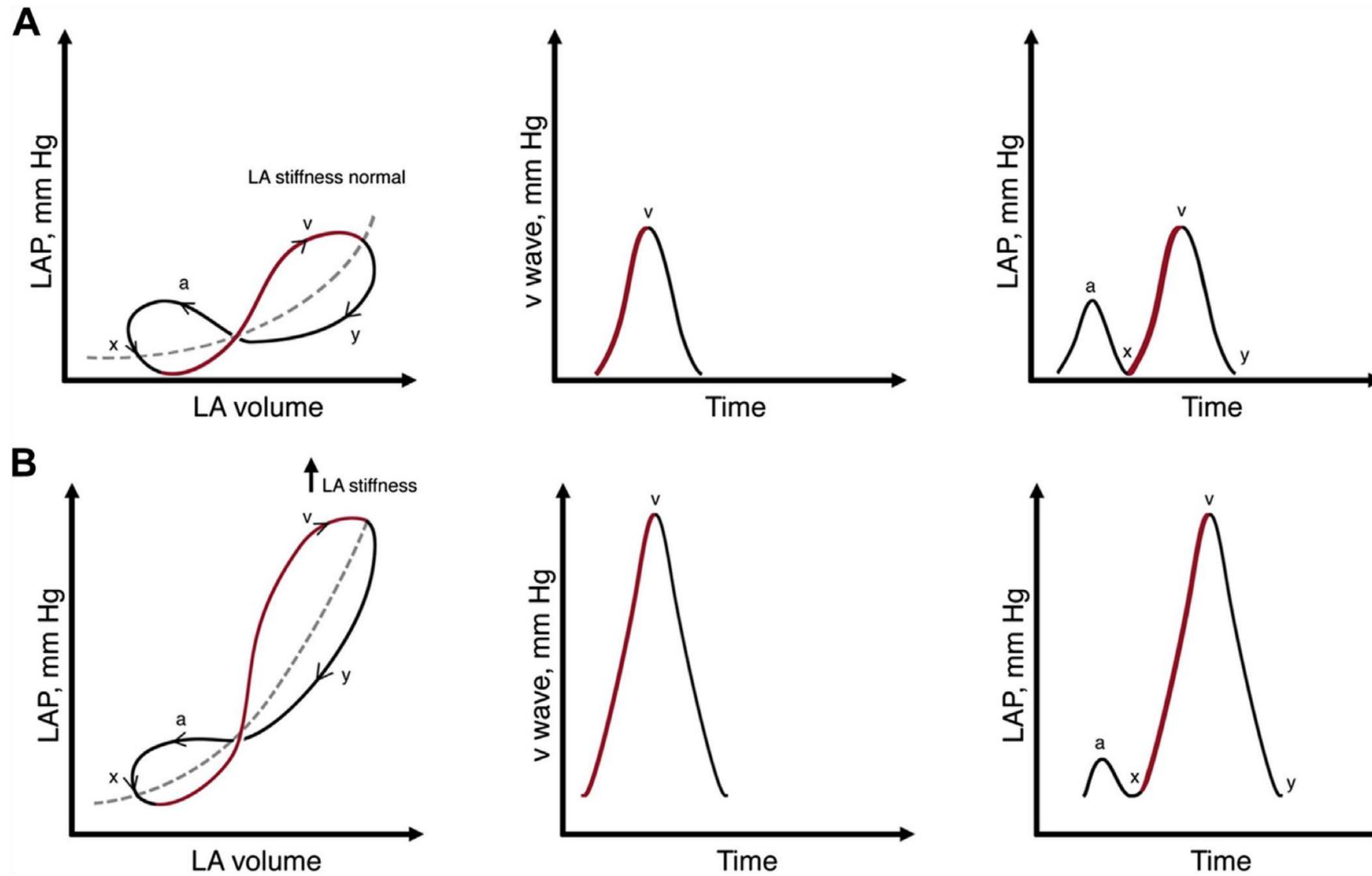
Figure 2 LA pressure-volume loop and correlation with LA pressure in (**A**) normal LA and (**B**) stiff LA. LA = left atrium/atrial; LAP = left atrial pressure.