



# Left Atrial Appendage Occlusion with the Amplatzer Cardiac Plug

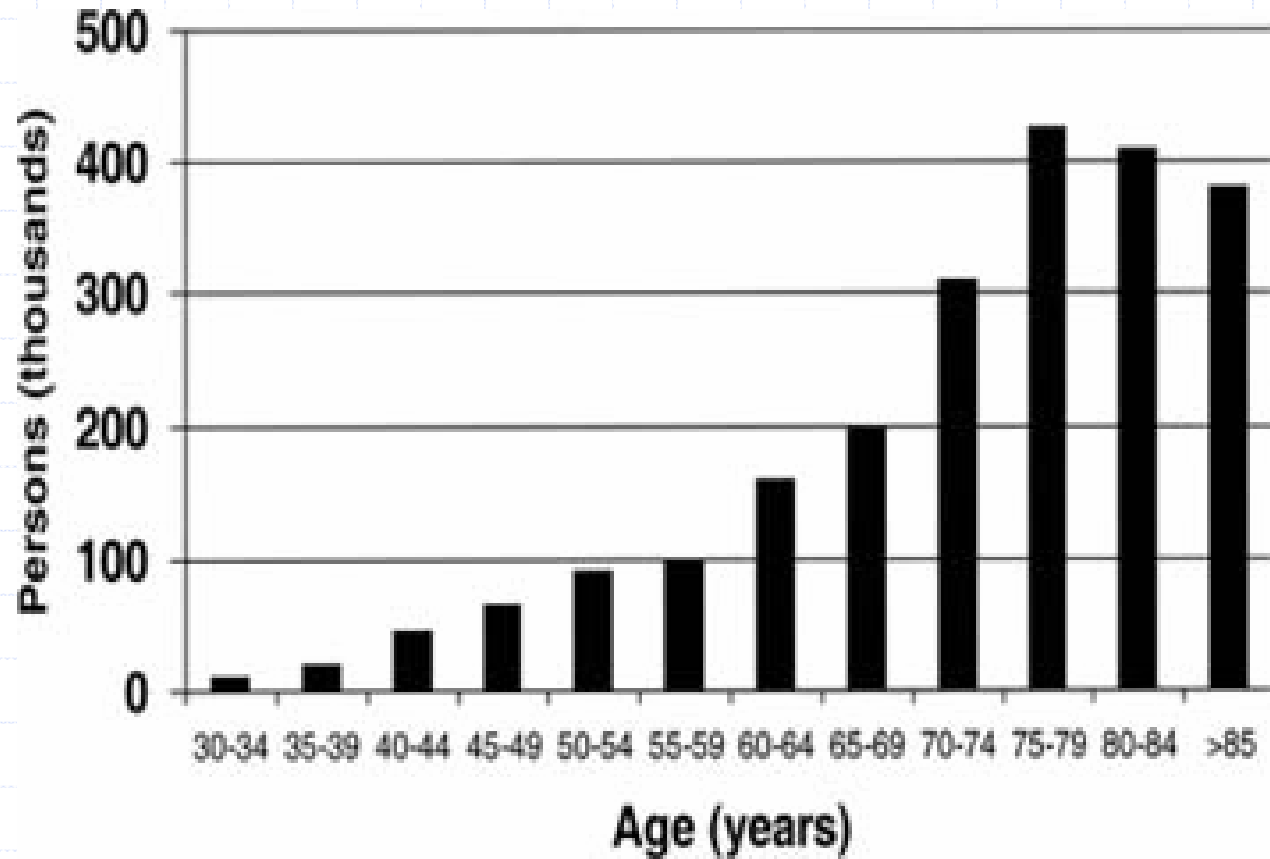
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# Age Dependent Prevalence of Atrial Fibrillation

*0.4% - 1% in the general population*

*8% in individuals of 80 yrs and older*



# Stroke-risk in pts with nonrheumatic AFib without anticoagulation according to the CHADS<sub>2</sub>-index

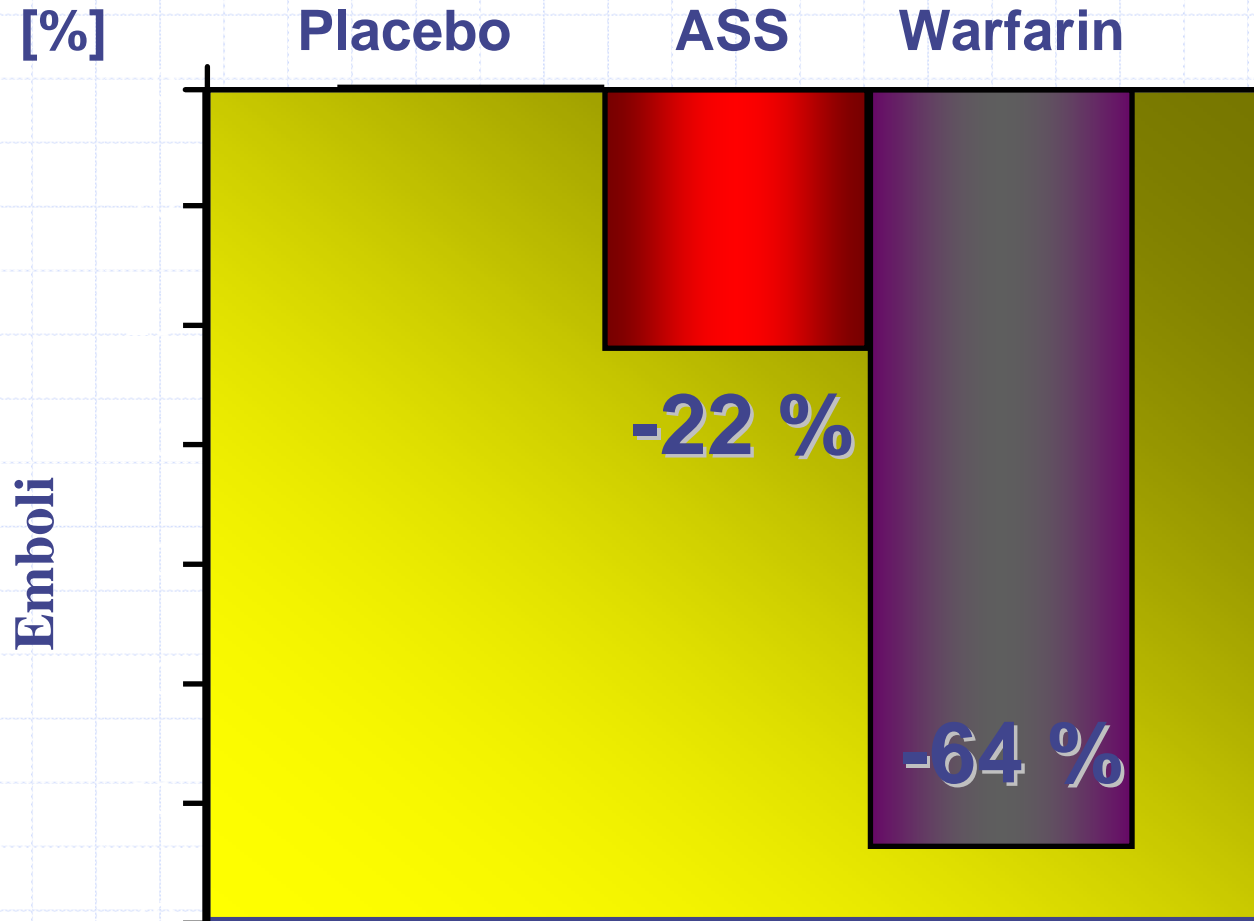
## CHADS<sub>2</sub> risk criteria

Congestive heart failure	1
Hypertension	1
Age ≥ 75 y	1
Diabetes mellitus	1
Stroke or TIA history	2

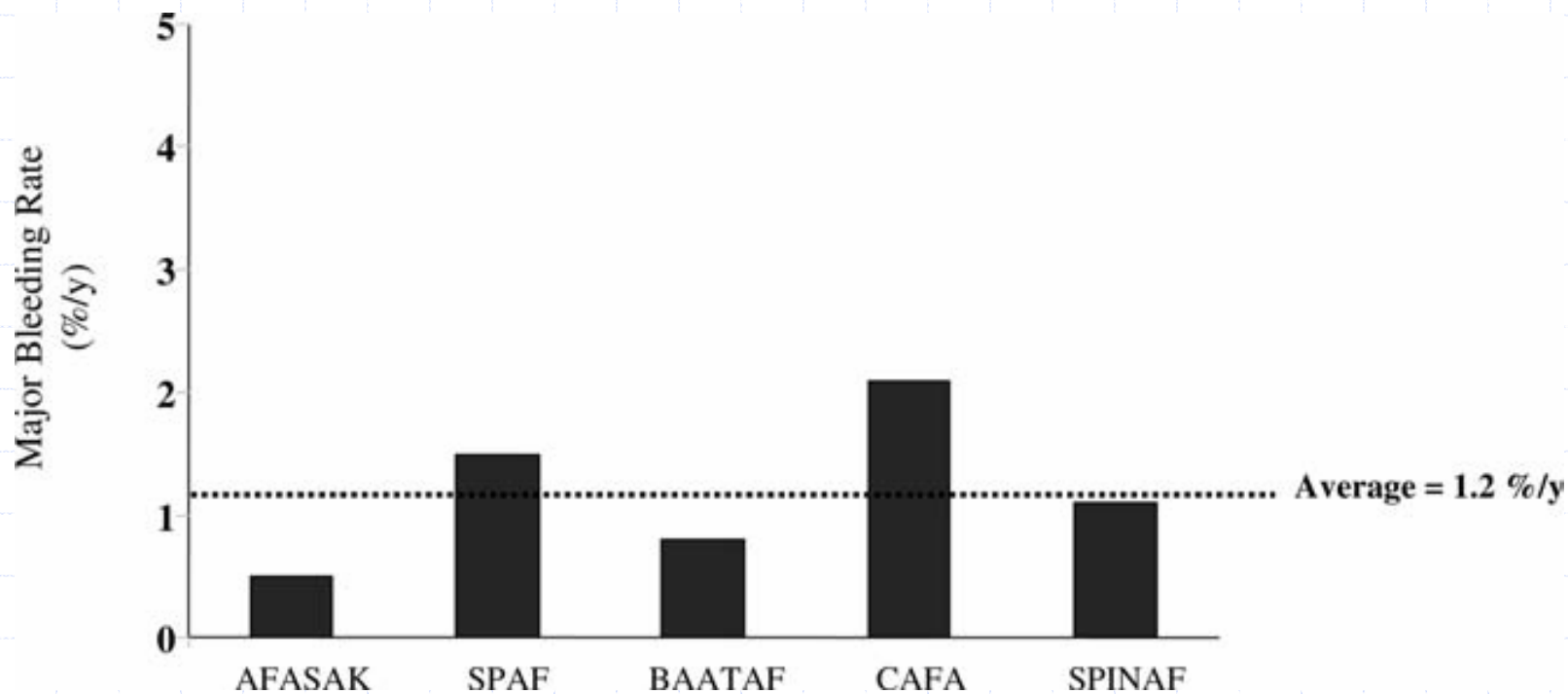
Gage et al. *JAMA*. 2001;285:2864-2870.

Patients (N = 1733)	Adjusted stroke rate (%/y) (95% CI)	CHADS <sub>2</sub> -score
120	1.9 (1.2 to 3.0)	0
463	2.8 (2.0 to 3.8)	1
523	4.0 (3.1 to 5.1)	2
337	5.9 (4.6 to 7.3)	3
220	8.5 (6.3 to 11.1)	4
65	12.5 (8.2 to 17.5)	5
5	18.2 (10.5 to 27.4)	6

# Risk Reduction by ASS / Warfarin



## Annual rate of relevant bleeding during anticoagulation in primary prevention trials in pts with nonvalvular AFib



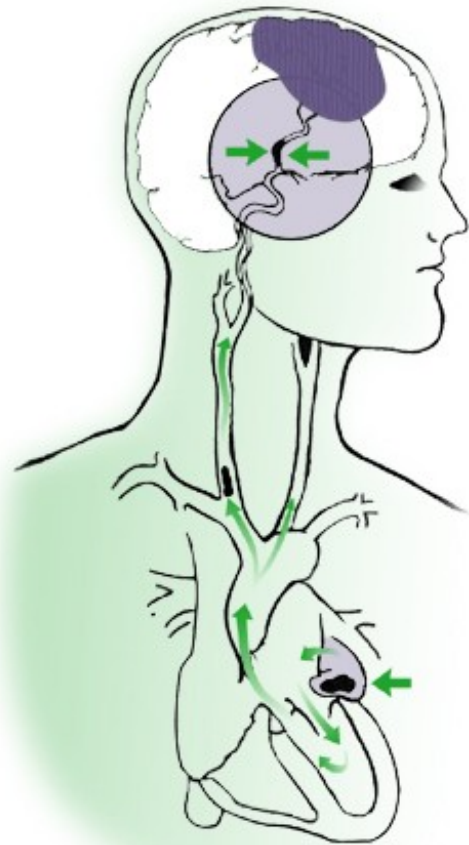
# Location of Thrombus in Non-Rheumatic Atrial Fibrillation

90% (201/222) of Left Atrial Thrombus Localized to the LAA

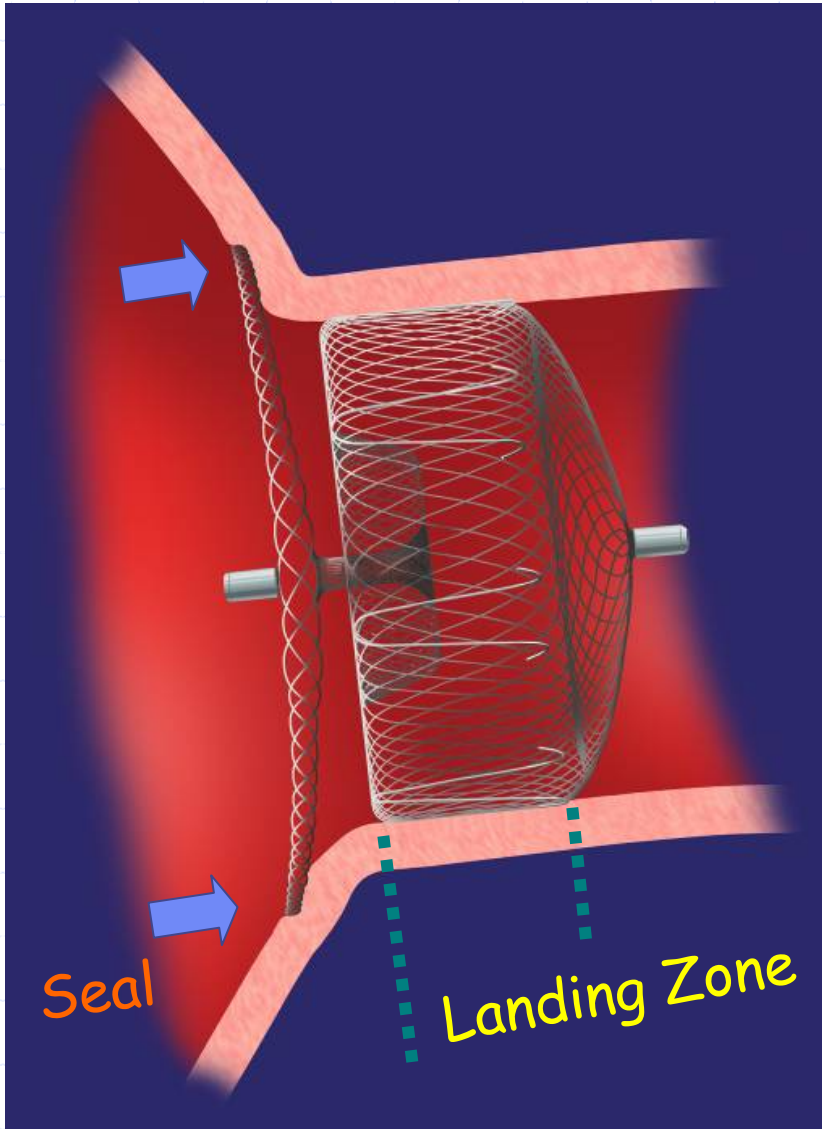
Setting	N	Appendage	%	LA Body	%	Reference
TEE	317	66	21	1	0.3	Stoddard; JACC, 1995
TEE	233	34	15	1	0.4	Manning; Circ, 1994
Autopsy	506	35	7	12	2.4	Aberg; Acta Med Scan, 1969
TEE	52	2	4	2	3.8	Tsai; JFMA, 1990
TEE	48	12	25	1	2.1	Klein; Int J Card Image, 1993
TEE & Operation	171	8	5	3	1.8	Manning; Circ, 1994
SPAF III TEE	359	19	5	1	0.3	Klein; Circ, 1994
TEE	272	19	7	0	0.0	Leung; JACC, 1994
TEE	60	6	10	0	0.0	Hart; Stroke, 1994
<b>Total Thrombus</b>		<b>201</b>		<b>21</b>		

# Hypothesis

- The ischemic stroke in pts with AFib has mostly a thromboembolic genesis, the origin of these thrombi is the LAA. Exclusion of the LAA from the LA will result in a major stroke risk reduction



# Amplatzer Cardiac Plug



- ◆ Self-Orienting Disc
- ◆ Secure Placement in a Shallow Landing Zone 10mm depth
- ◆ Complete Seal
- ◆ Enhanced Device Visualization

# Amplatzer Cardiac Plug

## ◆ Procedural Considerations

- Transvenous procedure
- Access to the LA is via the RA through a transeptal puncture
- Under a combination of transesophageal and fluoroscopic control
- Due to TEE requires general anesthetic

# Aim

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- ◆ Assess the patient population undergoing LAA occlusion for stroke risk reduction with the ACP by the team at Shaare Zedek Medical Center, their procedural and longer term outcome

# Population

- ◆ 16 patients referred with AF and contraindications for coumadin
- ◆ 2 patients declined
  - Respiratory cripple – anesthetic risk considered unreasonable for prophylactic procedure
  - CHADS2 score 1 (recommended ASA alone)

# Patient Demographics

(8/2009 – 2/2010) N=14

Age (yrs) 75.8±10.0

Male 7 (50%)

AF

Permanent 7

Persistent 2

Paroxysmal 5

Hypertension 12 (86%)

DM 6 (43%)

LVD 10 (71%)

>75yrs 11 (79%)

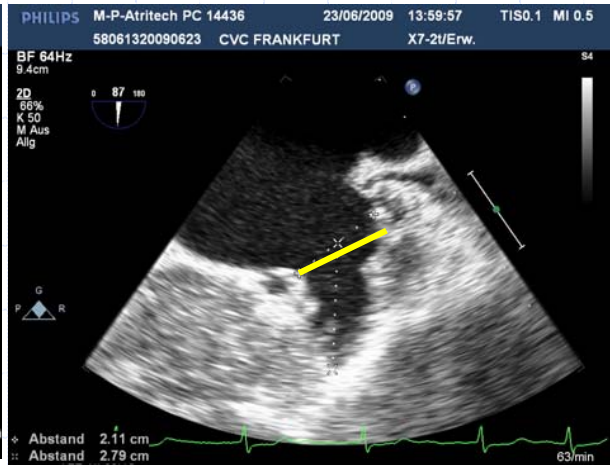
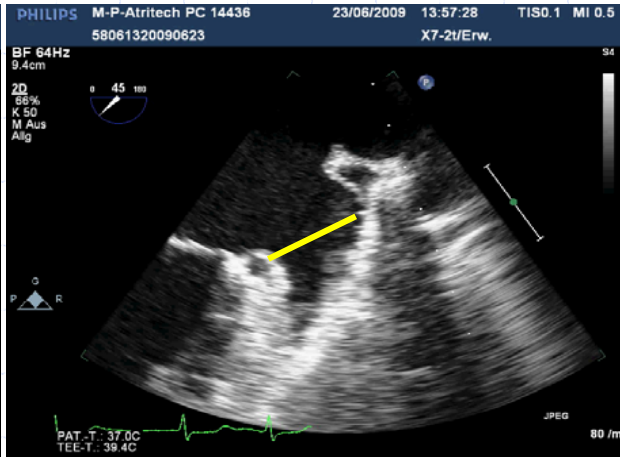
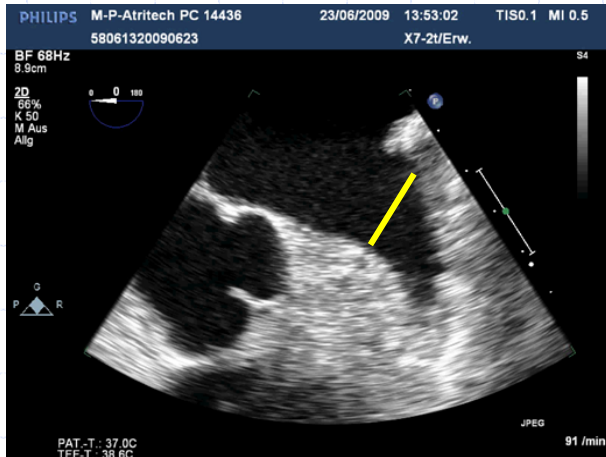
CVA 8 (57%)

CHADS2 3.9±1.2

# Contraindications to Anticoagulation

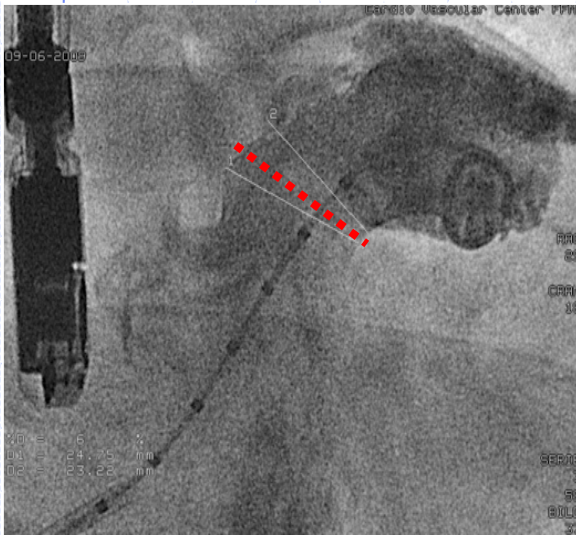
◆ GI bleeding	5
◆ Compliance	2
◆ Cerebral Hemorrhage	2
◆ Recurrent Falls	2
◆ Retinal Bleeding	1
◆ Other Bleeding	2

# TEE Measurement of the LAA Neck



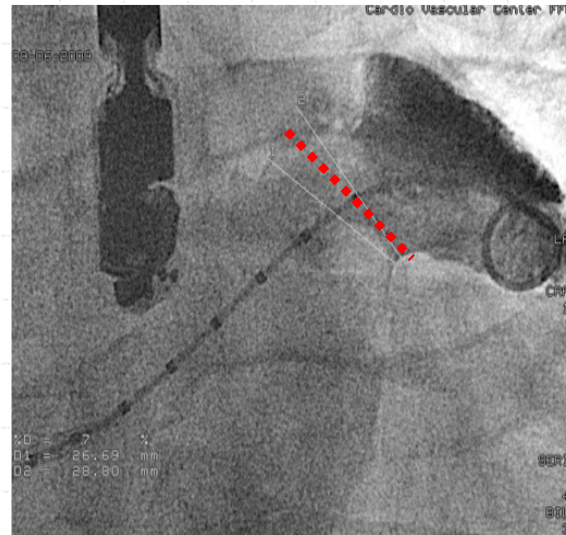
# LAA Measurements on Angiograms

Choose the largest measurement in different views



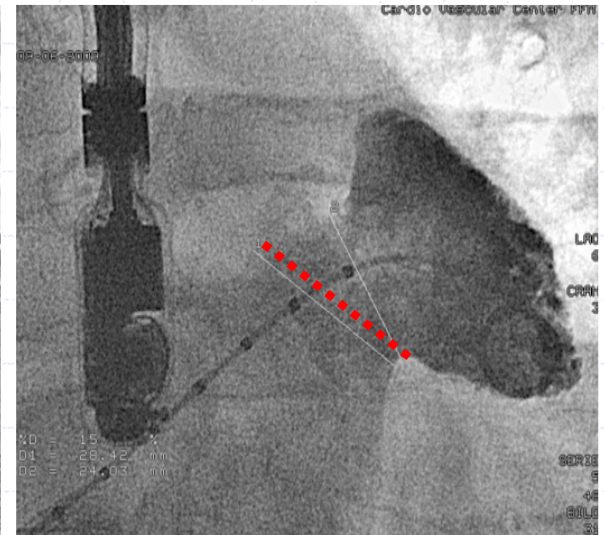
RAO/CRA 30/18

23 mm



LAO/CRA 2/18

29 mm



24 mm

# Procedural findings

- ◆ Echocardiographic landing zone  
19.5±2.5mm
- ◆ Angiographic landing zone  
21.0±2.4 mm
- ◆ Mean device size deployed  
23±4.1 mm
- ◆ Second device taken  
4/14

# Procedural completion

◆ Device Stable	14/14
◆ Residual LAA flow	0/14
◆ Device configuration	
■ Disc	14/14
■ Lobe	13/14
■ Seperation	14/14
◆ Procedural Success	14/14

# Post-Deployment Recomendations

- ◆ Aspirin for life
- ◆ Plavix 75mg x 1 for one month
- ◆ SBE prophylaxis for 6 months
- ◆ Echocardiographic follow-up

# Follow-up

◆ Period (months) 2-10 (5.6±3.2)

◆ Mortality 0

◆ CVA 0

◆ Events 1

- Single episode at 3 wks GI bleeding on ASA/Plavix - stopped

# Case: V.Y. 83 y/o female

Relevant medical history:

Persistent AF

S/P CVA- Ischemic

Hypertension

Congestive heart failure

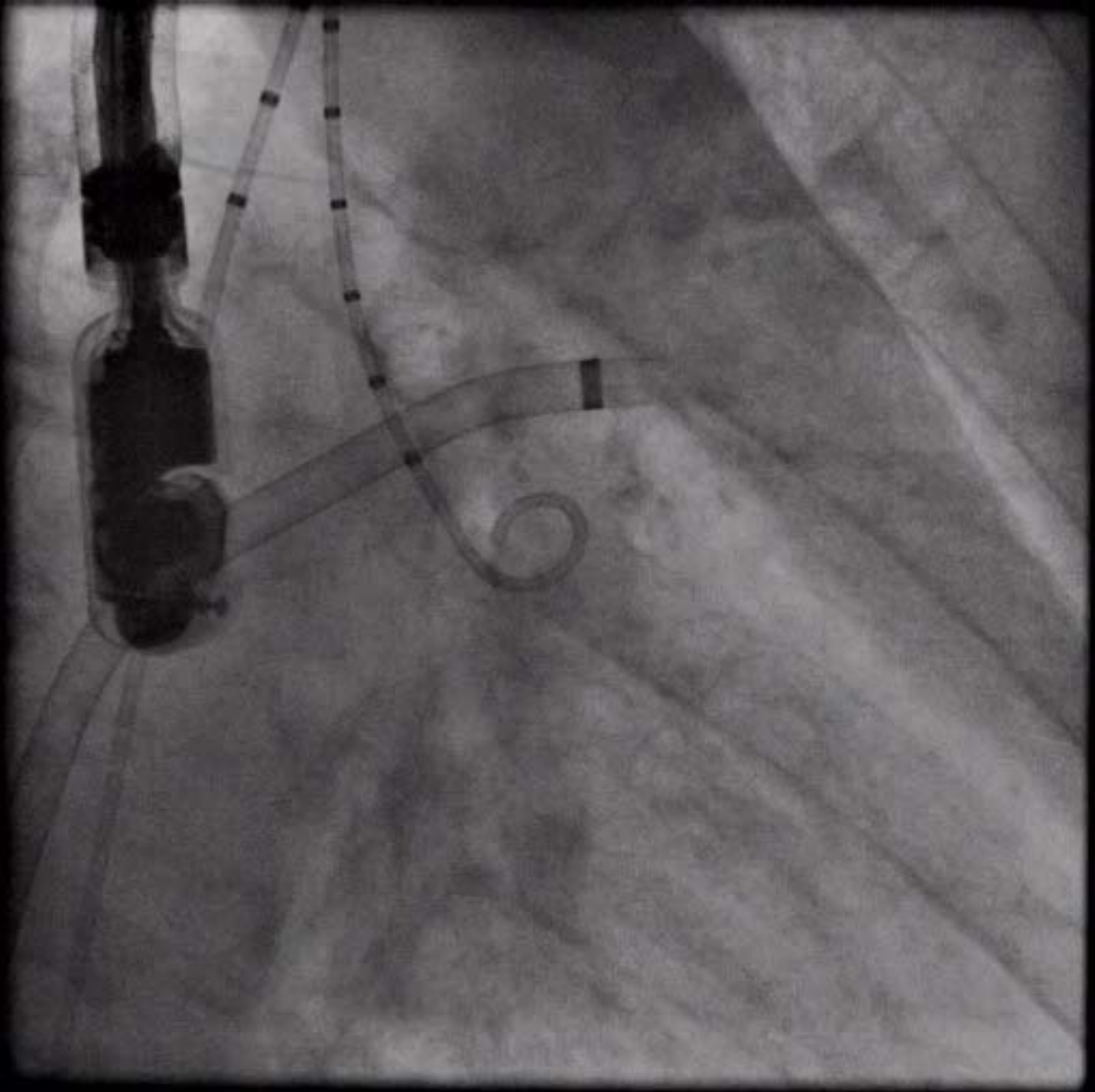
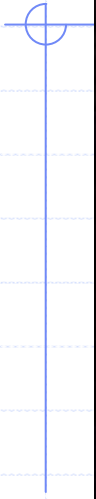
Two episodes of massive GI bleeding under coumadin Tx.

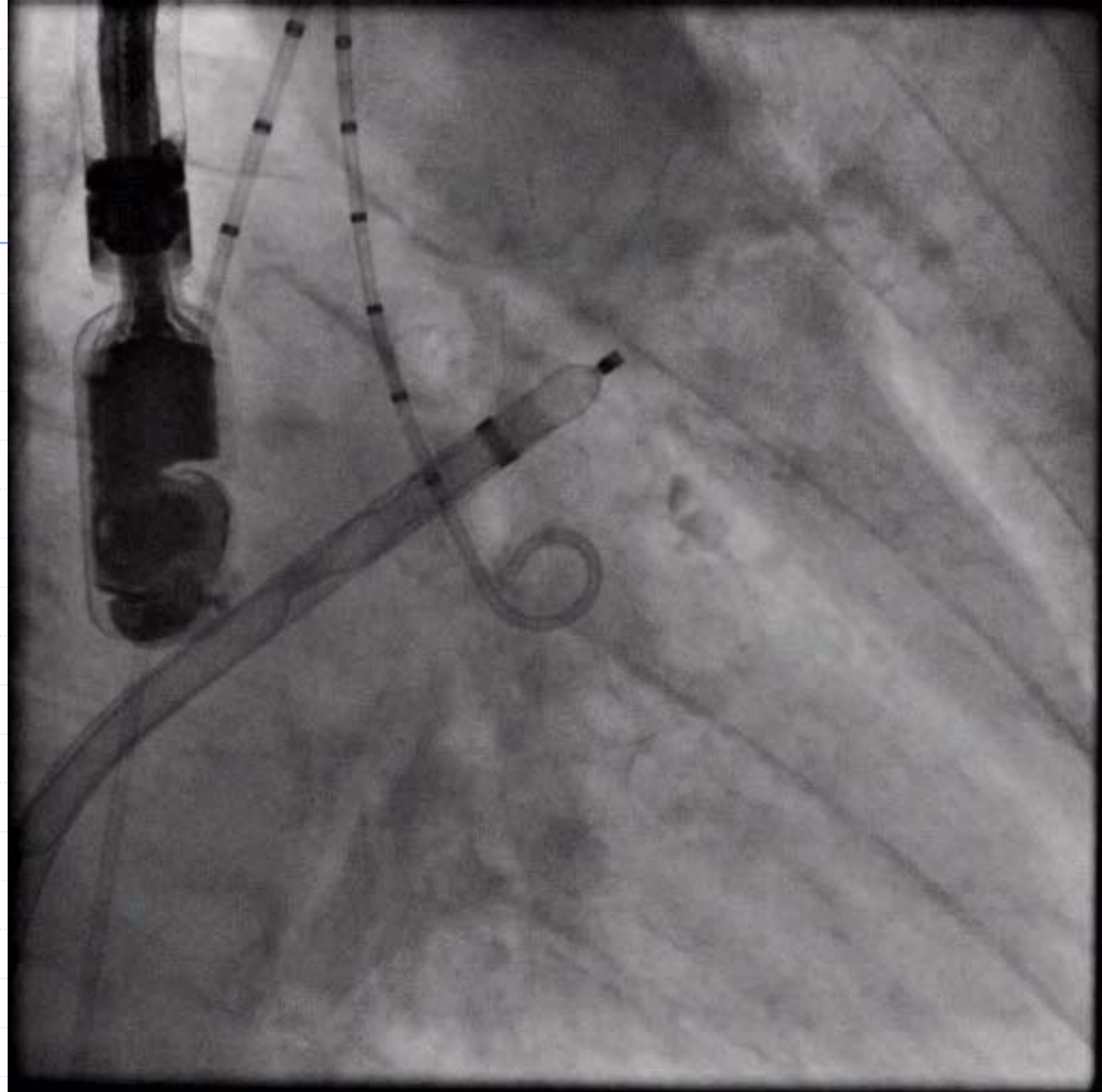
## CHADS2 score- 5

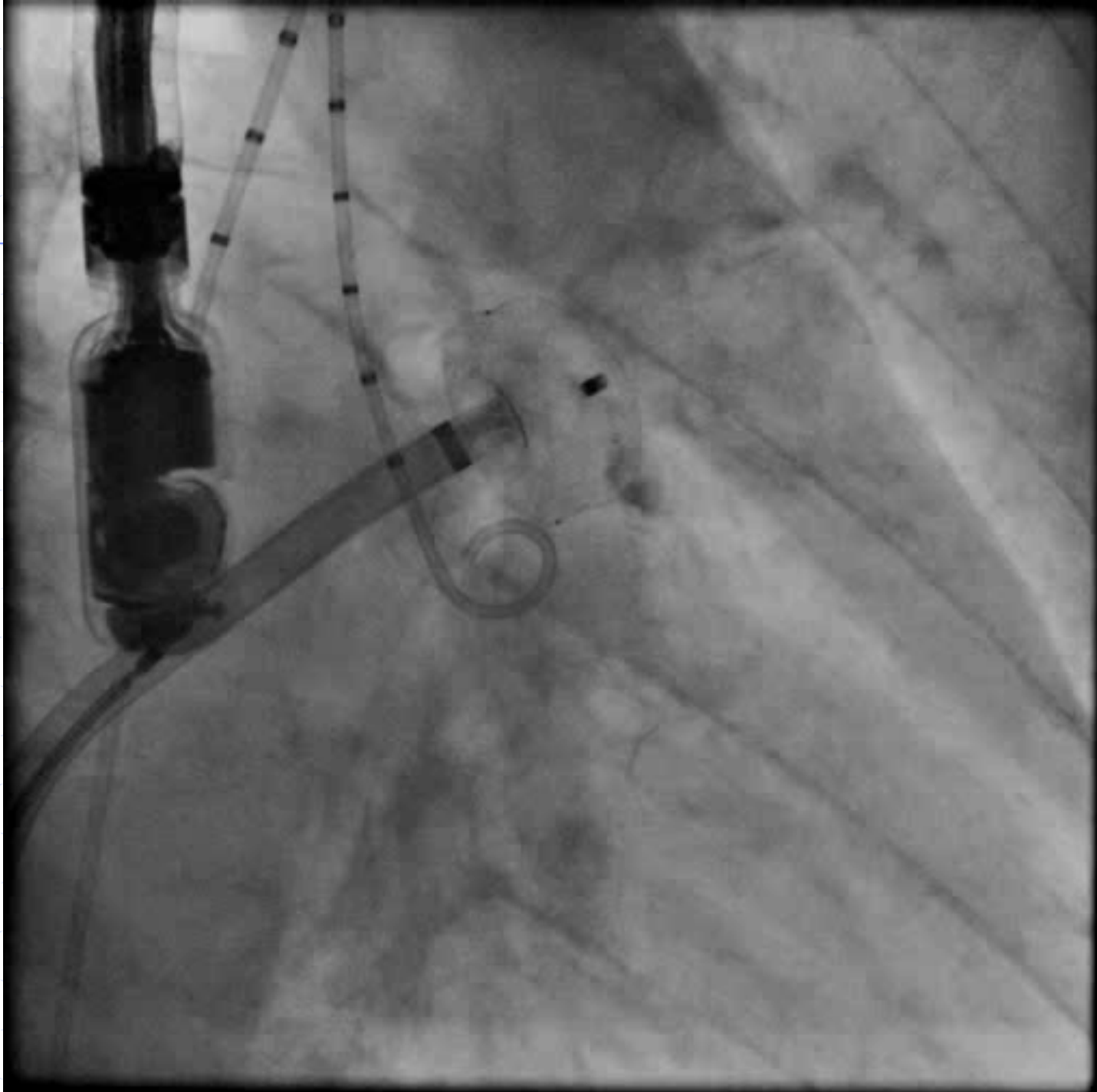
### Annual stroke risk – 12.5%/year

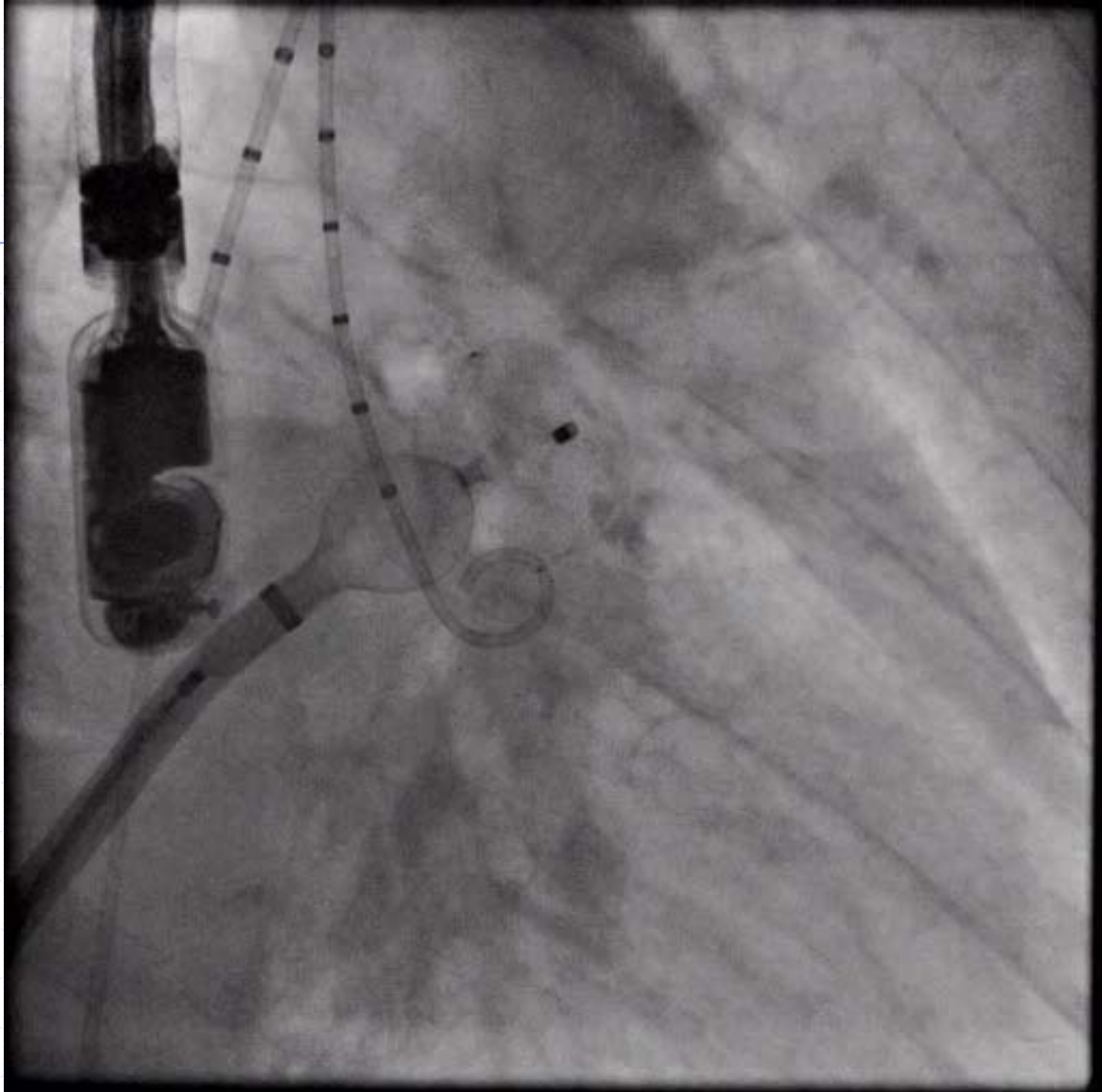
CHADS2 risk criteria	Score
Prior stroke or TIA	2
Age $\geq 75$ y	1
Hypertension	1
Diabetes mellitus	1
Heart failure	1

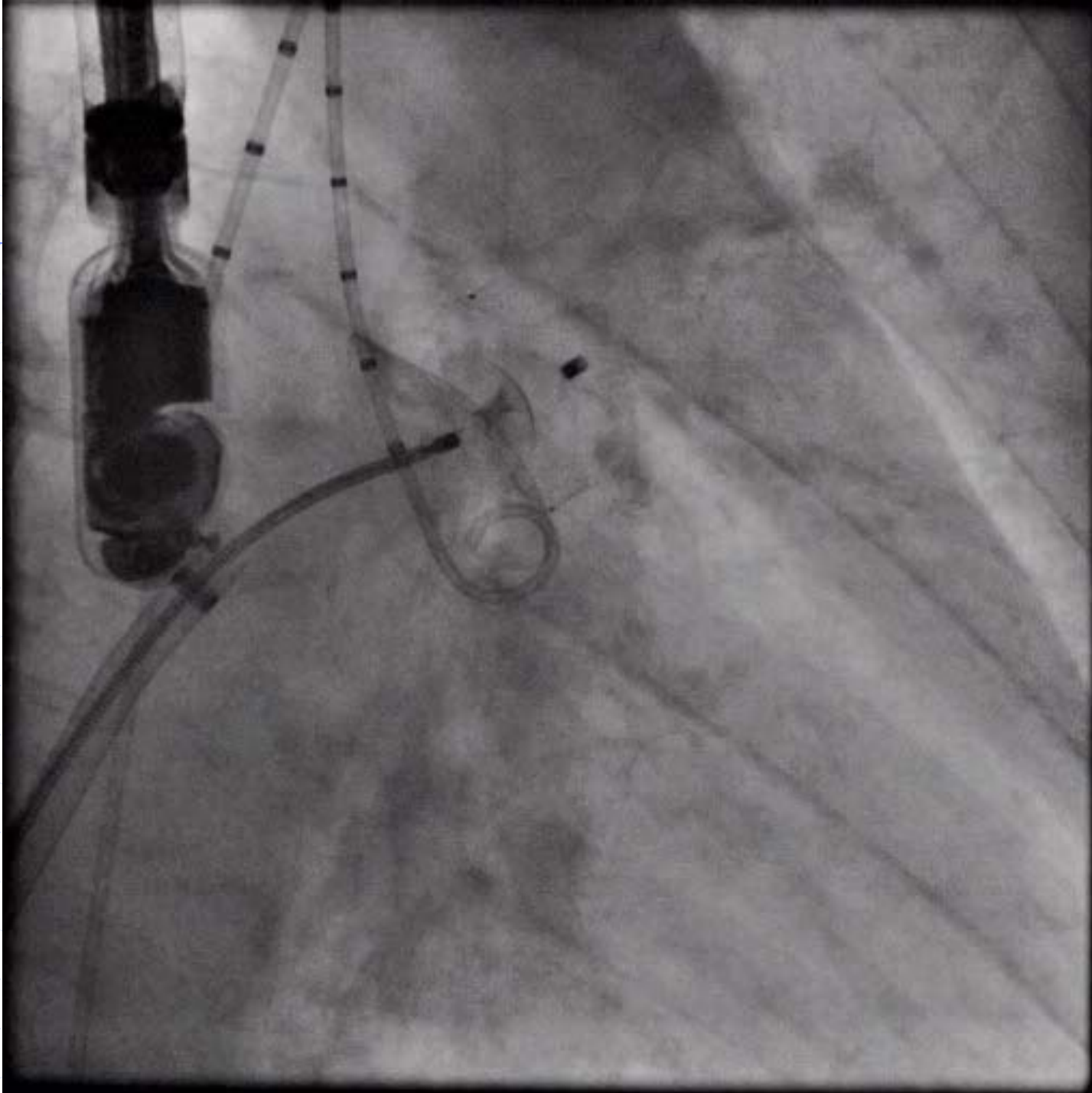
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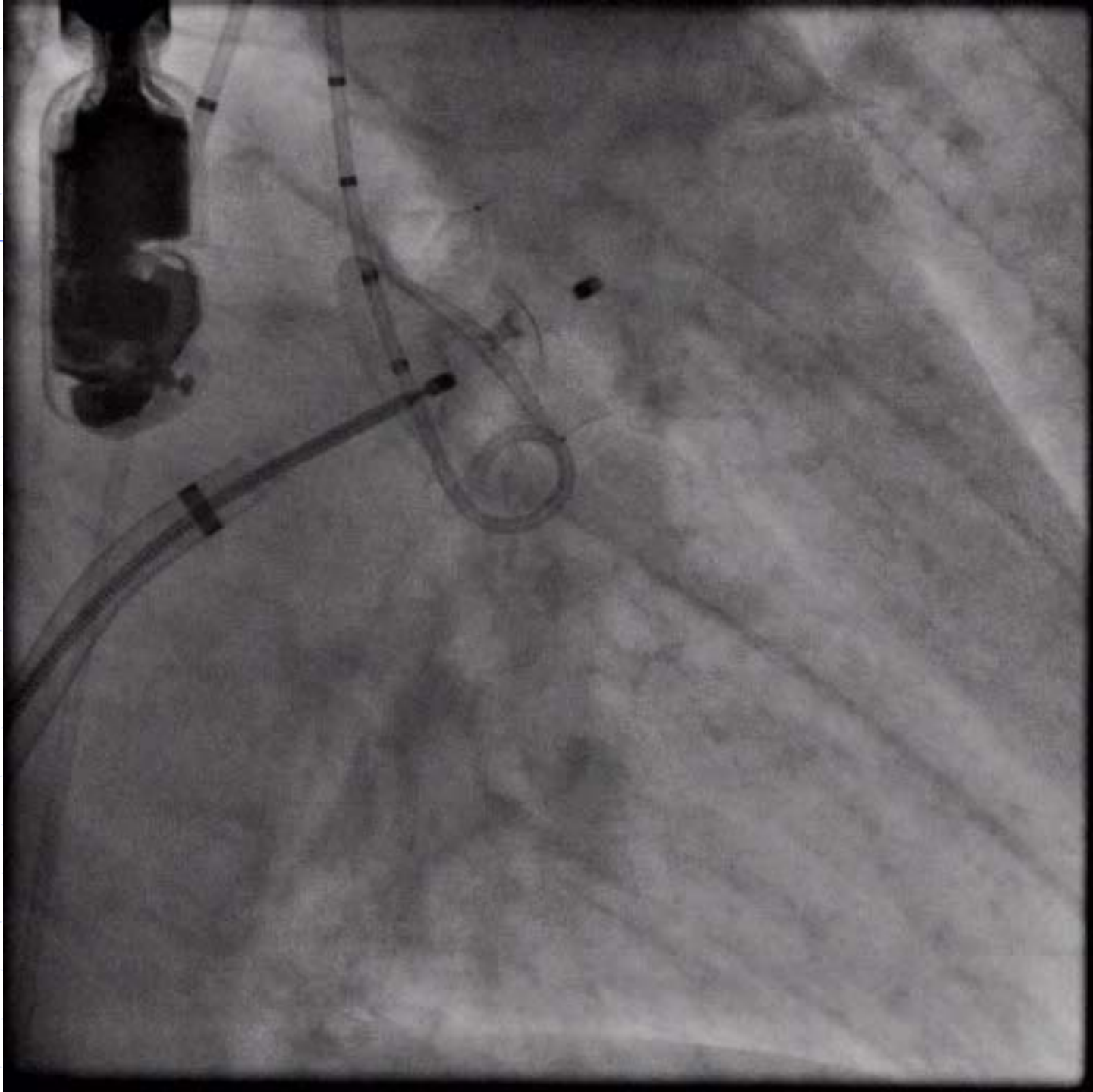














# Conclusions

- ◆ LAA Occlusion using the Amplatzer Cardiac Plug is a feasible and safe option in a high risk AF population unable to be treated with anticoagulants.
- ◆ Although extremely promising, it appears prudent to await larger series and longer follow-up prior to the application of this technology to patients that are good candidates for standard anticoagulation therapy.

# Thanks

## ◆ Great Team

- Echocardiographers
- Anesthetics
- Cath Nurses
- Cath technicians
- Echo technicians
- Ward Docs and nurses