

Device based stroke prevention: Update on data, technologies and indications for LAA and PFO closure in EP patients

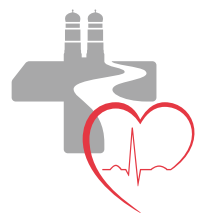
Thorsten Lewalter

Dept. of Cardiology and Intensive Care

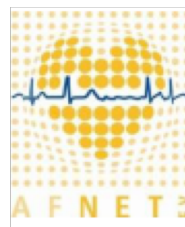
Hospital Munich South

Peter Osypka Heart Centre

AFNET e.V. Deutschland



Klinik für Kardiologie und
Internistische Intensivmedizin
Peter Osypka Herzzentrum
Internistisches Klinikum
München Süd



12th Expert Meeting Berlin

January 18 to 19, 2019, Radisson Blu Hotel Berlin

Consultant / Advisor / Speaker:

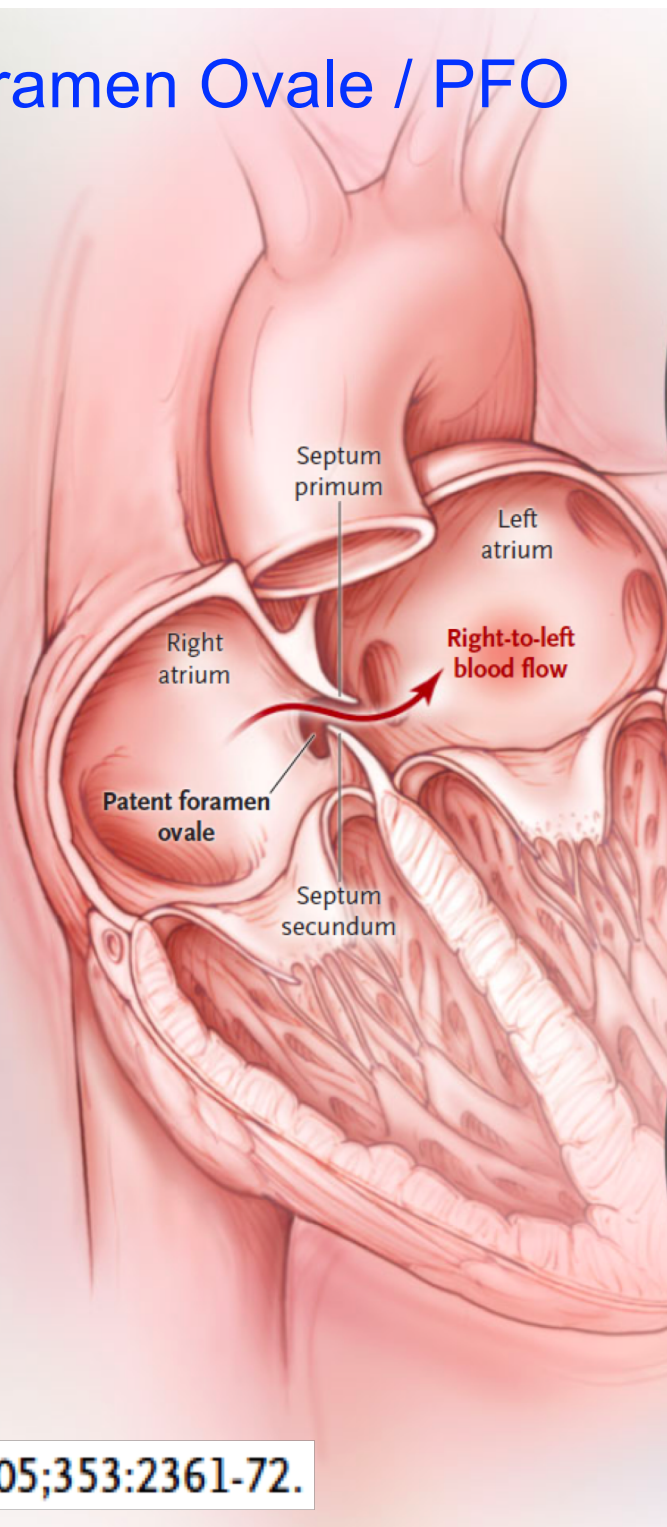
Medtronic, St. Jude, Biotronik, Boston Scientific, Cardiofocus, Bayer, Osypka, Boehringer,
Daiichi Sankyo, BMS, Pfizer, Novartis, Atricure, Toray, Abbott

Device based stroke prevention: Update on data, technologies and indications for LAA and PFO closure in EP patients

1. concept and device implantation („*how*“)
2. clinical data („*why*“)
3. current indication („*when*“)

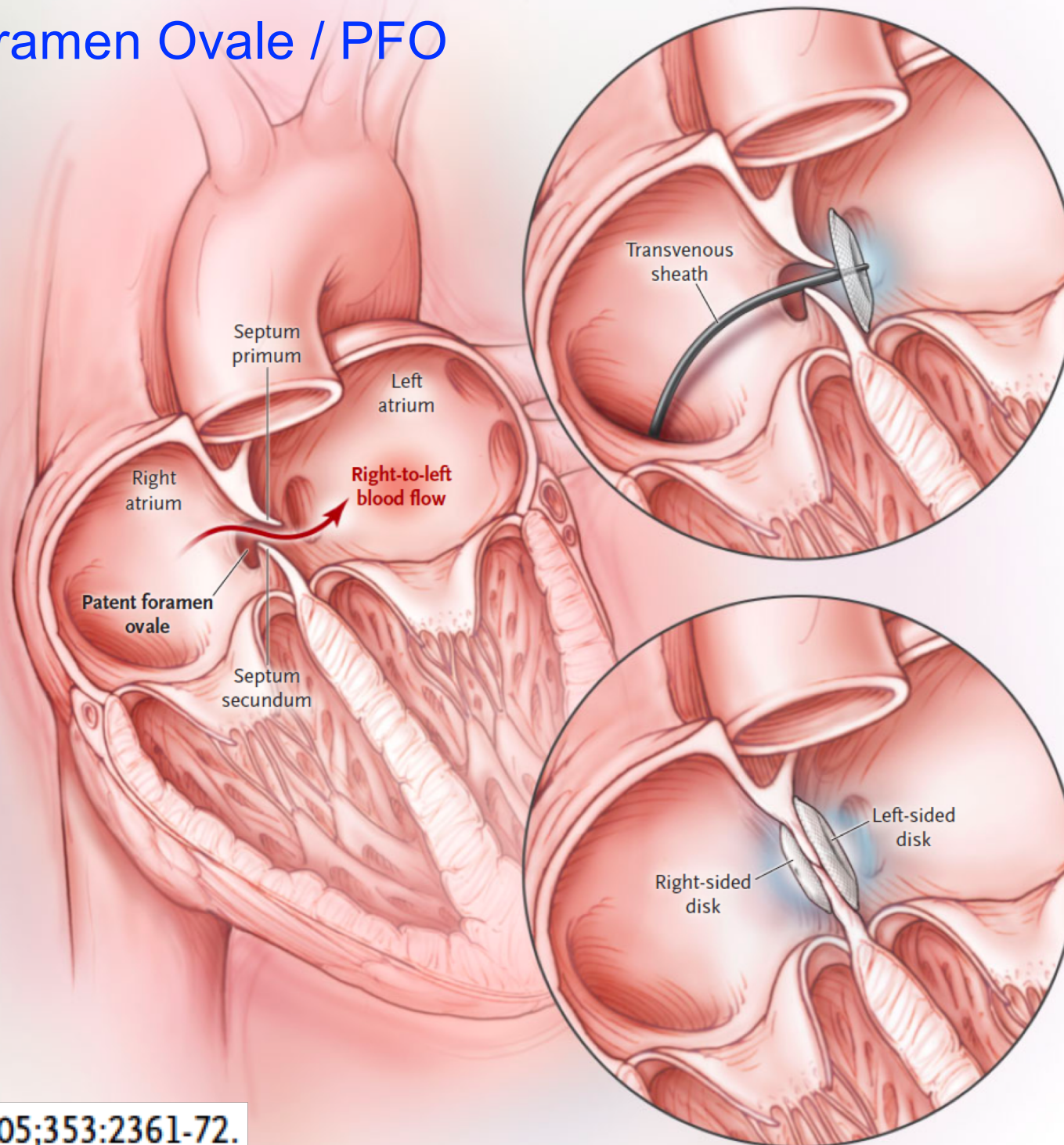


Patent Foramen Ovale / PFO



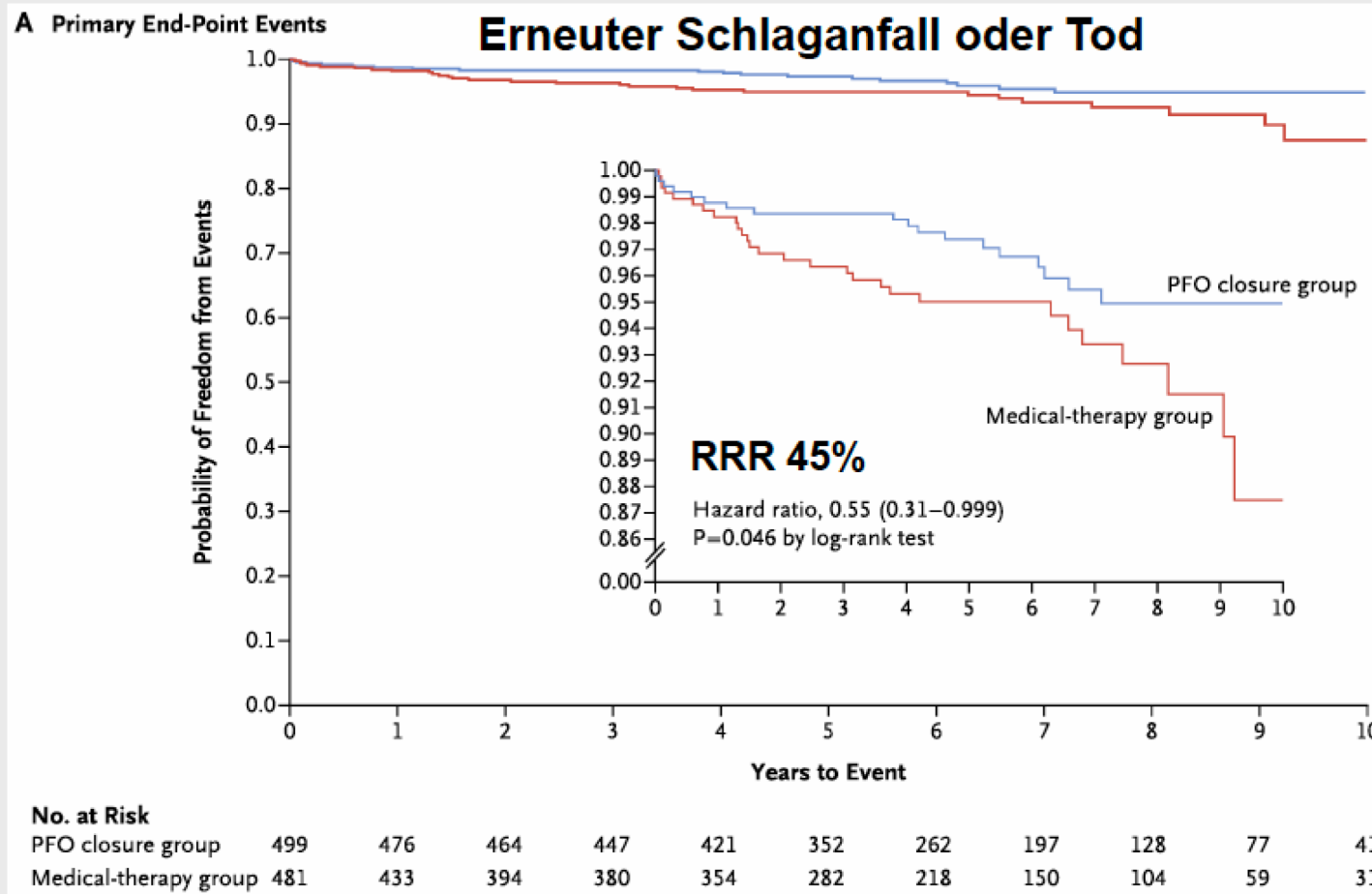


Patent Foramen Ovale / PFO



PFO Verschluss vs. medik. Therapie bei Z.n. kryptogenem Schlaganfall: RESPECT

Saver et al., N Engl J Med. 2017;377:1022-1032



Benefit ↑:

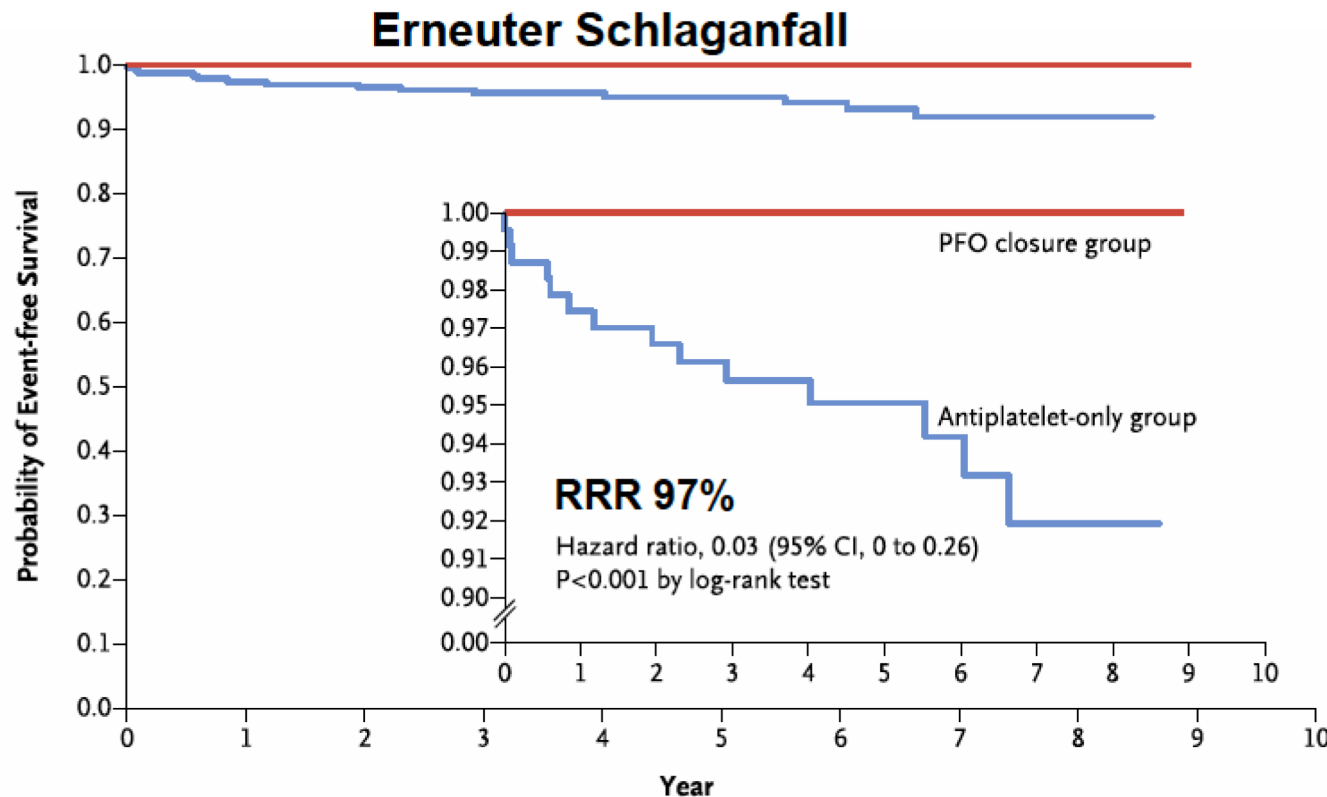
- Großer R-L-Shunt
- VH-Septum-Aneu.

VHF 0,2% vs. 0,2%

- N=980, Z.n. krypt. Schlaganfall, PFO im TEE, mittl. Alter 46 J., mittl. Follow-up 5,9 J., bis zu 10 J. FU
- Randomisiert Amplatzer PFO-Okkluder vs. medikamentöse Therapie (75% TAH, 25% OAK)

PFO Verschluss vs. medik. Therapie bei Z.n. kryptogenem Schlaganfall: CLOSE

Mas et al., N Engl J Med. 2017;377:1011-1021



OAK vs. TAH:
HR 0.44, n.s.

VHF 4,6% vs. 0,9%

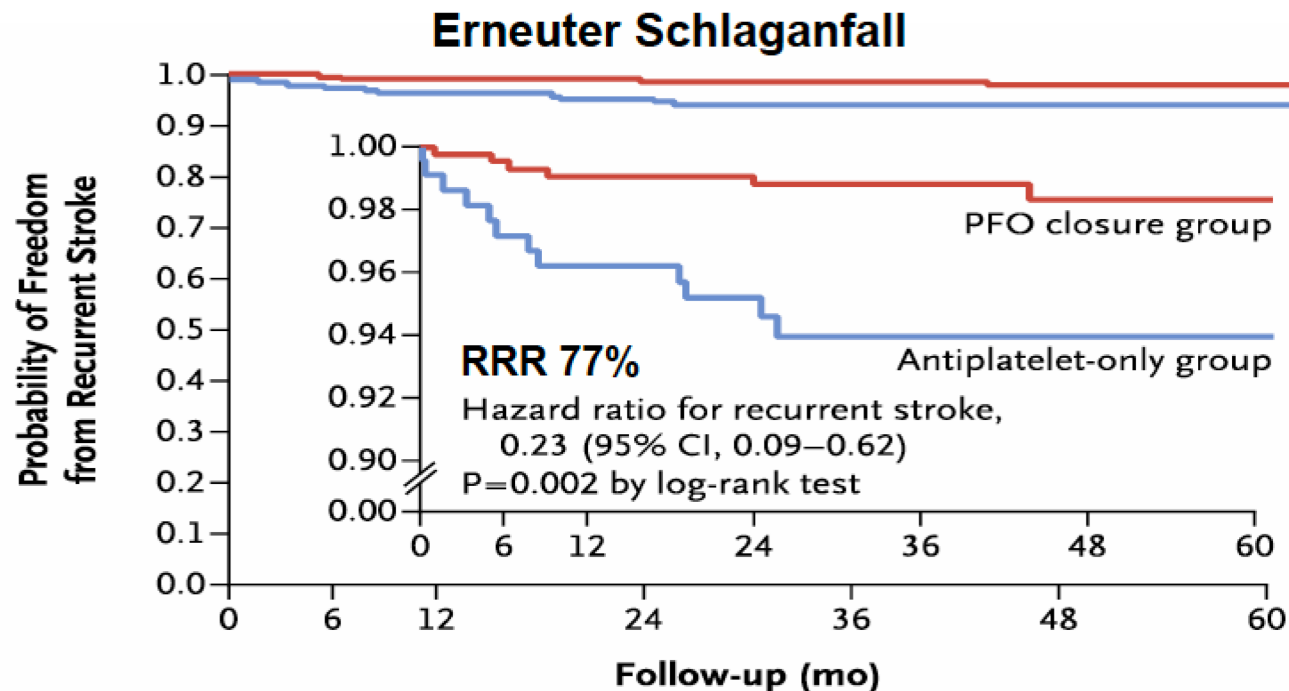
No. at Risk

PFO closure group	238	238	232	200	179	141	99	64	20	0	0
Antiplatelet-only group	235	229	223	198	160	130	96	55	19	0	0

- N=663, Z.n. krypt. Schlaganfall, PFO + ASA oder gr. R-L-Shunt, mittl. Alter 44 J., mittl. Follow-up 5,3 J.
- Randomisiert Okkluder-Device (50% Amplatzer) vs. antithrombozytäre Therapie vs. Antikoagulation

PFO Verschluss vs. medik. Therapie bei Z.n. kryptogenem Schlaganfall: REDUCE

Søndergaard et al., N Engl J Med. 2017;377:1033-1042



Neue Hirninfarkte
in der Bildgebung
nach 24 Monaten:
HR 0.51

VHF 6,6% vs. 0,4%

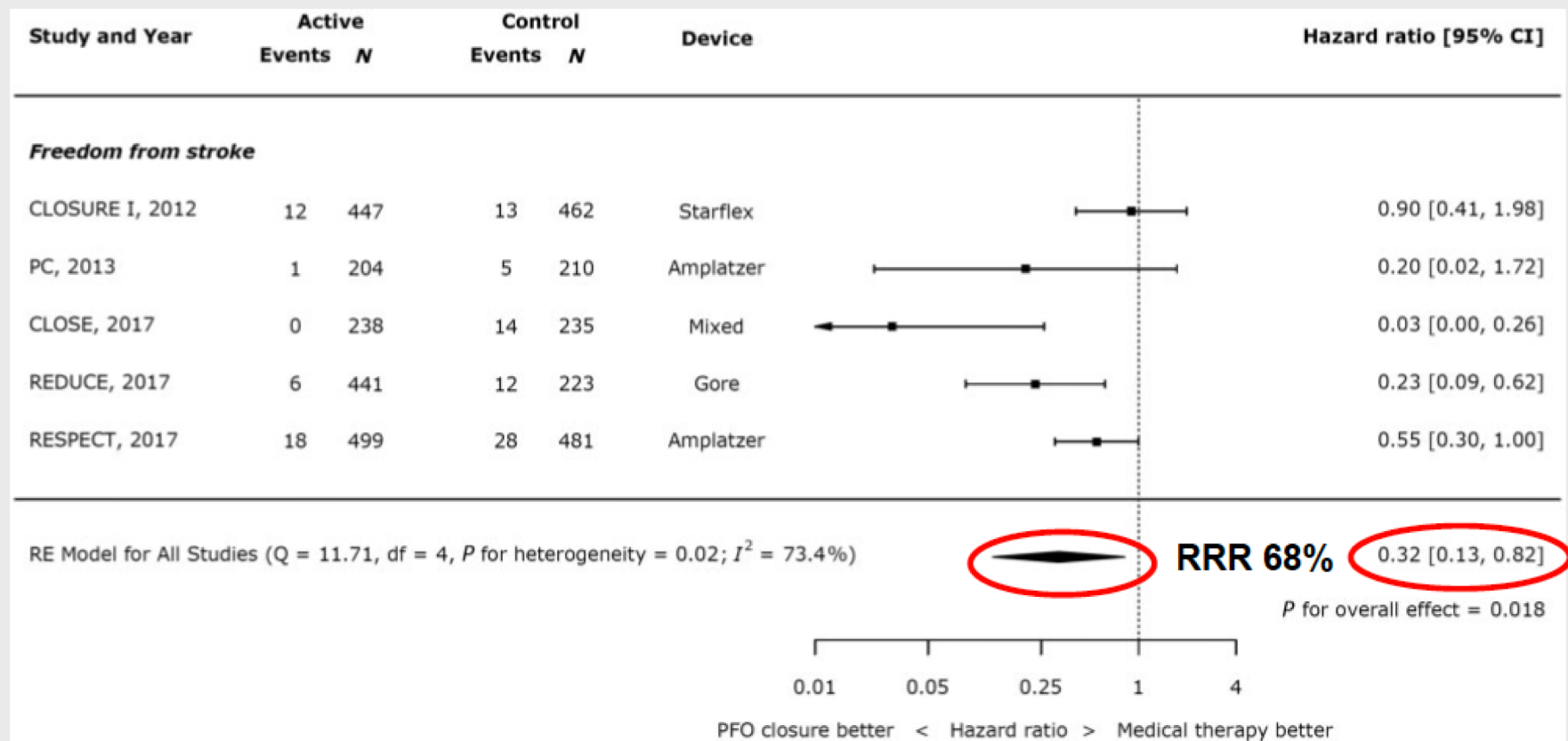
No. at Risk								
PFO closure group	441	422	417	398	278	182	102	
Antiplatelet-only group	223	202	194	173	116	78	30	

- N=664, Z.n. krypt. Schlaganfall, PFO (81% mod./gr. R-L-Shunt), mittl. Alter 45 J., mittl. Follow-up 3,2 J.
- Randomisiert Okkluder-Device (Helex Septal / Cardioform Septal Okkluder) vs. antithrombozytäre Ther.

PFO Verschluss vs. medik. Therapie bei Z.n. kryptogenem Schlaganfall: Meta-Analyse

Ahmad et al., Eur Heart J. 2018;39:1638-1649

5 RCTs, N=3.440: CLOSURE-I, PC, RESPECT, CLOSE, Gore-REDUCE



Neu aufgetretenes VHF: HR 4,68

Benefit ↑: Großer R-L-Shunt (VH-Septum-Aneu. =)



Presseinformation

Ende des Patts: Kardiologen und Neurologen empfehlen Schirmchen zum Schutz vor Schlaganfall

13. August 2018 – Ein vergleichsweise einfacher Eingriff zum Verschluss des offenen Foramen ovale (PFO) kann das Risiko für einen Schlaganfall deutlich verringern, wenn zuvor eine sorgfältige Diagnostik keine Hinweise auf andere Schlaganfallursachen erbrachte. Das ist die wichtigste Aussage der heute veröffentlichten gemeinsamen S2e-Leitlinie „Kryptogener Schlaganfall und offenes Foramen ovale“ der Deutschen Gesellschaft für Neurologie (DGN), der Deutschen Schlaganfall-Gesellschaft (DSG) und der Deutschen Gesellschaft für Kardiologie (DGK). „Wir

Indikation PFO Verschluss bei Z.n. kryptogenem Schlaganfall: S2-Leitlinie DGN / DSG / DGK

Diener et al., S2e-Leitlinie, 2018; in: Deutsche Gesellschaft für Neurologie (Hrsg.); online: www.dgn.org/leitlinien

Empfehlung 1

Bei Patienten zwischen 16 und 60 Jahren mit einem (nach neurologischer und kardiologischer Abklärung) kryptogenen ischämischen Schlaganfall und offenem Foramen ovale mit moderatem oder ausgeprägtem Rechts-Links-Shunt soll ein interventioneller PFO-Verschluss durchgeführt werden.

Empfehlungsgrad A, Evidenzebene I

Empfehlung 2

Bei Patienten mit einem kryptogenen ischämischen Insult und offenem Foramen ovale, die einen PFO-Verschluss ablehnen, gibt es keine Hinweise auf eine Überlegenheit einer oralen Antikoagulation gegenüber einer Behandlung mit einem Thrombozytenfunktionshemmer. Daher sollte die Sekundärprävention mit Aspirin oder Clopidogrel erfolgen.

Empfehlungsgrad B, Evidenzebene II

Empfehlung 4

Vorhofflimmern, Perikardtamponaden sowie Lungenembolien sind beschriebene Komplikationen im Rahmen und nach Implantation eines Okkluders. Die Ereignisse sind aber so selten, dass sie den Empfehlungsgrad für die Implantation nicht beeinflussen sollten.

Empfehlungsgrad A, Evidenzebene Ia



ESC

European Society
of Cardiology

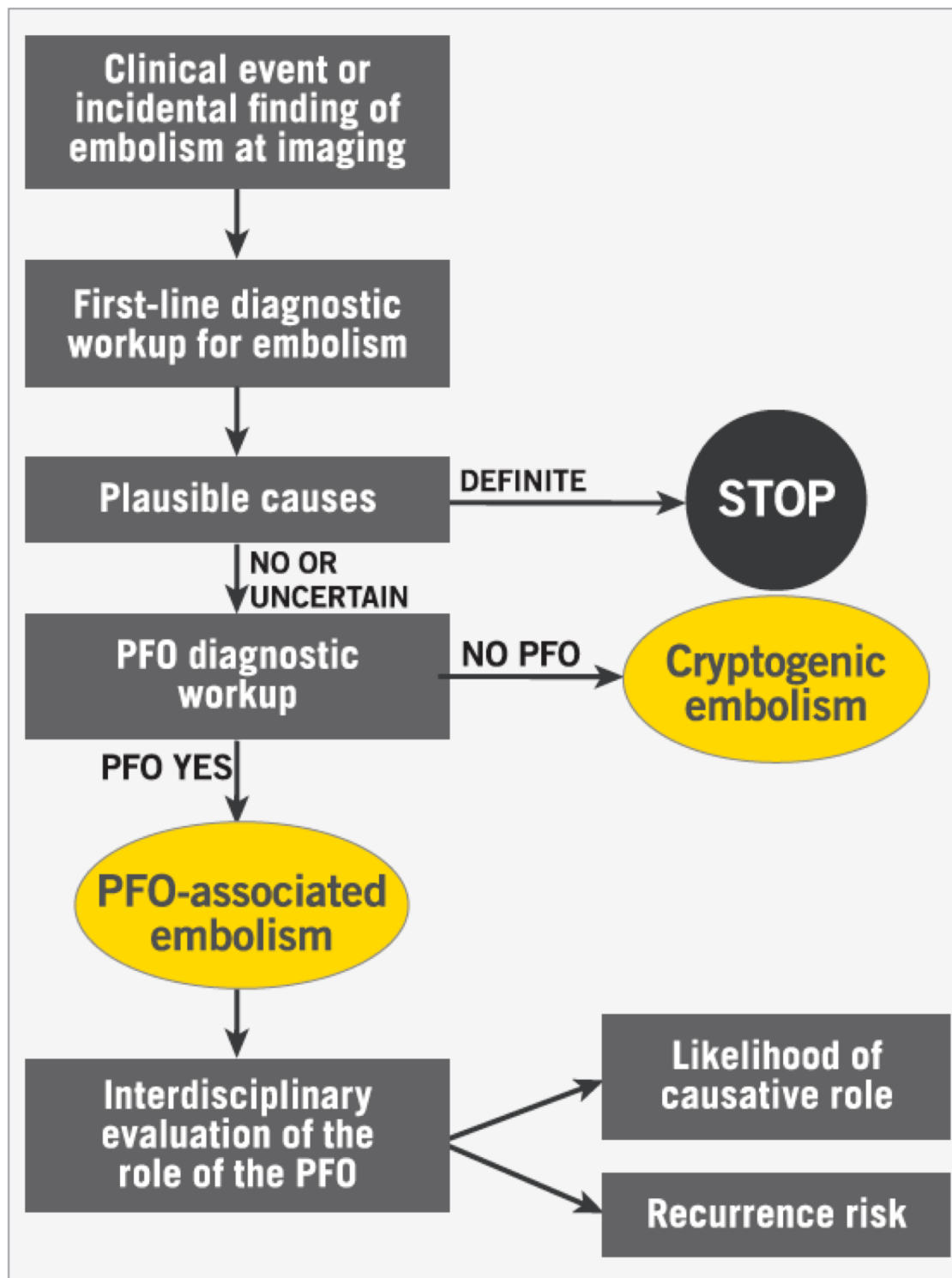
European Heart Journal (2018) **00**, 1–14

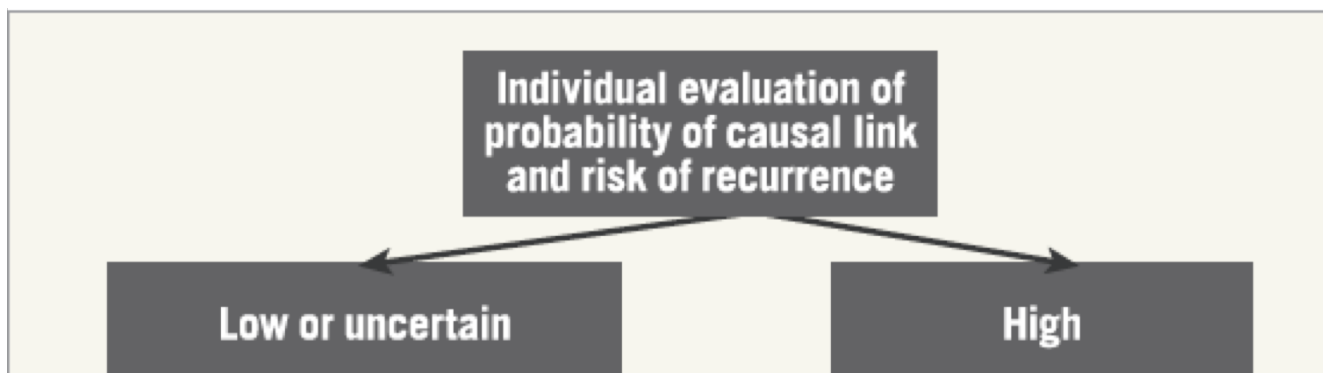
doi:10.1093/eurheartj/ehy649



European position paper on the management of patients with patent foramen ovale. General approach and left circulation thromboembolism







LIKELIHOOD OF CAUSAL LINK

- High**
- Atrial septal aneurysm
 - Atrial septal hypermobility
 - Moderate/severe shunt
 - Simultaneous PE or DVT

OTHER FEATURES TO BE CONSIDERED

- Imaging features of embolism (cortical vs. deep)
- PFO size and tunnel length
- Chiari network
- Prominent Eustachian valve
- Clinical clues (long travel, immobilisation, straining activity, recent major surgery, previous DVT or PE, OSAS)
- Age <55 years old
- Risk factors for stroke
- RoPE score

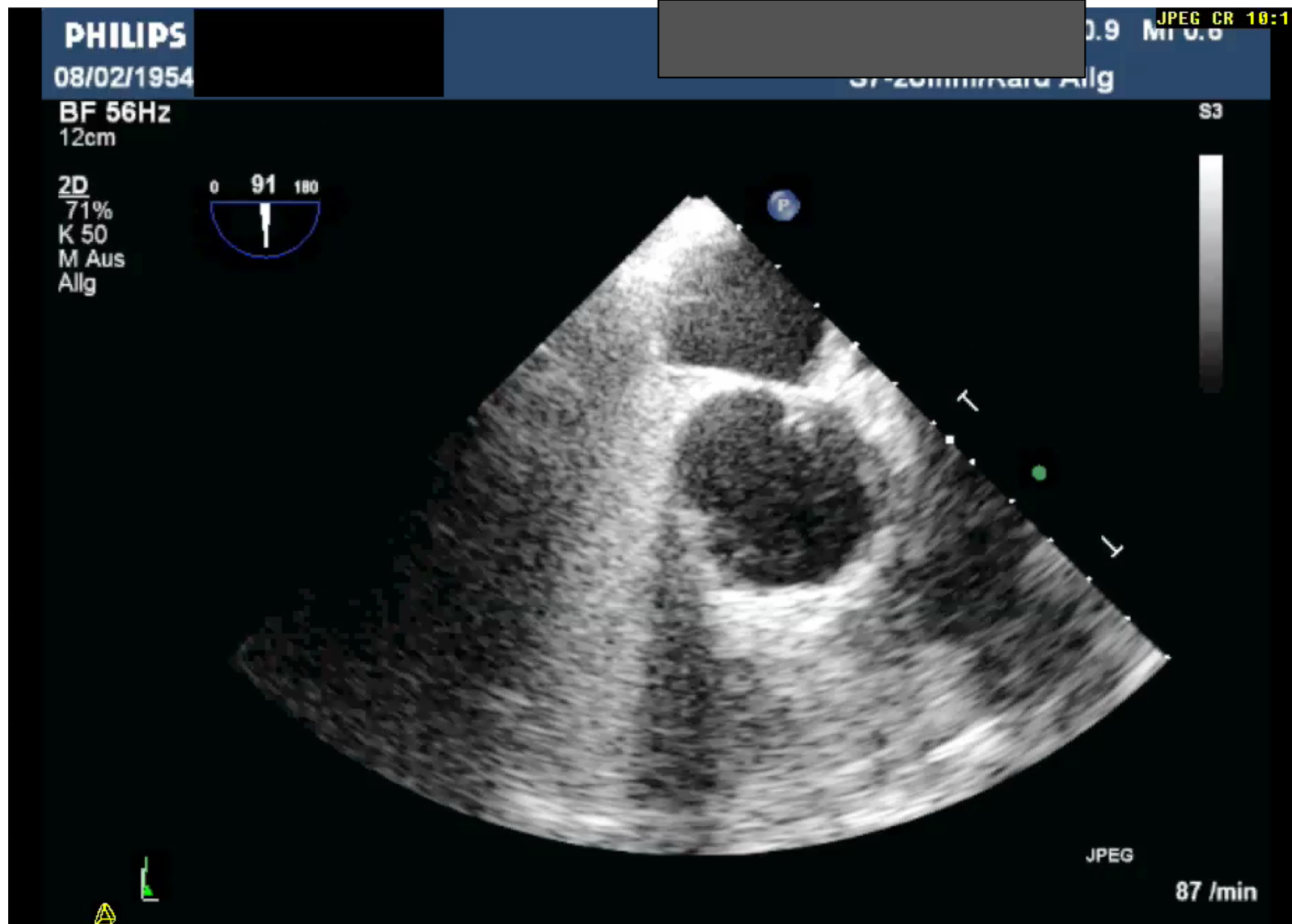
RISK OF RECURRENCE

- High**
- Atrial septal aneurysm
 - Coagulation disorders

OTHER FEATURES TO BE CONSIDERED TO ASSESS RISK

- Older age
- PFO size
- Need for antiplatelets vs. OAC
- Stroke vs. TIA as index event
- Stroke on Rx with antiplatelets or OAC

Bubble-test + Valsalva

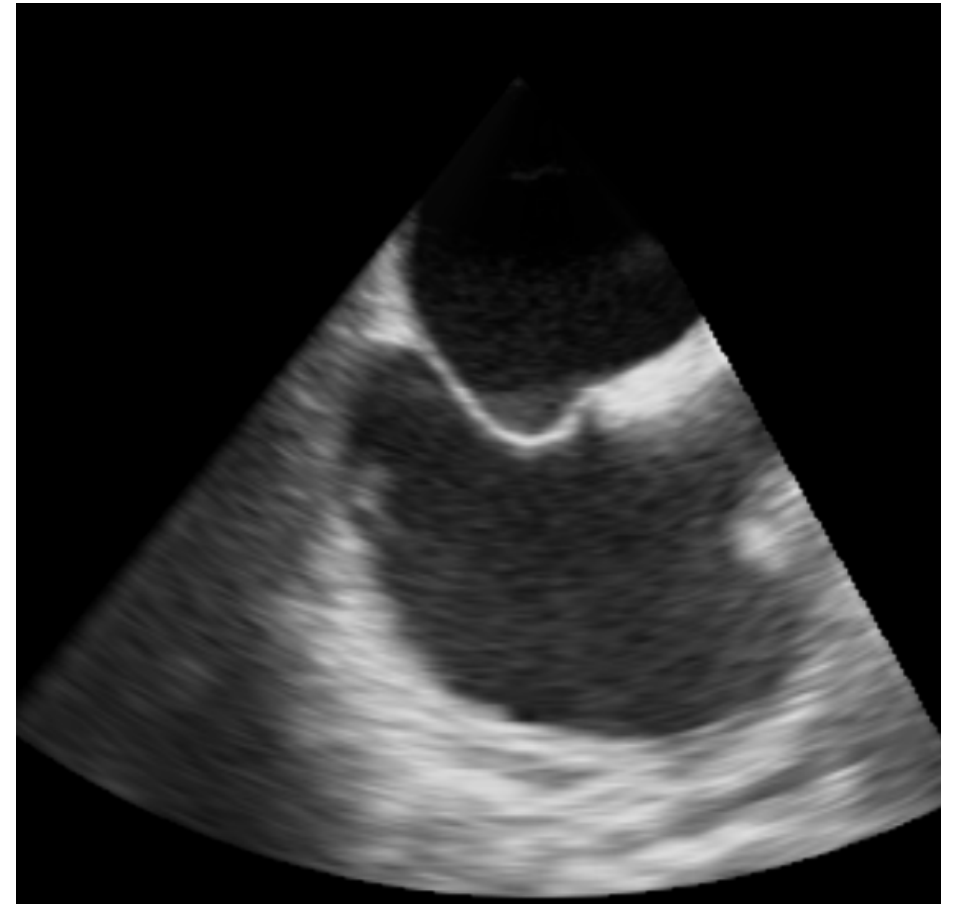
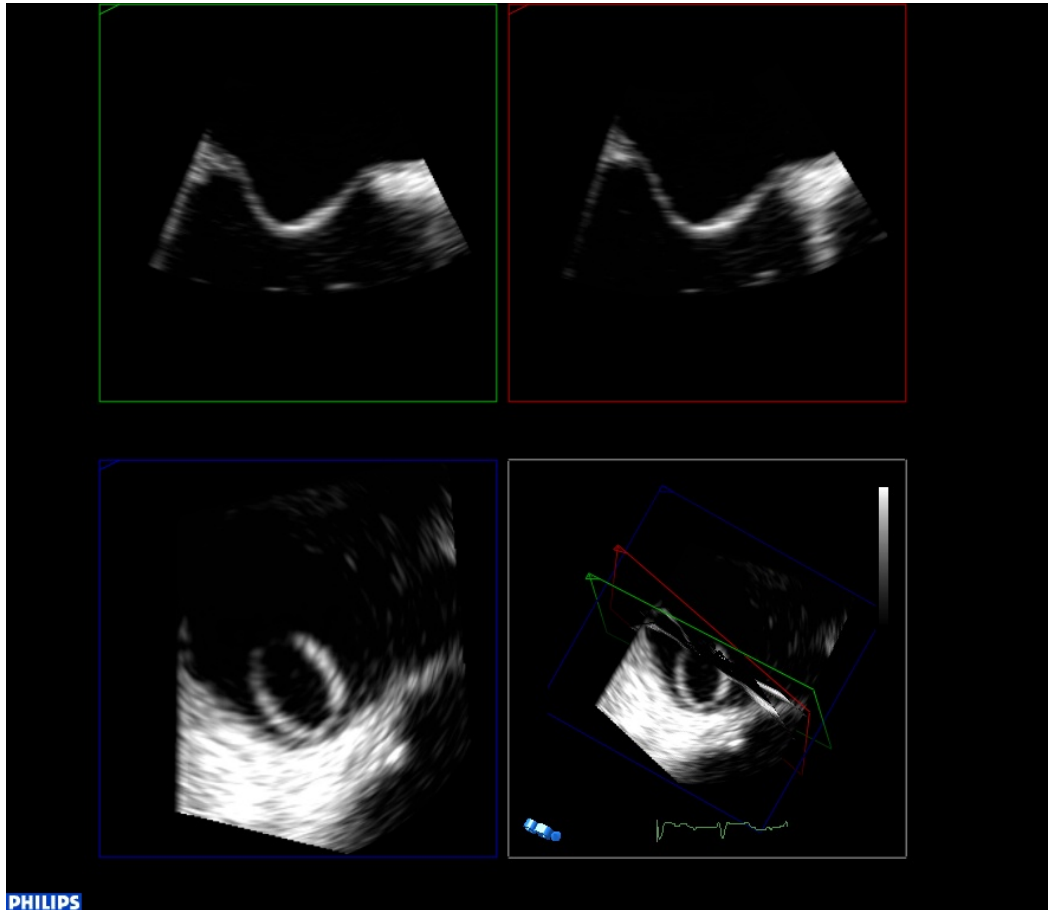


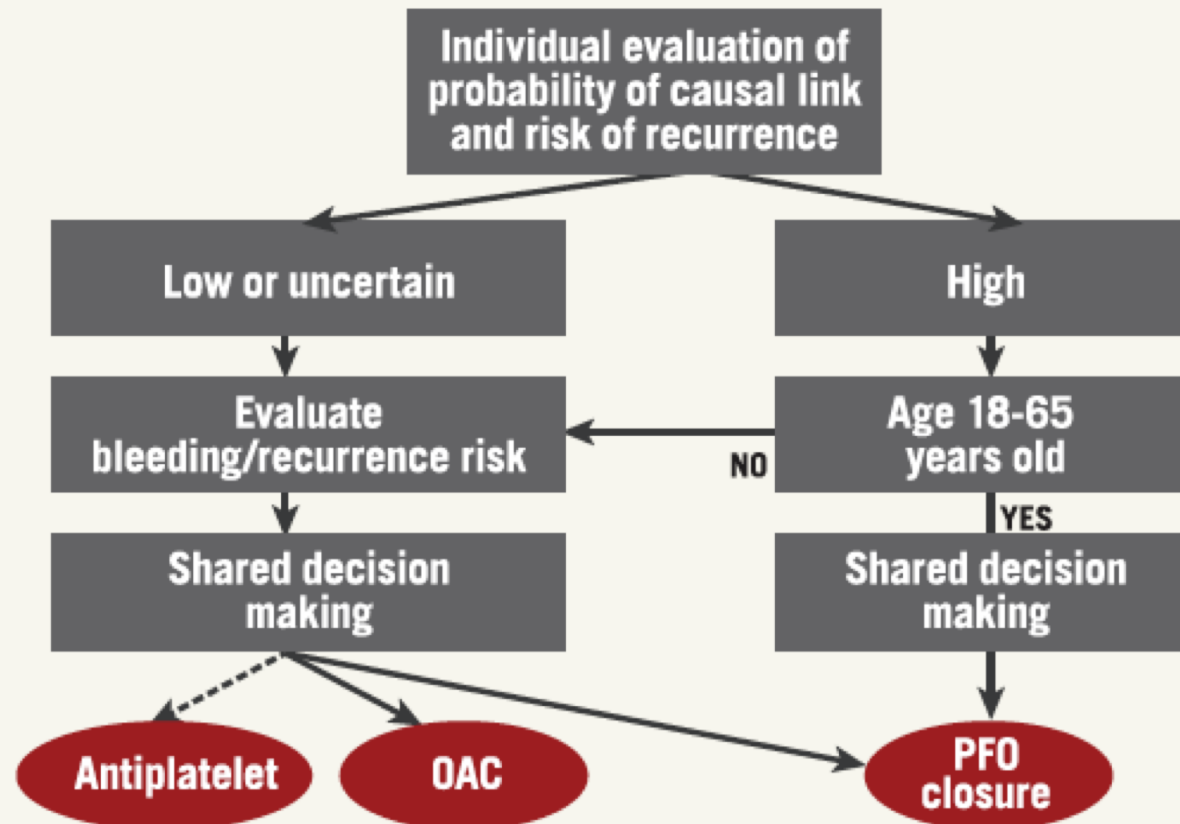
PFO-Grading: „bubble-crossing“ RA to LA

- grade 0: no bubble
- grade I: minimal (0-5 bubbles)
- grade II: moderate (6-20 bubbles)
- grade III: severe (>20 bubbles)



Atrial-Septal-Aneurysm (ASA)





LIKELIHOOD OF CAUSAL LINK

- High**
- Atrial septal aneurysm
 - Atrial septal hypermobility
 - Moderate/severe shunt
 - Simultaneous PE or DVT

OTHER FEATURES TO BE CONSIDERED

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- Risk factors for stroke
- RoPE score

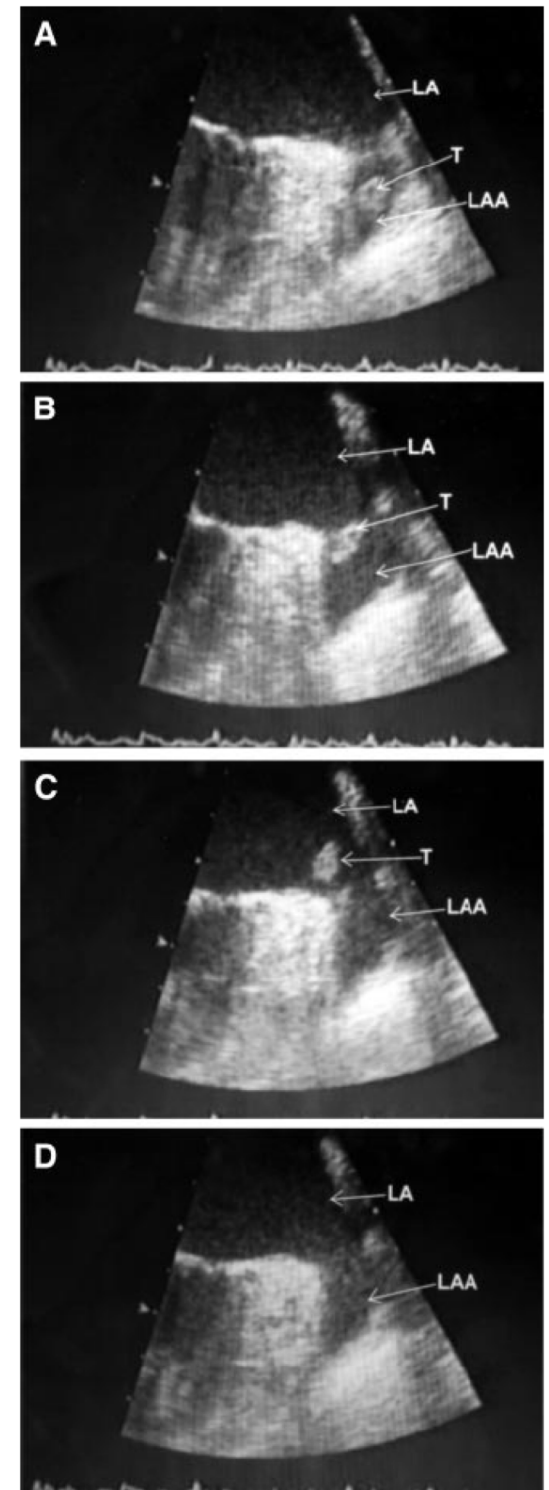
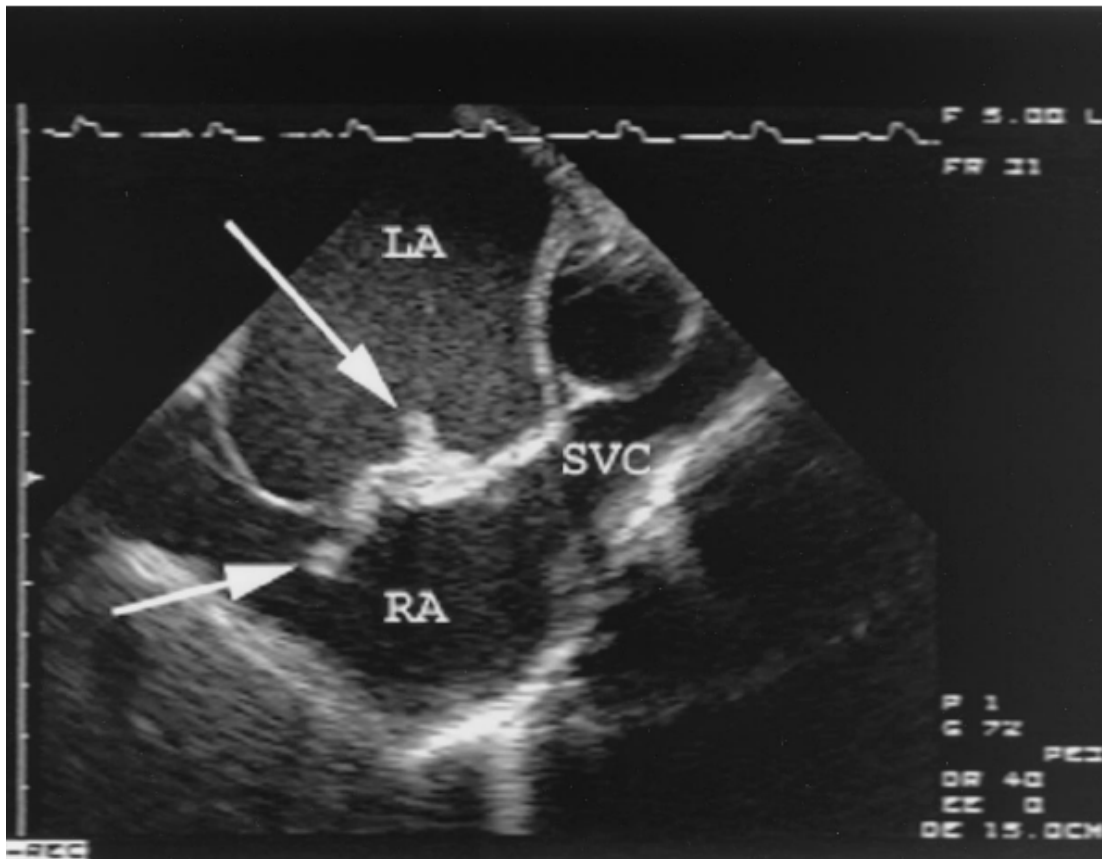
RISK OF RECURRENCE

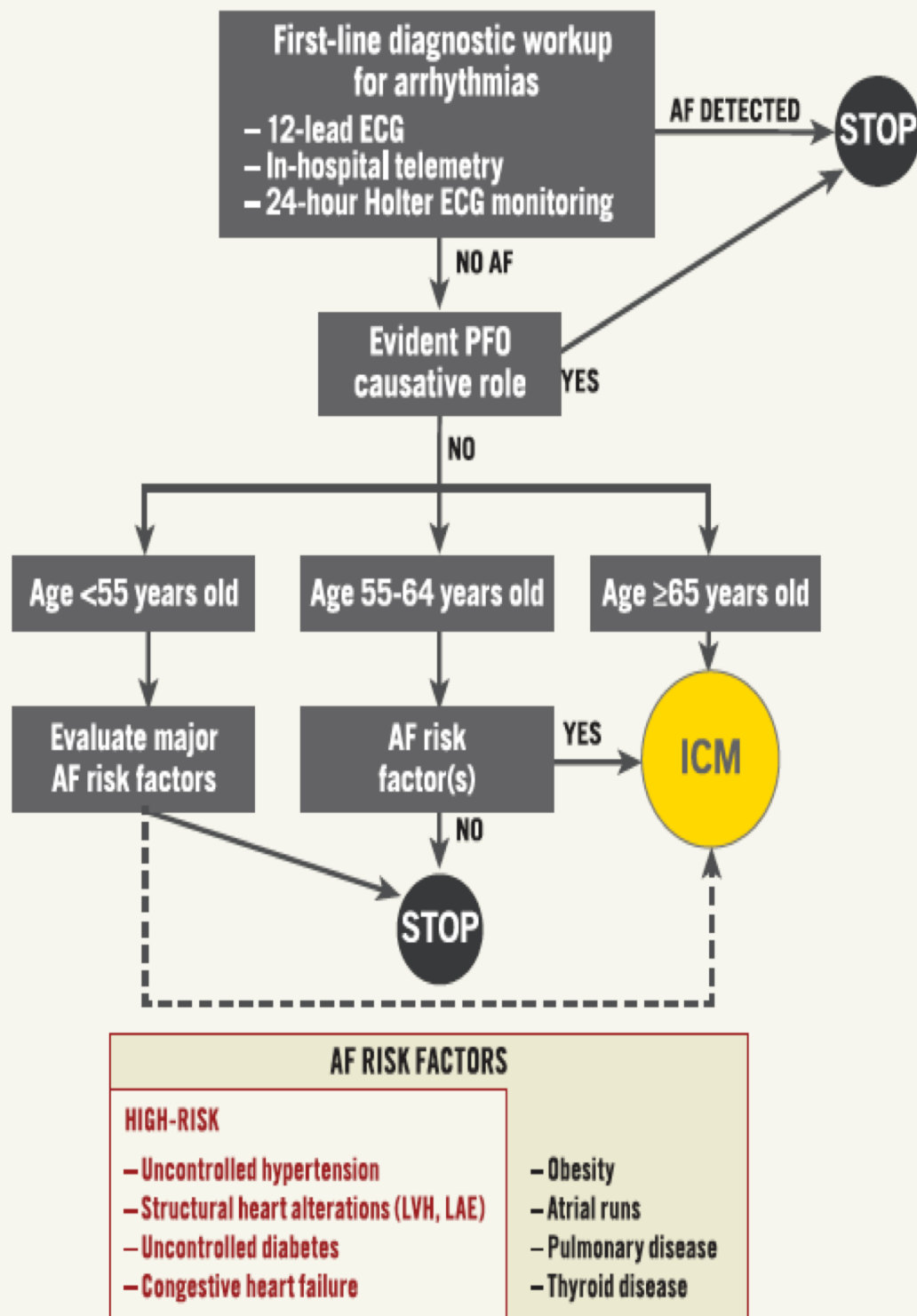
- High**
- Atrial septal aneurysm
 - Coagulation disorders

OTHER FEATURES TO BE CONSIDERED TO ASSESS RISK

- Older age
- PFO size
- Need for antiplatelets vs. OAC
- Stroke vs. TIA as index event
- Stroke on Rx with antiplatelets or OAC

Embololic Stroke:
PFO and paradoxical embolism
vs
int. silent AF and LAA embolism



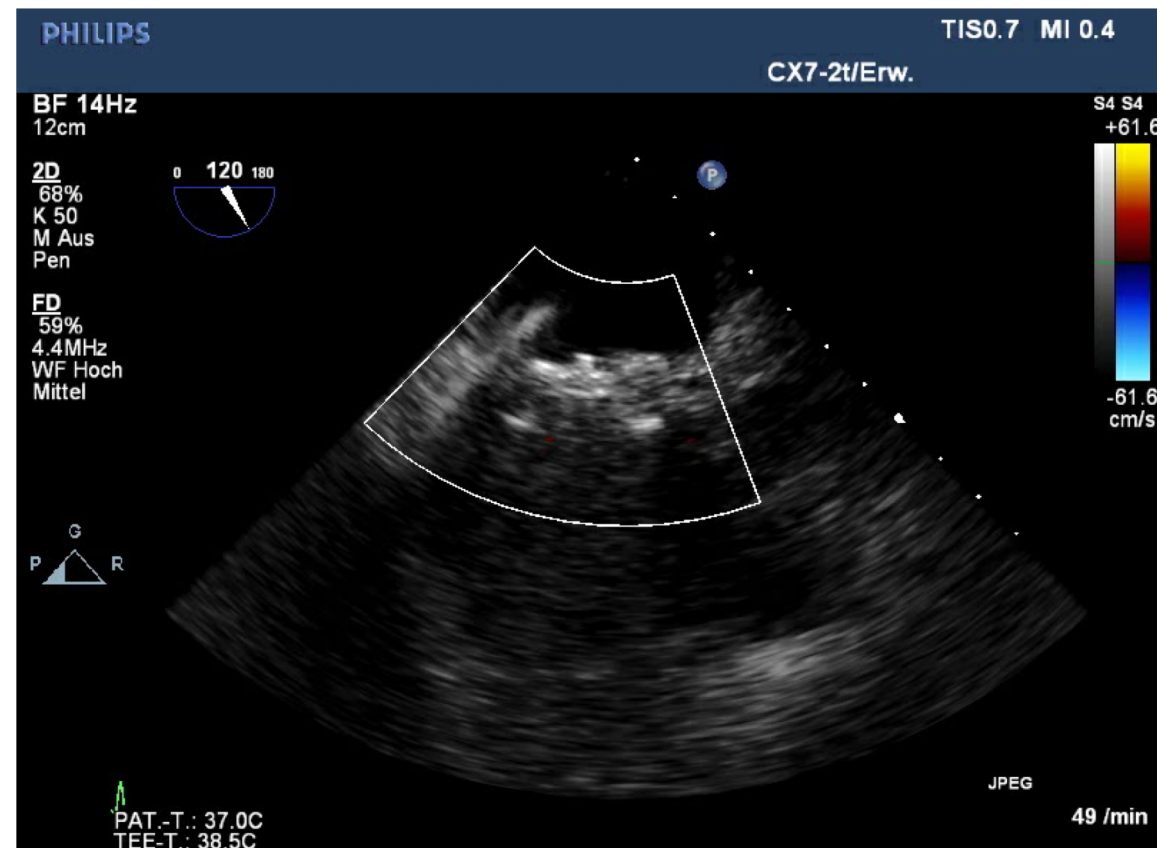


Unexplained embolic stroke

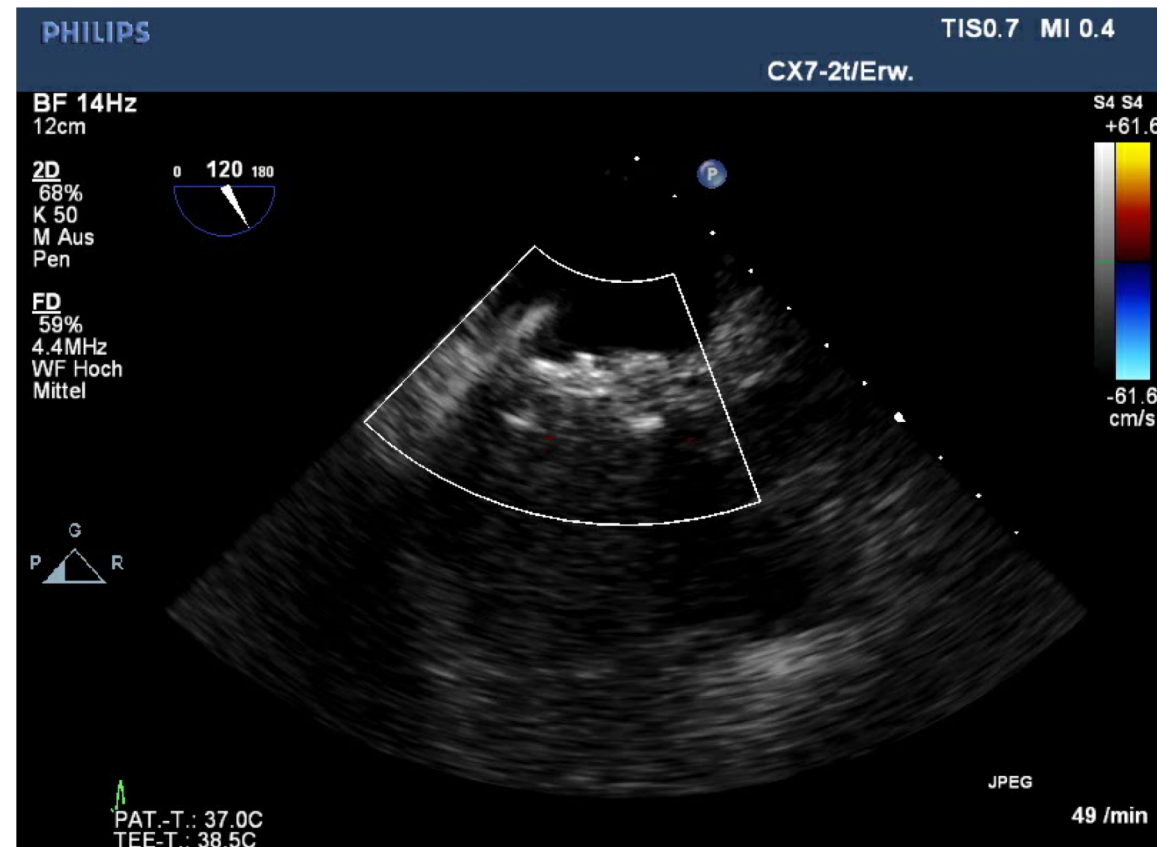
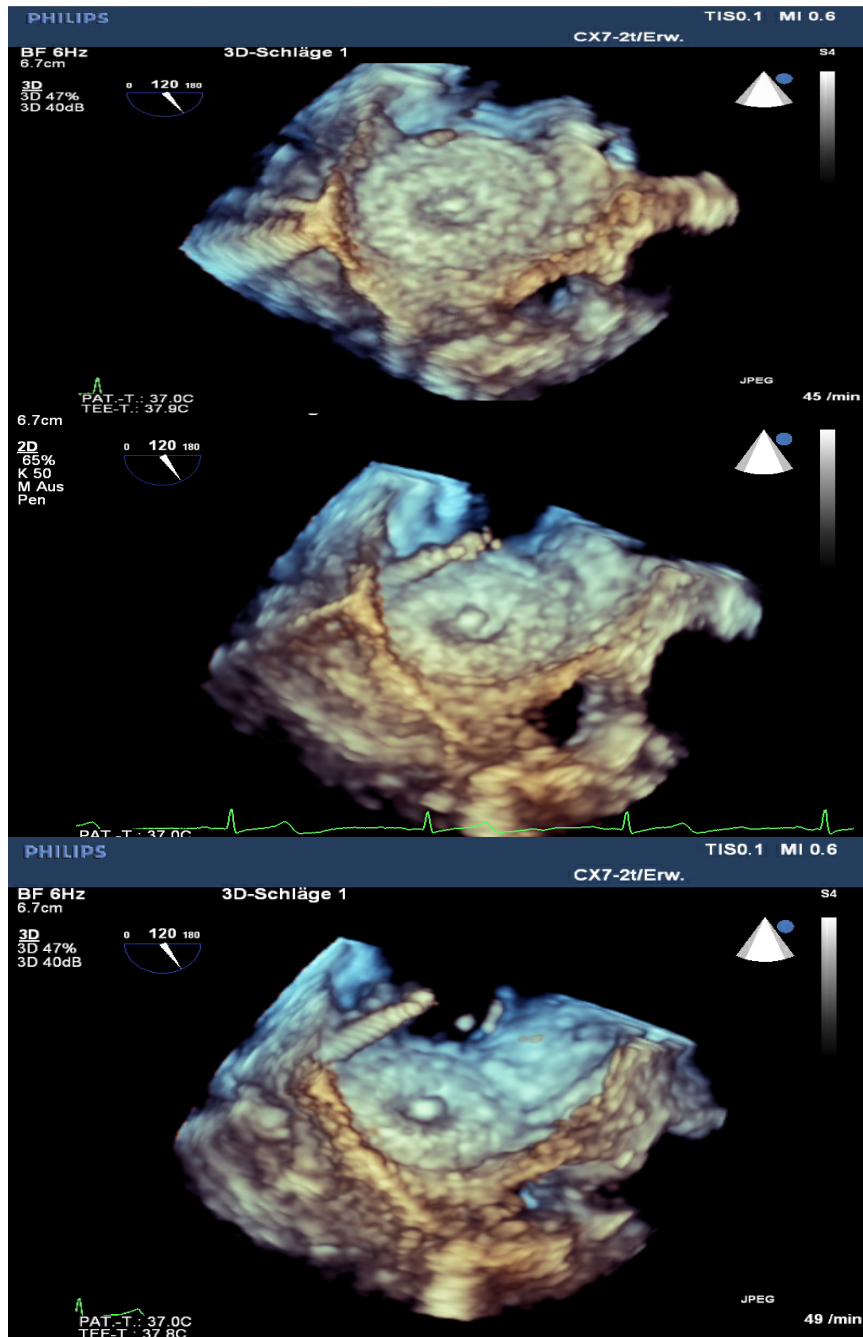


AF Detection vs PFO

Transseptal Puncture for AF-Ablation Post Septal Occluder Implantation

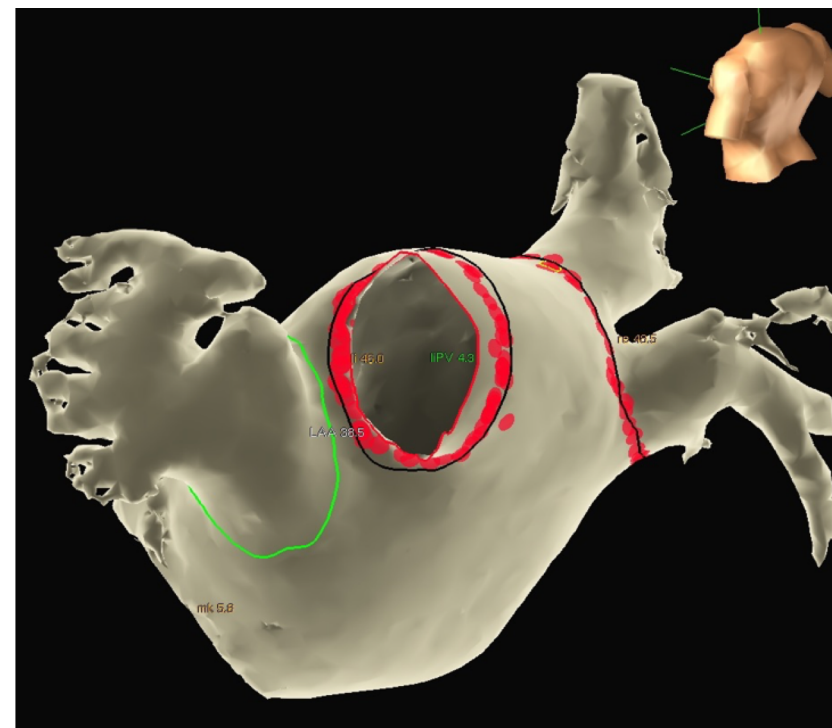
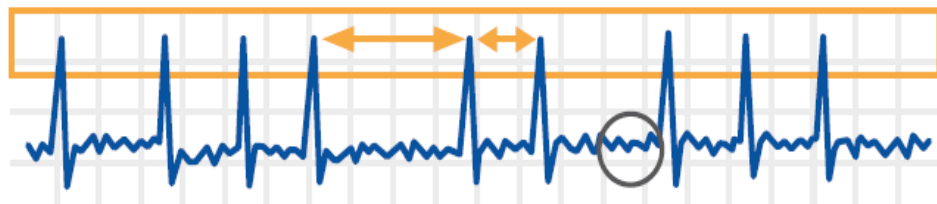


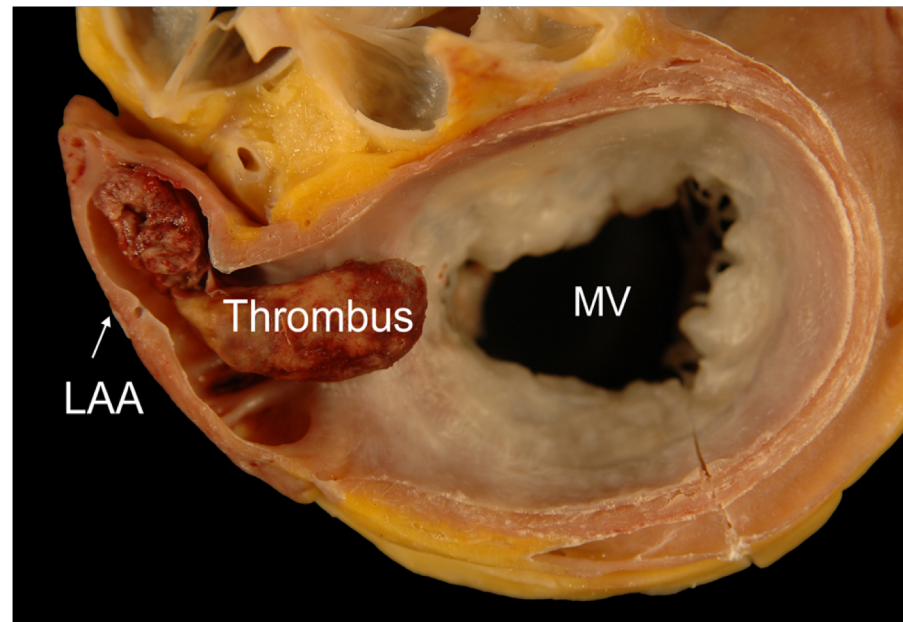
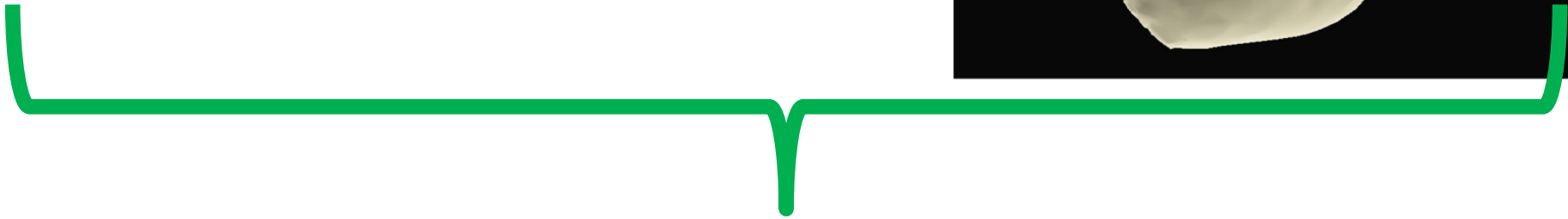
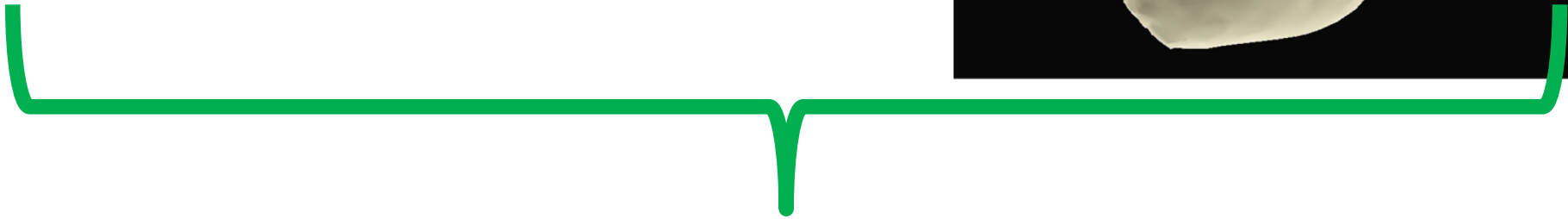
Transseptal Puncture for AF-Ablation Post Septal Occluder Implantation



PFO-Summary

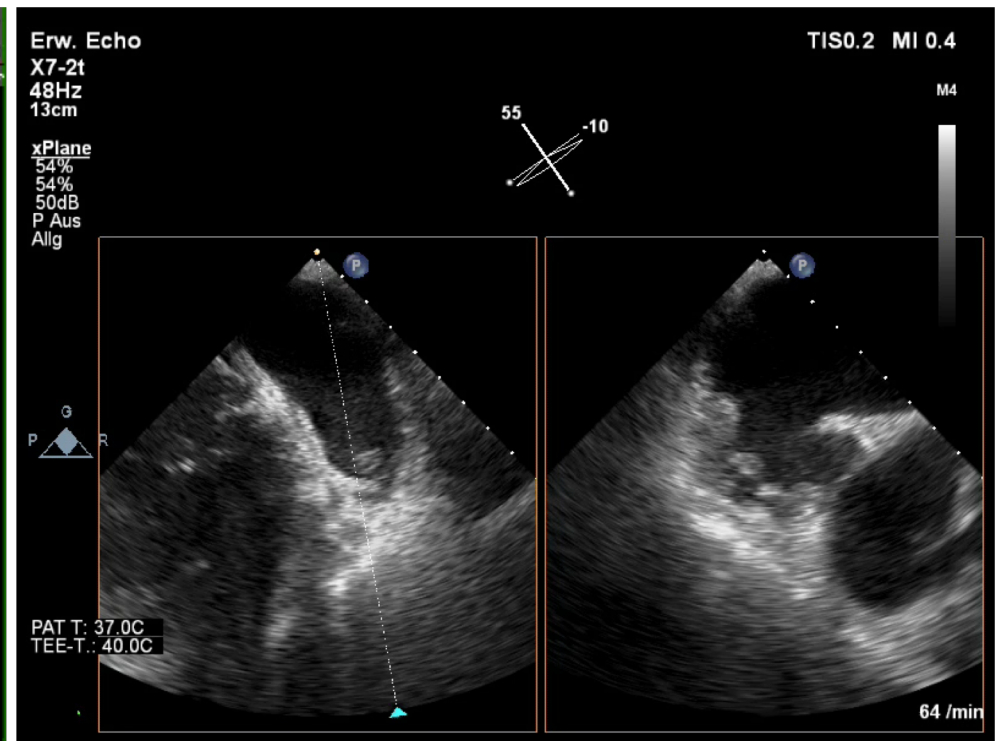
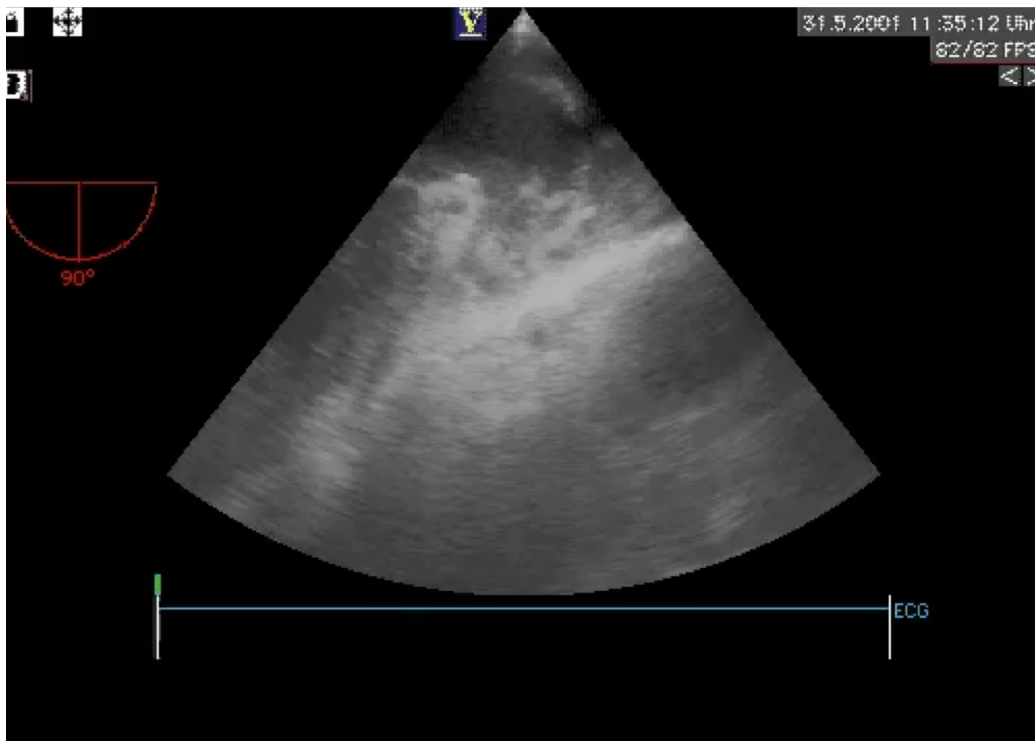
- Significant recurrence risk reduction in cryptogenic stroke patients post PFO closure vs drugs (at low event rates) in three RCT's
- S2-guideline (DGN/DGK/DSG)
 - PFO-closure in young (16-60 yrs.) crpytogenic stroke pts. with moderate to severe R-L-Shunt
 - Search for AF in elderly patients!
- OAC not superior to antiplatelet therapy!



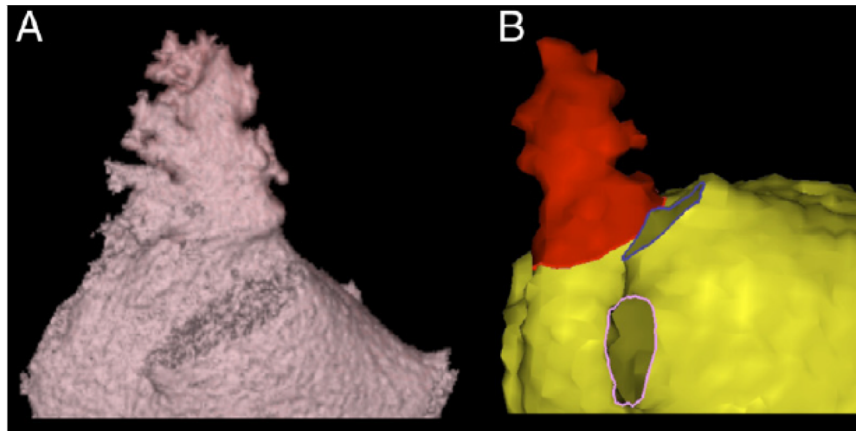


TEE findings in Stroke Patients

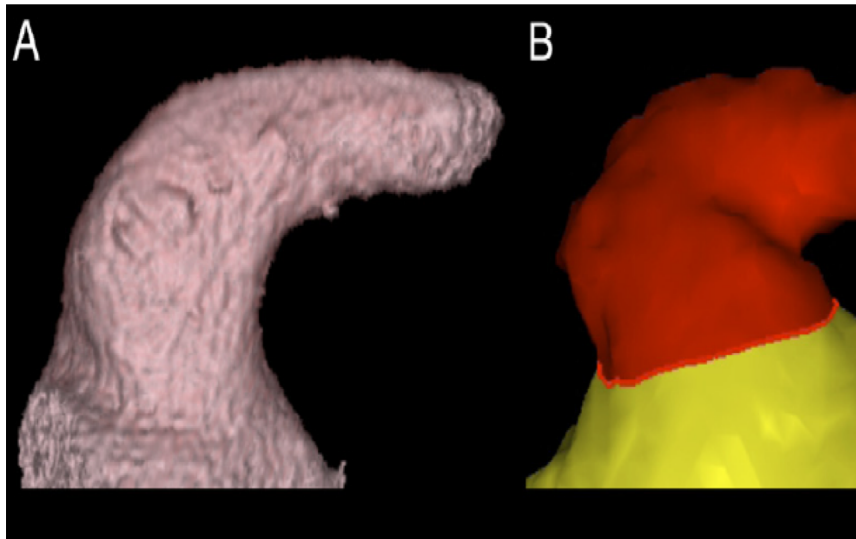
„LAA is the smoking gun“



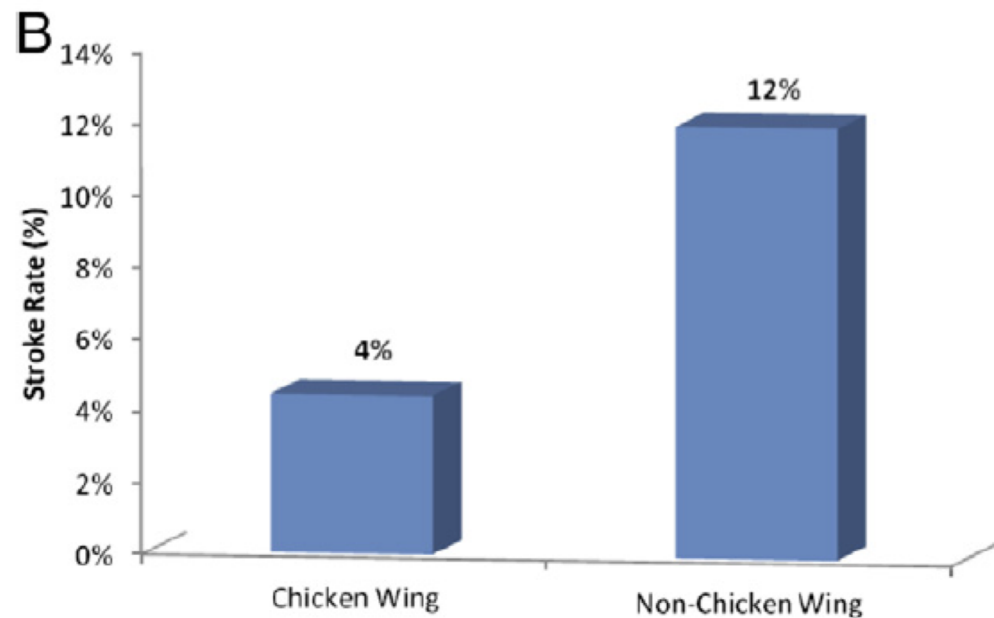
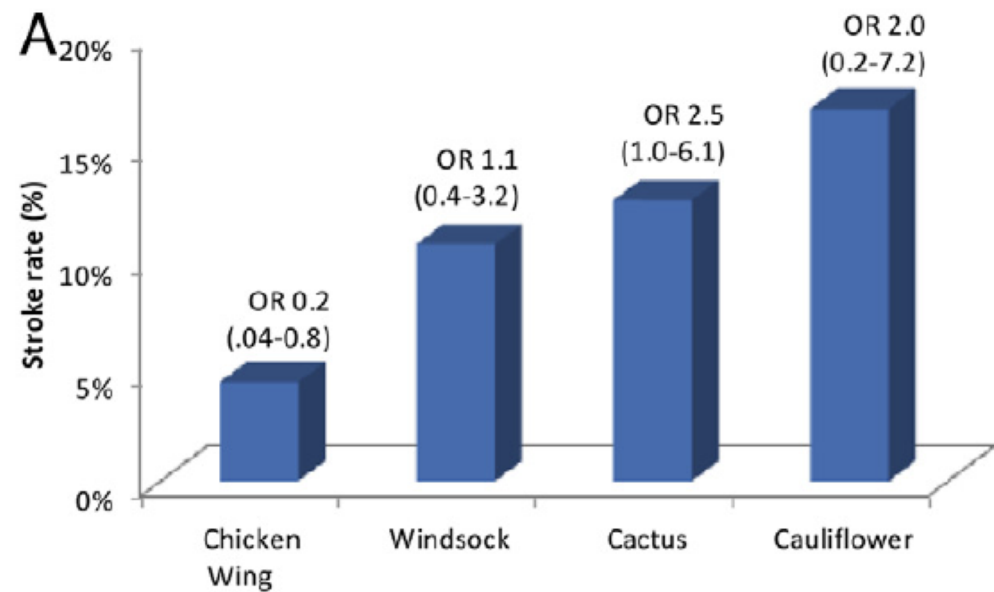
Kaktus

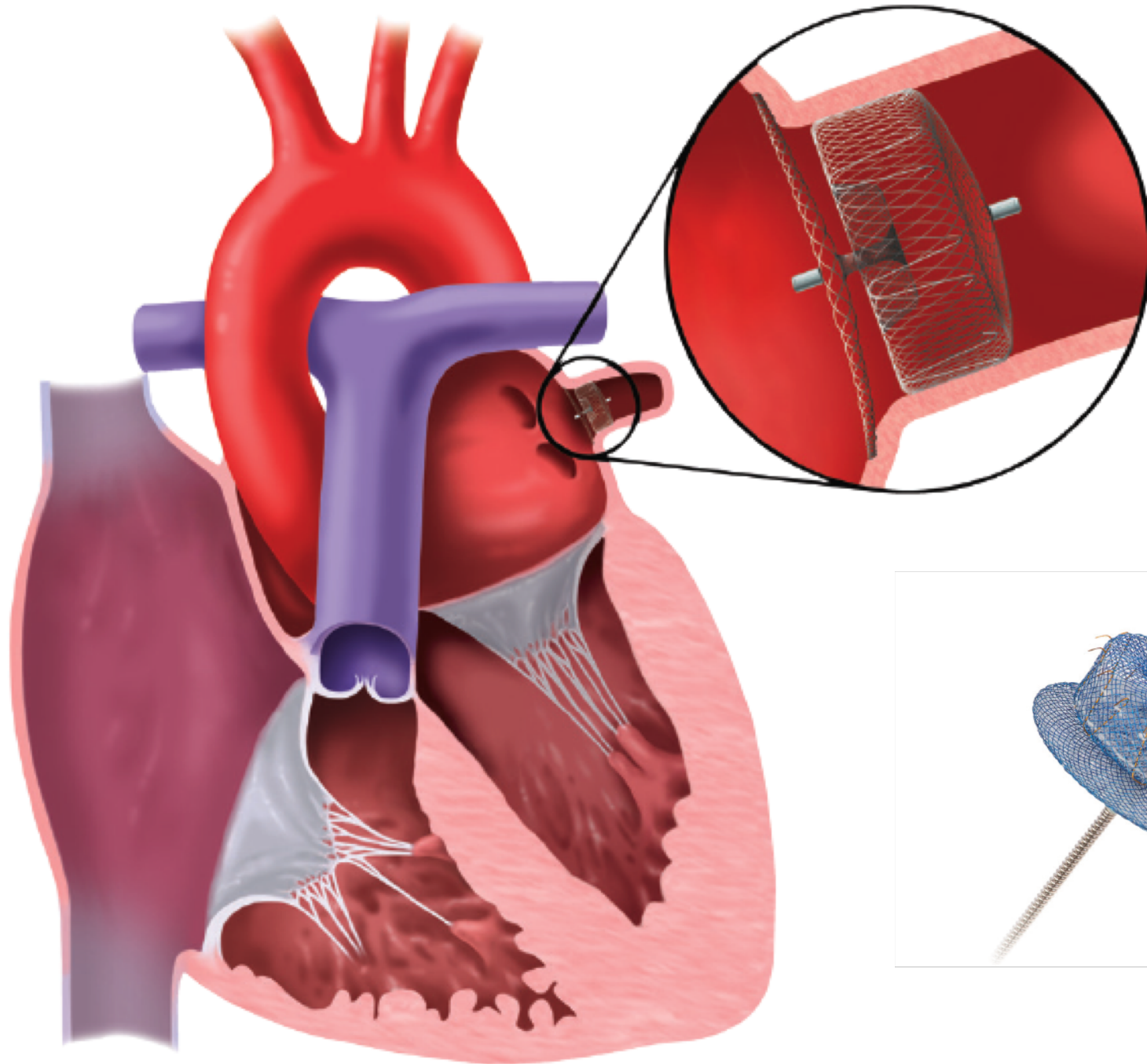


„chicken wing“



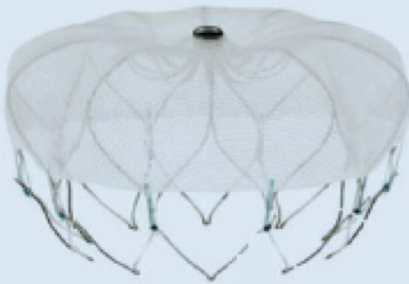
Blumenkohl





„BALL“-TYP

WATCHMAN™



WaveCrest®



AMULET™

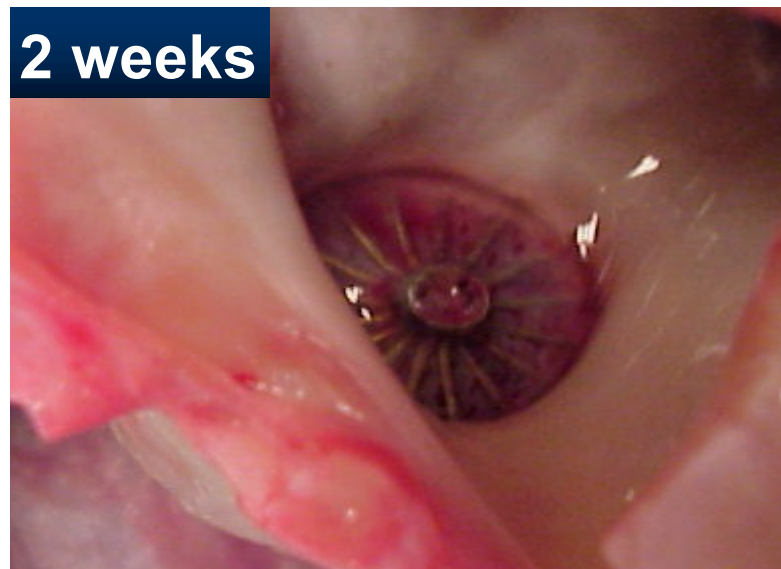
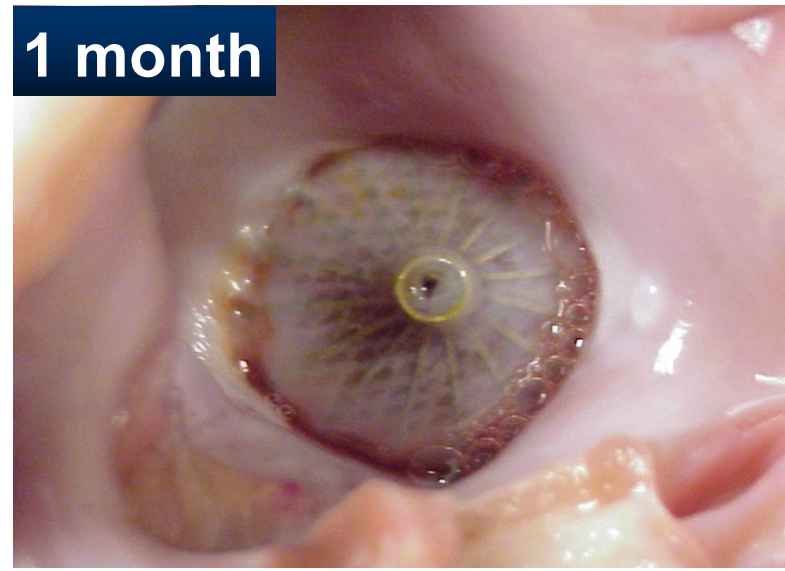


LAmbre™

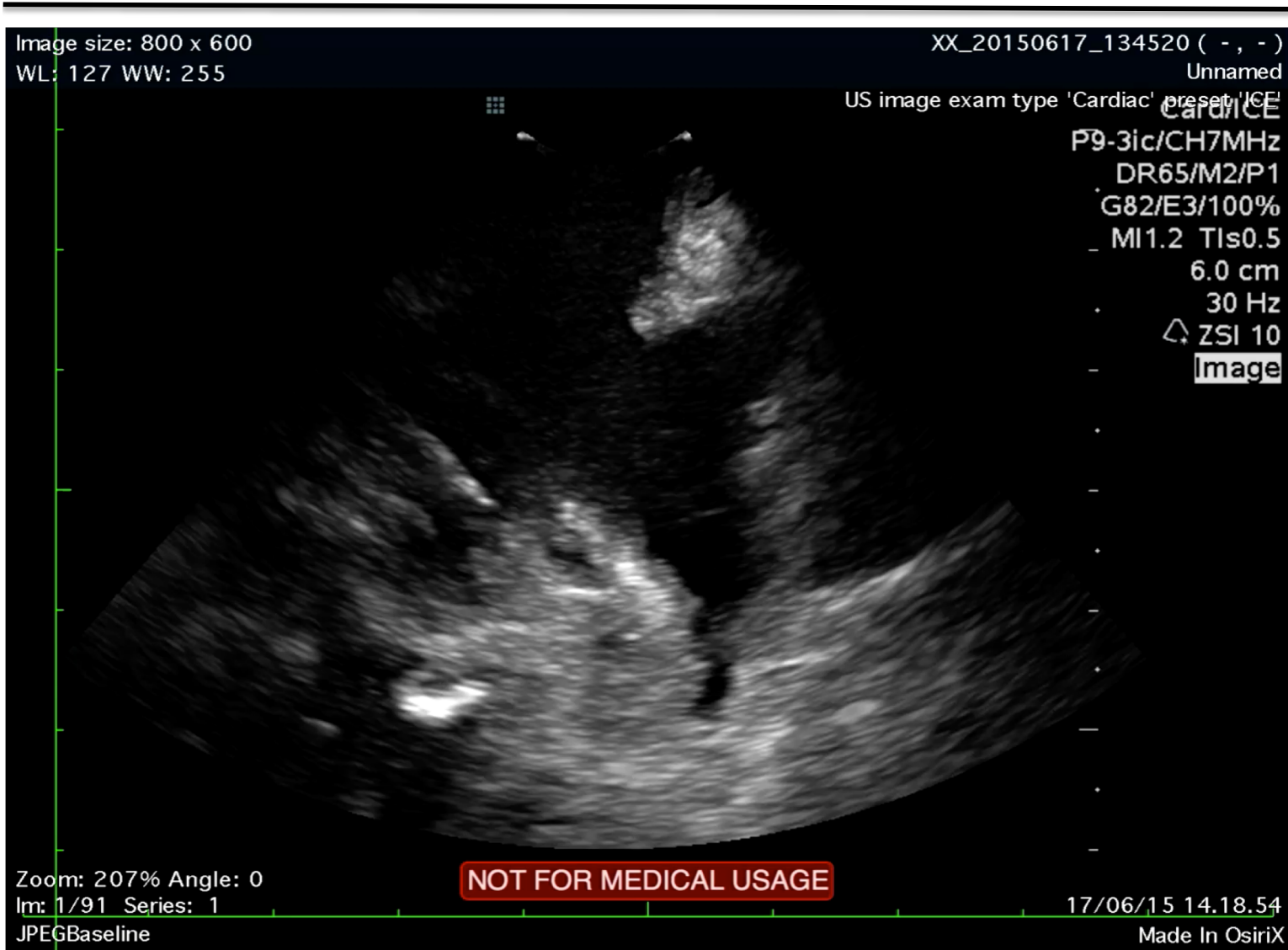


„DISK“-TYP

Endothelial coverage – in vivo animal study



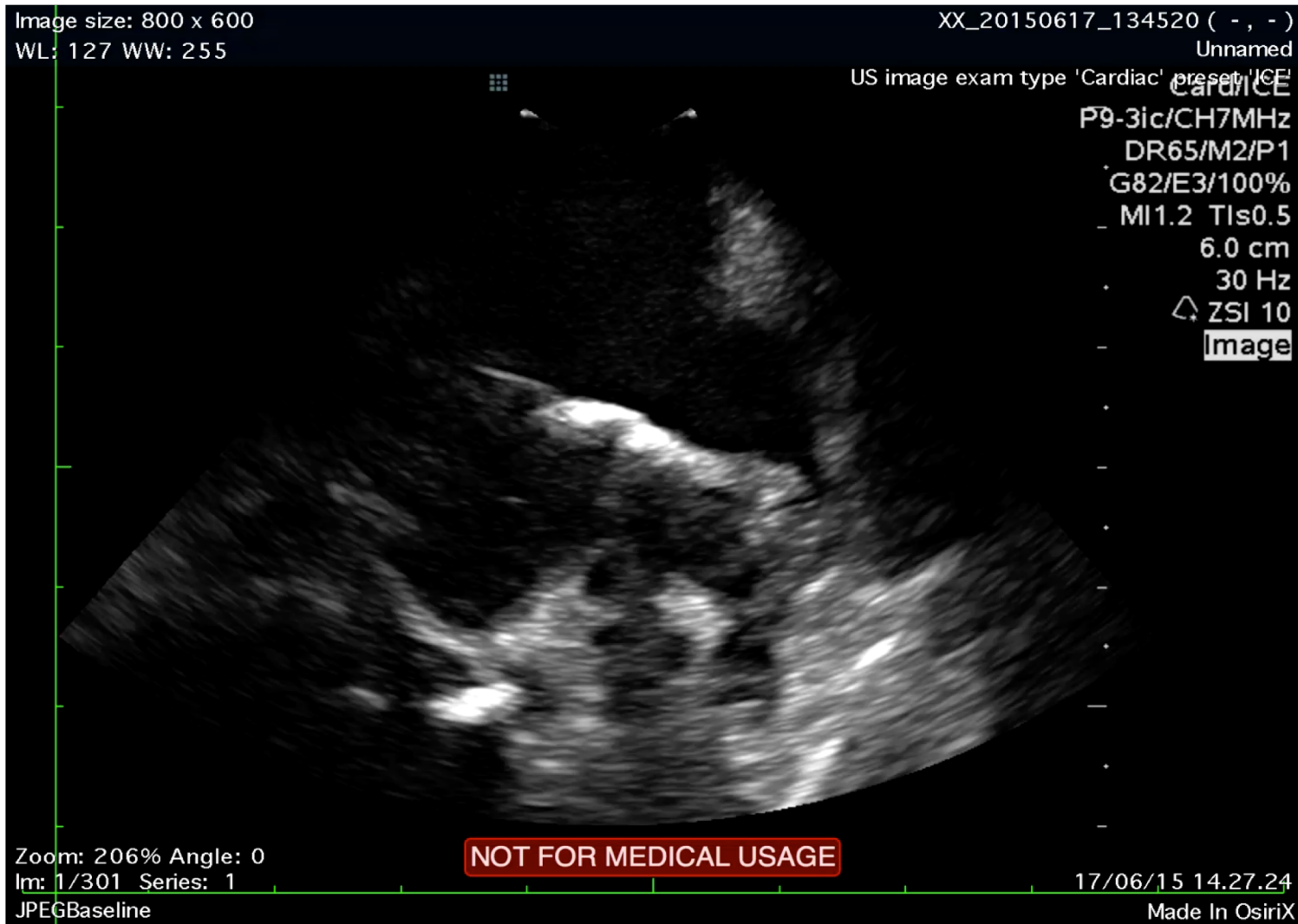
LAAO guided by ICE; patient case



ICE catheter
near the
LUPV ridge
and slightly
posterior flexed

A lobe is
coming
off in the
superior
part of the LAA
neck

LAAO guided by ICE; patient case



The lobe of a
28 mm
Amplatzer
Amulet
fully expanded
in the
"landing zone"
(neck of LAA)

Note the
relation to
the Circumflex

LAAO guided by ICE; patient case



The disc of a
28 mm
Amplatzer
Amulet
is formed to
cover the LAA
orifice

Bild-Größe: 512 x 512
Ansichts-Größe: 1249 x 1249
WL: 106 WW: 162

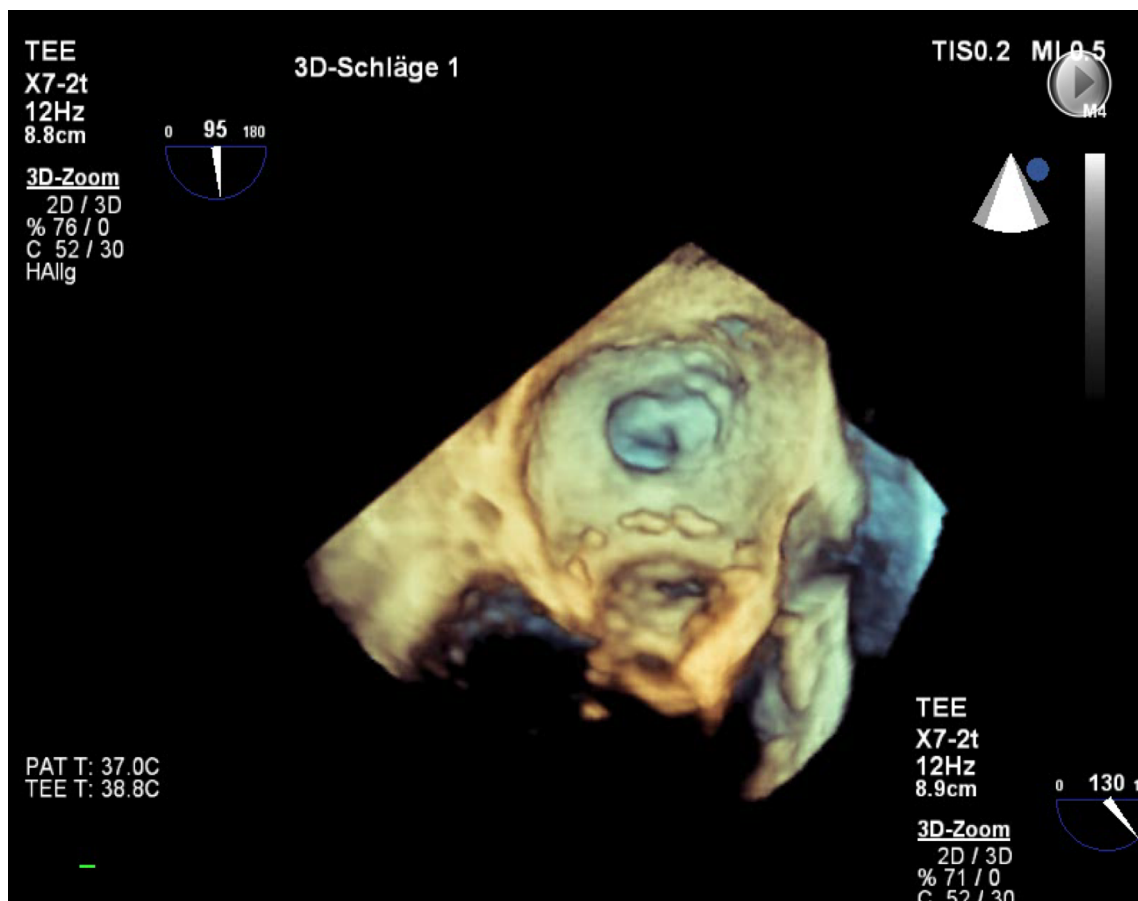
159/15 (-, -)
Koronar-Lmru
Coro 2020
5



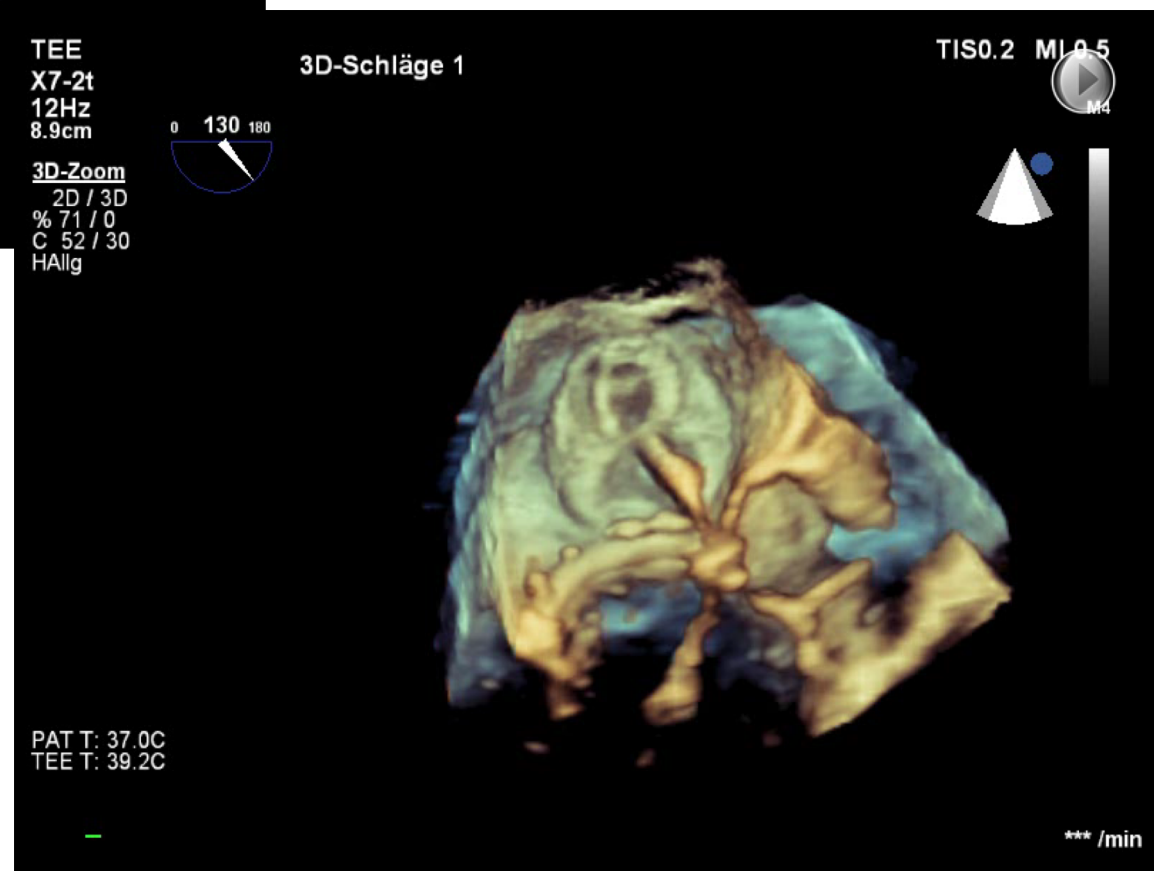
Zoom: 244% Winkel: 0
B: 1/35
Unkomprimiert
Position: HFS

NICHT FÜR PRIMÄRE DIAGNOSTIK

06.02.15 09:15:47
Made in Osirix



3 D TEE – LAA occluder implantation



TEE
X7-2t
6Hz
11cm

3D-Schläge 1

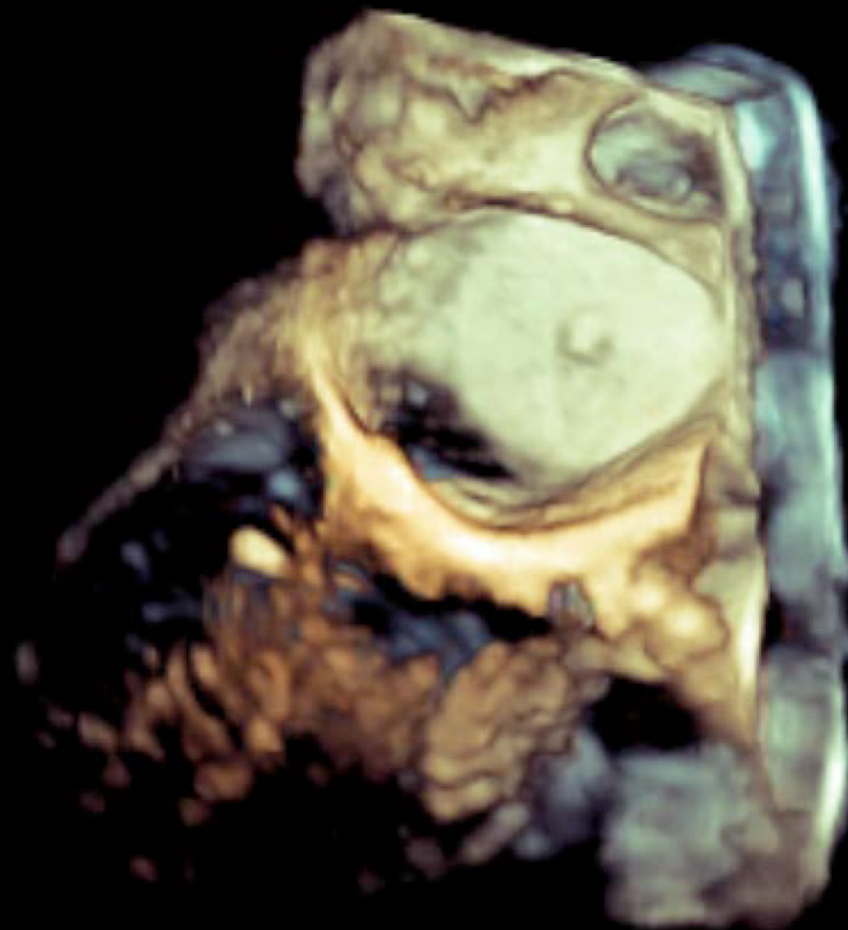
TIS0.2 MI 0.5

3D-Zoom

2D / 3D
% 49 / 44
C 52 / 30
HAllg



M4



PAT T: 37.0C
TEE T: 40.1C



66 /min

LAA-Perforation

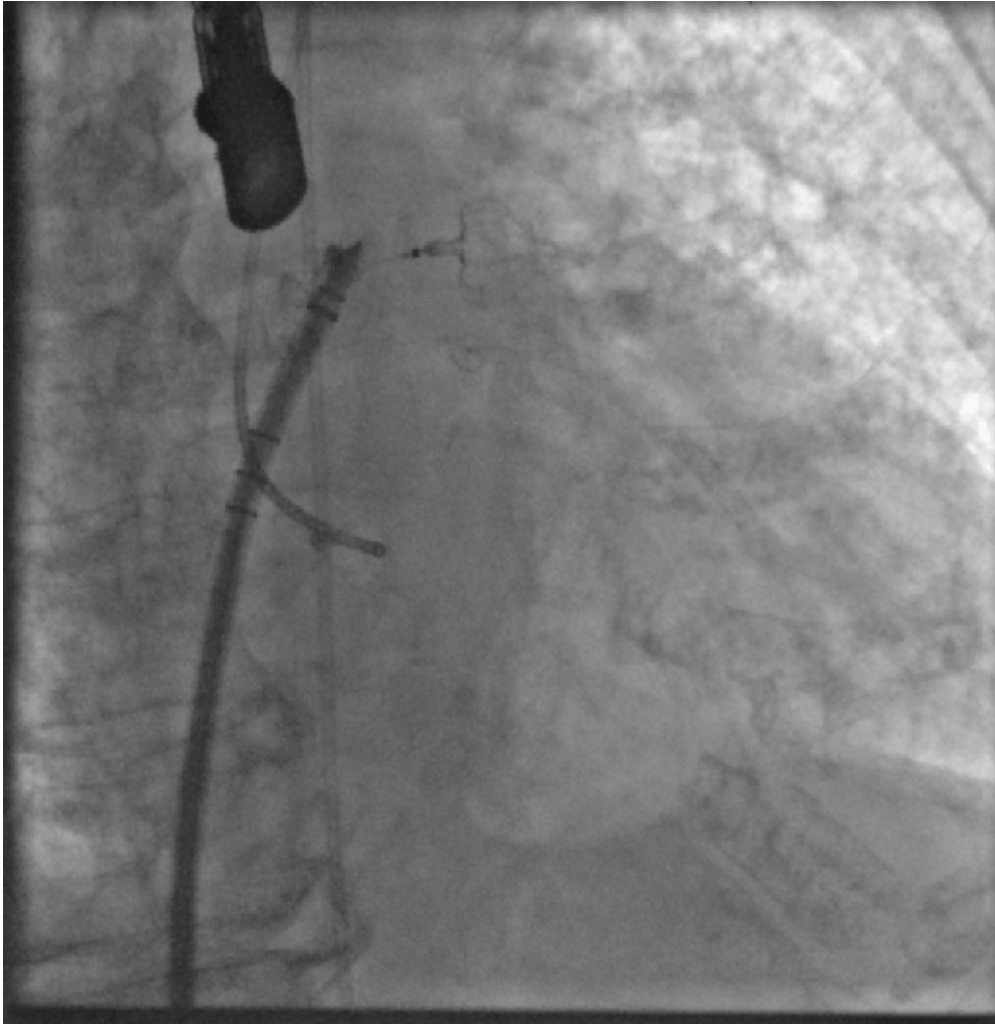



Table 4: Complications during index hospital stay

N	641
MACCE (death, stroke, MI)	4 events in 3 pts. (0.5%)
Death	2 (0.3%)
Stroke	1 (0.2%)
Myocardial infarction	1 (0.2%)
Other severe complications	30 events in 26 pts. (4.1%)
Severe bleeding	7 (1.1%)
Pericardial effusion, surgical treatment	2 (0.3%)
Pericardial effusion, interventional	13 (2.0%)
AV fistula	6 (0.9%)
Dislocation, separate revision	2 / 637 (0.3%)
MACCE and other severe complications	34 events in 29 pts. (4.5%) 
Moderate Complications	72 events in 63 pts. (9.8%)
Moderate bleeding	12 (1.9%)
Pericardial effusion, conservative	11 (1.7%)
Hemato / Pneumothorax, non-surgical	2 (0.3%)
Non-fatal resuscitation (without organ dysfunction)	3 (0.5%)
Groin hematoma	18 (2.8%)
Site infection	1 (0.2%)
Dislocation, catheter-based retraction	7 / 637 (1.1%)
Other, non-surgical treatment	18 (2.8%)
Total complications	106 events in 81 pts (12.6%)

Number of events and patients and percentage among documented patients are shown. No transient ischemic attack was reported. Other complications comprise infections, epileptic seizures, and cardiac or renal failure.

Evidence and Clinical Data in AF patients at High Risk for Bleeding

1. Prospective registries with „calculated“ efficacy and safety (n>500)

- ACP, EVOLUTION, AMULET
- LAARGE

2. Prospective registries with „propensity score matching“

- Nordic ICH
- Bern experience (n=1000 Pts.)

3. Ongoing RCT's:

- ASAP TOO
- CLOSURE AF
- STROKECLOSE

LAARGE-Registry

55 German Cardiology Dept.

All-comers for LAA occlusion
(N=641 pts.)

Prospective Data collection

- proc. data
- 1 year follow-up

PI: J. Brachmann
T. Lewalter

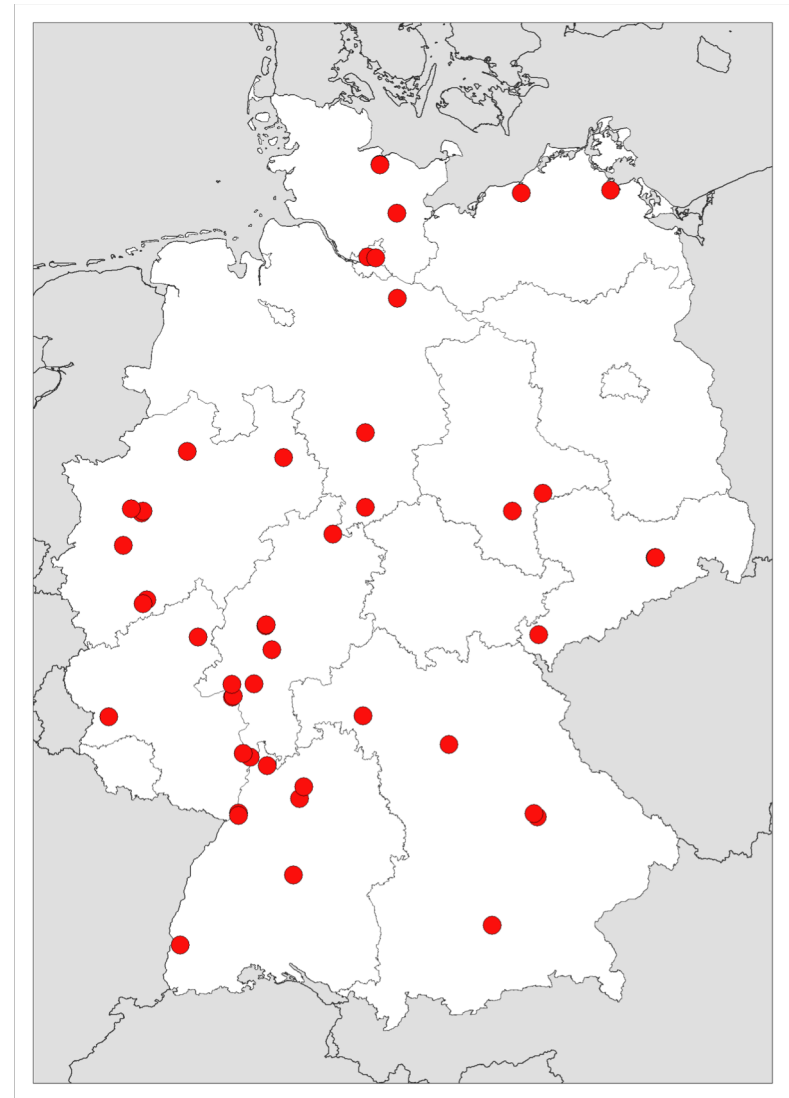



Table 1: Patient characteristics and risk profile

N	641	
Age [years], median (IQR)	77 (72, 81)	
Female	38.8% (249/641)	
Hypertension	93.0% (596/641)	
Congestive heart failure	27.3% (175/641)	
Vascular disease	51.0% (327/641)	
Diabetes	34.0% (218/641)	
Chronic kidney disease	37.8% (242/640)	
 Anemia	22.2% (142/641)	(Hb<8g/dl)
Labile INR	15.3% (98/641)	
Chronic hepatic disease	9.7% (62/641)	
Alcohol abuse	4.1% (26/641)	
CHA ₂ DS ₂ -Vasc Score, mean	4.5 ± 1.6	
HAS-BLED Score, mean	3.9 ± 1.1	



1 year FU Data – LAARGE Registry - Stroke rate -

Observed Stroke rate - 8 pts. with strokes: 1.3% (1 periprocedural)

Expected Stroke rate: 4.6%



Relative Stroke Risk Reduction: 72%



1 year FU Data – LAARGE Registry - Major bleeding rate -

Observed major Bleeding rate: 10/639 pts. = 1,6%

Expected major bleeding rate: 8,8%

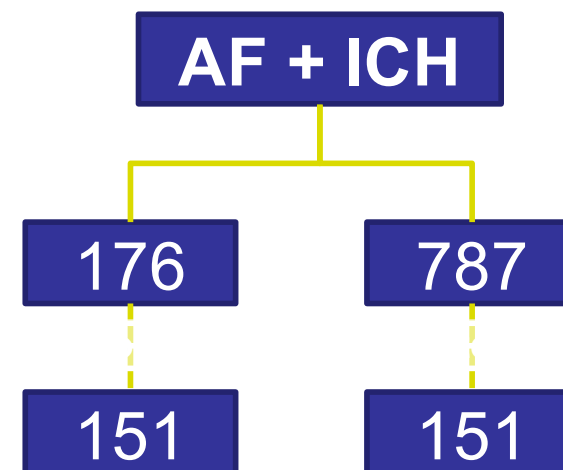


Relative major bleeding Risk Reduction: 82%

LAA occlusion vs. standard care in patients with atrial fibrillation and intracerebral hemorrhage¹

A propensity score matched follow-up study

- **Study population:**
 - **LAAO:** Nordic LAAO patients, treated between 2009 and 2015. n = 176
(Sweden: Gothenburg, Stockholm and Lund; Finland: Tampere, Turku and Helsinki, Denmark: Copenhagen and Aarhus)
 - ACP and AMPLATZER™ Amulet™ devices (St. Jude Medical) used for LAAO
 - **Standard care:** Danish ICH patients with atrial fibrillation who survived at least 180 days after admission with ICH between 2005 and 2014. n = 787
- **Design:** Propensity-score matched follow-up study
 - Used to balance stroke and bleeding risks
 - Matched CHA₂DS₂-VASc, HAS-BLED scores and each separate risk factor for stroke and bleeding
- **Primary endpoint:** Composite clinical outcome
 - All cause mortality
 - Acute ischemic stroke
 - Major bleeding*



* Intracranial hemorrhage, hospitalization needed, Hb-decrease > 2 g/dL or requiring blood transfusion

1. Nielsen-Kudsk, J., Paaske Johnsen, S., Wester, P., Damgaard, D., Airaksinen, J., Lund, J., . . . Krieger, D. W. (2017). Left atrial appendage occlusion versus standard medical care in patients with atrial fibrillation and intracerebral hemorrhage: A propensity score matched follow-up study. *EuroIntervention*. doi:10.4244/EIJ-D-17-00201.

Hazard ratios¹

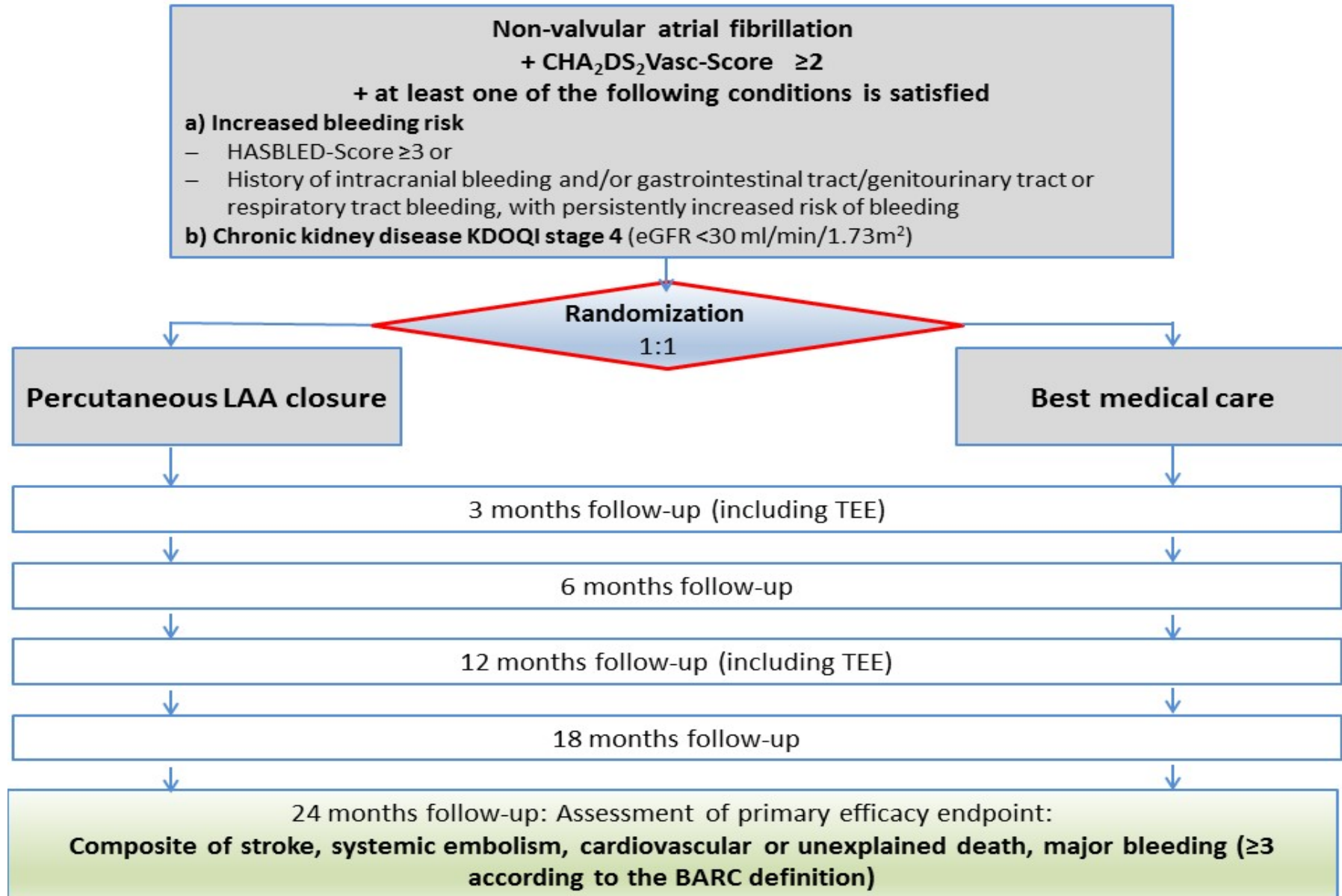
Clinical outcome HR by Cox-regression analysis n = 147 in each PS-matched patient group	LAO vs. Standard care Hazard ratio (95% CI)	Relative risk reduction (%)
Ischemic stroke/major bleeding/mortality	0.16 (0.07-0.37)*	81%
▪ Ischemic stroke	0.21 (0.05-1.00)	65%
▪ Major bleeding	0.28 (0.09-0.85)*	61%
▪ Recurrent ICH	0.10 (0.01-0.81)*	71%
▪ All-cause mortality	0.11 (0.03-0.51)*	92%

STROKECLOSE Randomized Trial initiated

1. Nielsen-Kudsk, J., Paaske Johnsen, S., Wester, P., Damgaard, D., Airaksinen, J., Lund, J., . . . Krieger, D. W. (2017). Left atrial appendage occlusion versus standard medical care in patients with atrial fibrillation and intracerebral hemorrhage: A propensity score matched follow-up study. *EuroIntervention*. doi:10.4244/EIJ-D-17-00201.

* p<0.05

CLOSURE - AF





Europace (2014) **16**, 1397–1416
doi:10.1093/europace/euu174

EHRA/EAPCI CONSENSUS STATEMENT

EHRA/EAPCI expert consensus statement on catheter-based left atrial appendage occlusion

Bernhard Meier (EAPCI Chairperson) (Switzerland)¹, Yuri Blaauw (The Netherlands)², Ahmed A. Khattab (Switzerland)¹, Torsten Lewalter (Germany)³, Horst Sievert (Germany)⁴, Claudio Tondo (Italy)⁵, Michael Glikson (EHRA Chairperson) (Israel)^{6*}

Document Reviewers: Gregory Y. H. Lip (UK), Jose Lopez-Minguez (Spain), Marco Roffi (Switzerland), Carsten Israel (Germany), Dariusz Dudek (Poland), Irene Savelieva (on behalf of EP-Europace, UK)

Update expected spring 2019

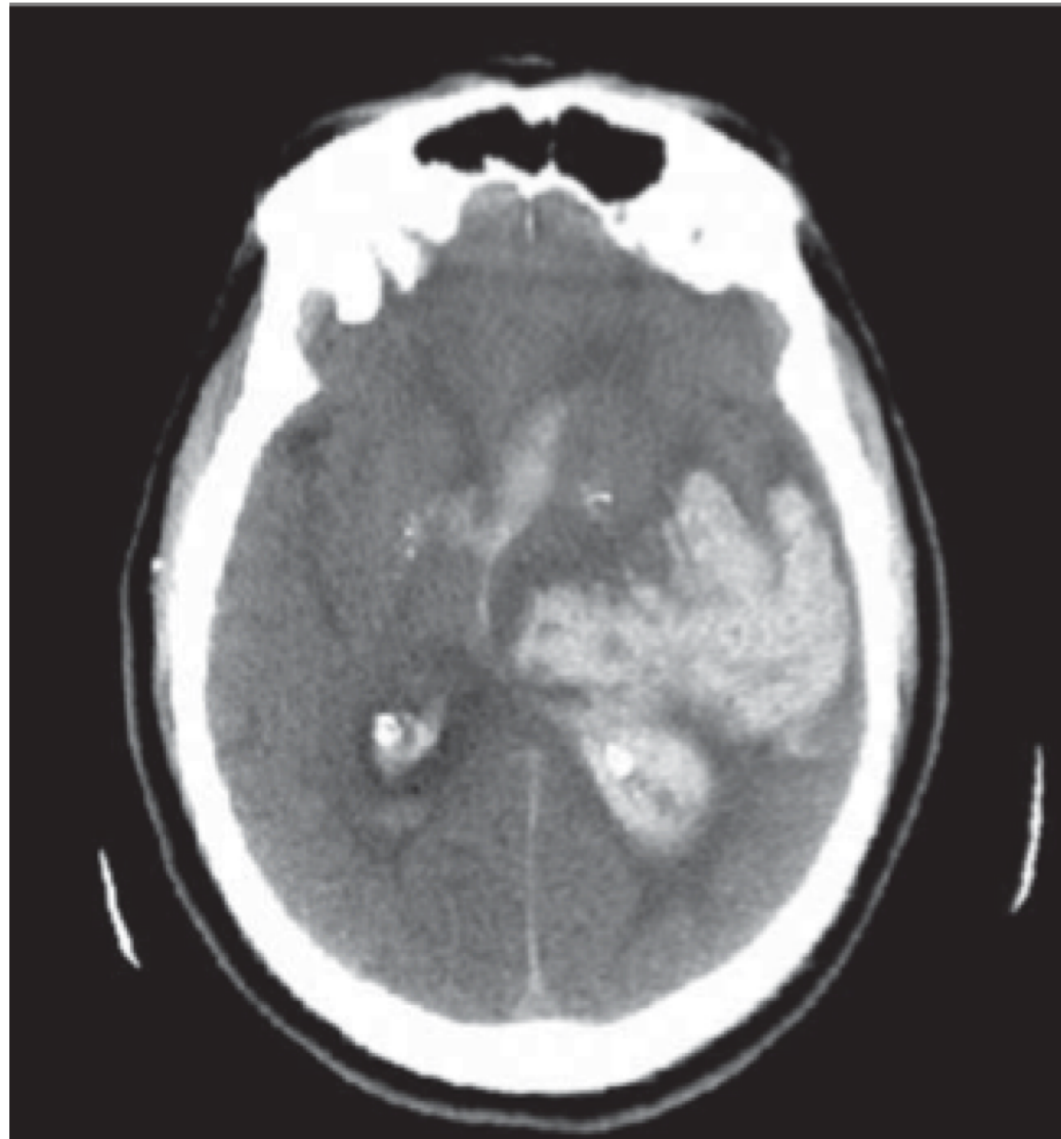
Patients with an indication for stroke prevention due to atrial fibrillation

Suitable for
OAC

```
graph TD; A[Suitable for OAC] --> B[Oral Anticoagulation];
```

Oral Anticoagulation

*Note: In case of strict contraindication to antiplatelet therapy, patient is not eligible for LAAO implantation, but for epicardial LAA occlusion or thoracoscopic LAA clipping



„Absolute“ Contraindication for Long-Term OAC

- ➔ „Untreatable“ source of
 - Intracranial/intraspinal bleeding (eg diffuse amyloid angiopathy)
 - severe gastroint. (diffuse angiodysplasia) or urogen. bleeding

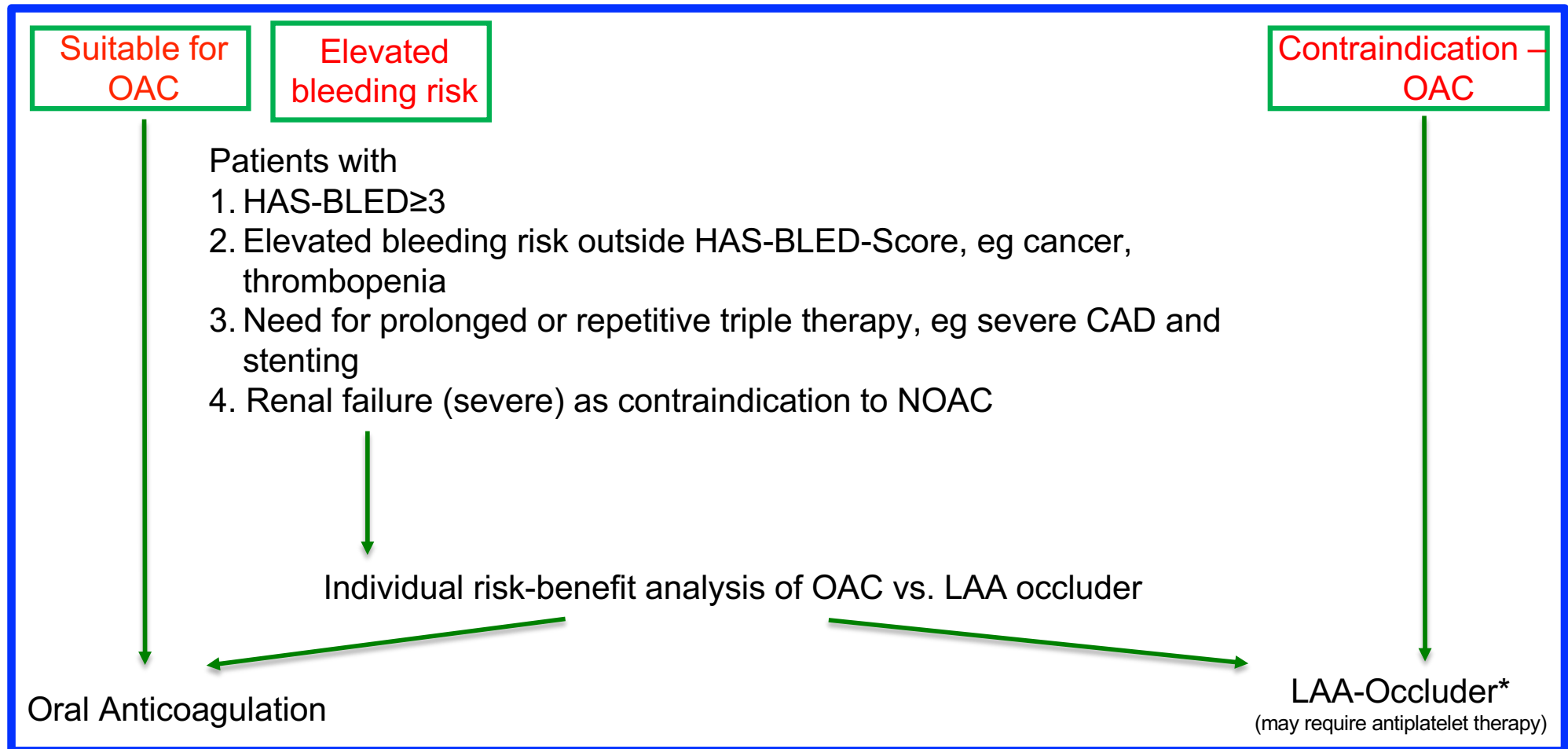
- ➔ Severe side effects under vit-k-antagonists +
contraindication for NOAC (severe renal insufficiency)

Patients with an indication for stroke prevention due to atrial fibrillation



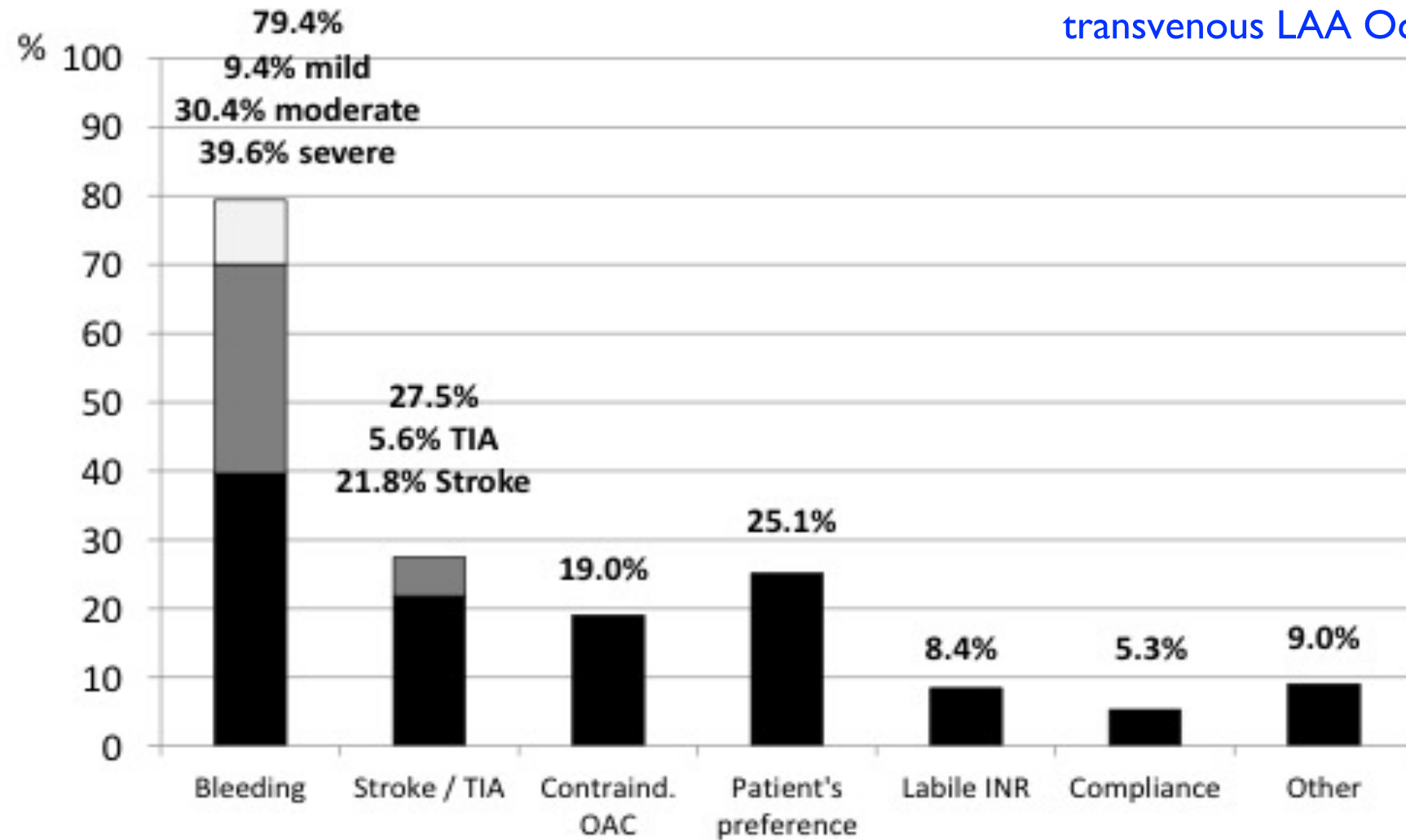
*Note: In case of strict contraindication to antiplatelet therapy, patient is not eligible for LAAO implantation, but for epicardial LAA occlusion or thoracoscopic LAA clipping

Patients with an indication for stroke prevention due to atrial fibrillation



*Note: In case of strict contraindication to antiplatelet therapy, patient is not eligible for LAAO implantation, but for epicardial LAA occlusion or thoracoscopic LAA clipping

LAARGE – Registry on
transvenous LAA Occlusion



PHILIPS

18/04/1925

BF 26Hz
15cm

2D
80%
K 48
M Niedrig
HPen



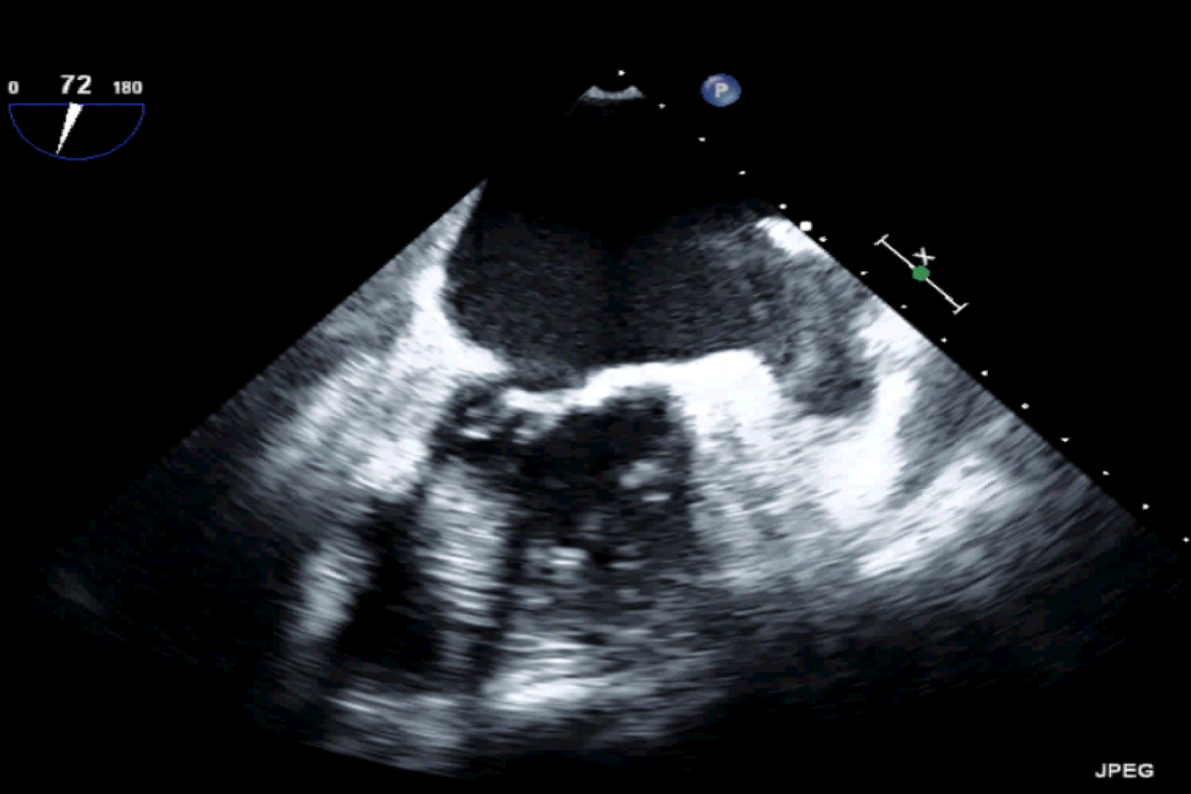
PAT.-T.: 37.0C
TEE-T.: 40.1C

[Redacted]

X7-2t/TEE

TISO.3 JPEG CR 12:1
MI 0.6

S4



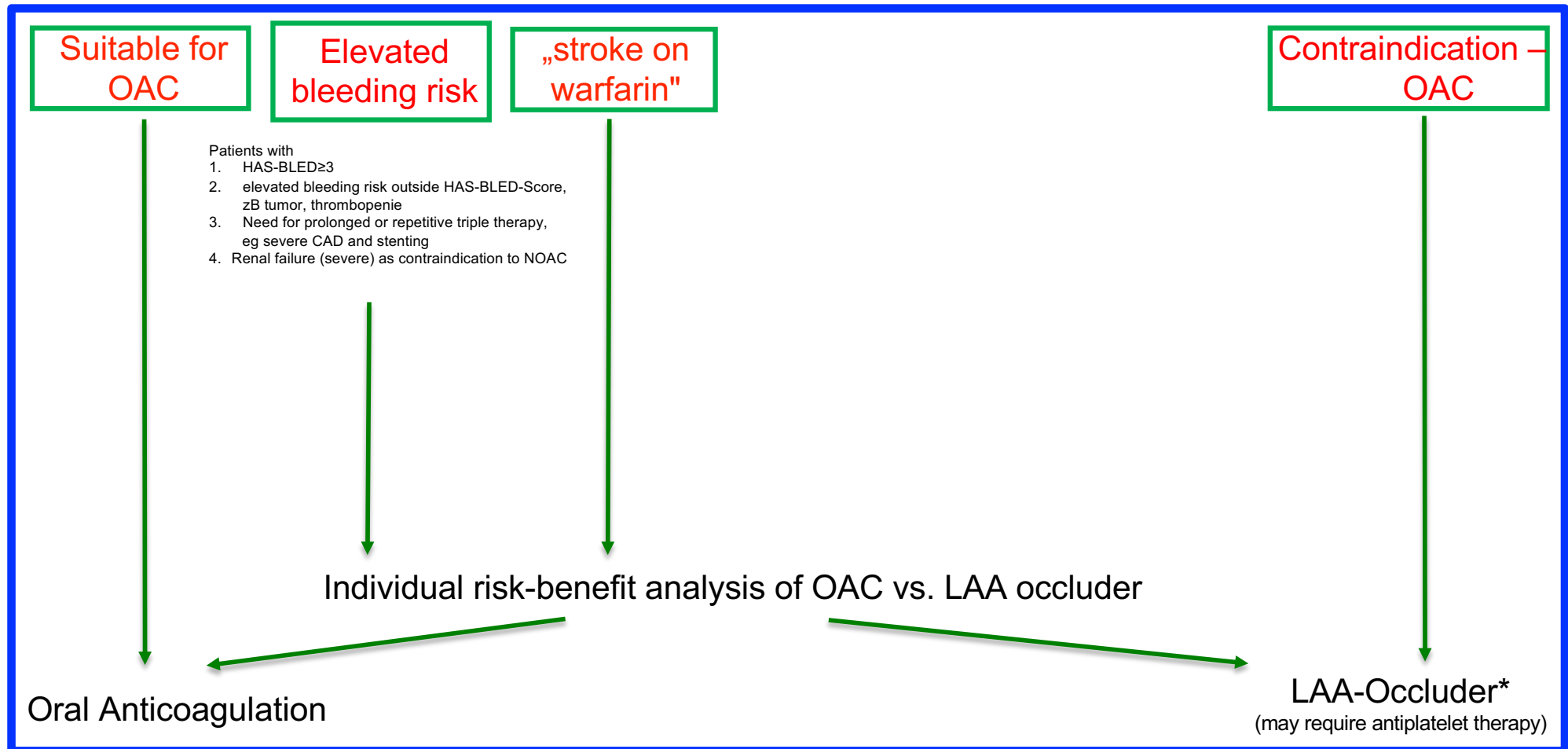
JPEG

80 /min

Thrombus formation under standard OAC („malignant LAA“)

Patient/CHA2DS2-Vasc	Afib/ Pretreatment	EF Disease	V LAA (m/s)	NOAK	6 weeks Thr. +/-	12 weeks Thr. +/-
M.M.,f, 59y Score: 5 Acute isch. stroke	Pers ASS+Clopi	35%, GFR 38, CAD, DM, HTN	<0.2	Apix 2x5mg + Clopidogrel	+ (regr.) -> Apix+Clopi	No Thrombus -> Apix mono
U.N., m, 76y Score: 6	Long pers Mar.+ASS	65% CAD, HTN, TIA	<0.2	Dabi 2x150mg ASS 100/Clop.	No Thrombus -> Dabi mono	No Thrombus LAA implant
H.S., f, 72y Score: 5	Pers. Mar. + ASS	60% CAD, DM, HTN	<0.2	Dabi 2x150mg ASS 100mg/Clopidogrel	No Thrombus -> Dabi mono, ASS 100	No Thrombus LAA implant
G.L., m, 72y Score: 4 Acute TIA	Pers Riva 1x20mg	20% KHK	<0.2	Dabi 2x150mg Clopi 75	+ (regr.) -> Dabi+Clopi	No Thrombus -> Dabi mono
W.V., m, 78y Score: 5 Acute isch. stroke	Long pers Marcumar	65%, AorticVR CAD, DM, HTN	0.3 Ostium!	Mar.+ASS + Clopi 75	+ (regr.)4Mo. -> Dabi+Clopi	No Thrombus -> Bypass surgery + LAA excision

Patients with an indication for stroke prevention due to atrial fibrillation



*Note: In case of strict contraindication to antiplatelet therapy, patient is not eligible for LAAO implantation, but for epicardial LAA occlusion or thoracoscopic LAA clipping

Erw. Echo

X7-2t

64Hz

12cm

TIS0.2

MI 0.5

xPlane

57%

57%

50dB

P Aus

Allg

M4

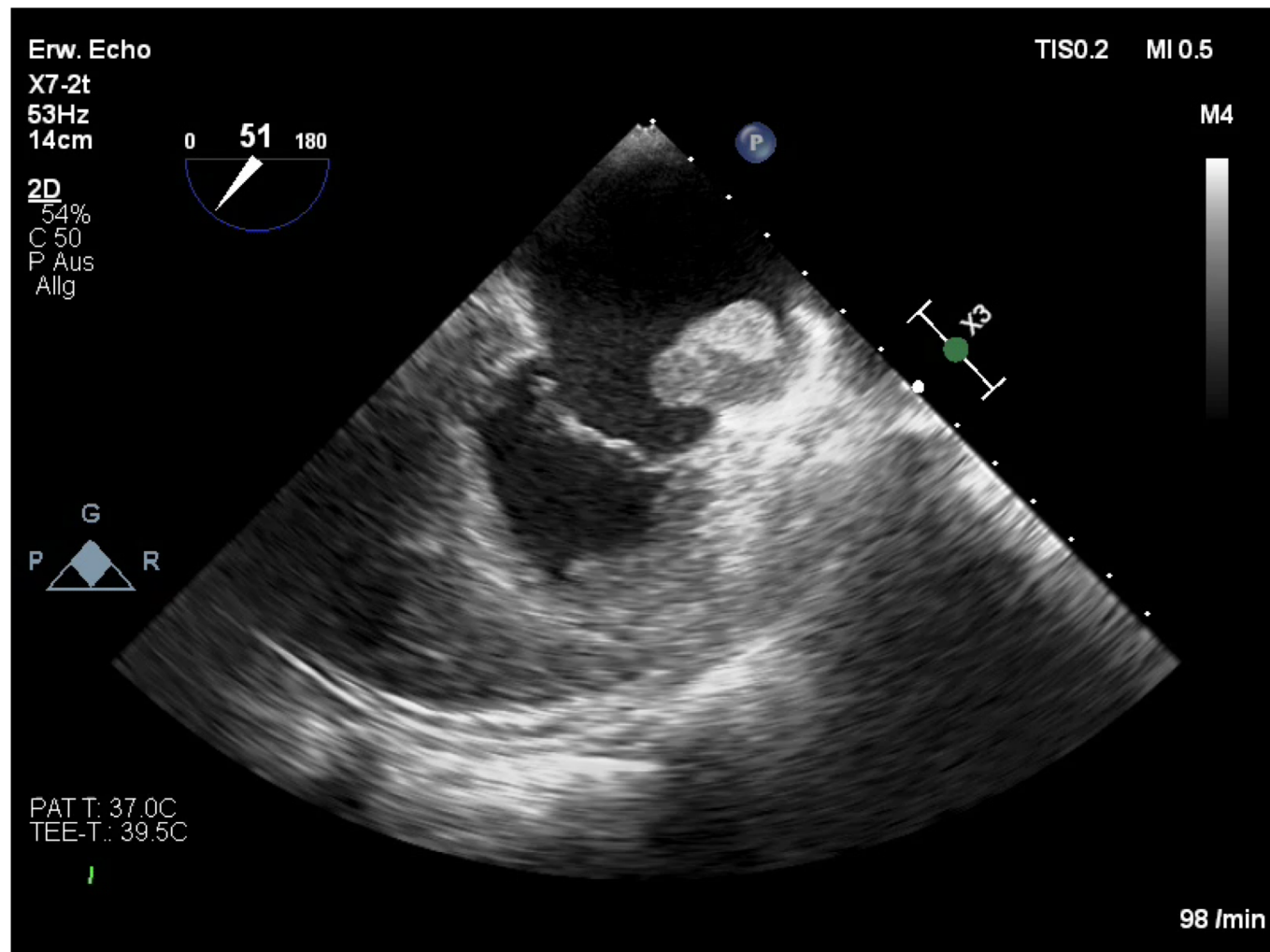
55
-16



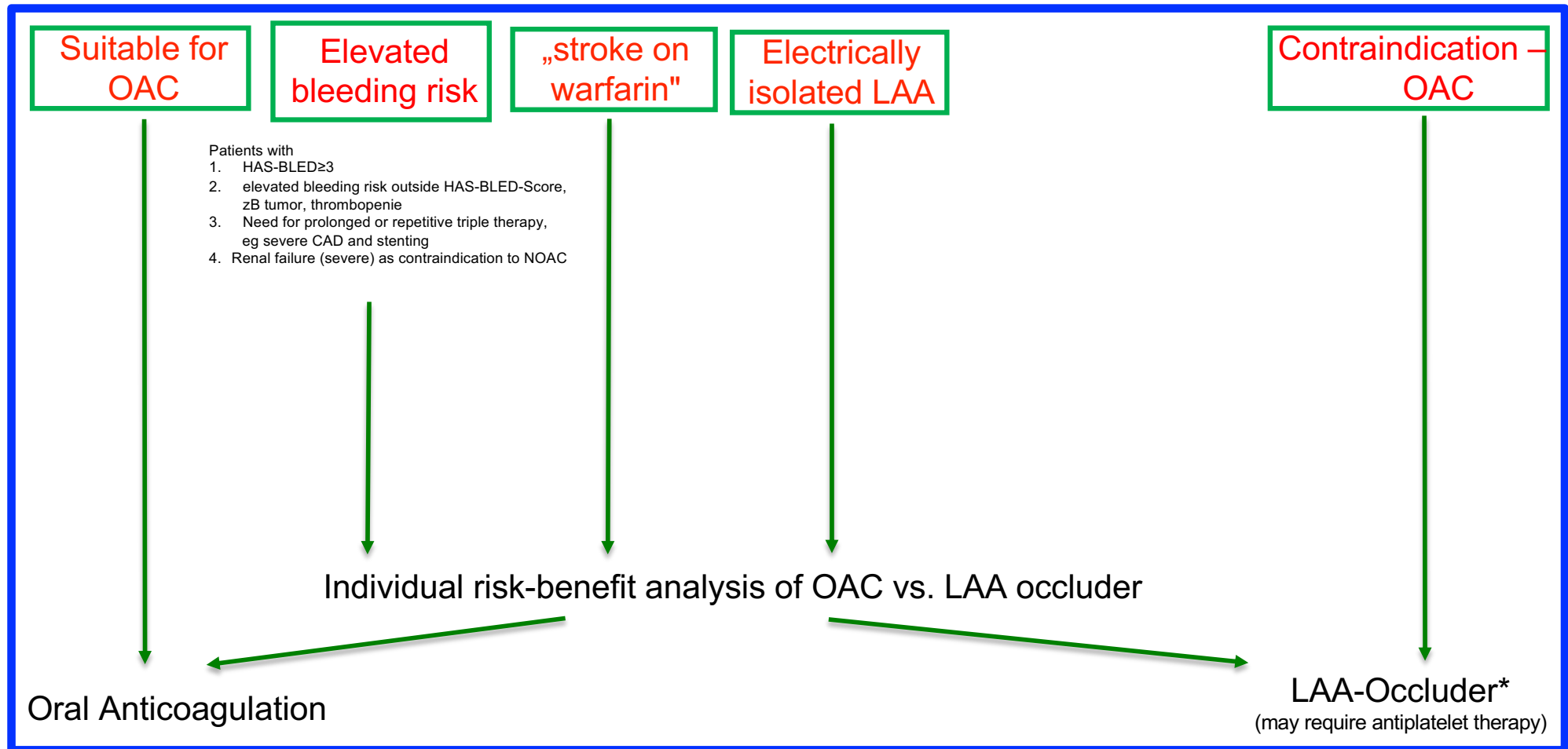
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TEE-T: 39.6C

!

115 /min



Patients with an indication for stroke prevention due to atrial fibrillation

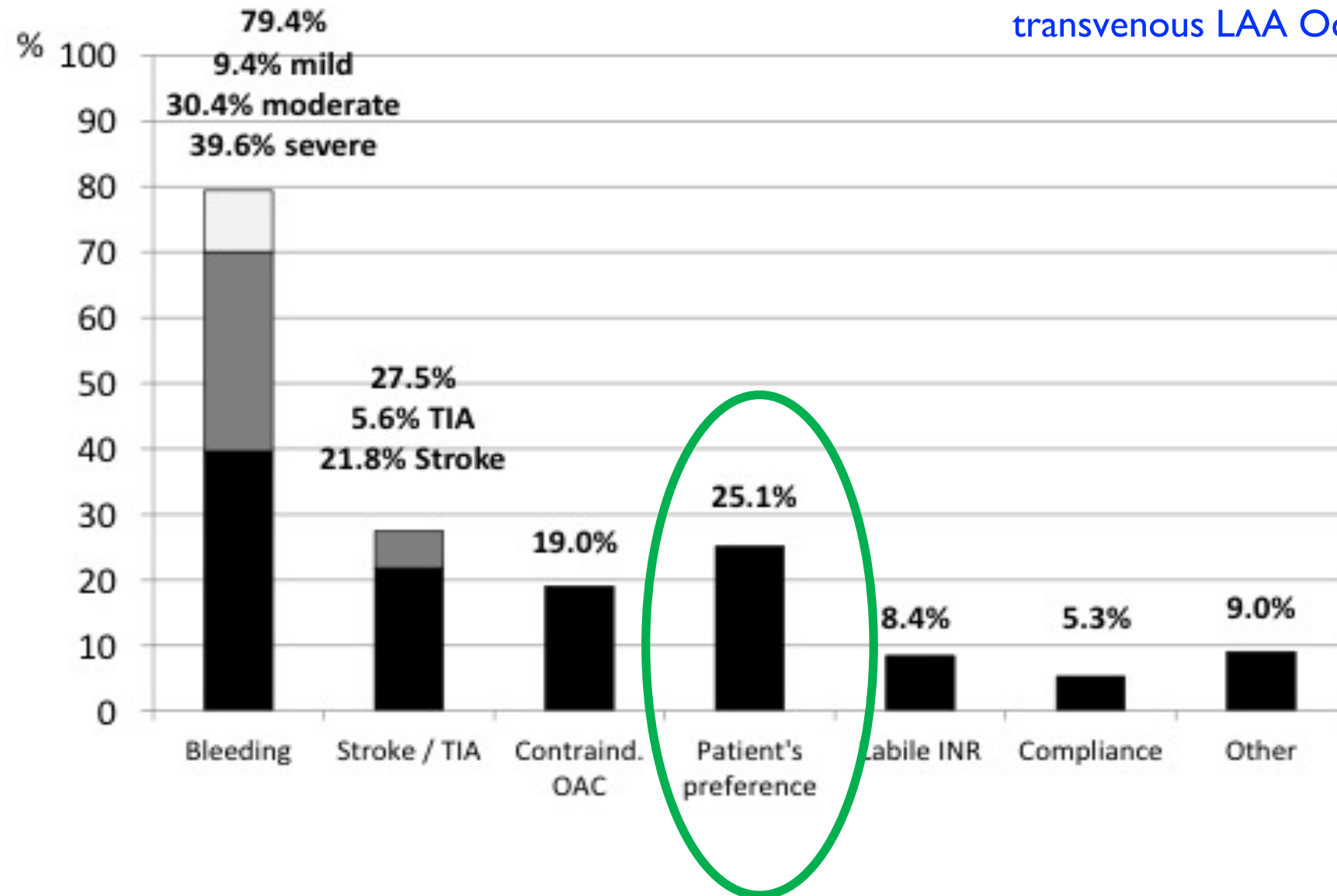


*Note: In case of strict contraindication to antiplatelet therapy, patient is not eligible for LAAO implantation, but for epicardial LAA occlusion or thoracoscopic LAA clipping

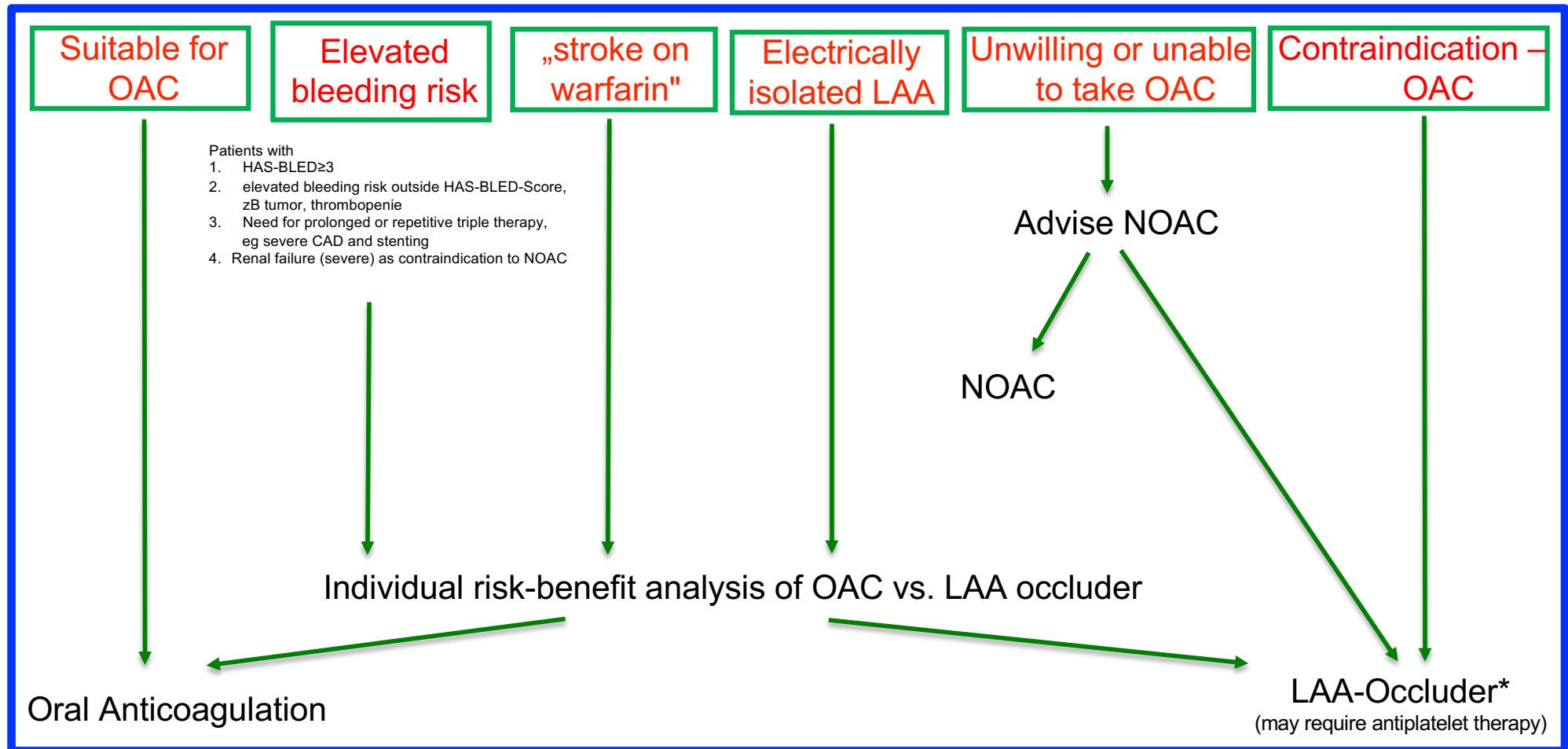
“Drugs don’t work in patients who don’t take them.”

C. Everett Koop, MD

LAARGE – Registry on
transvenous LAA Occlusion



Patients with an indication for stroke prevention due to atrial fibrillation



*Note: In case of strict contraindication to antiplatelet therapy, patient is not eligible for LAAO implantation, but for epicardial LAA occlusion or thoracoscopic LAA clipping

Bild-Größe: 512 x 512

Ansichts-Größe: 728 x 728

WL: 106 WW: 160

77/15 (71 y , 71 y)

Koronar-Lmu

Coro 2020

5



Zoom: 142% Winkel: 0

B: 1/22

Unkomprimiert

Position: HFS

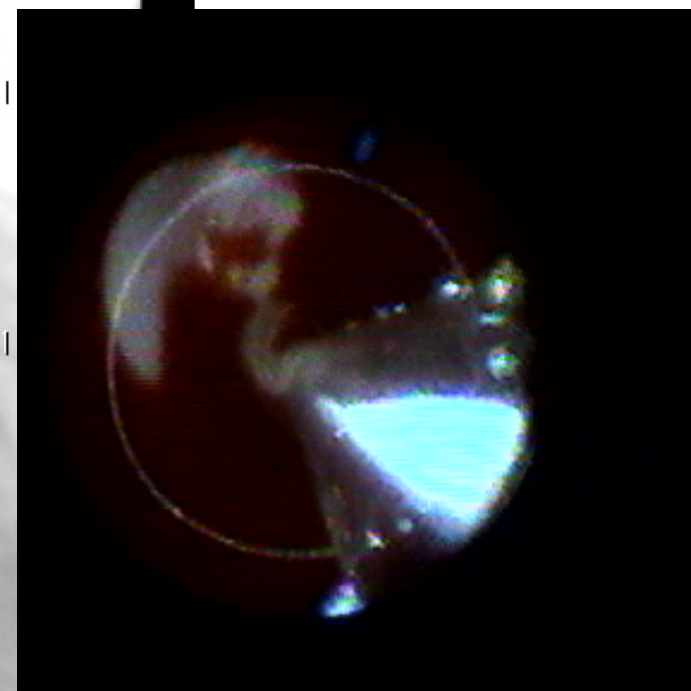
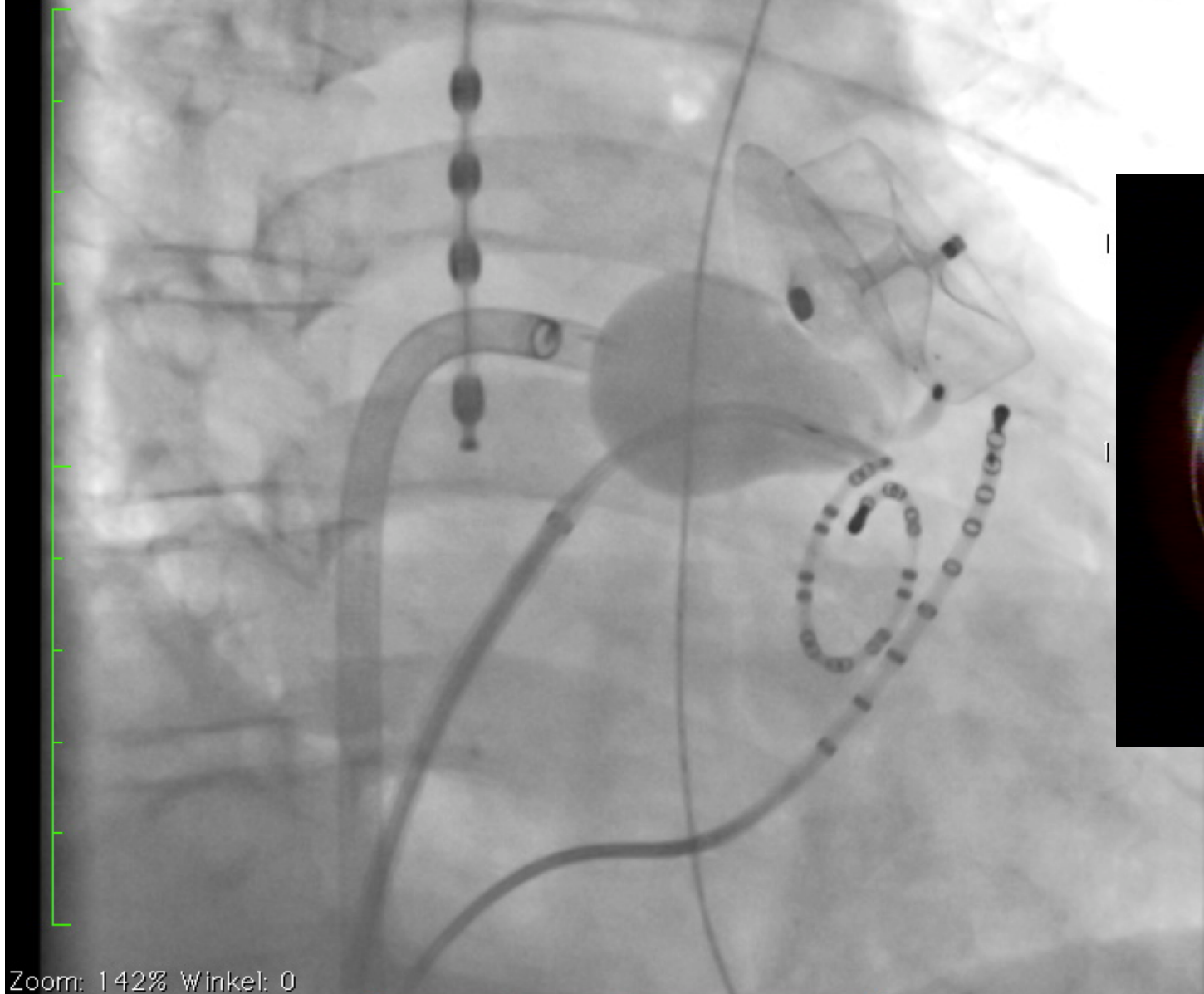
NICHT FÜR PRIMÄRE DIAGNOSTIK

20.01.15 11:50:54

Made In OsiriX

Bild-Größe: 512 x 512
Ansichts-Größe: 728 x 728
WL: 106 WW: 162

77/15 (71 y , 71 y)
Koronar Limu
Coro 2020
9



Zoom: 142% Winkel: 0
B: 1/12
Unkomprimiert
Position: HFS

NICHT FÜR PRIMÄRE DIAGNOSTIK

20.01.15 12:06:59
Made In OsiriX

Left atrial catheter ablation in patients with previously implanted left atrial appendage closure devices

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Received 16 July 2018; editorial decision 5 September 2018; accepted 20 September 2018

Aims

Left atrial appendage closure (LAAC) is increasingly used as an alternative to oral anticoagulation (OAC) for stroke prevention in atrial fibrillation (AF) patients. Feasibility and safety of left atrial (LA) catheter ablation (CA) in patients with previously implanted LAAC devices have not been well studied. We report on the feasibility, safety, and efficacy of LA CA in the presence of a previously implanted LAAC device.

Methods and results

In this prospective cohort study consecutive patients that underwent LA CA with a previously implanted Watchman device were included. Periprocedural characteristics and long-term clinical follow-up were evaluated. Twenty-three LA CA procedures were performed in 19/162 AF patients with previously implanted Watchman devices [47% male, age 63.9 ± 6.2 years, CHA₂DS₂-VASc 4.0 (3.0–5.0); HASBLED 3.0 (2.0–4.0); 63% paroxysmal]. Left atrial CA was performed with irrigated radiofrequency (RF; $n = 20$, 87%) or phased RF ($n = 3$, 13%) in a mean of 18 months after LAAC implantation (range 4–80 months). Targets of CA consisted of pulmonary vein isolation ($n = 19$, 83%), superior vena cava isolation ($n = 13$, 57%), and additional linear lesions ($n = 8$, 35%). Procedures were carried out under vitamin K antagonist (VKA; $n = 6$, 26%), non-VKA OAC (NOAC; $n = 8$, 35%), or single antiplatelet therapy alone ($n = 9$, 39%). Left atrial CA was successful without any signs of interference from the device. Procedure-related complications were not observed. During a mean follow-up of 28 months, 11 patients (58%) had AF recurrence.

Conclusion

Left atrial CA after LAAC appears to be feasible, effective, and safe in this single centre cohort. Previously implanted Watchman device should not be a reason to relinquish CA in symptomatic AF patients, even in patients on single antiplatelet therapy alone.



Thank You For
Your Attention!