

# Echo Guidance of LAA Occluders implant Step by Step

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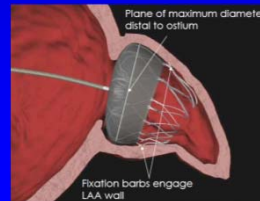
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Director, Cardiac Imaging Research  
MedStar Health Research Institute  
MedStar Washington Hospital Center  
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- Core Lab activities for:
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  - Boston Scientific
  - Edwards
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  - Neovasc
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# LAA Closure Case

Watchman<sup>®</sup> Implant

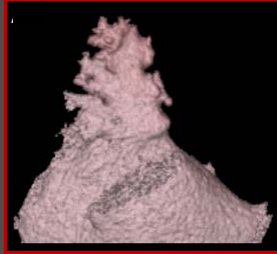


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## Role of TEE in LAA closure

- Identify all lobes and anatomy
- Safety: thrombus and septal puncture, effusion
- Check for success

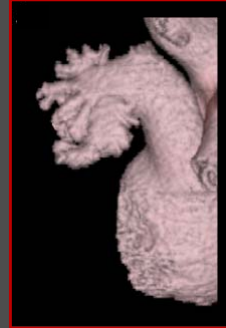
## Know the Anatomy



Cactus (30%)



Windsock 19%



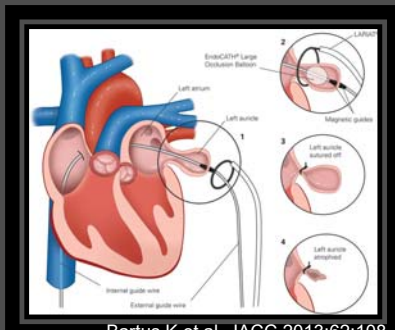
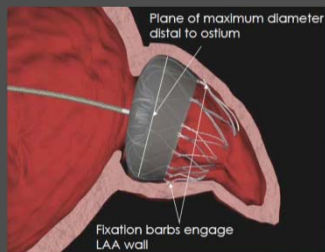
Cauliflower 3%



Chicken Wing (48%) → menor relacion a ACV / AIT

Di Biase L et al. J Am Coll Cardiol 2012; 60:531-538

## Know Your Devices



Bartus K et al. JACC 2013;62:108



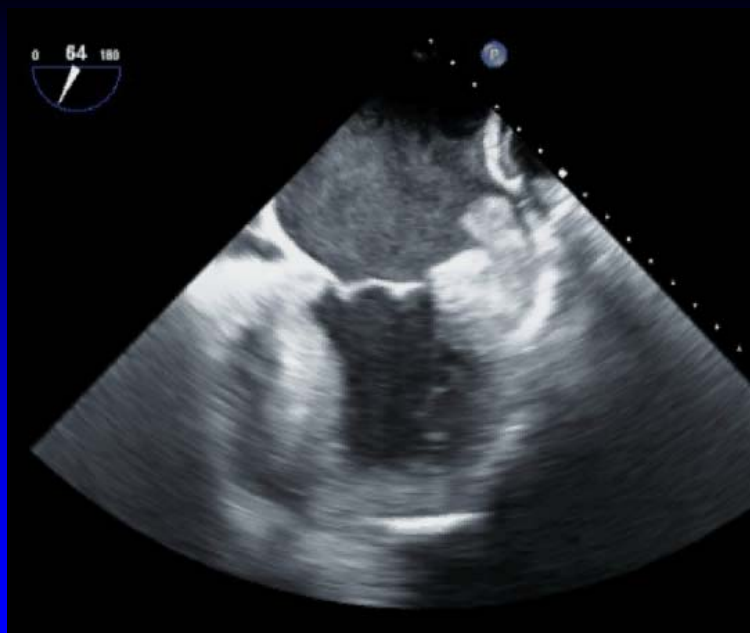
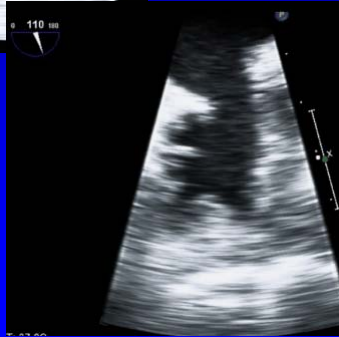
## Steps

1. Rule Out LAA Thrombus
2. LAA measurements including w LA pressure > 10  
0, 45, 90 and 135°
3. IAS puncture
4. Cath Guidance
  1. First in LUPV, change to pig tail
  2. Then “hop” into LAA
5. Post Deployment
  1. Check for peri-device leak
  2. Device Compression
  3. ASD size and shunt

## Watchman™ Device



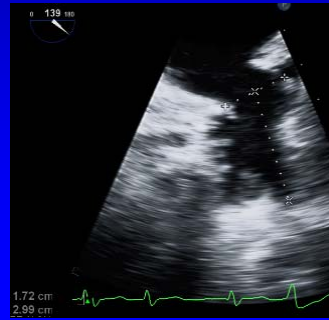
## Rule Out Thrombus



## LAA measurements



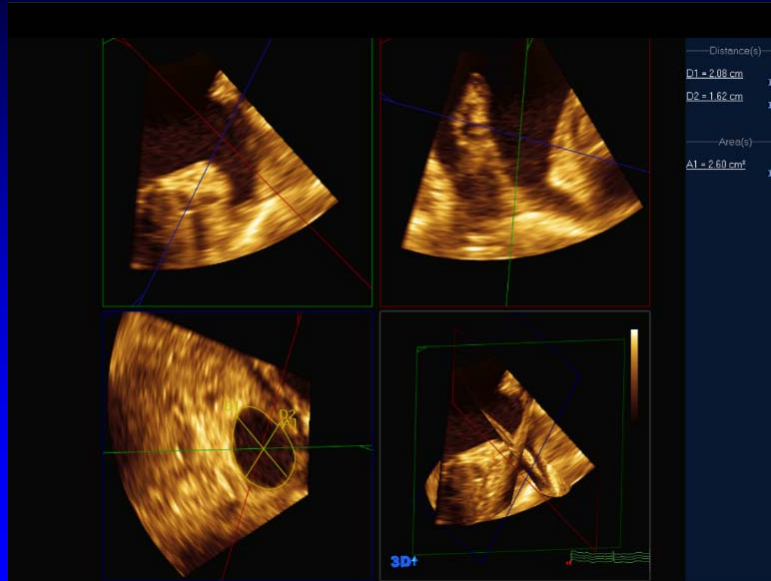
At 0, 45, 90 and 135°



## Device, Sizing and Compression

Max LAA Ostium	Recommended Device Size
17 – 19 mm	21 mm
20 – 22 mm	24 mm
23 – 25 mm	27 mm
26 – 28 mm	30 mm
29 – 31 mm	33 mm

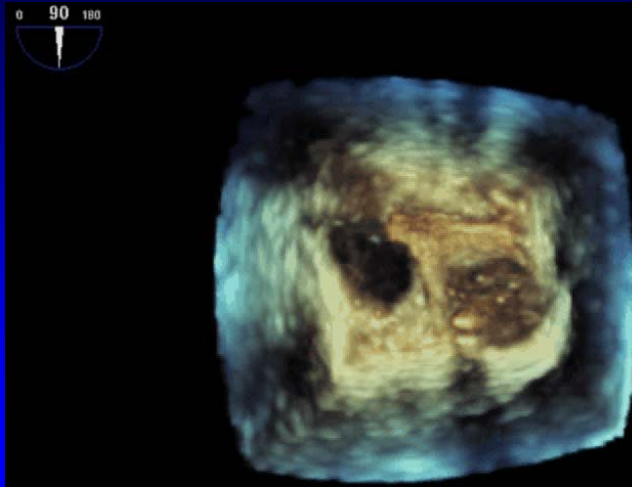
## LAA measurements – 3D



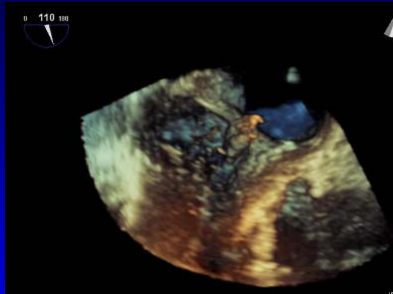
## IAS puncture – Sup and Post



## Cath Guidance - LUPV



## Cath Guidance – Hopping in LAA





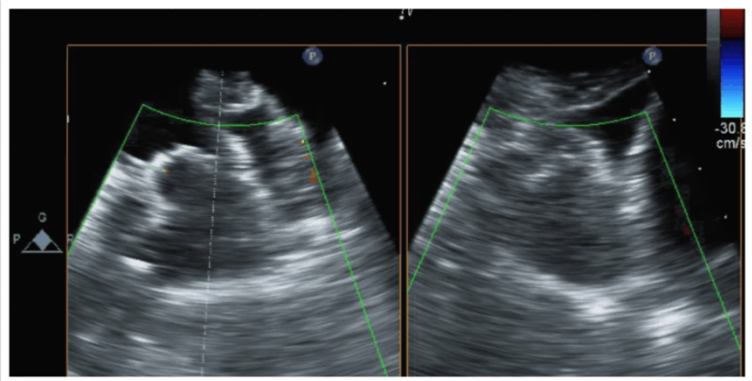
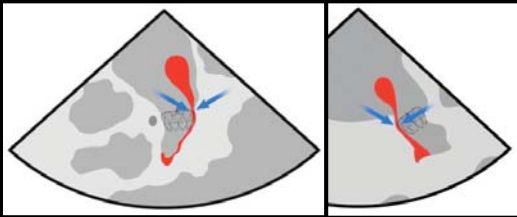
**Device deployment**  
**Too deep in LAA**



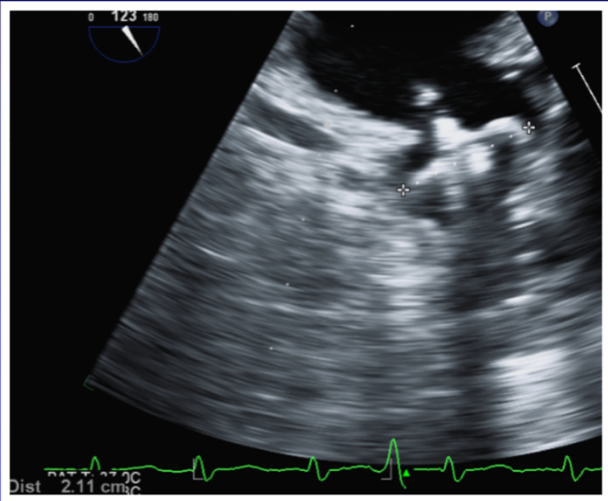
**Device deployment - OK**



# Post- Leak

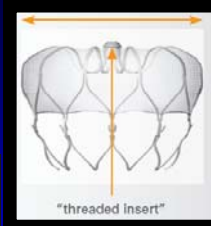


# Post - Compression



## Device Sizing and Compression

Deployed, device should measure  
8-20% smaller than ex-vivo



Max LAA Ostium
17 – 19 mm
20 – 22 mm
23 – 25 mm
26 – 28 mm
29 – 31 mm

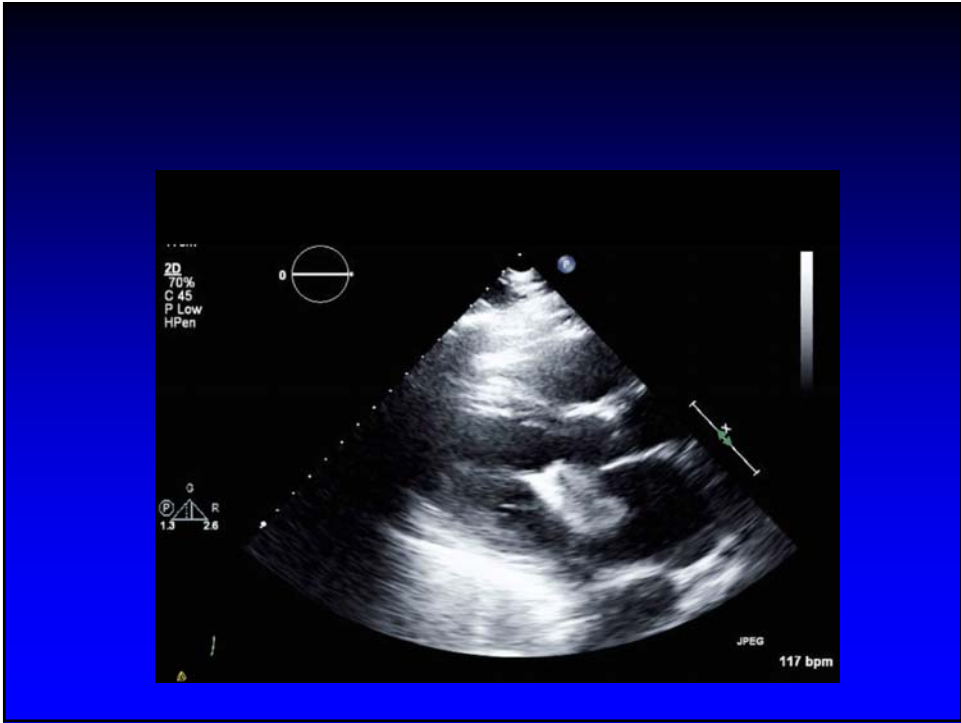
TABLE 1: WATCHMAN LAA CLOSURE DEVICE DIAMETER

Original Device Diameter	Deployed Diameter (80 – 92% of original)
21mm	16.8 mm – 19.3 mm
24mm	19.2 mm – 22.1 mm
27mm	21.6 mm – 24.8 mm
30mm	24.0 mm – 27.6 mm
33mm	26.4 mm – 30.4 mm

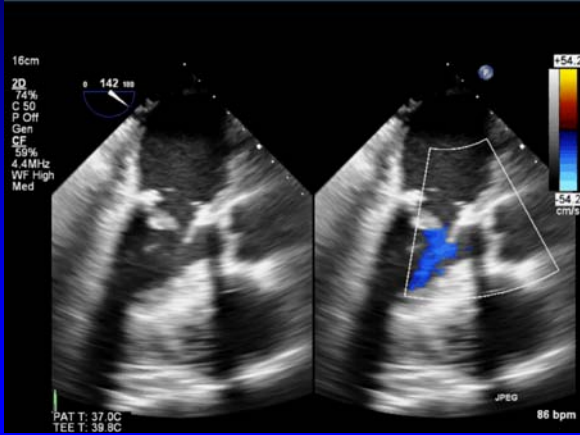
## Post Implant and pre-discharge

TTE:

- Pericardial Effusion
- Device location



# Post Amulet removal and MVR



## Conclusions

- Watchman is the only FDA approved
- Amulet and others are under investigation
- Ultrasound guidance is critical so far
- Alternatives could be ICE and fluoroscopy