



HKCC 2023

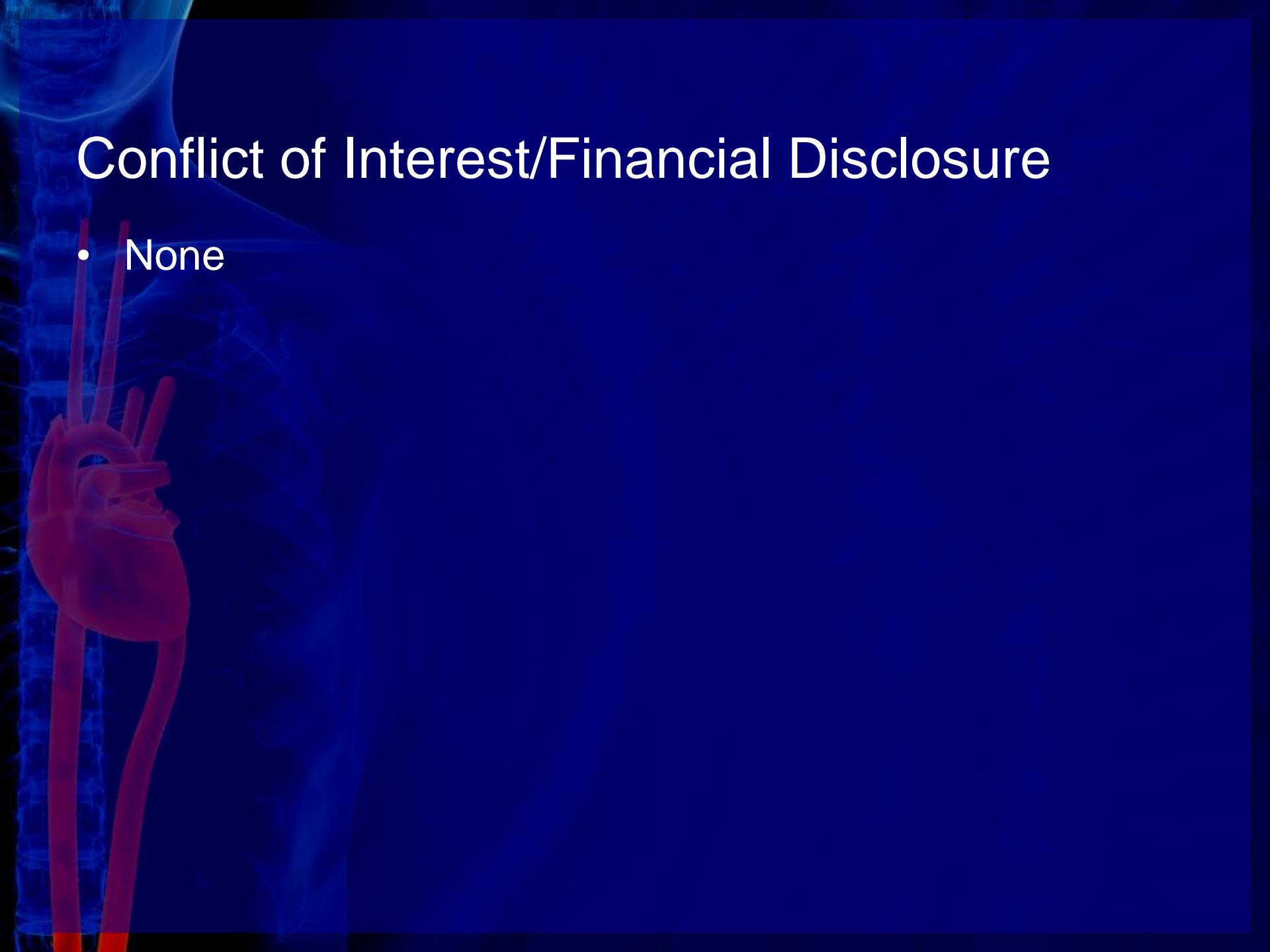
*First-in-Asia Native Valve BASILICA TAVR
Complicated with annular rupture rescued by coil
embolization*

亞洲第一案例: 天然主動脈扇貝故意撕裂以預防醫源性冠狀動脈阻塞(Native Valve BASILICA)经导管主动脉瓣置換術(TAVR), 結合實時電腦斷層掃描定位(CT fusion). 及瓣環破裂線圈栓塞修補術

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Conflict of Interest/Financial Disclosure

- None



Patient Background

Patient Demographics

85 yo female
ADL-PD

Medical History

- Stage 3 CKD
- HT
- DM

Clinical Presentation

- Repeated admissions for progressive heart failure symptoms (NYHA Class 4)
- BP on low side but not in shock

ECG:

- SR, no acute ST changes

Labs

- mild ↑ Troponin
- ↑↑ BNP

Echocardiogram

- LVEF 60-65%
- Calcified **severe AS** (AVA **0.53cm²**, MG 73mmHg, Vmax 5.2m/s)
- Mild AR

Coronary Angiogram

- Minor coronary artery disease

HEART Team Discussion

- STS: 6%
- Euro II: 6%
- Logistic Euroscore: 22%
- Frailty: 7

Prohibitive risk for surgical AVR
Proceed to TAVR

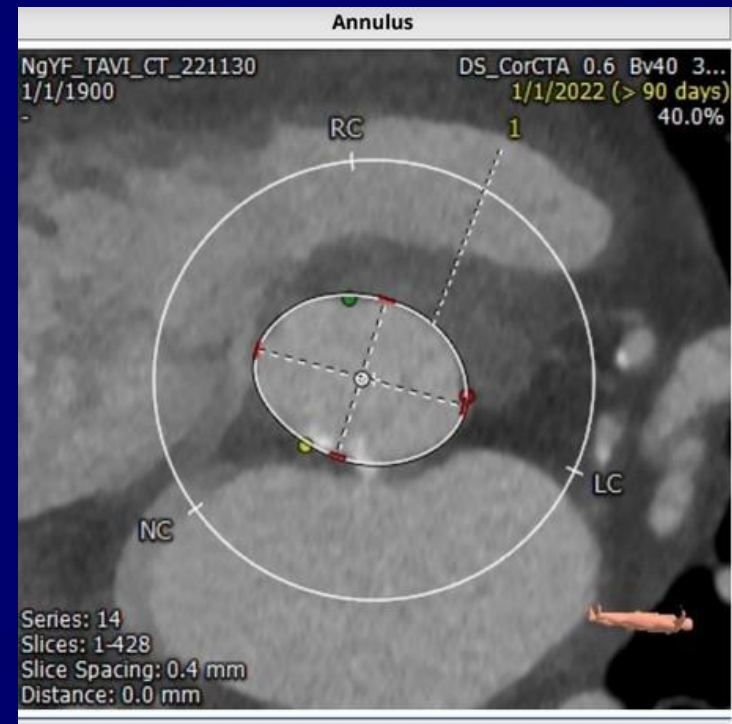
CT analysis

Annulus Area: 354mm²

LVOT Area: 315 mm²

SOV: 24.7 x 25.5 x 26.2mm

STJ: 23.1 x 23.5mm



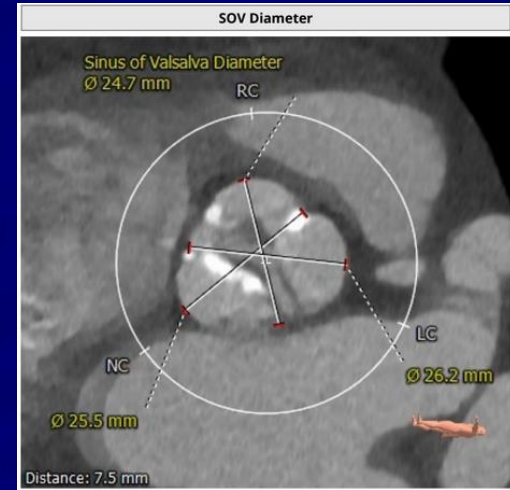
CT analysis

LCC Height: **9.8mm**

RCC Height: 13.4mm

STJ Height: 16.1mm

Left Cusp Leaflet Length: **11.9mm**

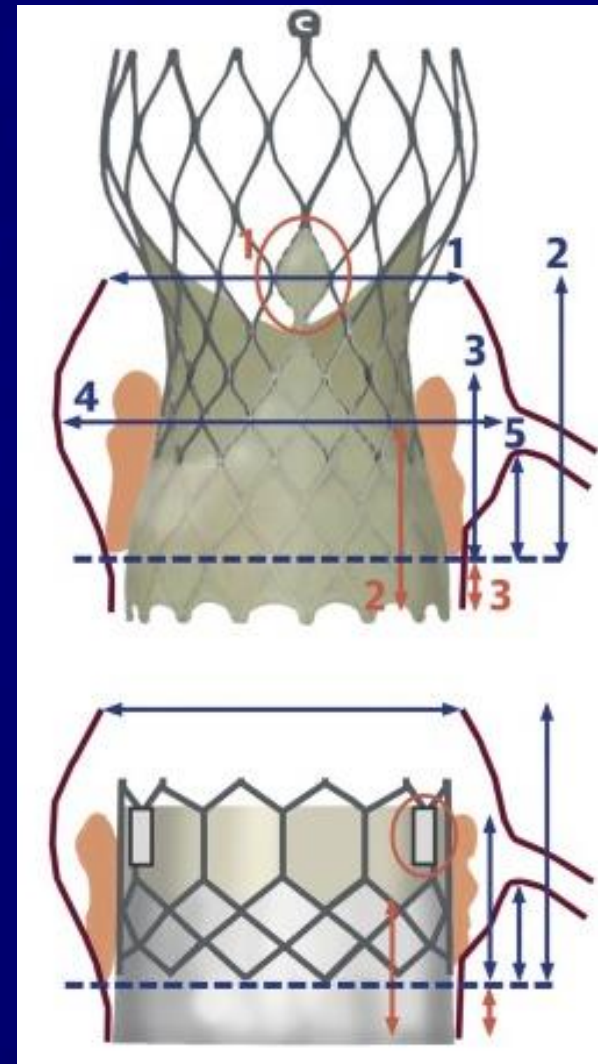
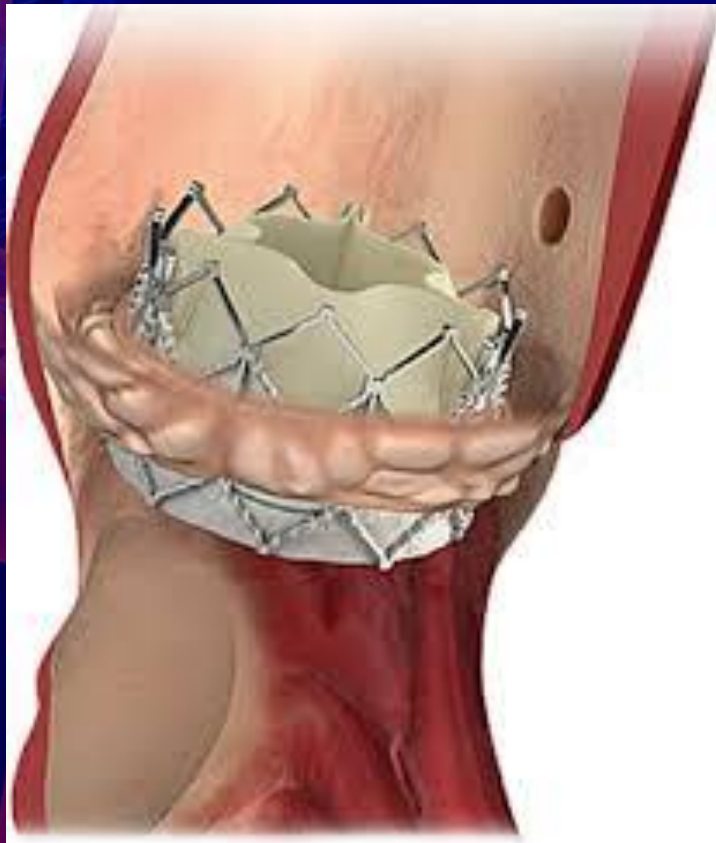


LCC Height



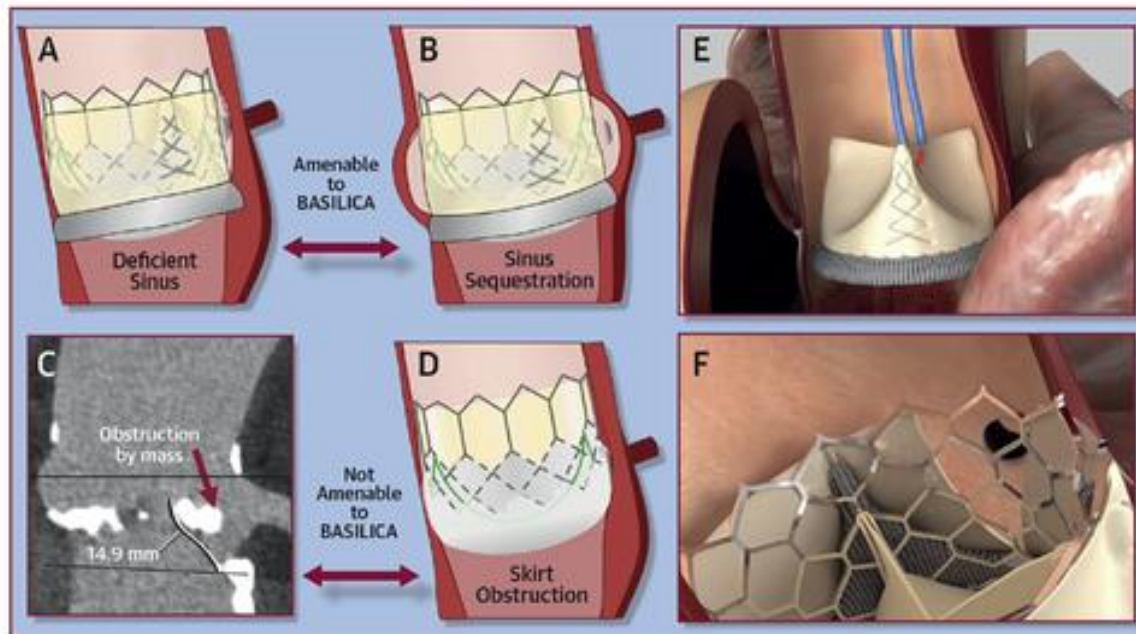
Left Cusp Leaflet

Coronary Obstruction in TAVI

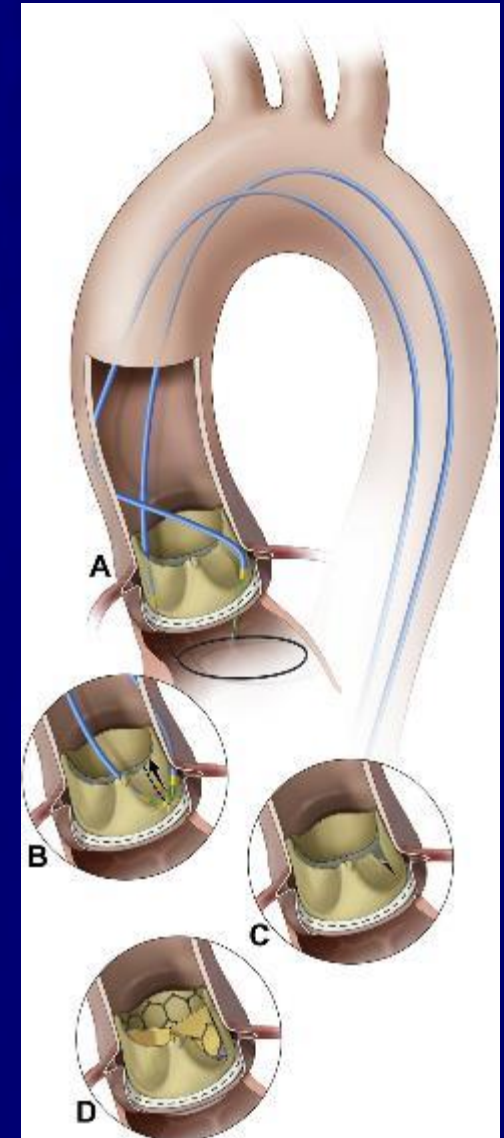


BASILICA: Bioprosthesis or native Aortic Scallop Intentional Laceration to prevent Iatrogenic Coronary Artery obstruction during TAVR

CENTRAL ILLUSTRATION: Mechanisms of Transcatheter Aortic Valve Replacement-Induced Coronary Obstruction and Mitigation by BASILICA



Lederman, R.J. et al. *J Am Coll Cardiol Interv.* 2019;12(13):1197-216.



TAVR with BASILICA of LCC

Valve size: S3 23mm -1cc (+7.6%)
Implanting View: LAO 1 CAU 19
Side view: LAO 11 Cran 8
En-face view: RAO 80 Caud 30

Annulus Average Diameter	21.5 mm
Annulus Min. Diameter	18.6 mm
Annulus Max. Diameter	24.4 mm

6Fr sheath
For Sentinel

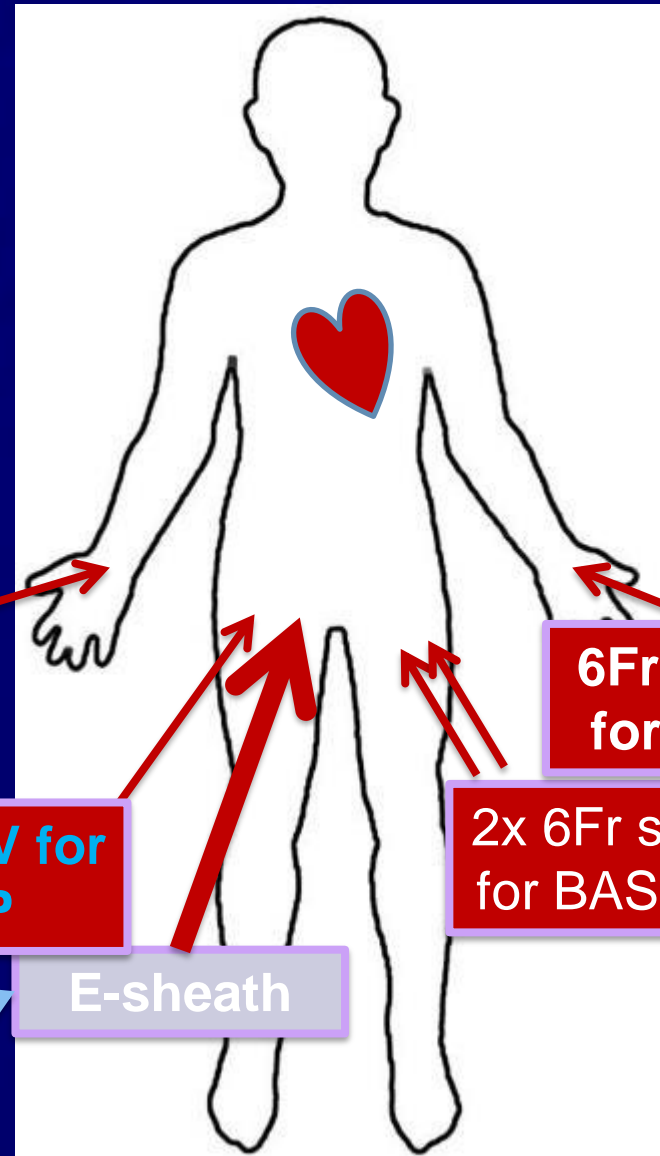
6Fr RFV for
TVP

8Fr sheath

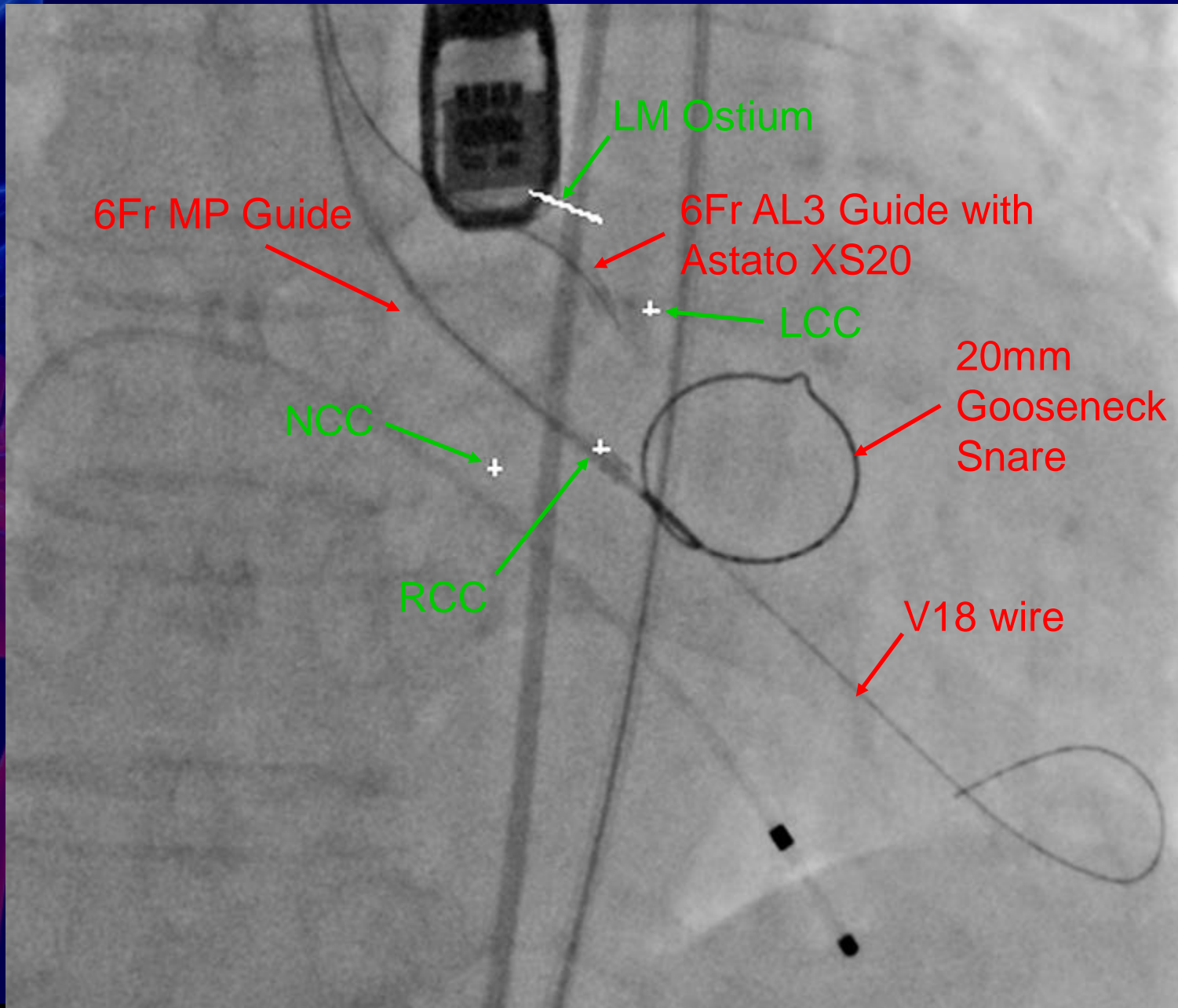
E-sheath

6Fr sheath
for pigtail

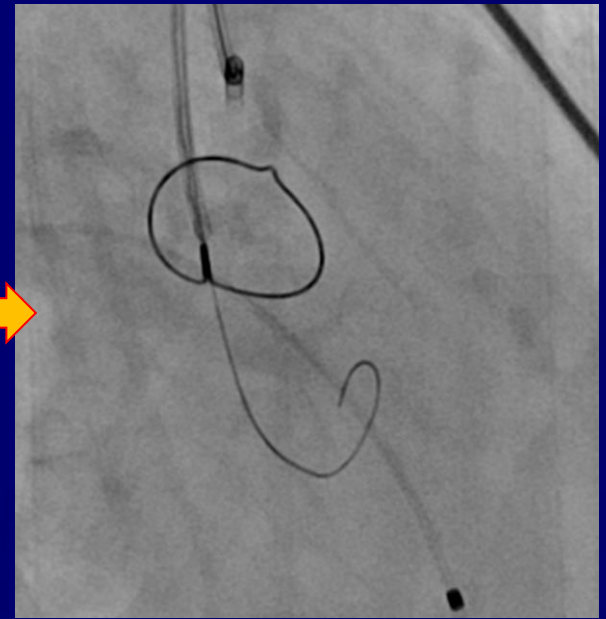
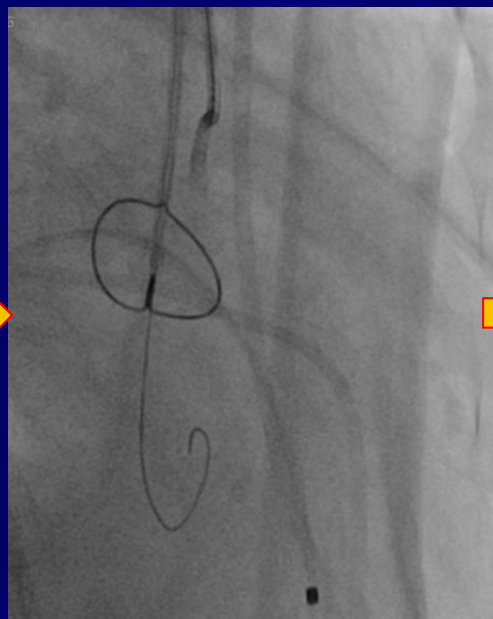
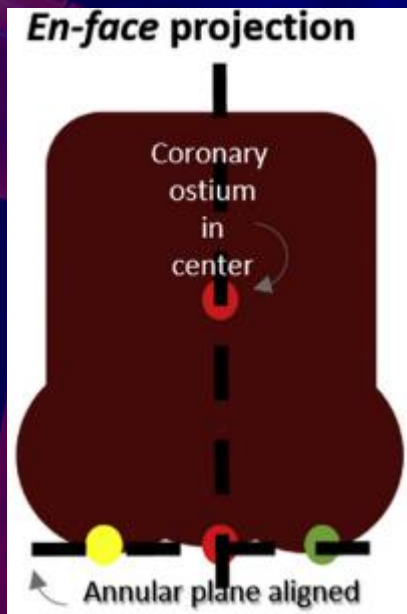
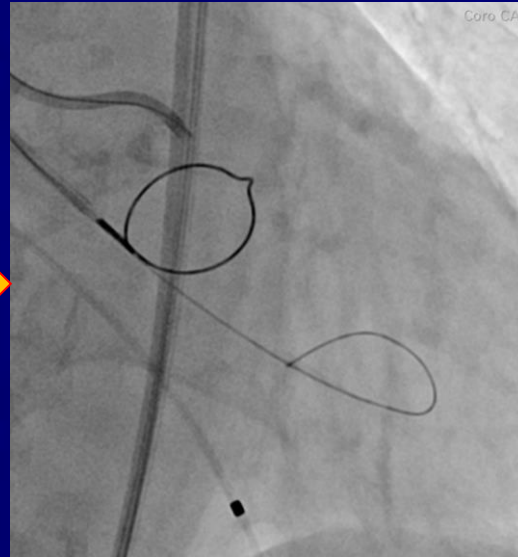
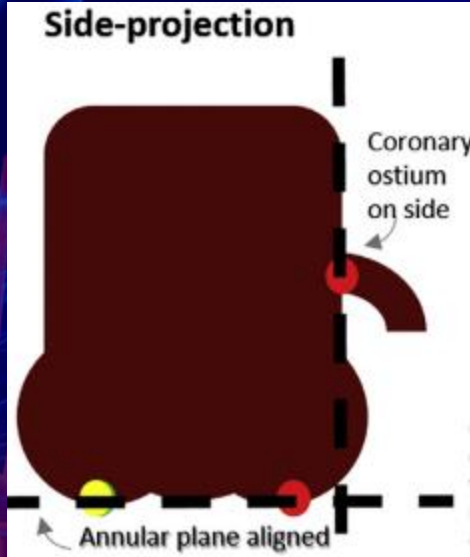
2x 6Fr sheath
for BASILICA



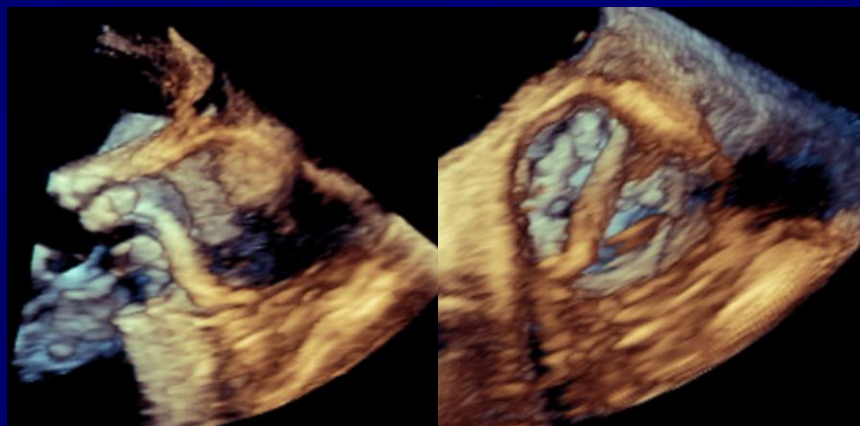
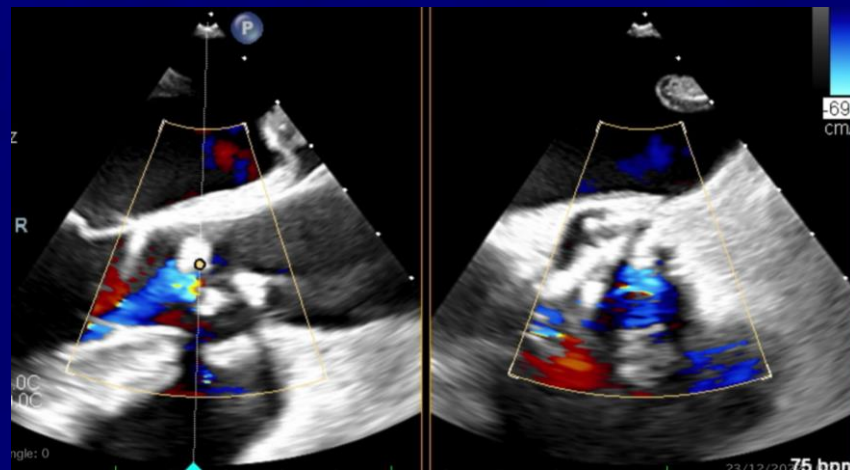
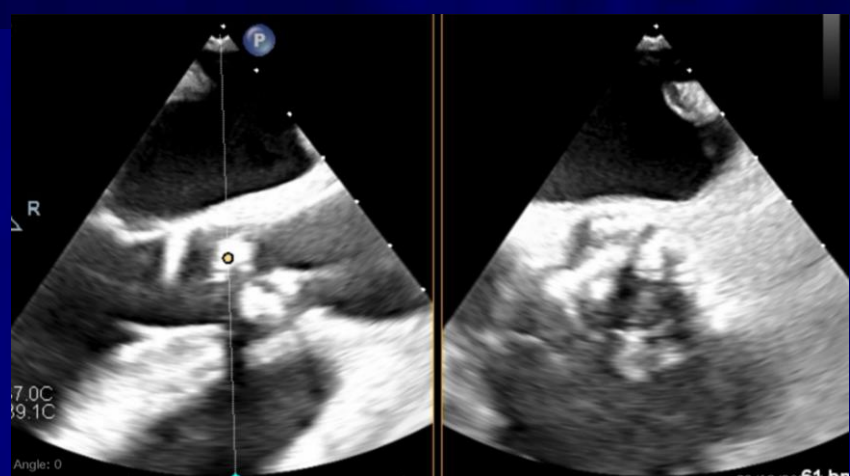
BASILICA Setup with CT fusion



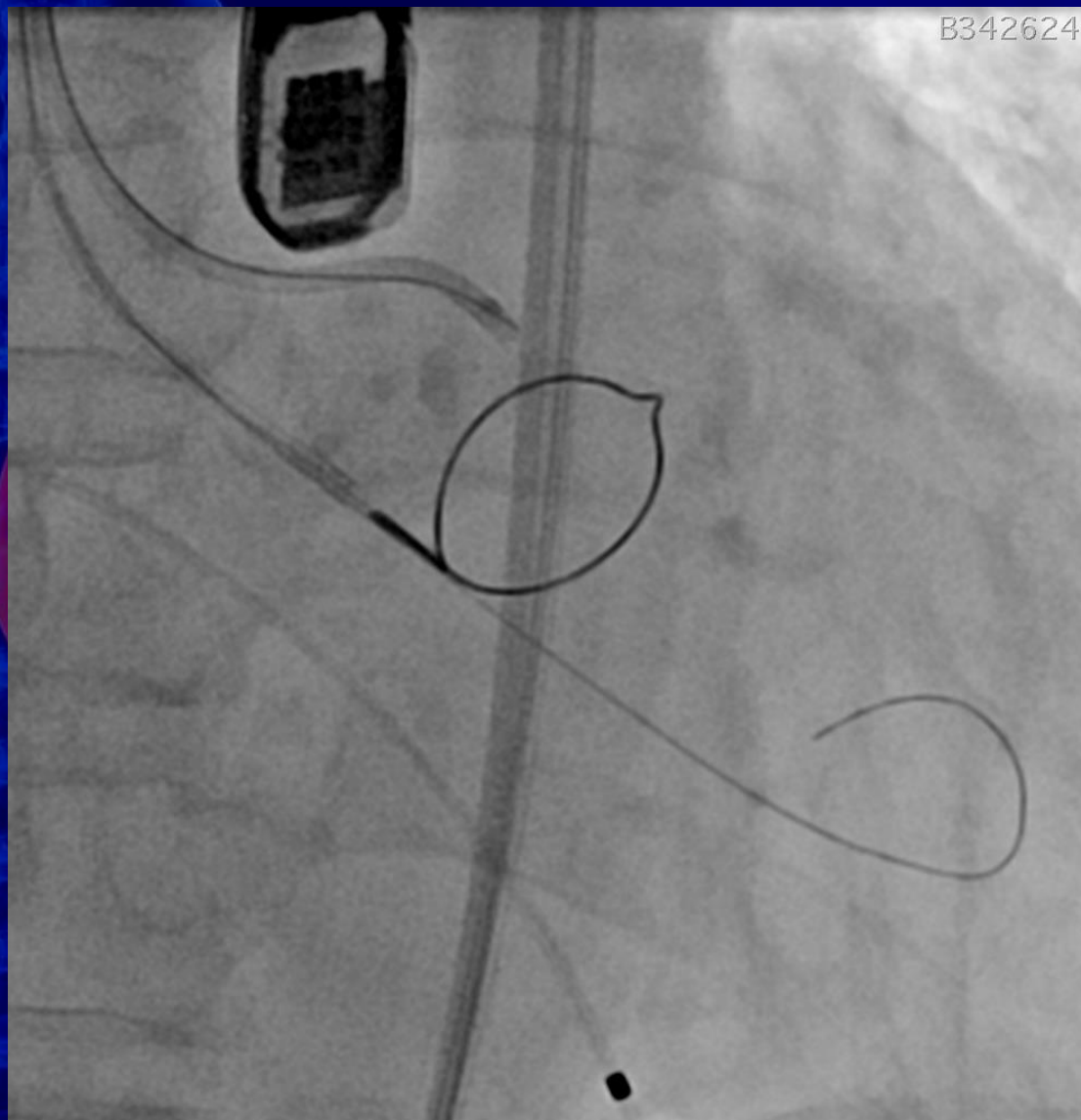
Orthogonal planning

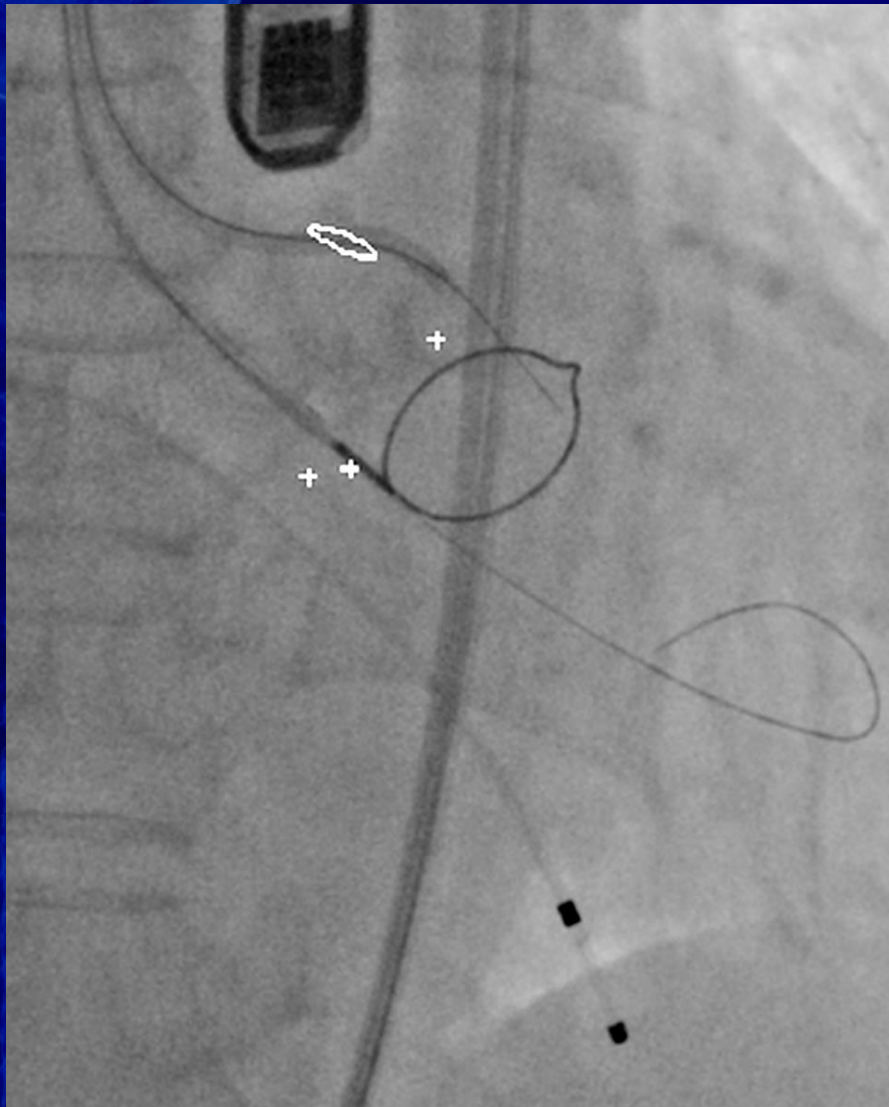


TEE Guided LCC engagement



Astato XS20 crossing of LCC with 70W cut



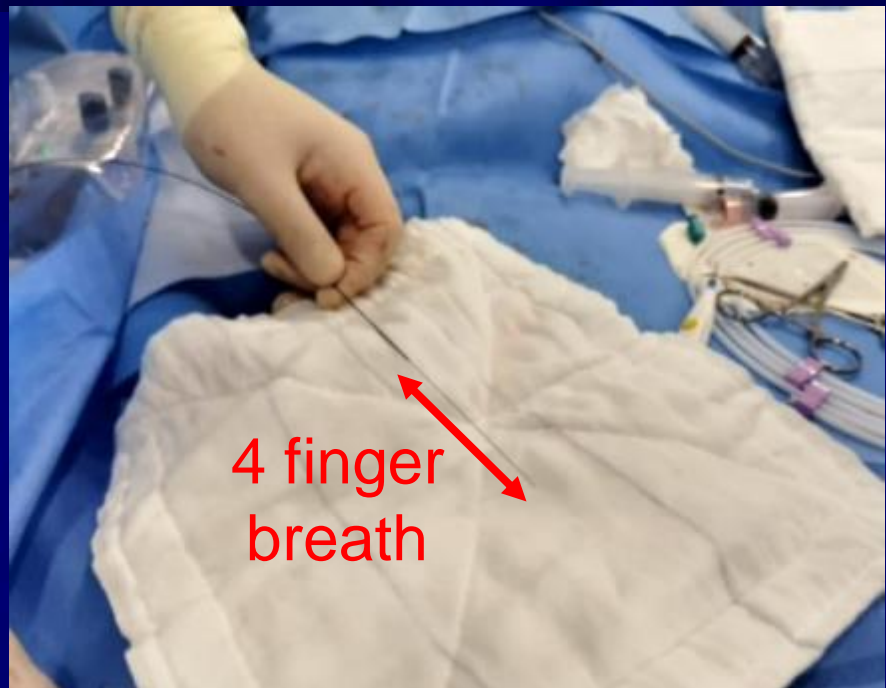


Gentle wire advancement
without electrifying

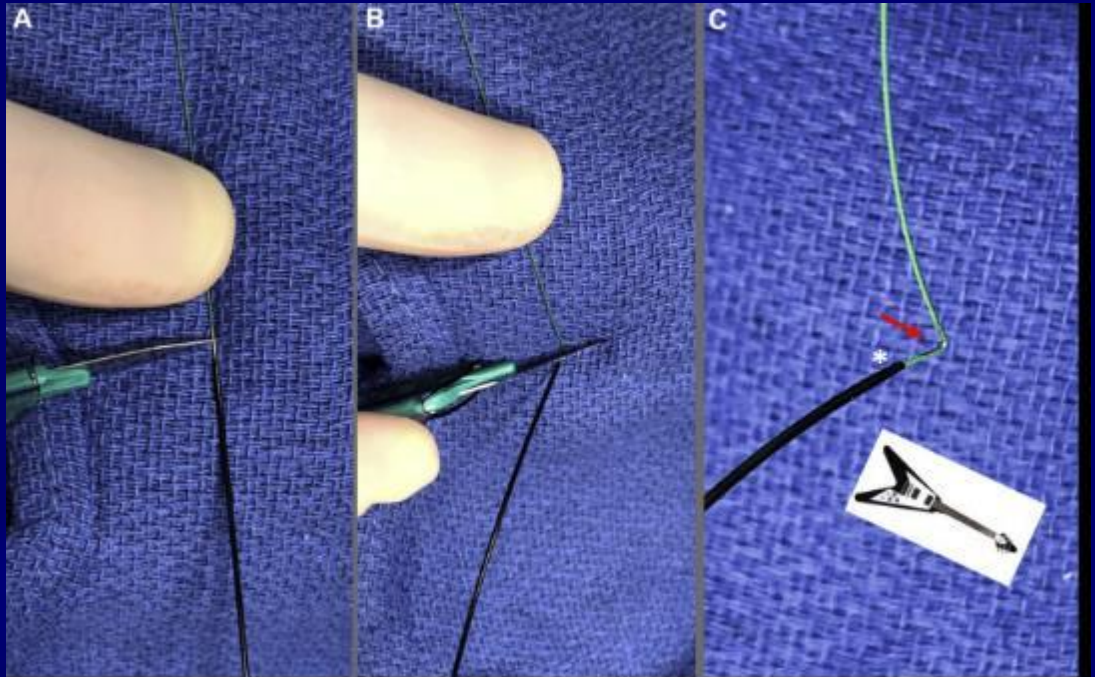


Snaring of Astato

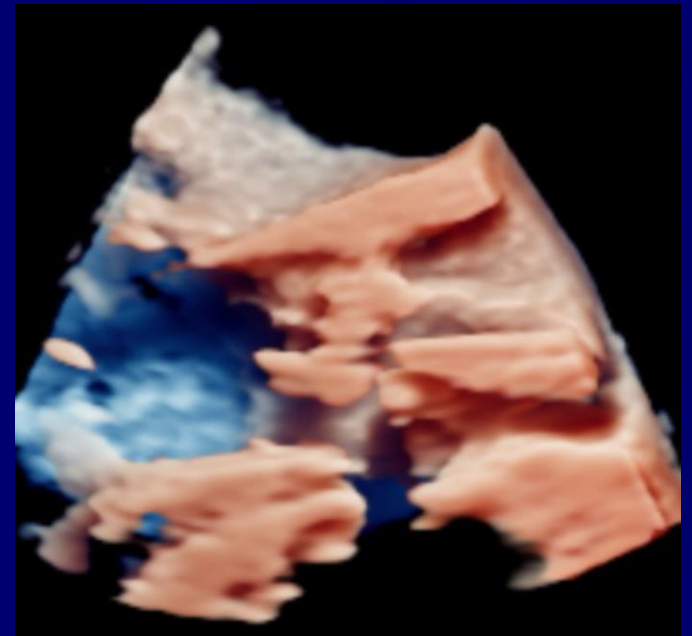
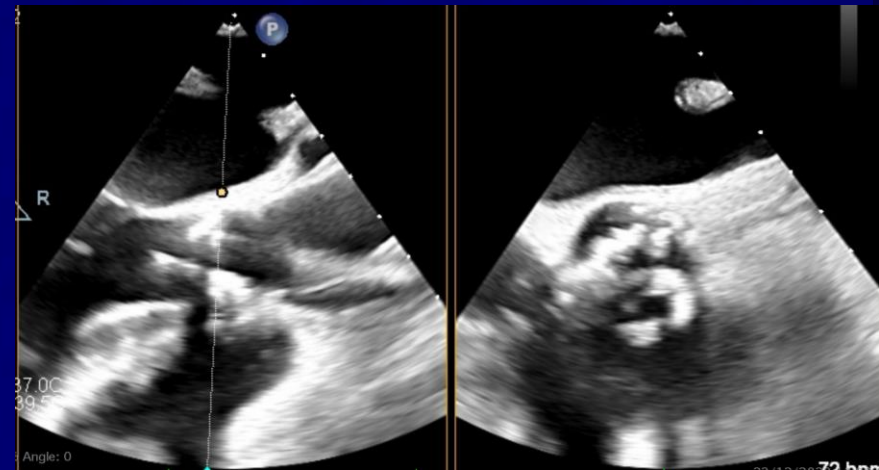
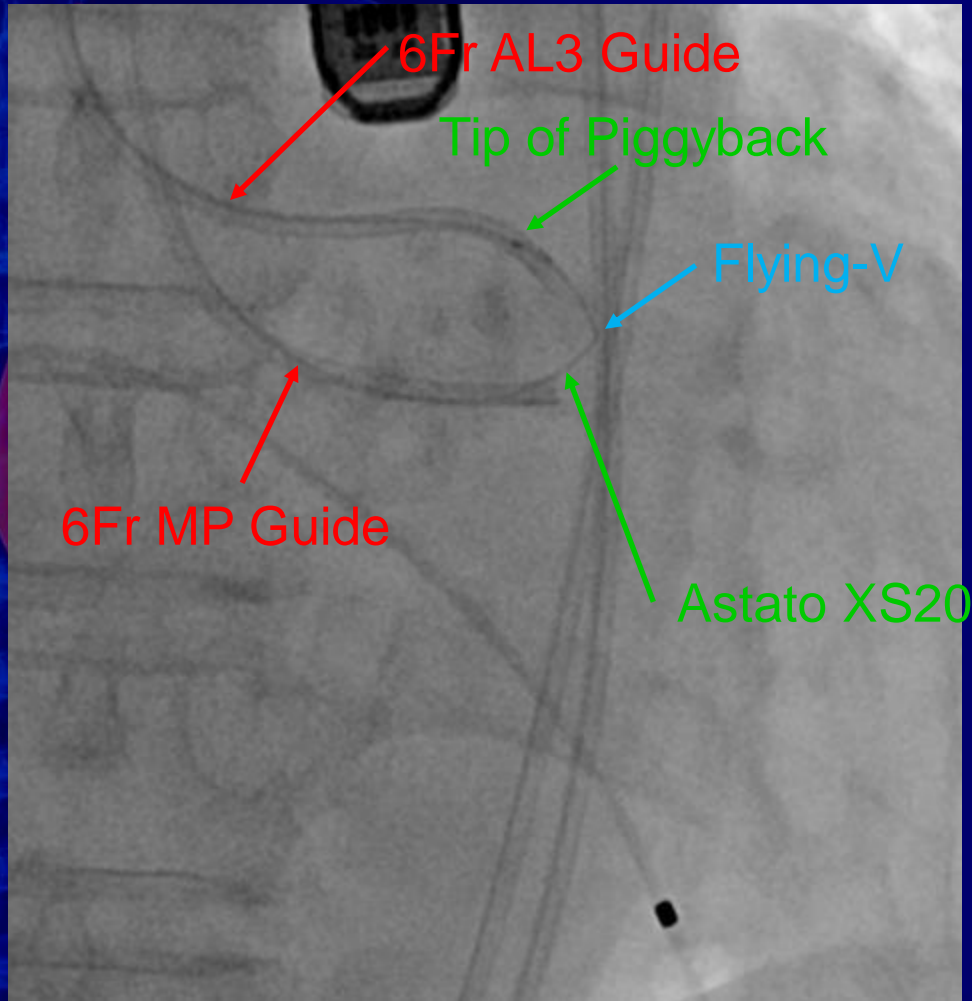
Advancement of piggyback catheter along Astato

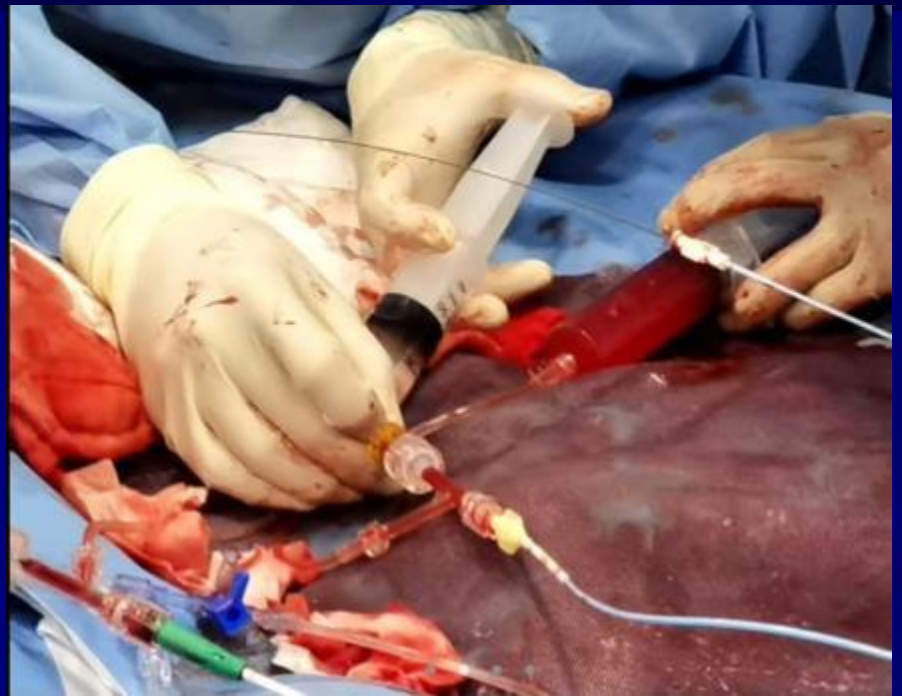


Forming of 'Flying-V'

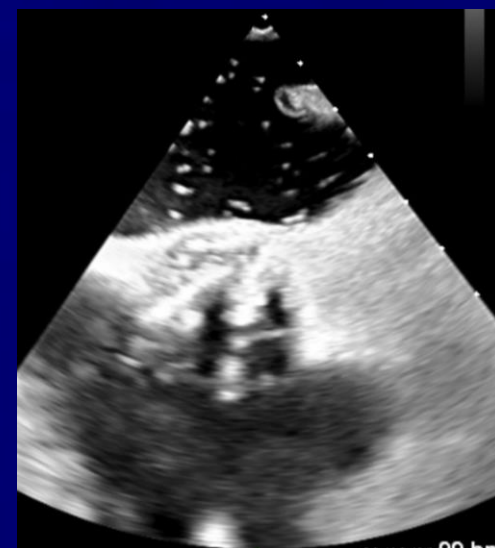
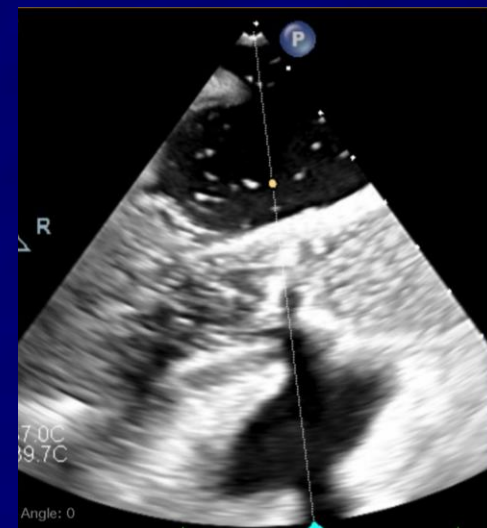
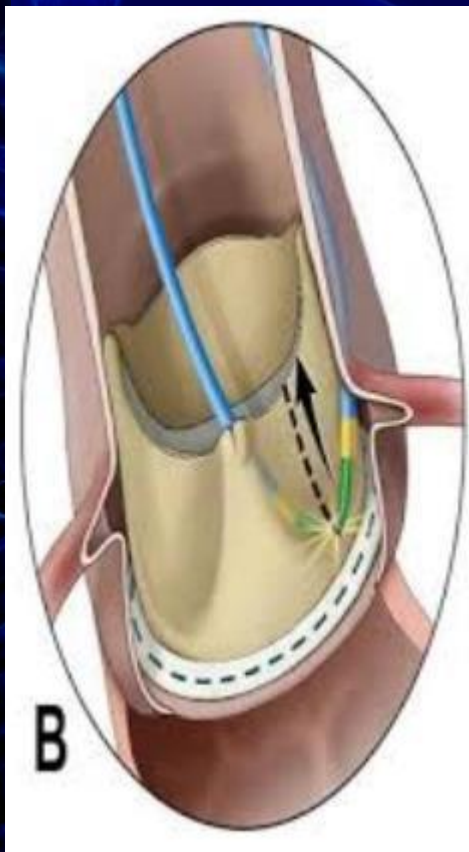


Externalisation of Astato and sending of 'Flying-V' with TEE confirmation of flying-V position

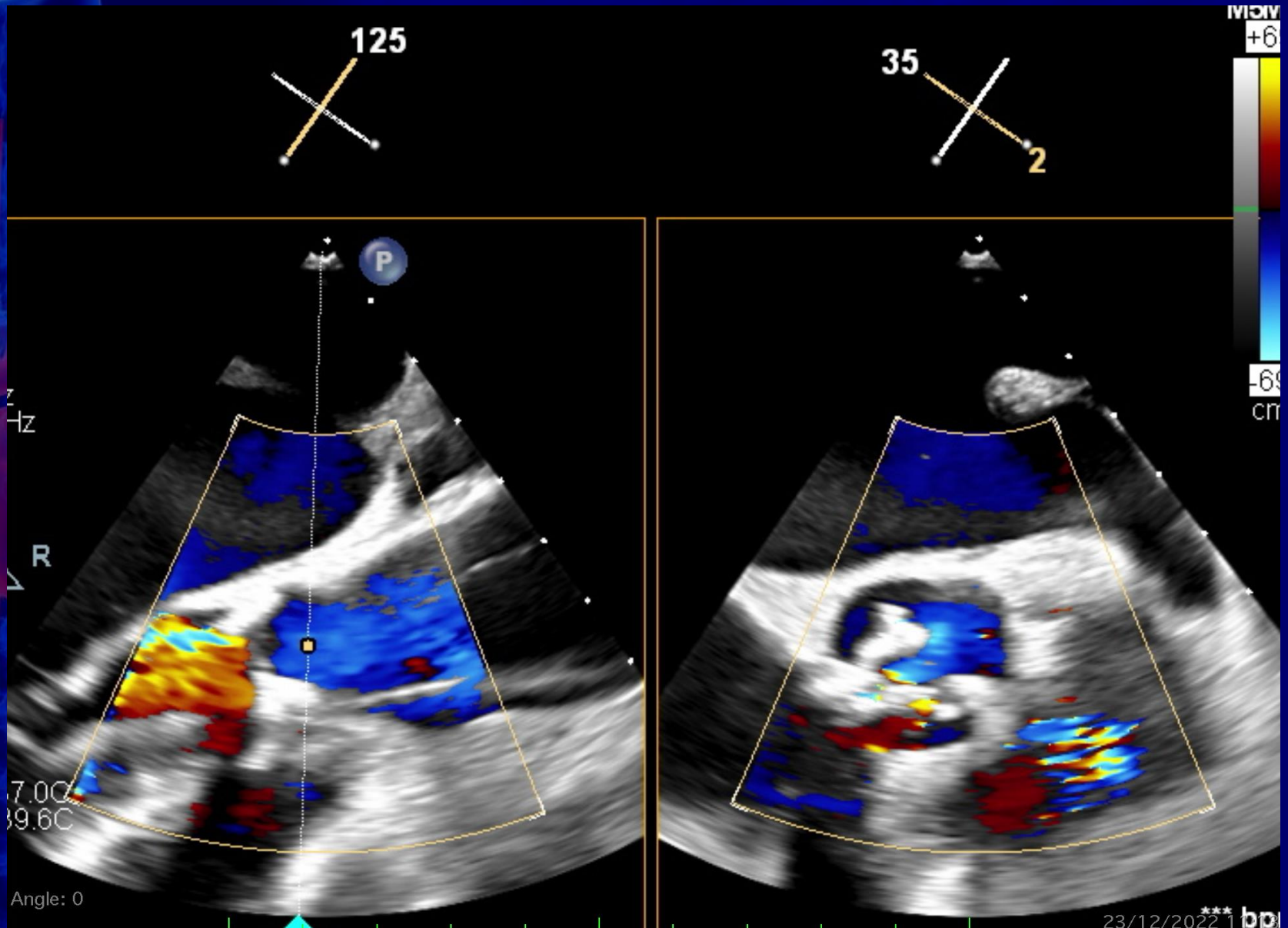




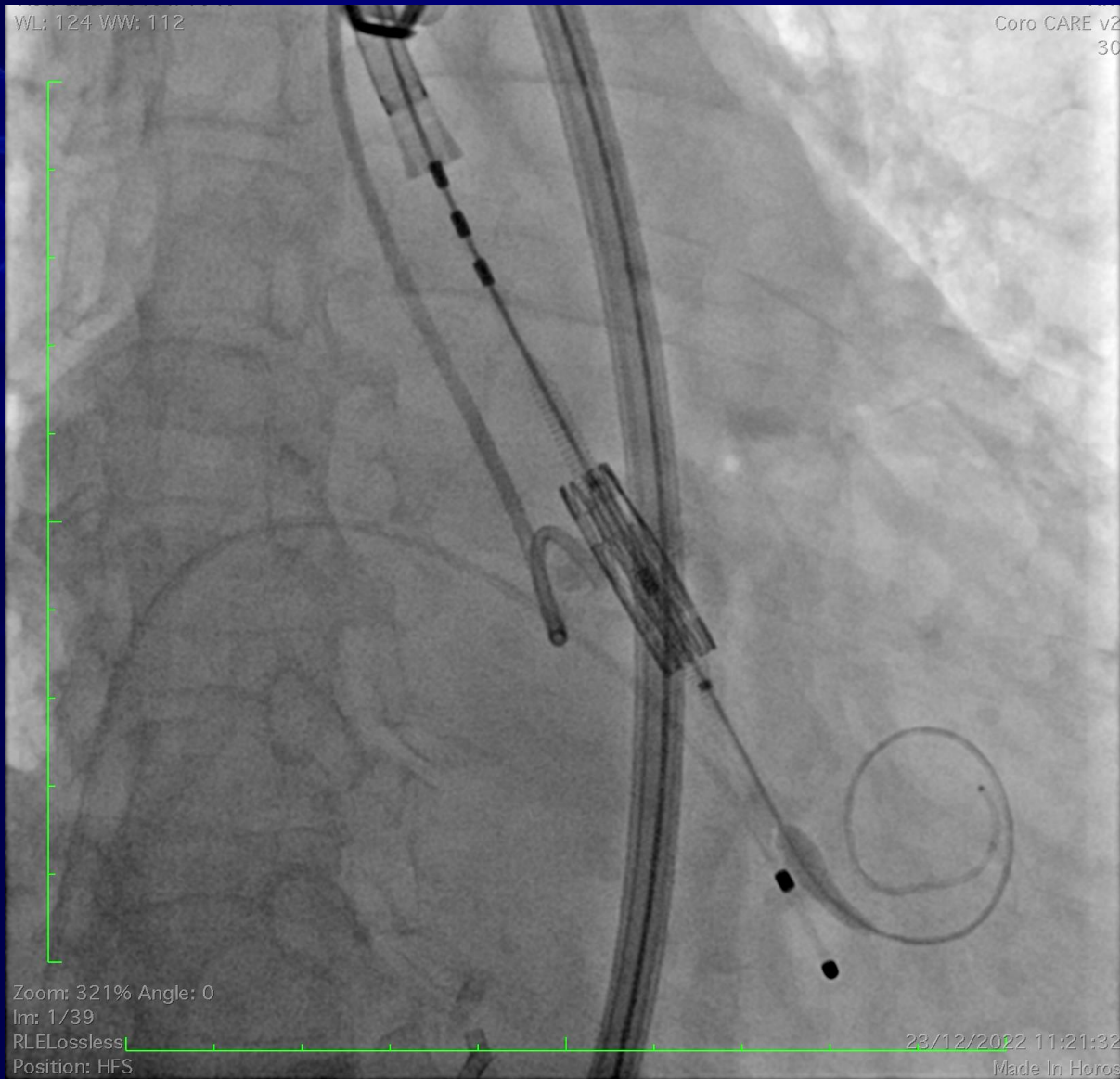
Leaflet laceration at 100W



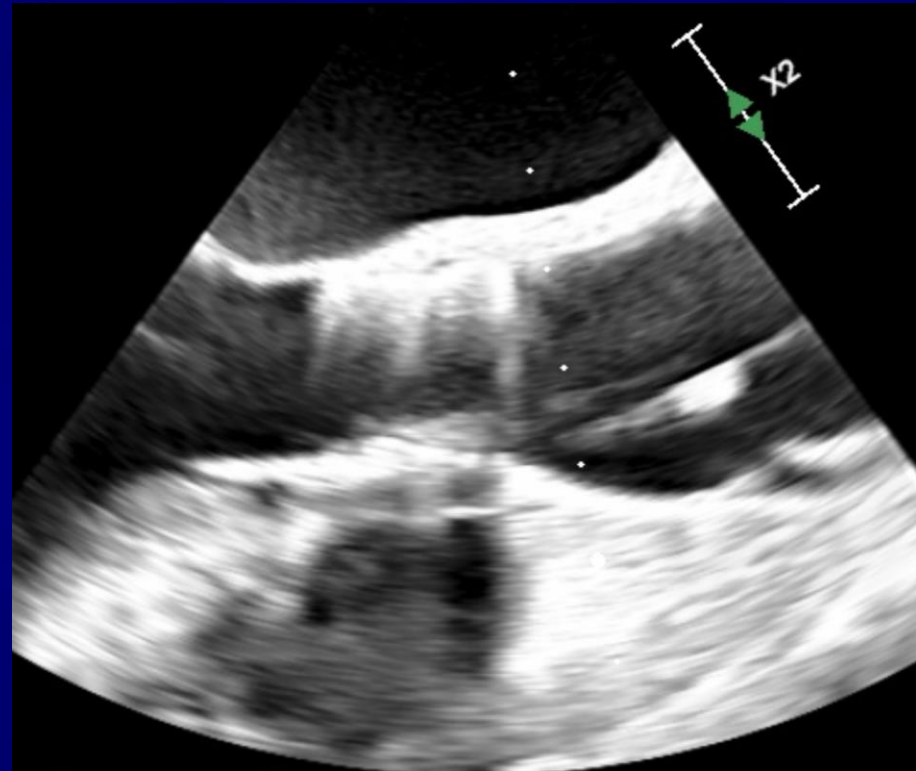
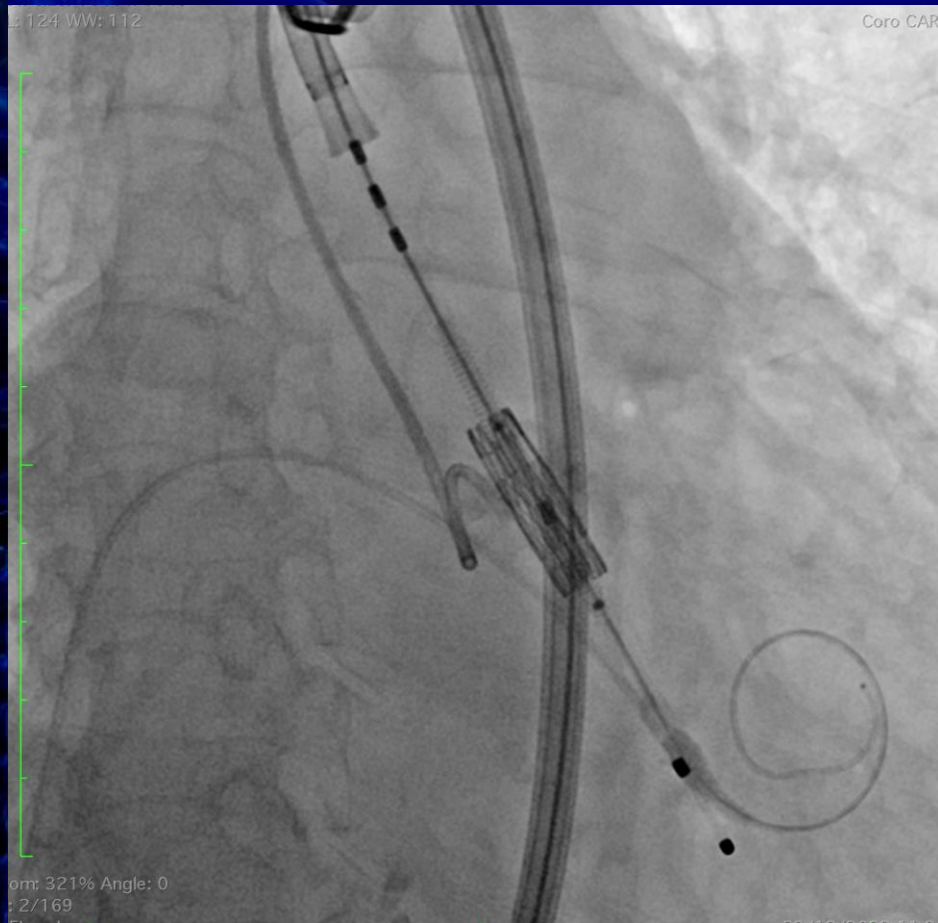
TEE post BASILICA



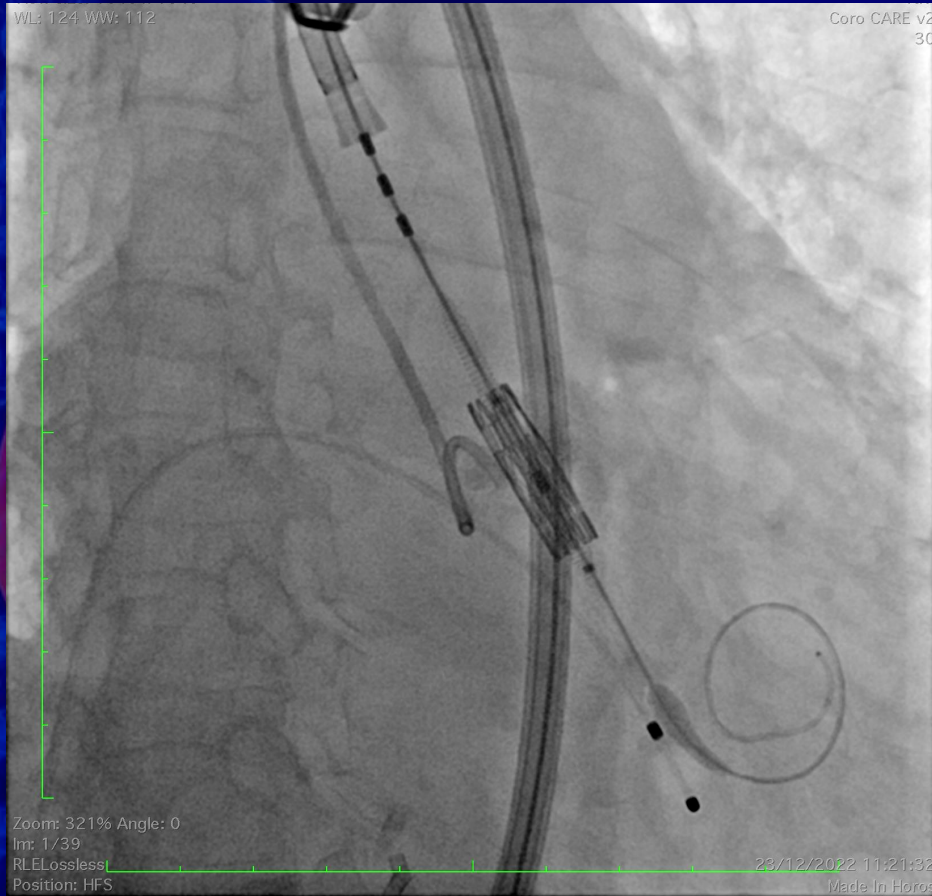
Post BASILICA Aortogram



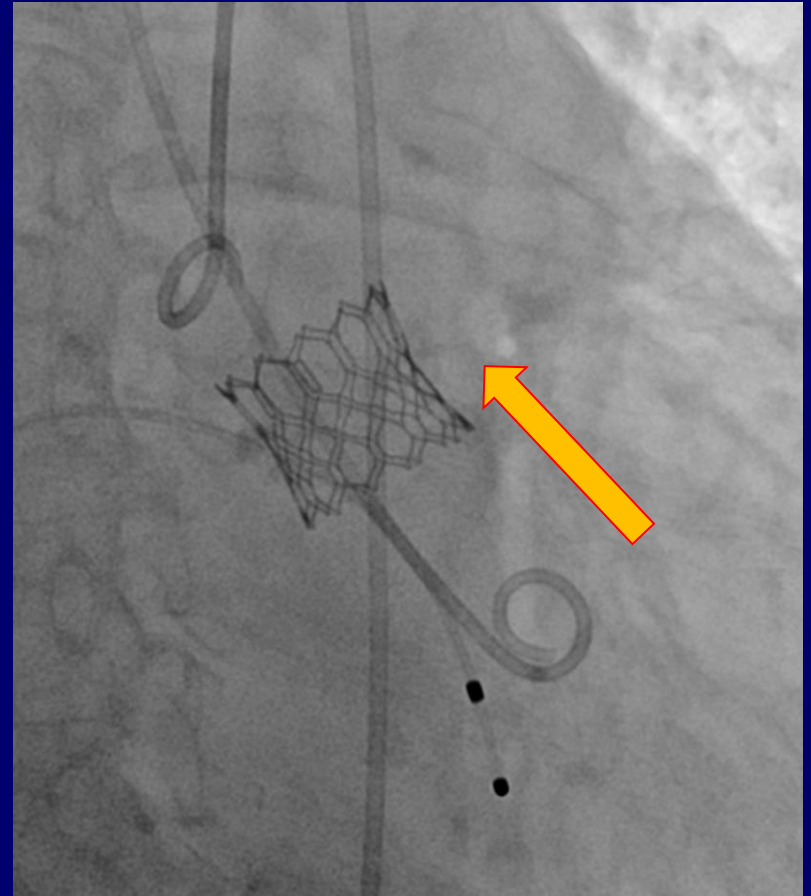
23mm S3 (-1 cc) deployment



Patient's BP rapidly dropped after deployment

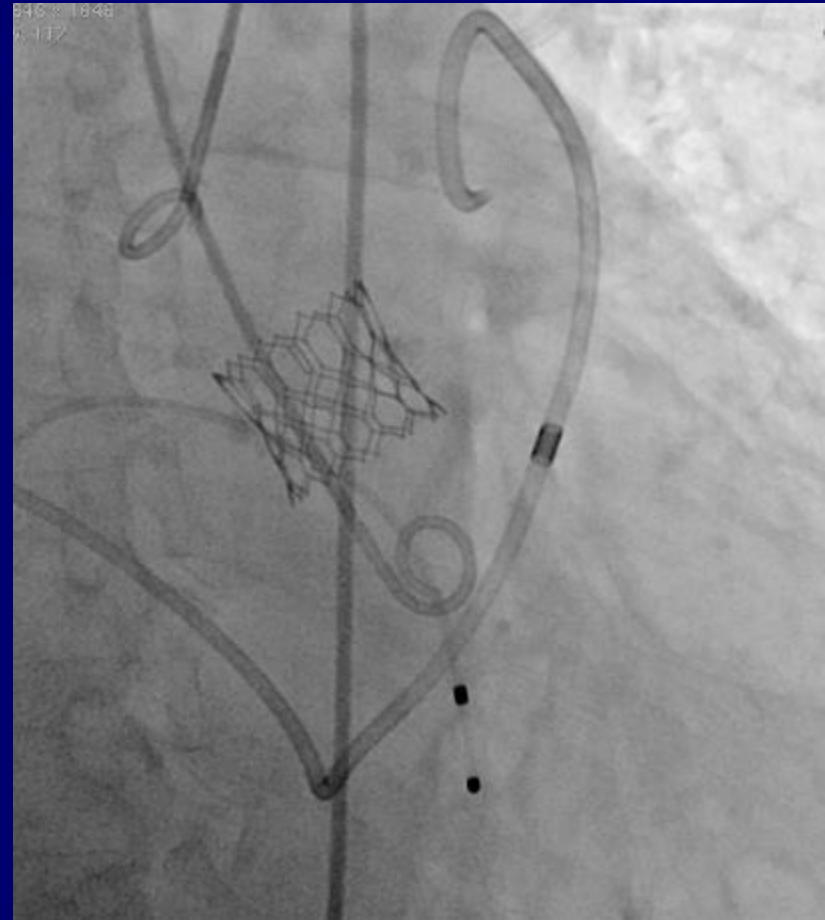
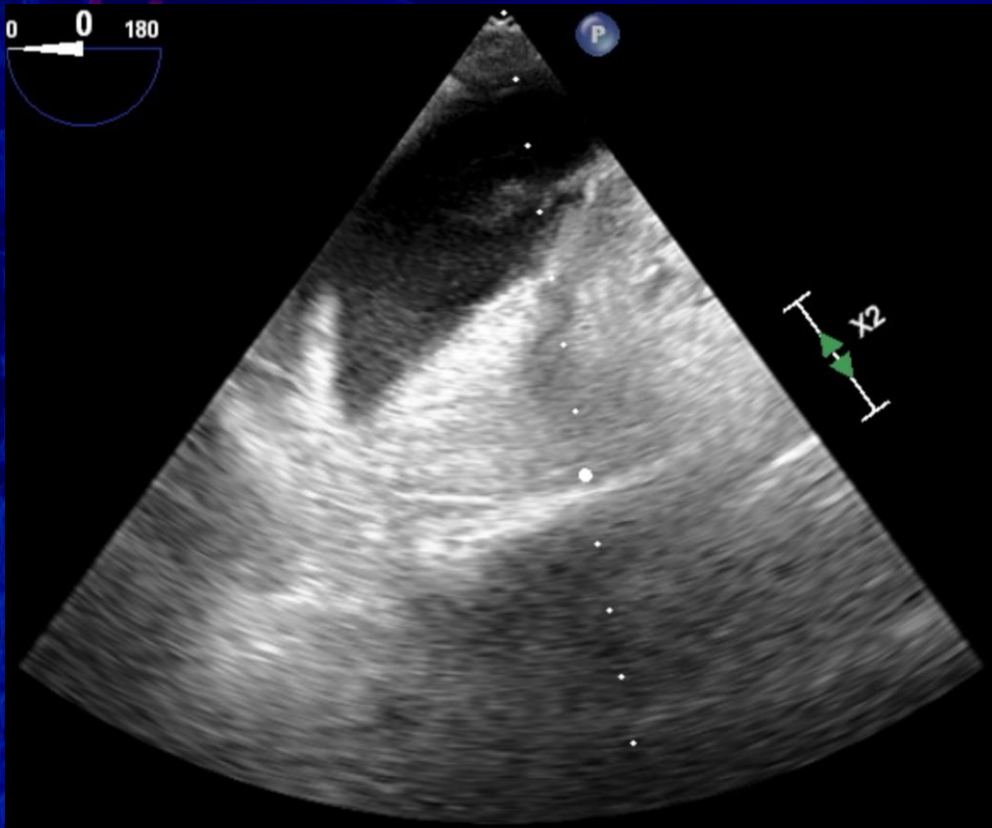


Pre



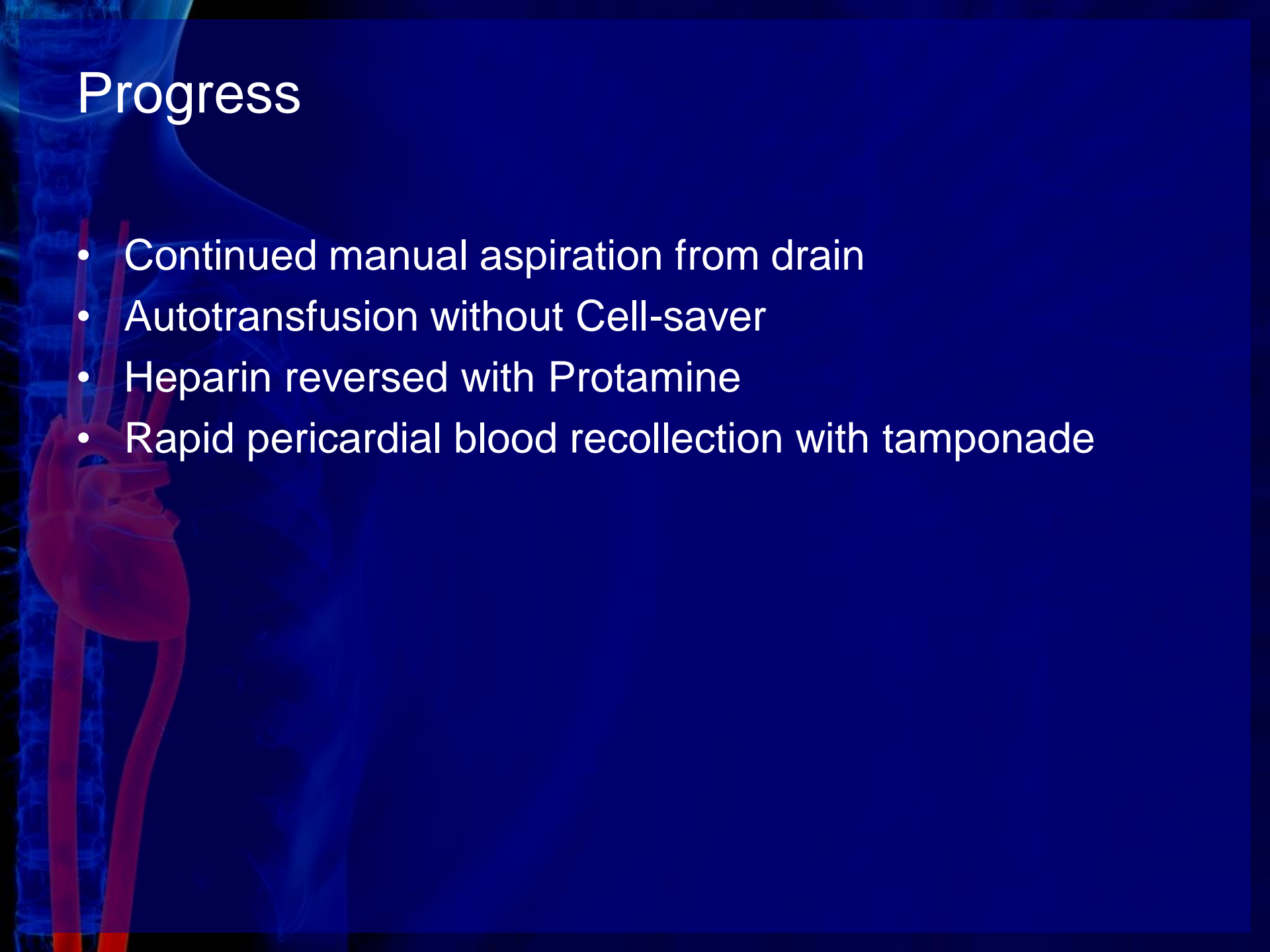
Post

Cardiac Tamponade with Pericardiocentesis done



Progress

- Continued manual aspiration from drain
- Autotransfusion without Cell-saver
- Heparin reversed with Protamine
- Rapid pericardial blood recollection with tamponade



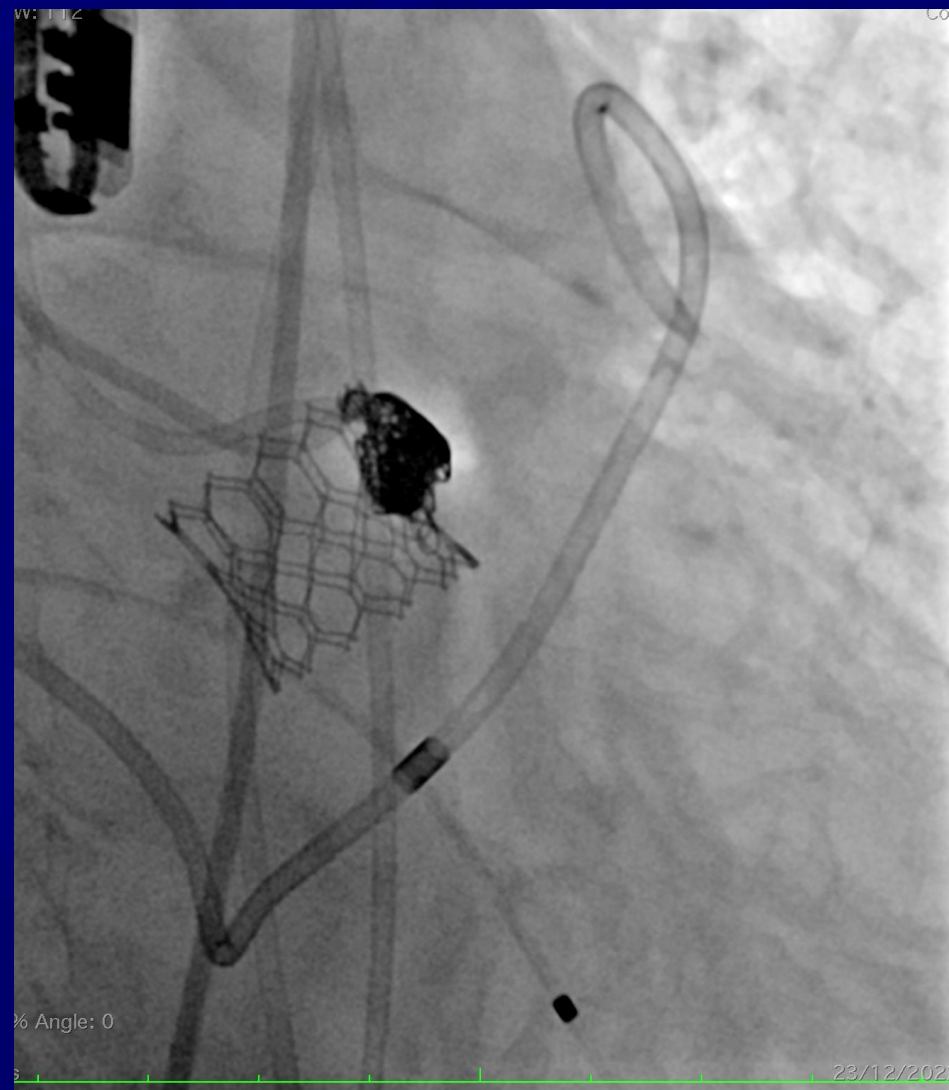
Engagement of LCC sinus with 6Fr AL1 Guide



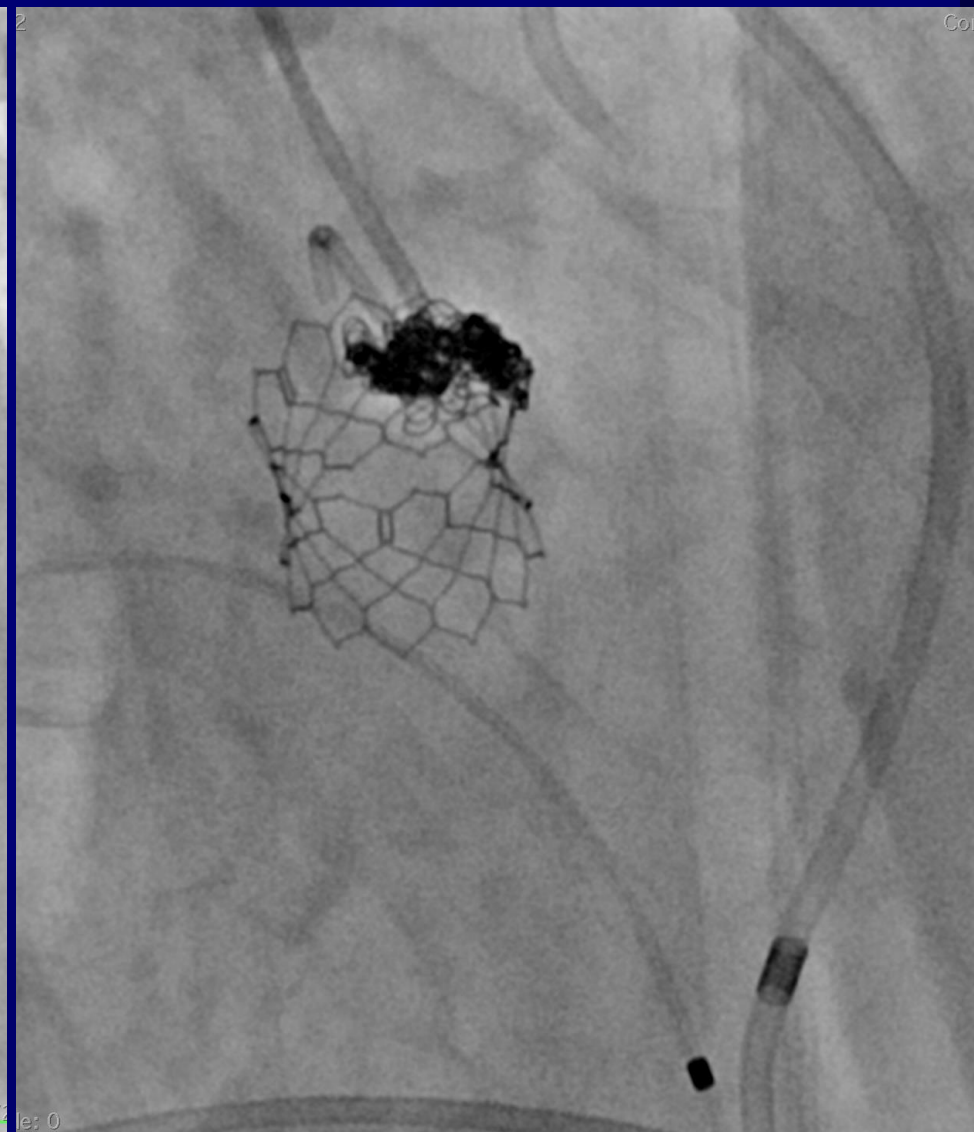
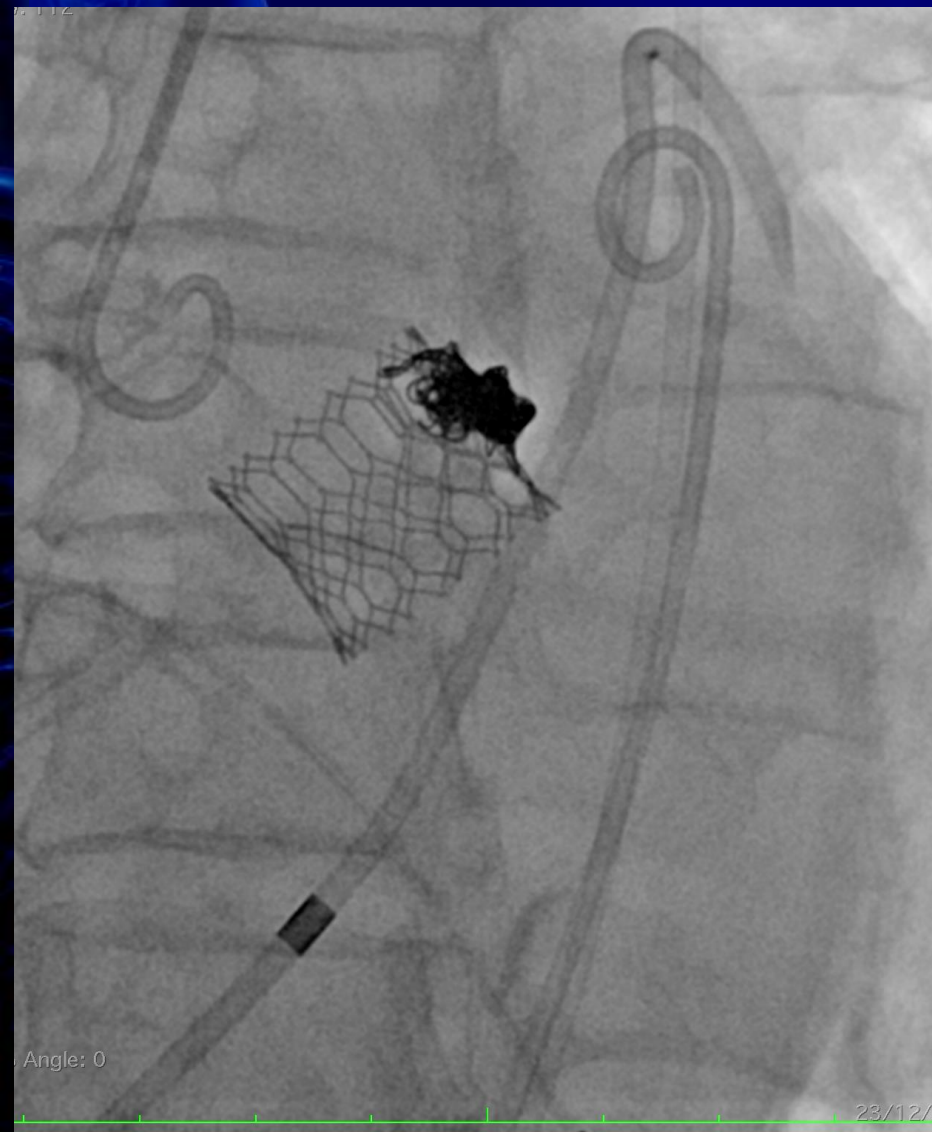
Coiling of Left Coronary Sinus



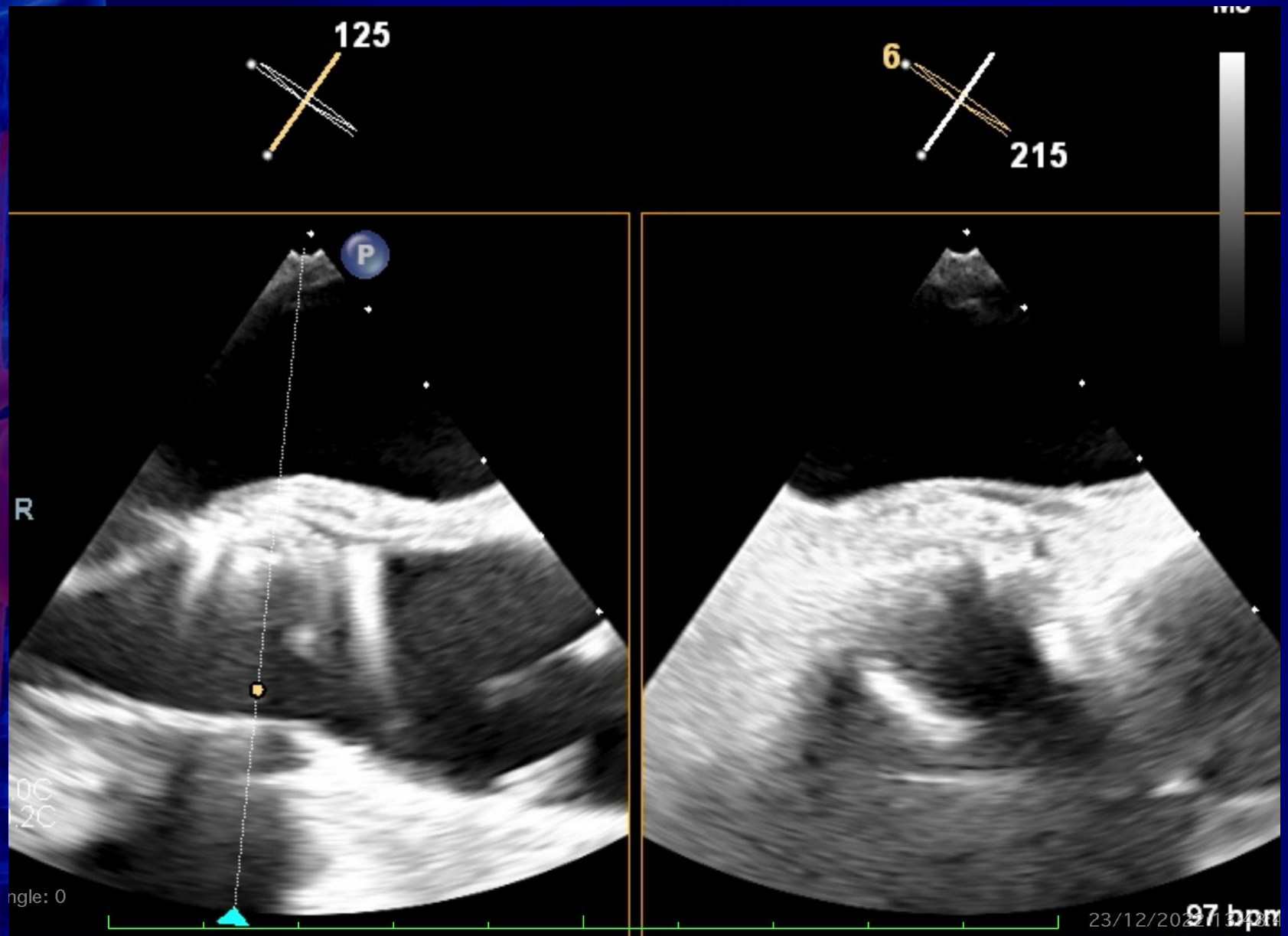
9 Cook Coils and 3 Target Coils deployed



Final Aortogram



Final TEE



Back to CCU

- BP on highside with SBP ~180mmHg, requiring nitrocline infusion
- <100ml output from pericardial drain overnight
- Post-op TTE: LVEF 60-65%, TAVR function well
- Weaned off ventilator on post-op D1
- GCS 15/15, alert and oriented

Followup CT (Day 4 post-op)



Summary

- BASILICA can effectively help patients with **low coronary artery** to undergo TAVR, especially for patients with prohibitive surgical risk
- BASILICA was initially developed to cut **bioprosthetic valve**, but could also be done for **native valve**
- More difficult to navigate towards cutting target in **native valve** due to **lack of surgical valve landmark** and often with **more calcium deposition**
- Good understanding of **plugs** or **embolisation coil** brands, types and character can help salvage **annular rupture case** without open heart surgery
- **Autotransfusion** can save life! (even without cell saver)



Twitter: MichaelChiangCS

Thank You!

