

# When and when not to close CAF?

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# Disclosure and Acknowledgement

- Adapted from a chapter entitled “Closure of CAF”
- Cardiac Catheterization for Congenital Heart Disease: from Fetal Life to Adulthood
- G. Butera, M. Chessa, A. Eicken, J.Thomson
- Sivakumar K, Mullasari A, Dalvi B.

# Definition

- Direct connection between a coronary artery and the lumen of the cardiac chamber, coronary sinus, superior caval vein, pulmonary artery or vein without intervening capillary network

# Incidence

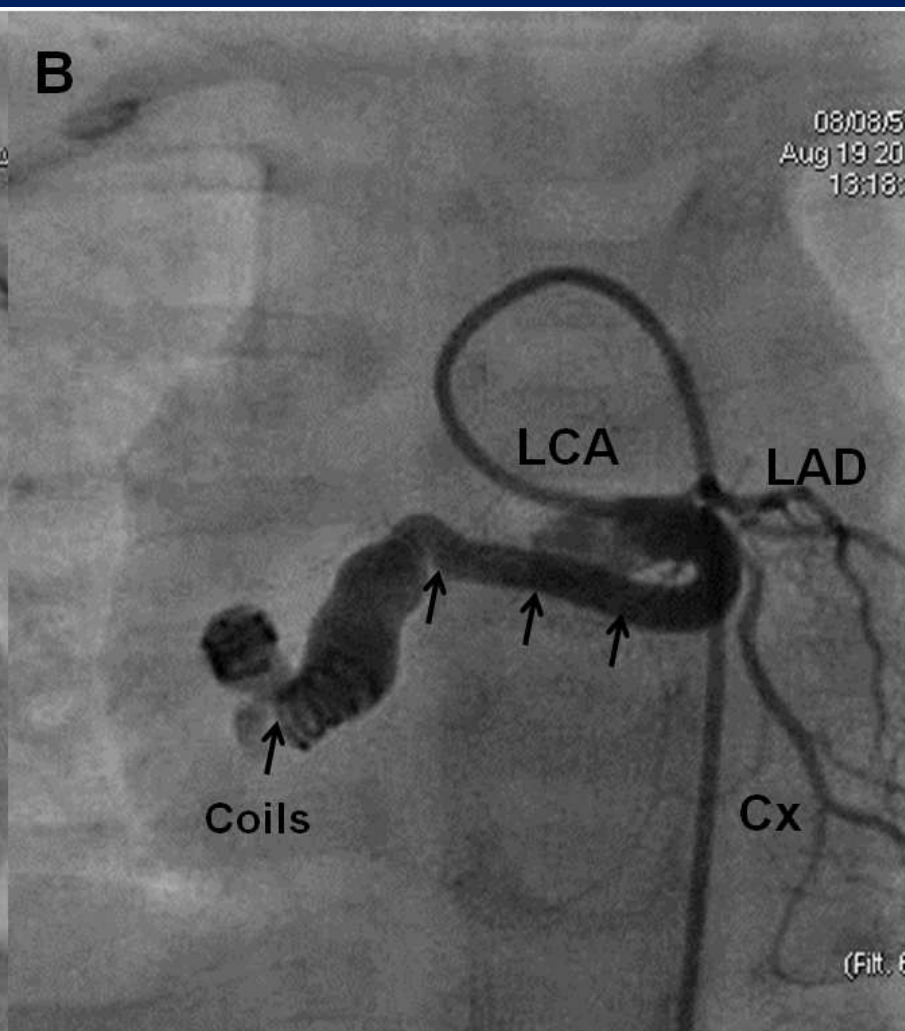
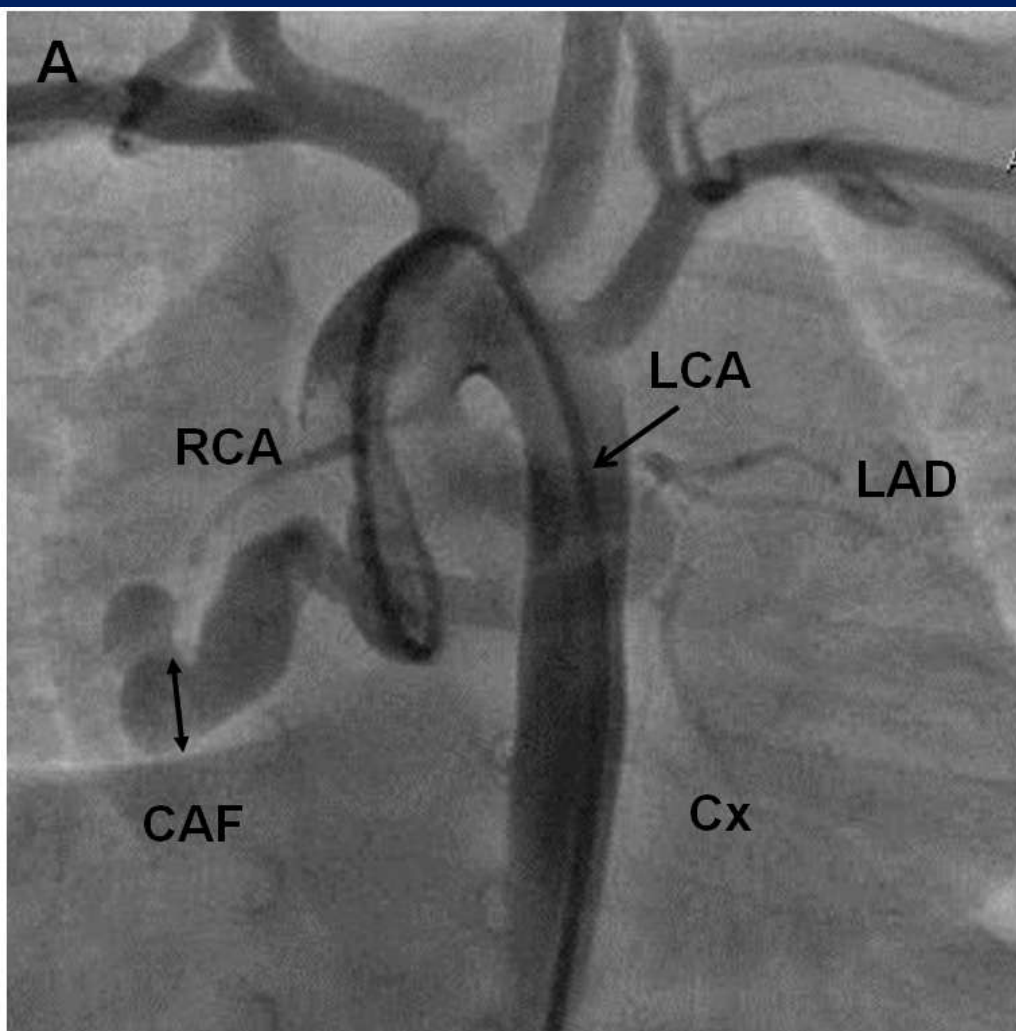
- 126,595 coronary angiograms – 225 had CAVF
  - Incidence of 0.18%
  - 13% of congenital coronary anomalies
- Yamanaka et al; Cathet Cardiovasc Diagn 1990;  
21:28-40

**When to close?**

# Case 1

- CAF arising from LMCA diagnosed in utero
- Confirmed postnatally
- Presented with ***heart failure in infancy***
- Closed with coils

# LMCA to RA : Gianturco coils

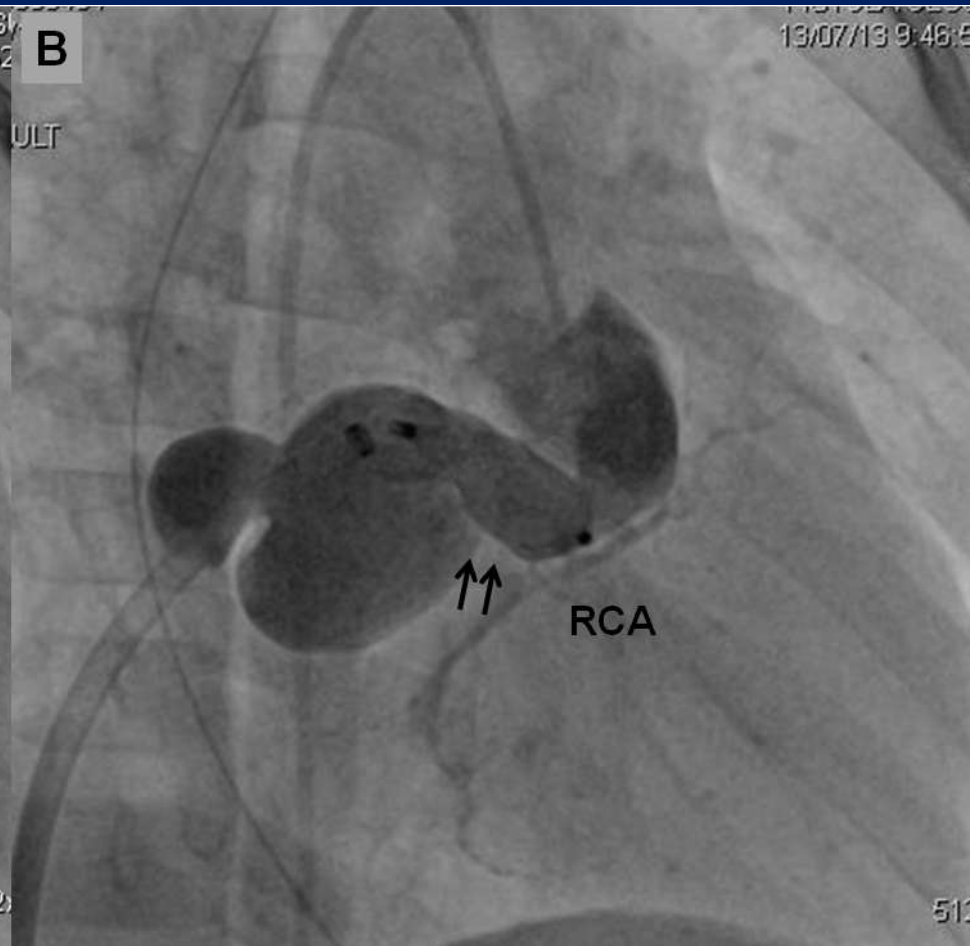
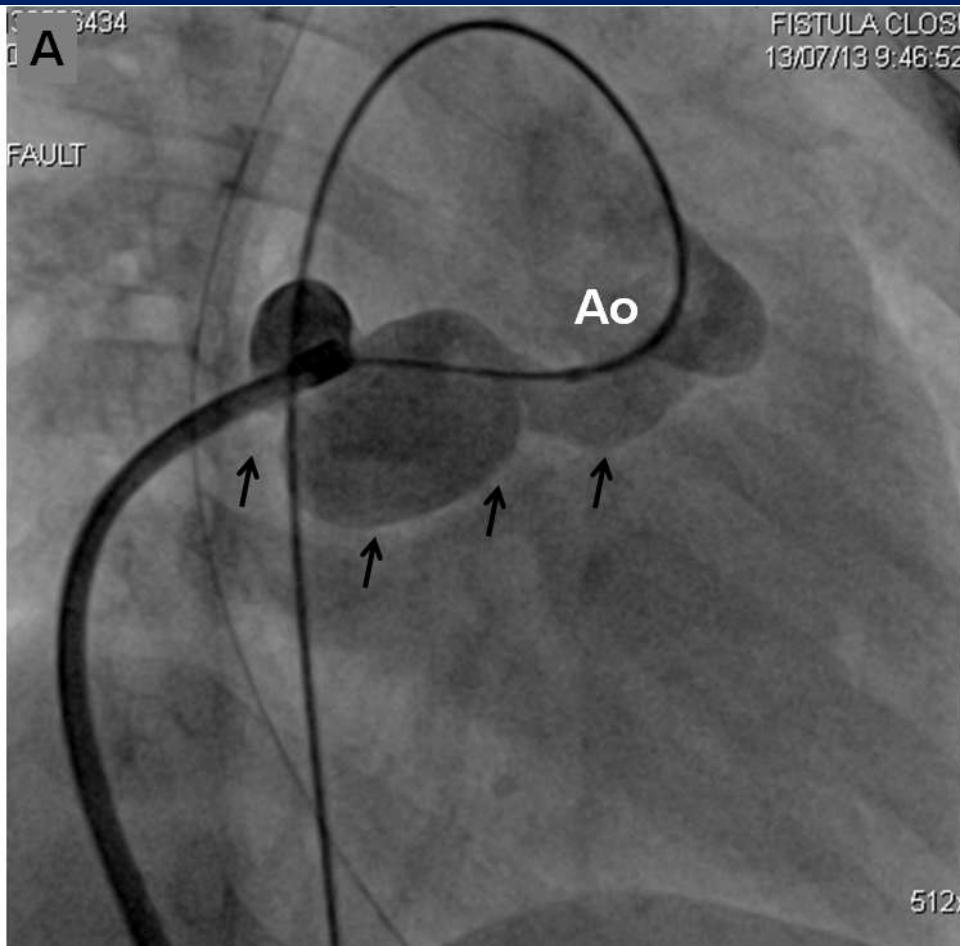


## Case 2

- 4 month old with incidental murmur
- CAF from RCA to RA
- Continued to remain asymptomatic
- ***Rapid progression*** from 5 mm to 11 mm at 1 year



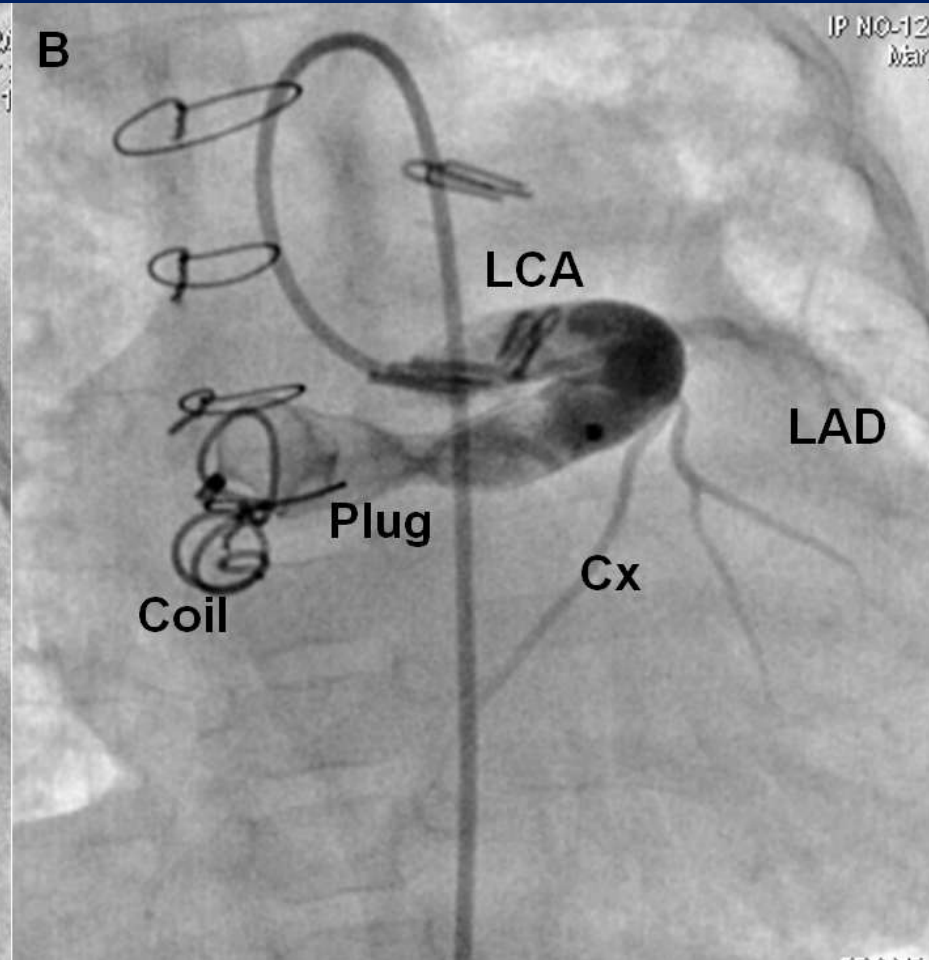
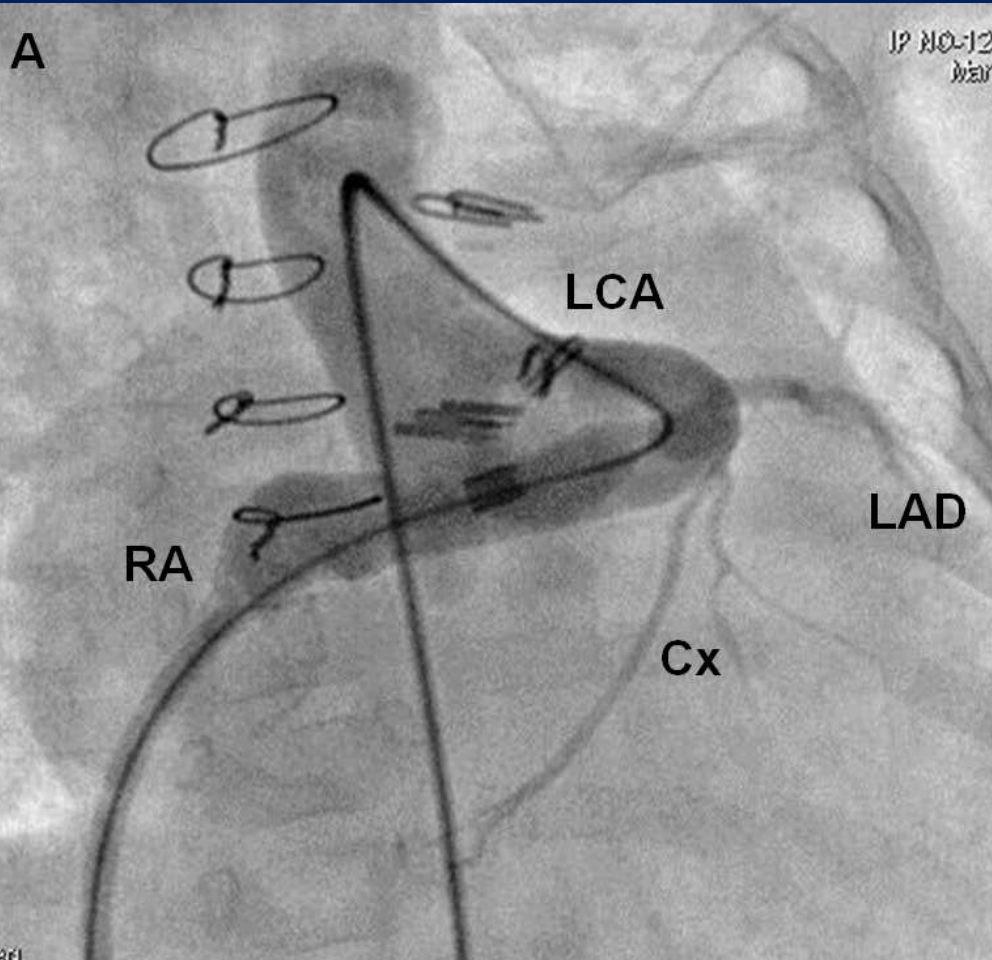
# RCA to RA : ADO I 14 X 12



# Case 3

- LMCA to RA fistula in a newborn
- Presented with heart failure
- Surgical closure
- ***Residual fistula*** remained in failure complicated by pneumonia

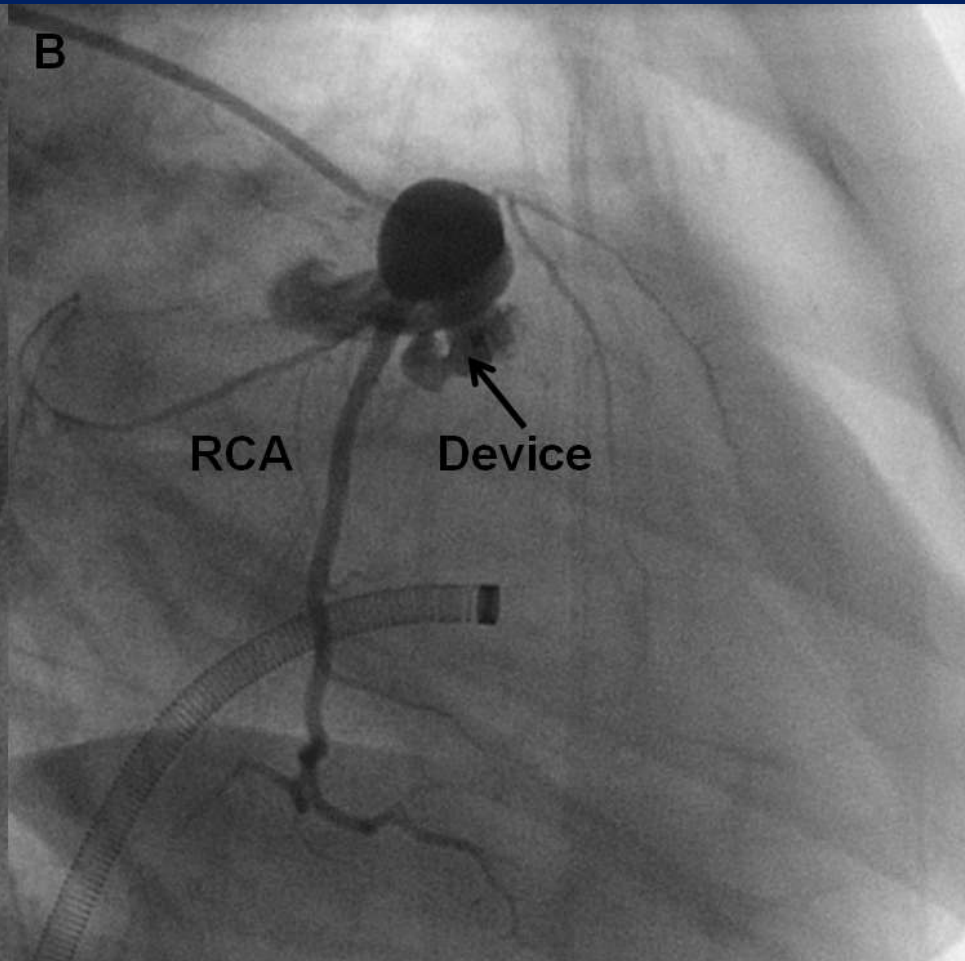
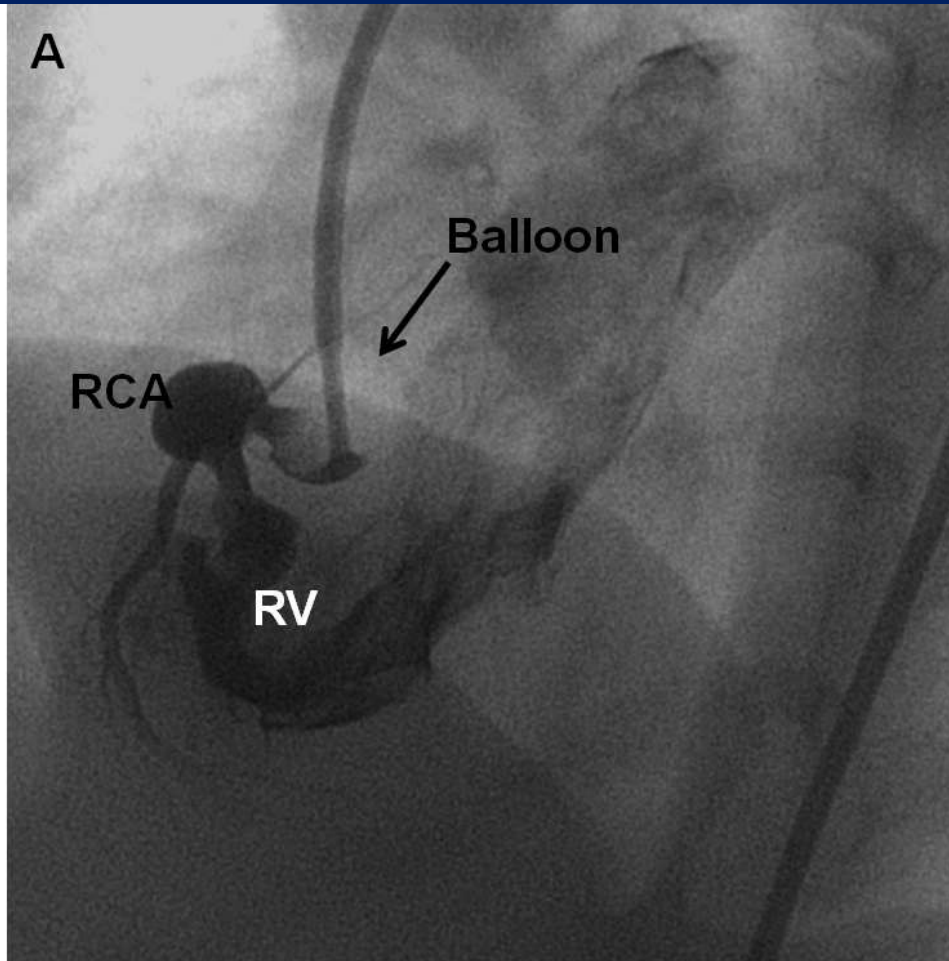
# LMCA to RA: AVP II + Gianturco coil



# Case 4

- 7 year old asymptomatic child
- RCA to RV fistula
- $Q_p:Q_s = 1.7:1$
- ***Magnitude of the shunt*** prompted closure

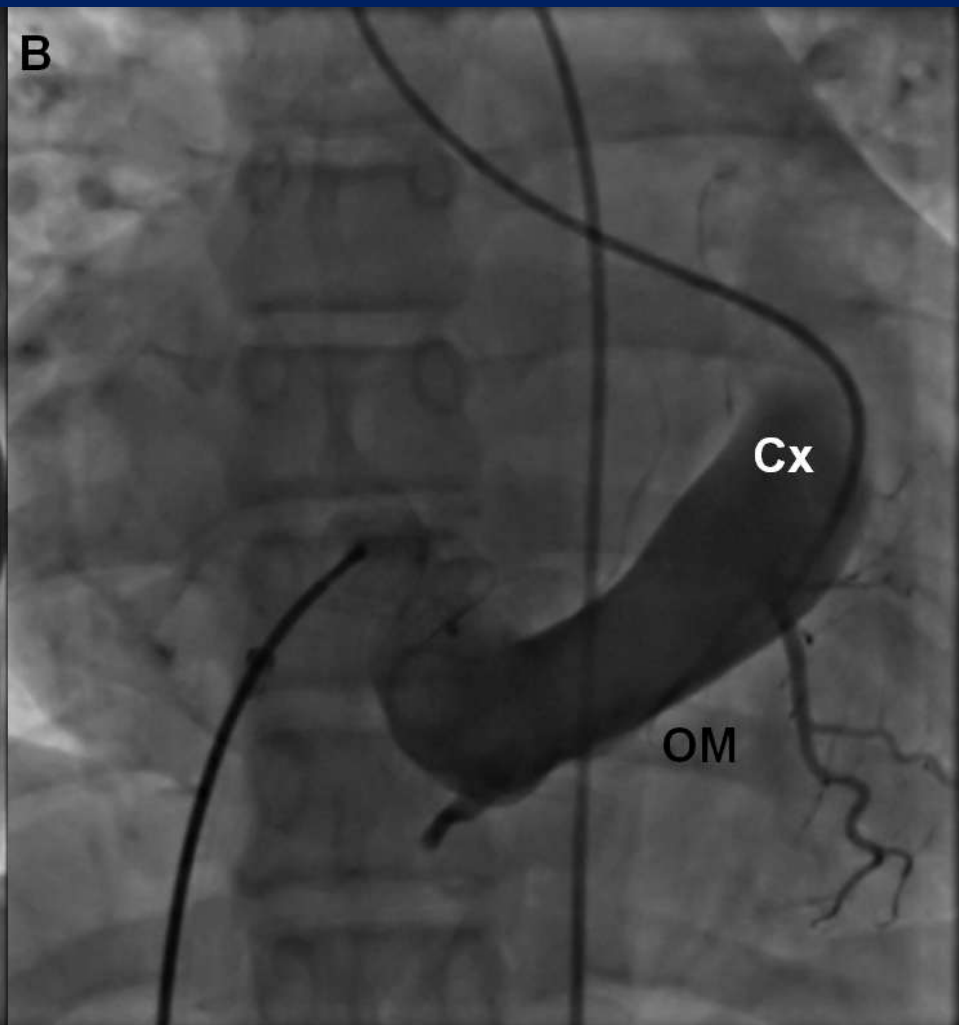
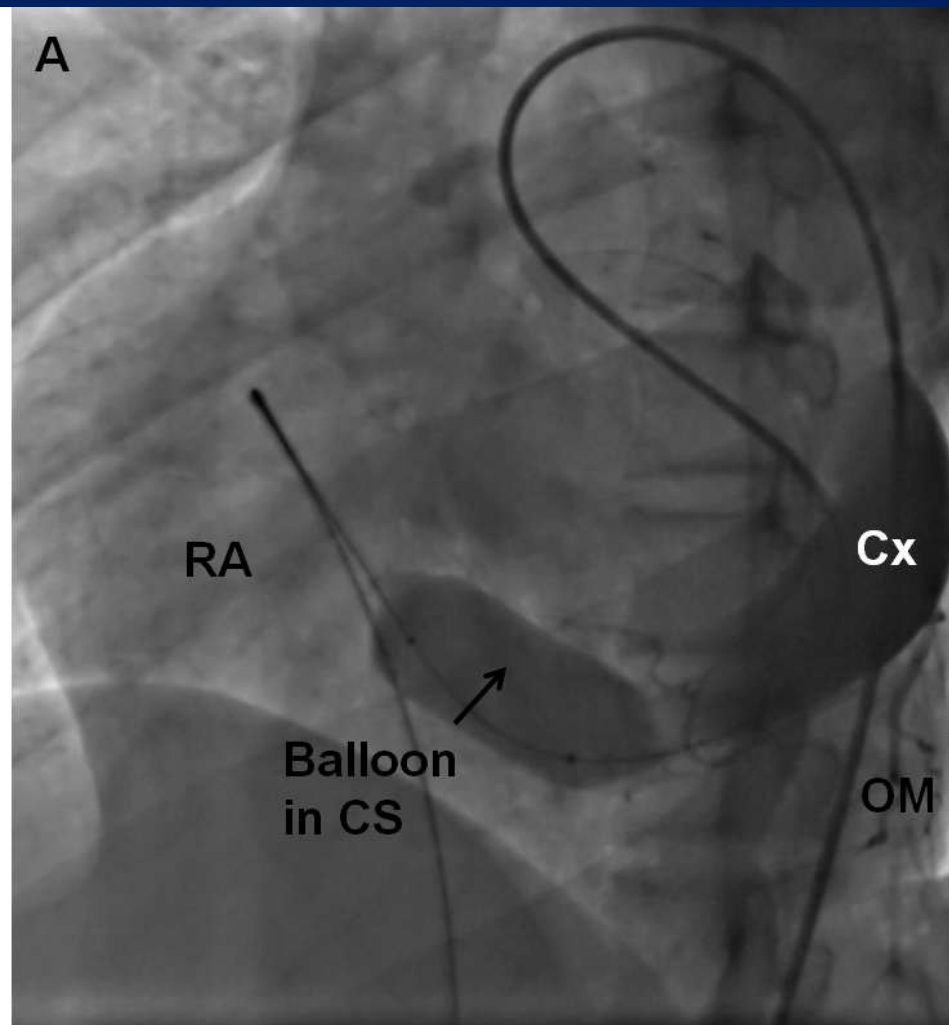
# RCA to RV fistula: ADO I



# Case 5

- 21 year old, asymptomatic
- Detected to have a murmur– Pre-employment
- CAF from LCx to coronary sinus
- ***Qp:Qs = 1.9:1***
- ***Mildly elevated LVEDP and PAP***

# LCx to CS fistula: ADO I

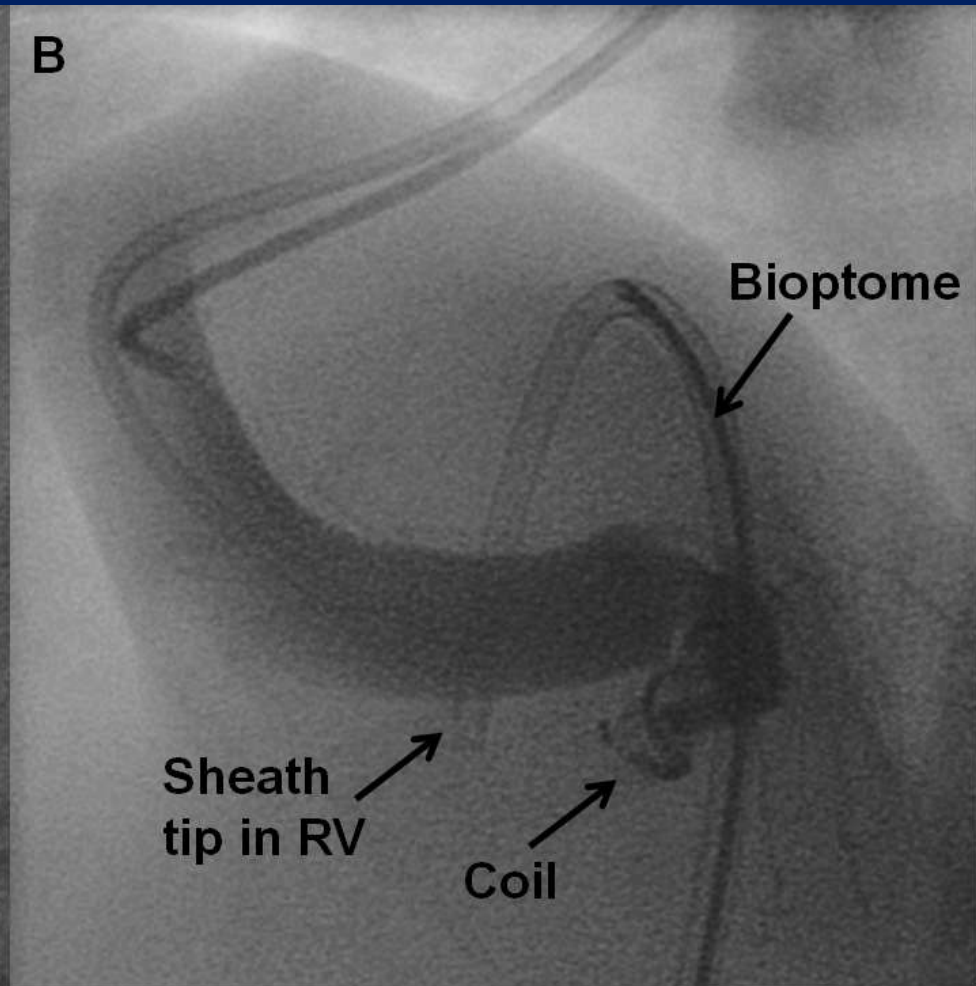
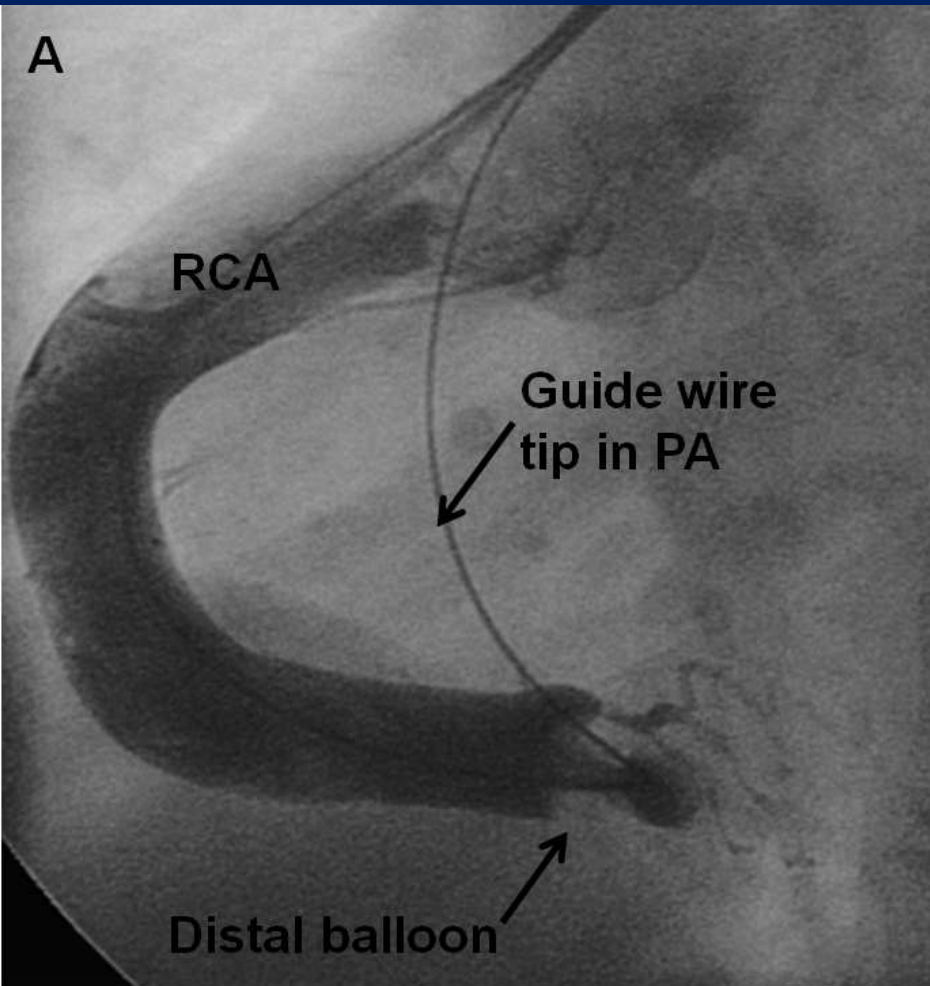


# Case 6

- 8 year old asymptomatic child
- RCA to RV fistula
- Aneurymally dilated RCA all along its length till PDA origin
- Closure was done due to ***threat of rupture***



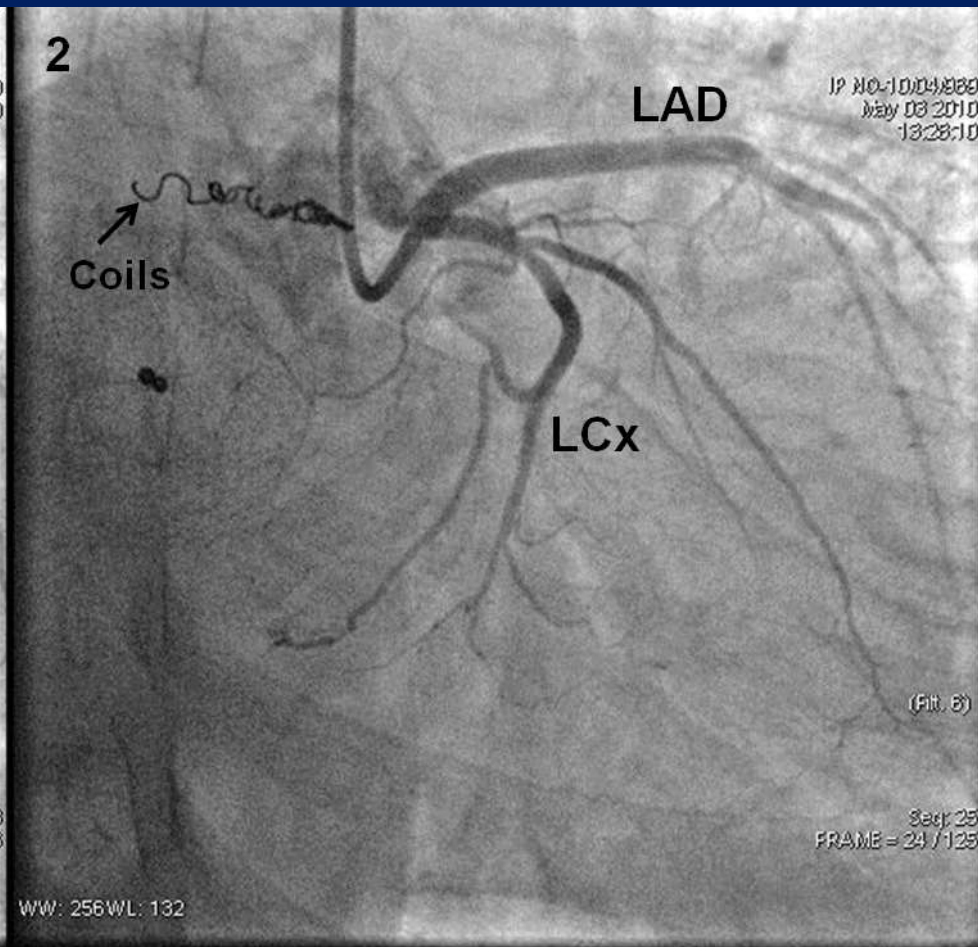
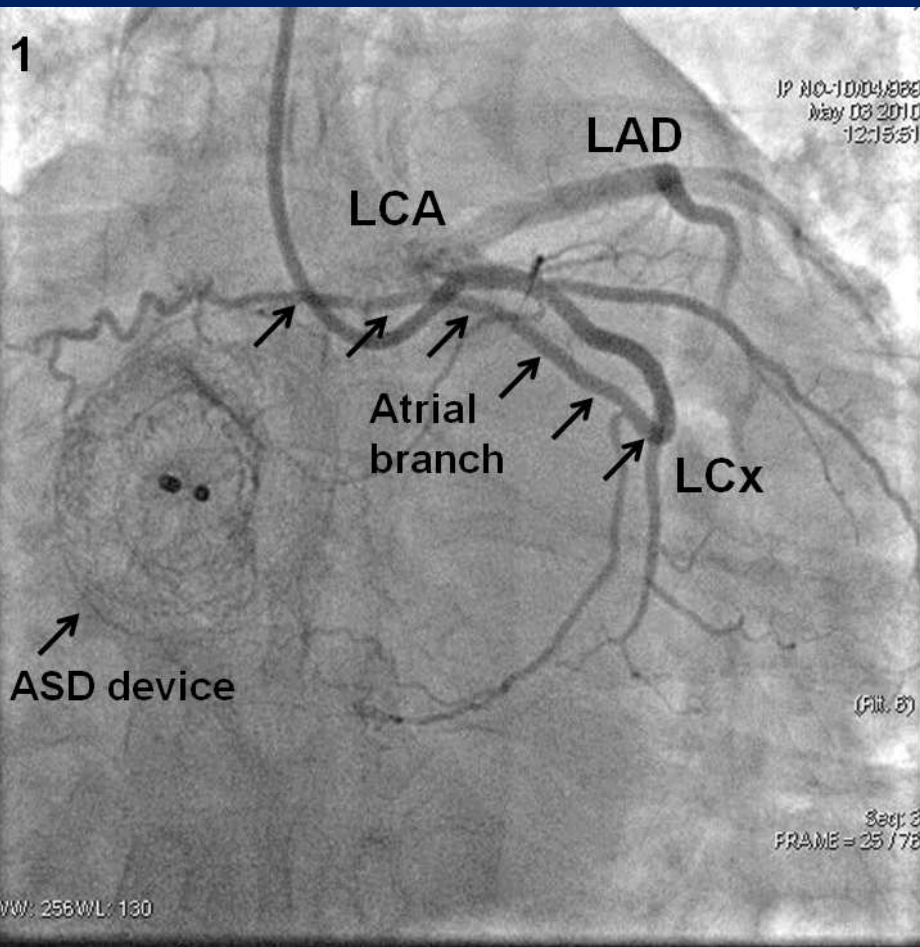
# RCA to RV fistula: Bioptome assisted Coil



# Case 7

- 40 year old
- Diagnosed to have small fistula from LCx to RA
- Developed effort angina
- Perfusion defect in Sesta MIBI scan
- ***Myocardial ischemia*** prompted closure

# LCx to RA fistula: 6 Micro Coils



# Indications in a nutshell

- Symptomatic due to L to R shunt
- Myocardial ischemia: Clinical, stress ECG or myocardial perfusion scan
- Post surgical residual shunt
- Asymptomatic but significant L to R shunt
- Aneurysmal fistula: Risk of rupture or thrombosis
- Progressive enlargement of fistula on FU

**When NOT to close?**

# Case 1

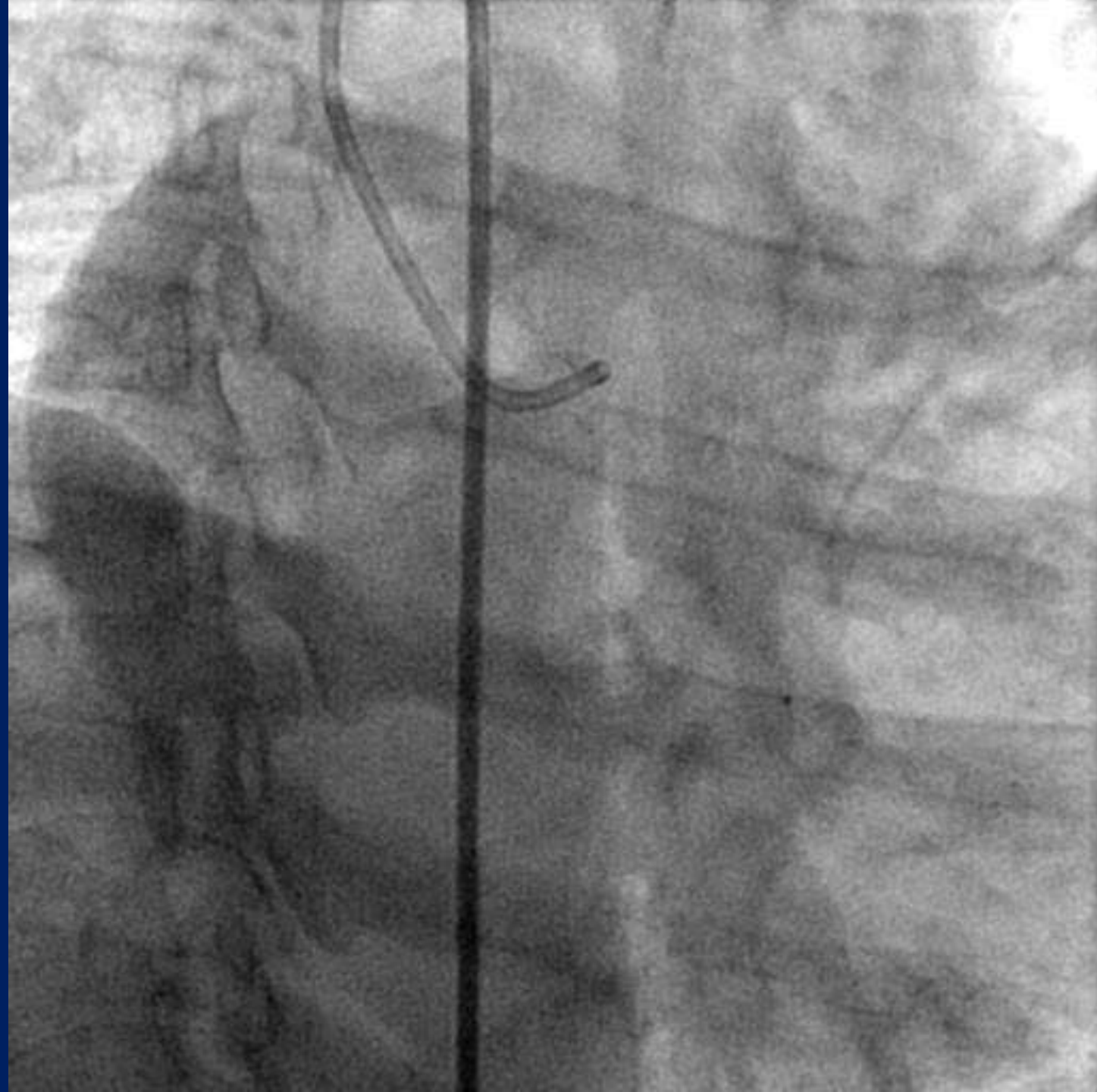
59 year old lady

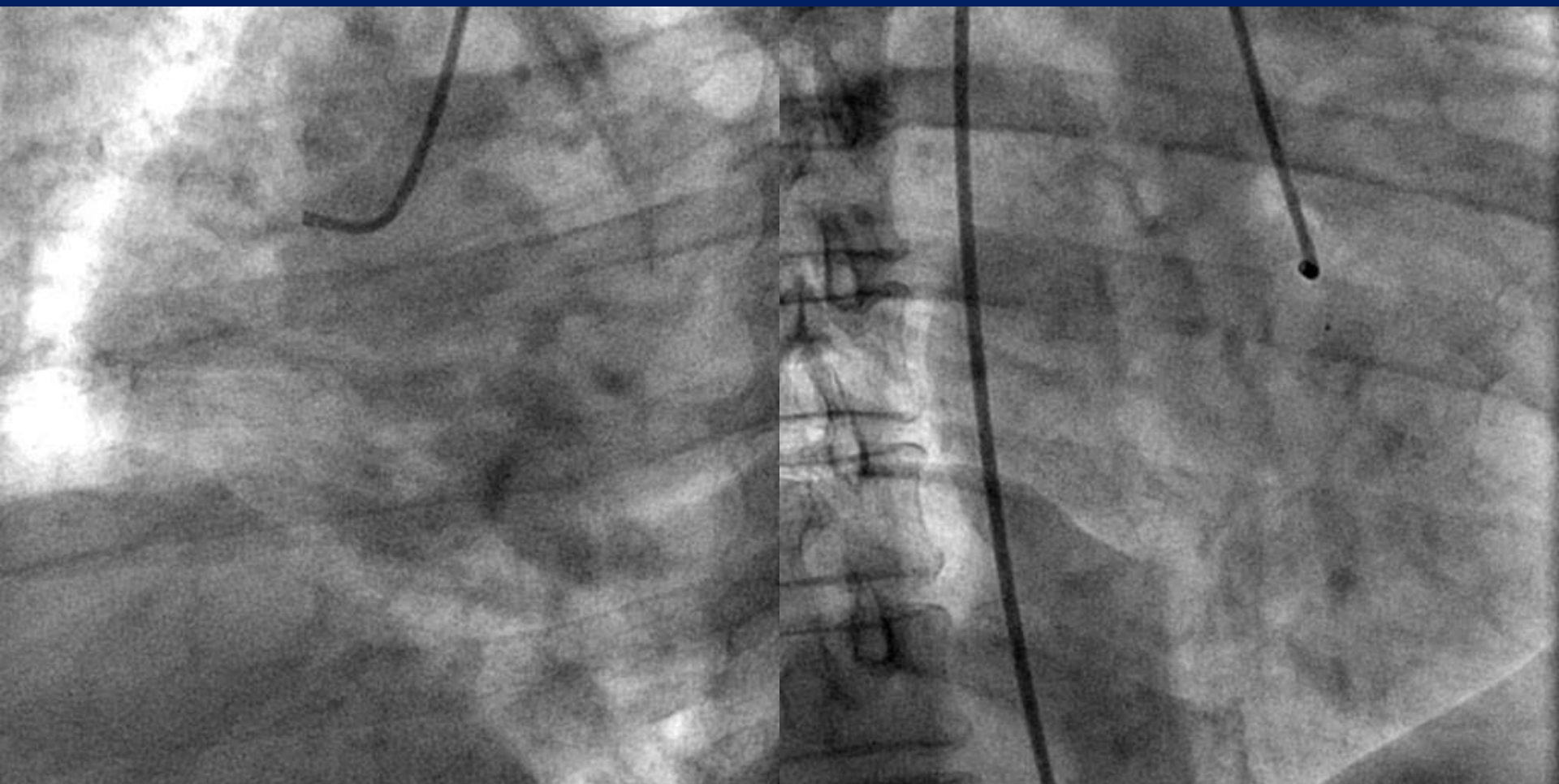
Atypical chest pain

ECG: T wave changes in anterior leads

Echo: No RWMA. Normal LV function

Dobutamine stress echo: Normal







## Case 2

72 year old gentleman

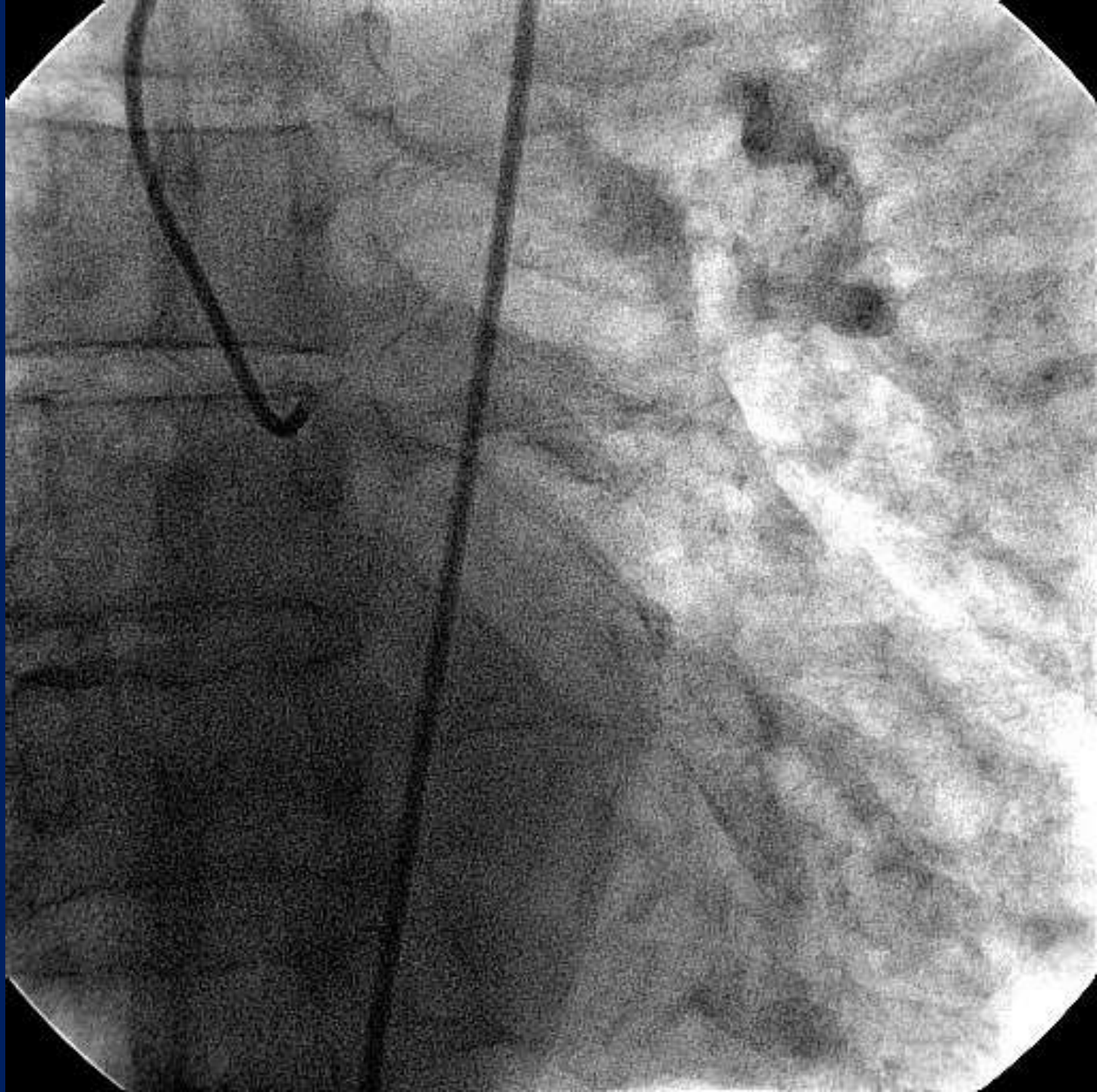
HT and DM

Known asthmatic

SOB NYHA class II. No angina

ECG: I and aVL showing small q waves

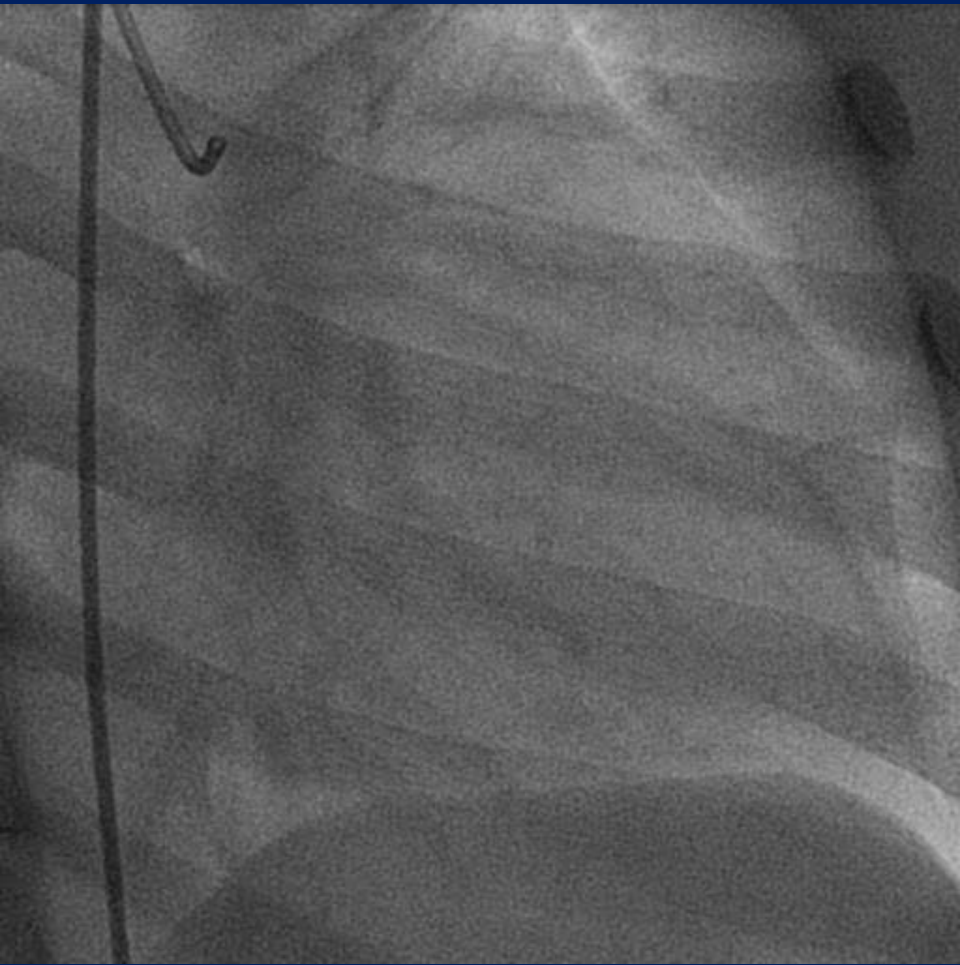
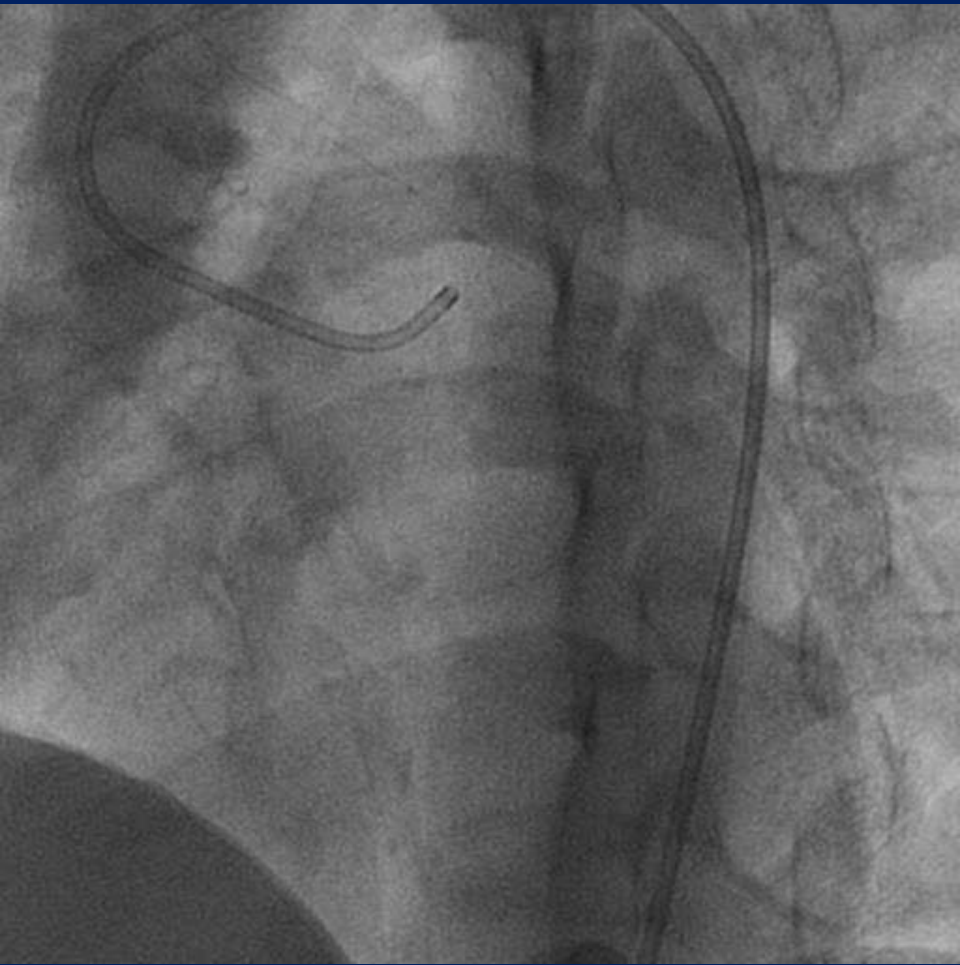
2DE: No RWMA. Normal LV contractility

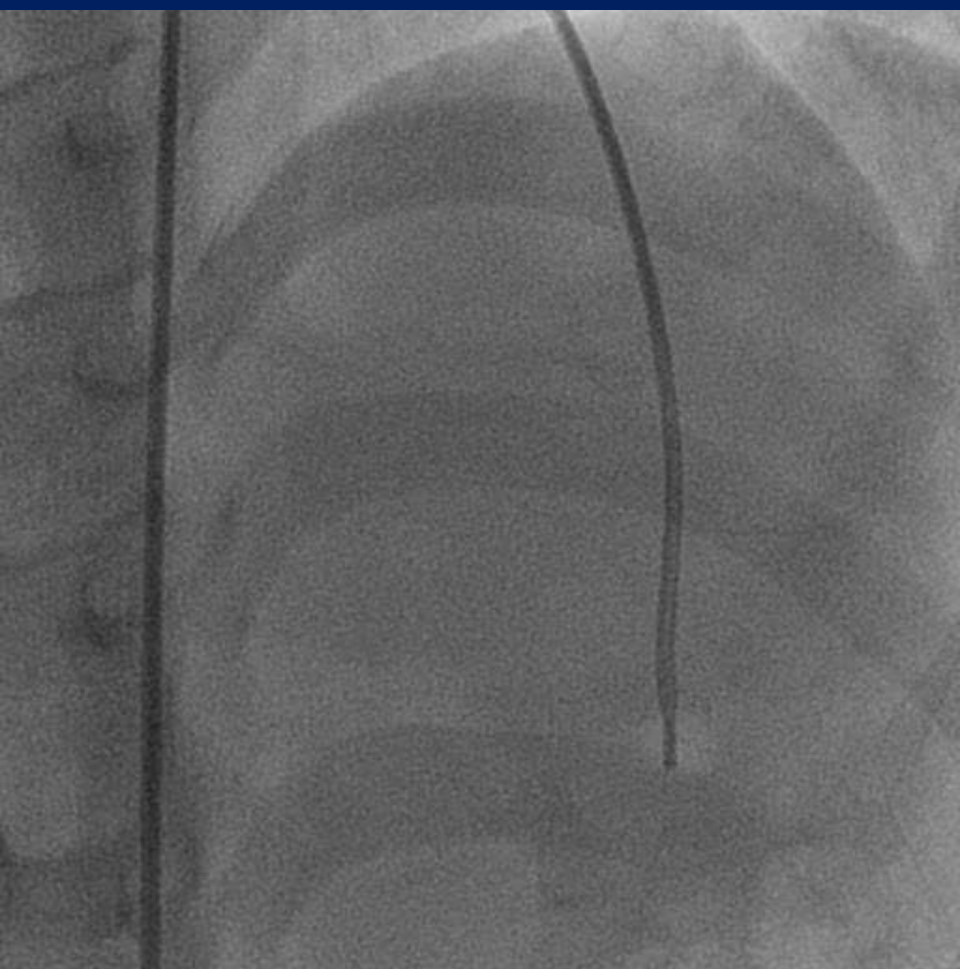


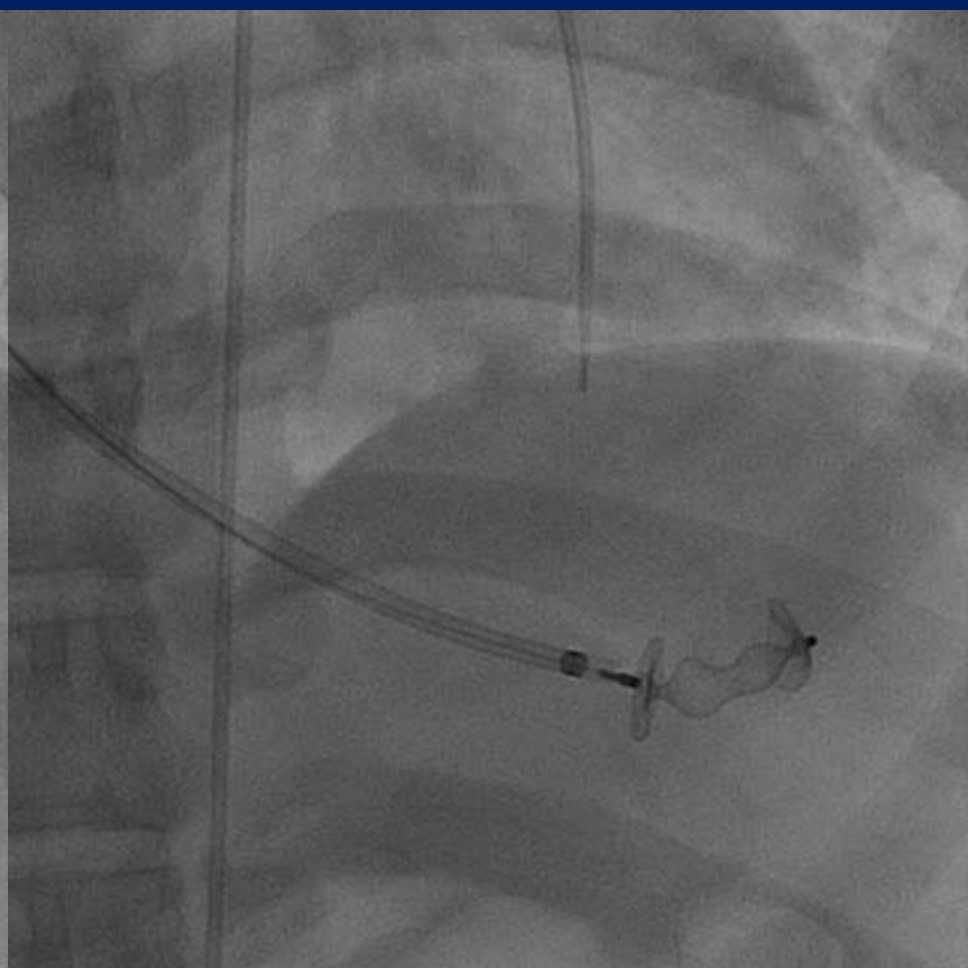
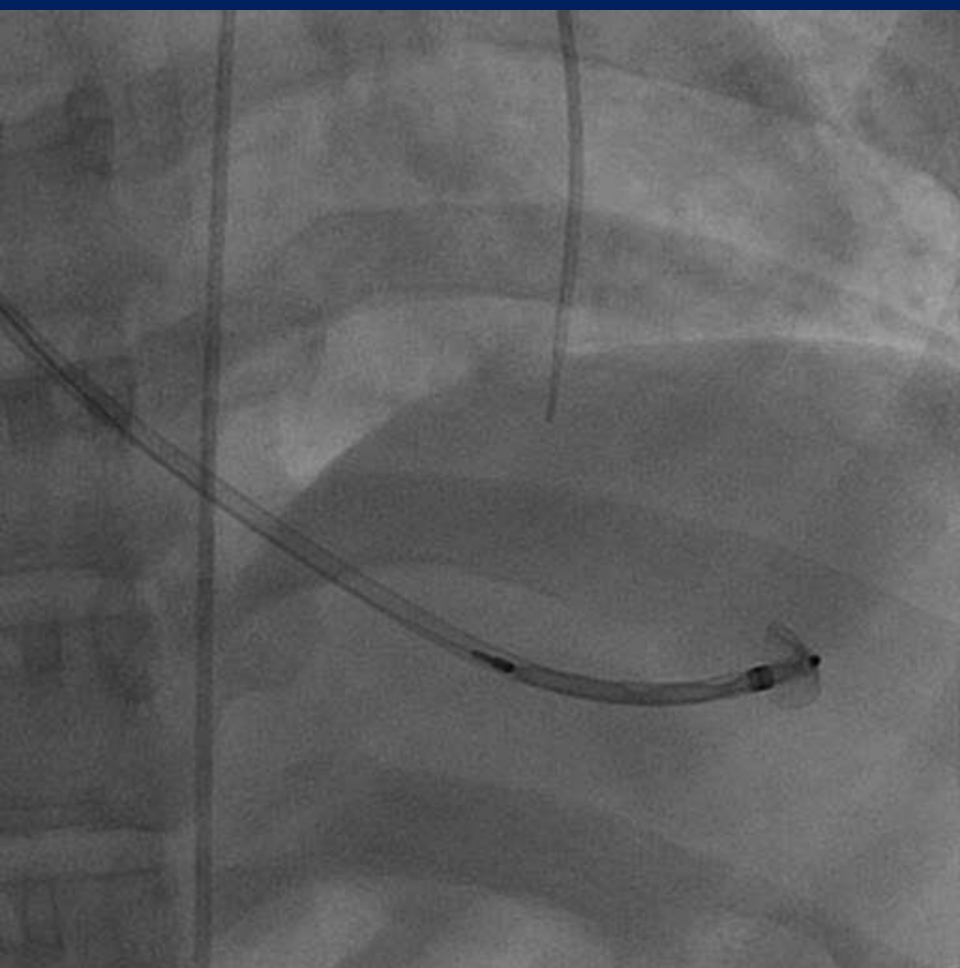


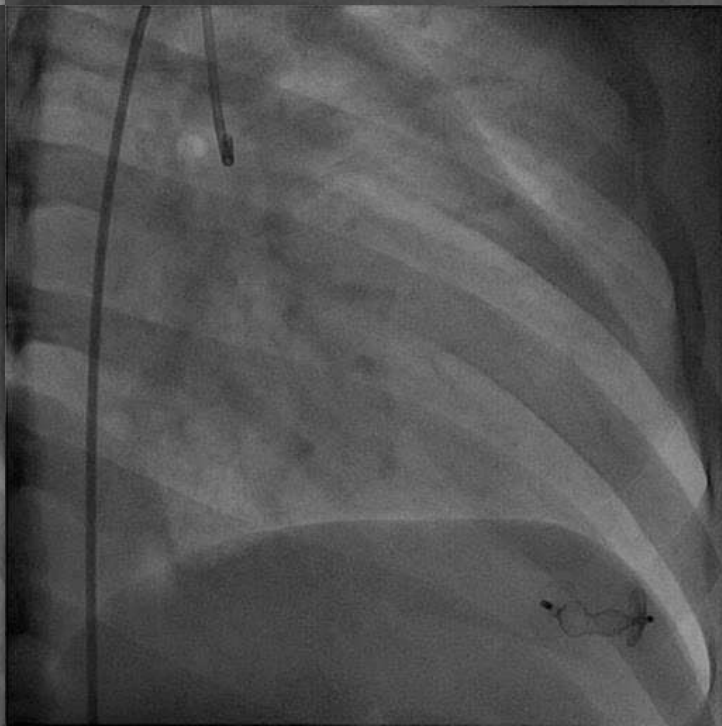
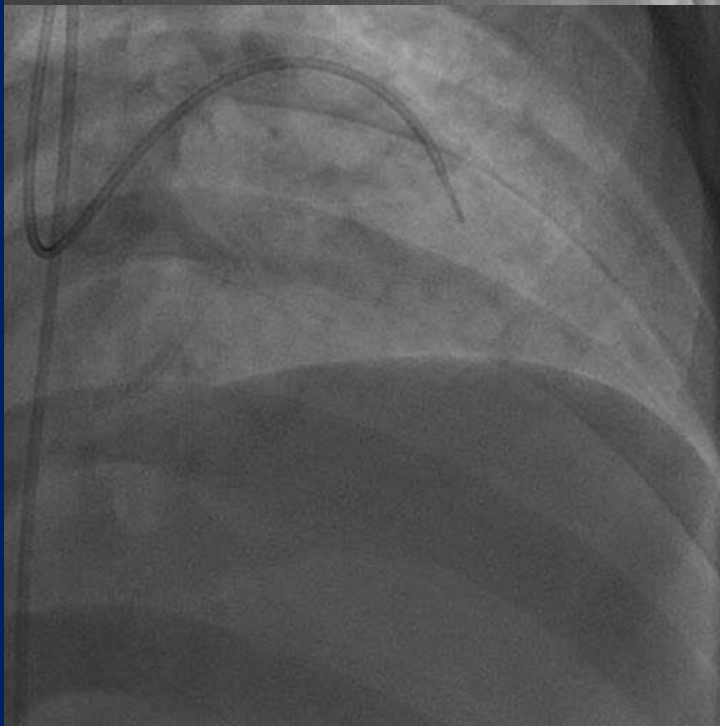
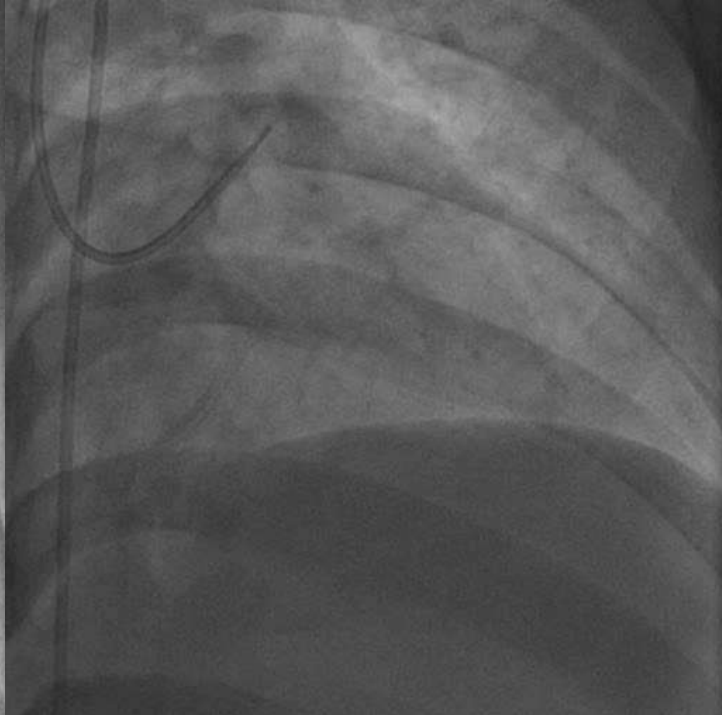
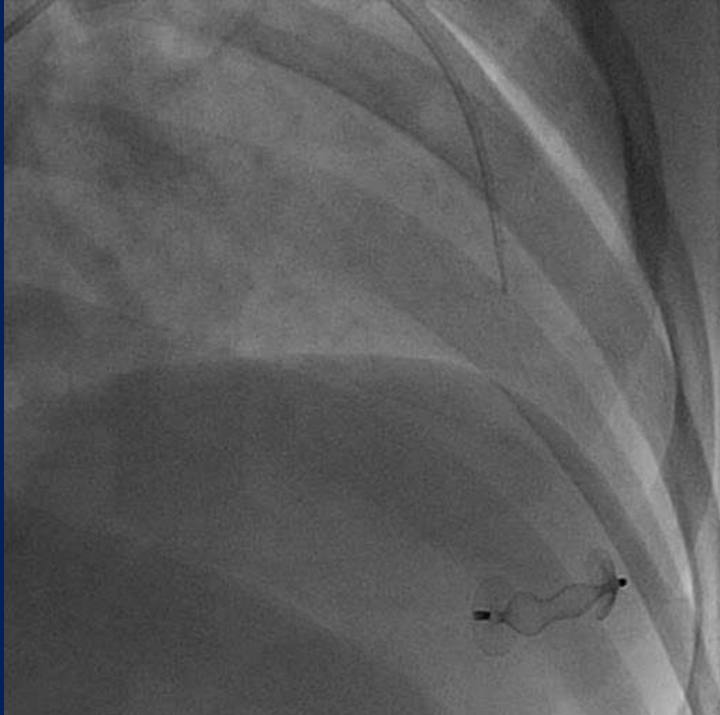
## Case 3

- 17 year old
- Asymptomatic from cardiac point of view
- Continuous murmur at the cardiac apex
- ECG: No evidence of ischemia
- X-ray chest: Normal heart size with normal vascularity



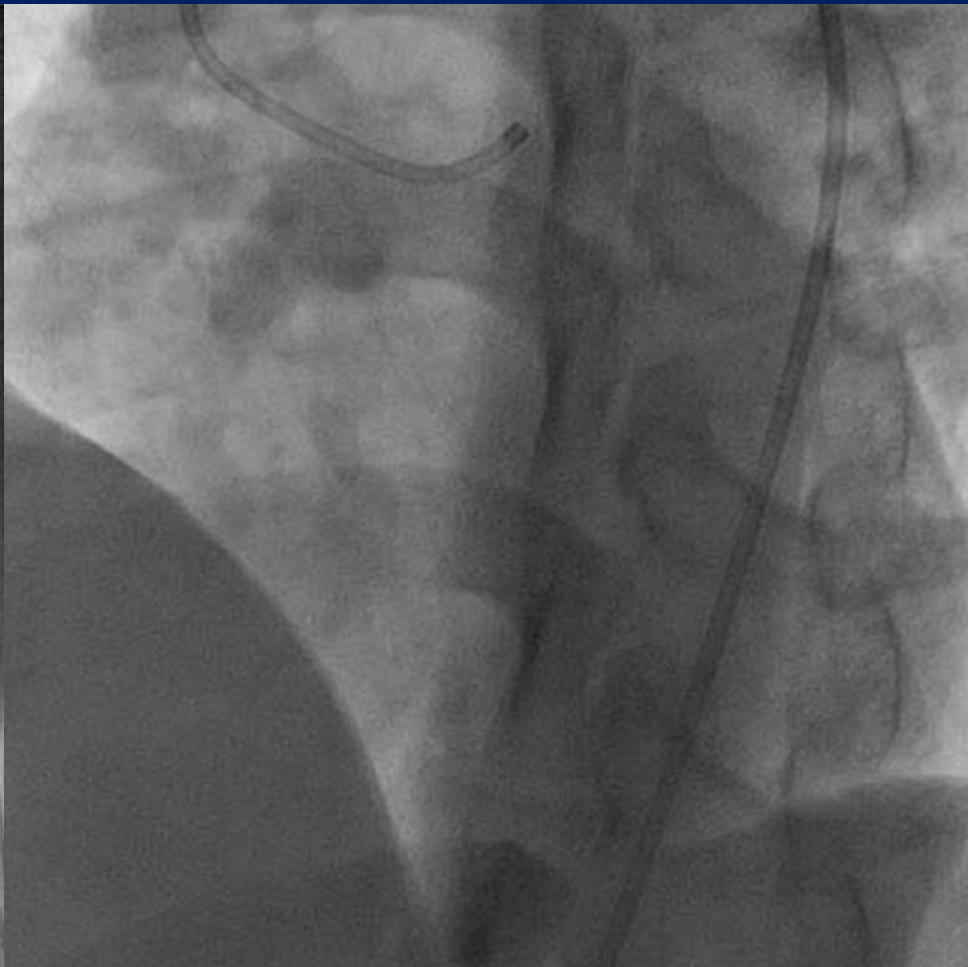
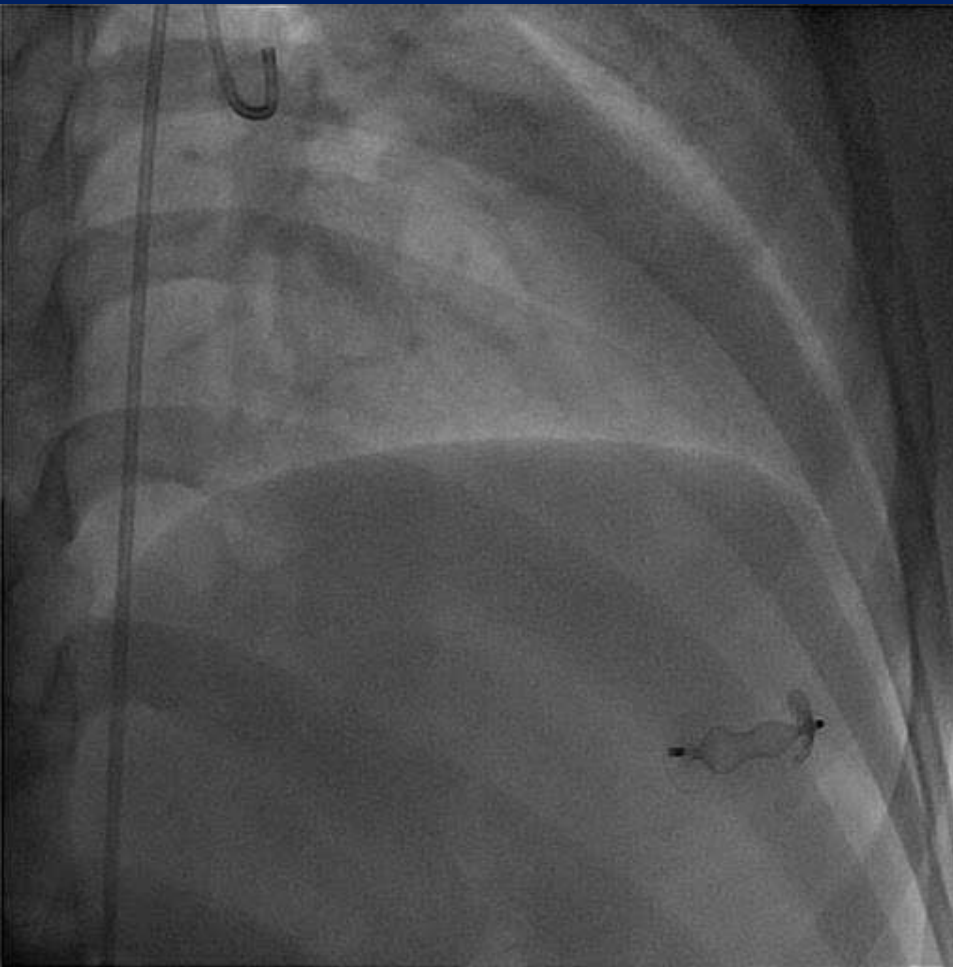








# 6 months follow up



# When NOT to close

- Asymptomatic
- Hemodynamically well compensated
- No murmur
- No evidence of chamber enlargement
- No evidence of ischemia
- Insignificant shunt
- Technically challenging
- May be large, distal, main artery fistula

**Do no HARM**