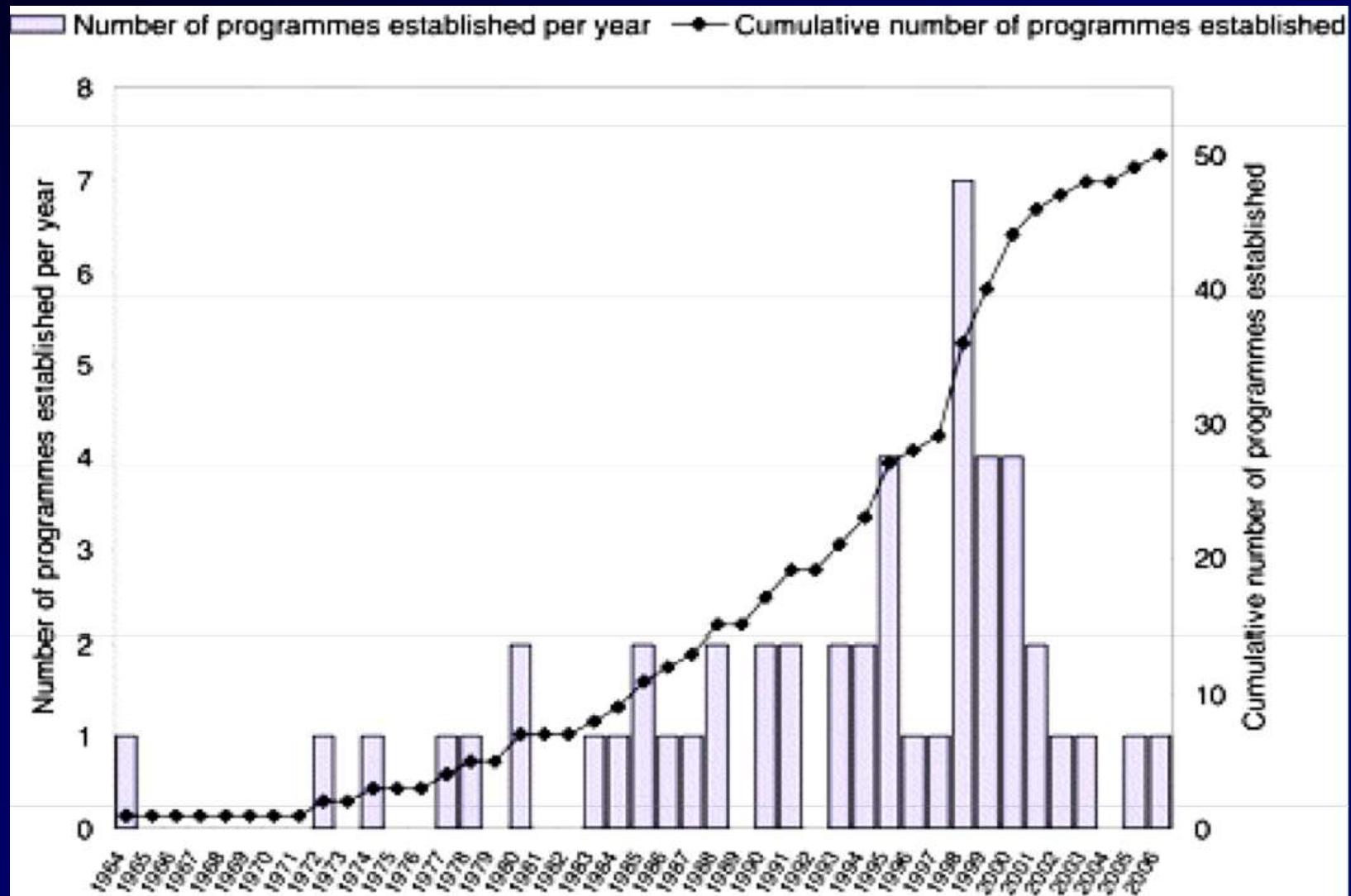


Interventions for Congenital Heart Disease in the Adult

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Exponential Rise in Adult Congenital Heart Disease Programmes



Interventional Treatment of congenital heart disease in the adult

So what's different?

Technology has advanced

Surgeons now part of the team

MRI plays huge part in planning

The enemy: Calcium

Interventional Treatment of congenital heart disease in the adult

Treatment of existing disease
which has been palliated

TGA

Baffle obstruction & leakage in Senning / Mustard

Tetralogy of Fallot

Branch Pulmonary Artery Stenosis

Pulmonary Valve regurgitation

Fontan Circulation

Branch pulmonary artery stenoses

Arteriovenous & veno-venous collaterals

Creation of Fenestration

Interventional Treatment of congenital heart disease in the adult

Treatment of newly diagnosed lesions

Atrial Septal Defect

Ventricular Septal Defect

Patent Ductus Arteriosus

(Patent Foramen Ovale)

Coarctation

Valve stenoses

(Aortic stenosis)

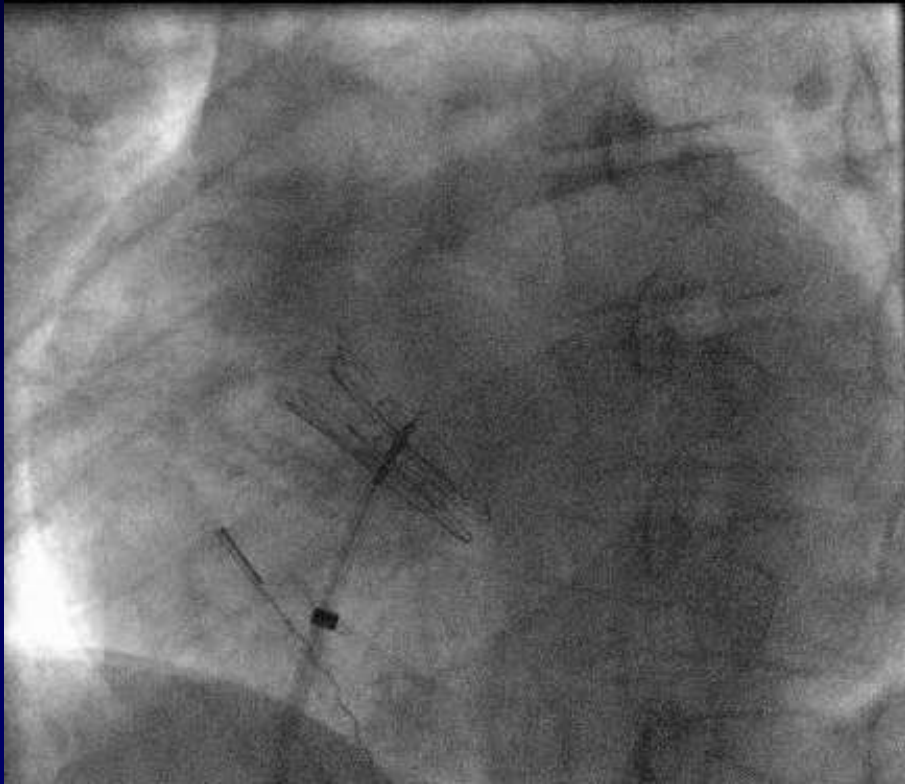
ASD Closure

- Tendency has been towards woven nitinol



the US has helped a little in the anxiety surrounding erosion

ASD Closure with GSO device



IntraCardiac Echo more commonly used in adults



Interventional Treatment of congenital heart disease in the adult

Patent Ductus Arteriosus

Beware:

Syndromic patients: Marfan, Loews Dietz, Turner
Patients > 40 years beware calcification

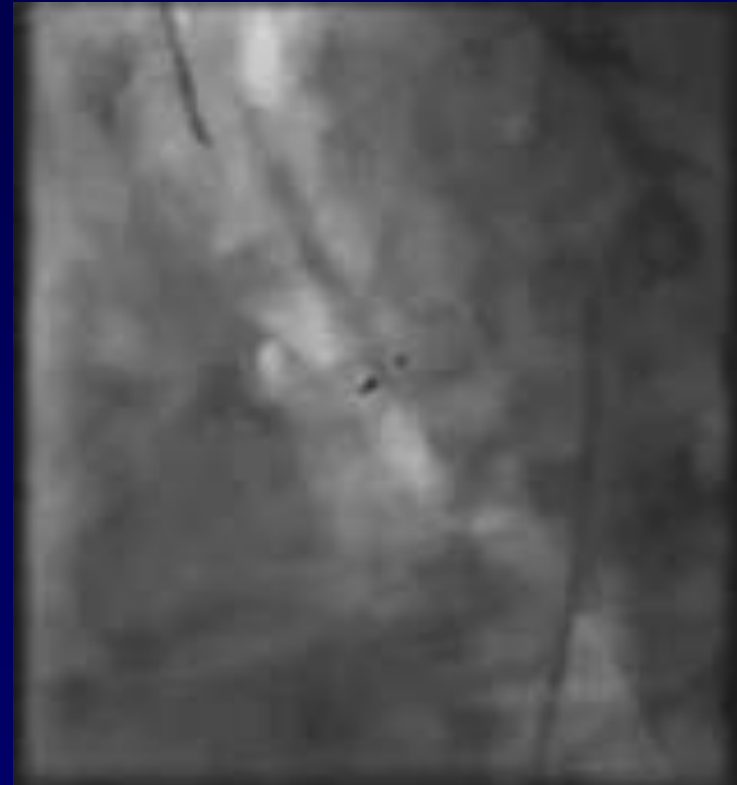
Angiography not can be difficult despite sizeable volume of contrast injection

Ampullas are huge

Almost all will be woven nitinol devices, Amplatz, Occlutech, Lifetech, PFM Cocoon

Interventional Treatment of congenital heart disease in the adult

Patent Ductus Arteriosus angiography for sizing can be tricky



Interventional Treatment of congenital heart disease in the adult

VSD

Patients appearing with late volume load of left heart

Factor in Hypertension, Stiffening of LV, coronary artery disease

Perhaps we should not be quite so dismissive of 'small defects' in children

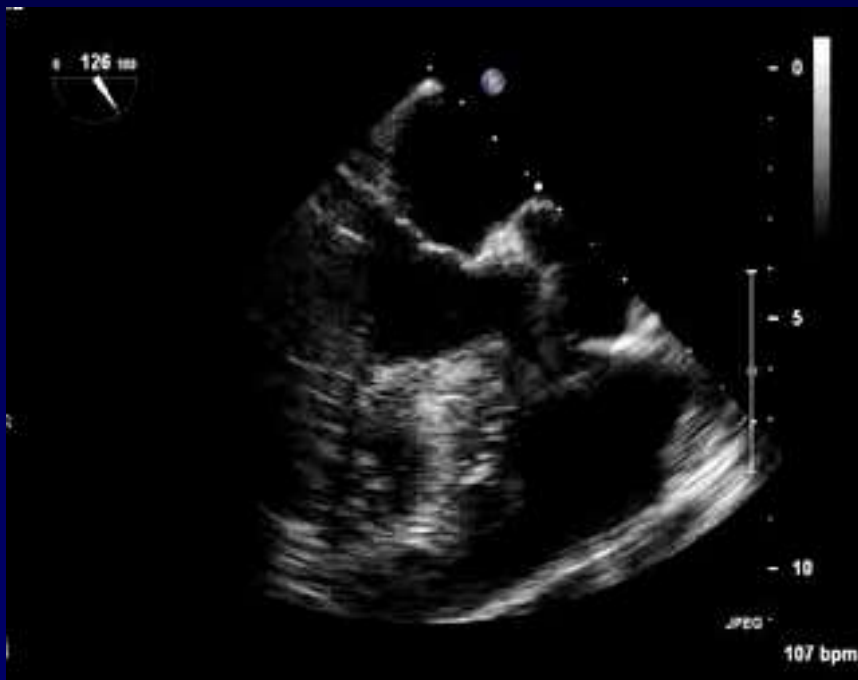
Technique almost exactly the same

(260 - 300cm wire for AV loop)

Sizing exclusively TOE or ICE

Interventional Closure of VSD in Adults

- Less risk heart block
- Long a-v loop wires required
- Beware residual Post Op: Calcificn >Haemolysis++



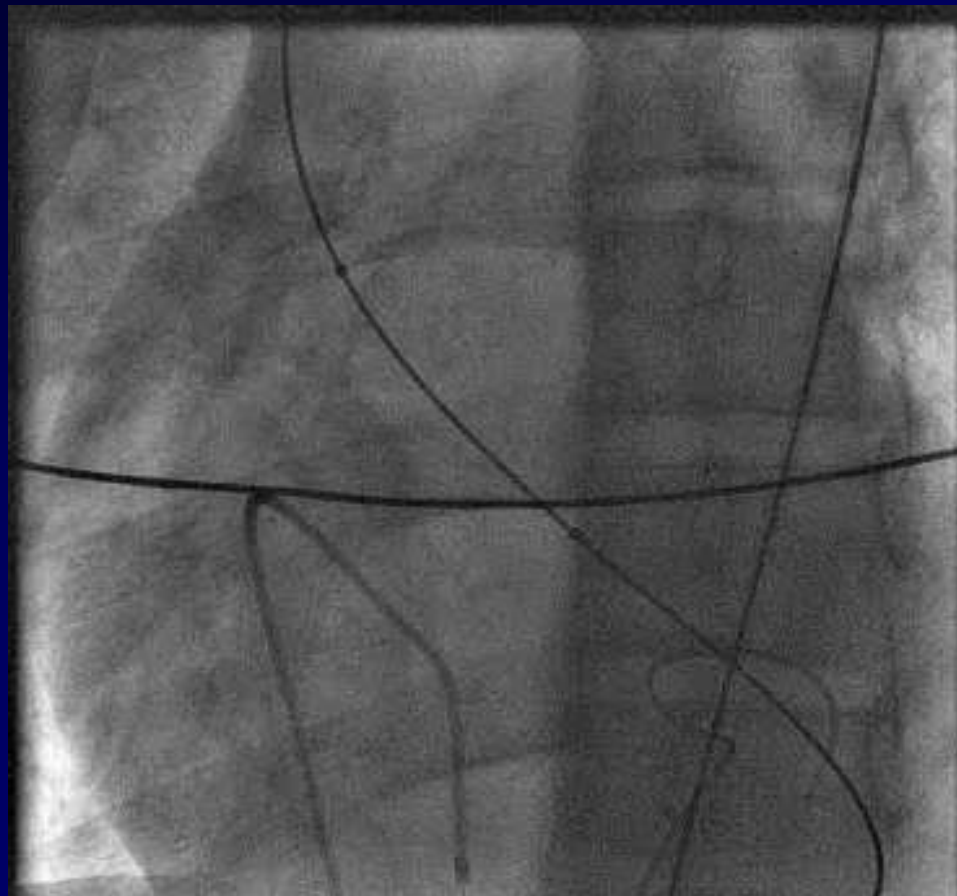
Aortic balloon valvuloplasty

Limitations

- Heavy calcification
- Tendency & coexistence of regurgitation
- Comorbidity - cardiac and vascular
- TAVI now established therapy for palliation in selected patients

Aortic balloon valvuloplasty

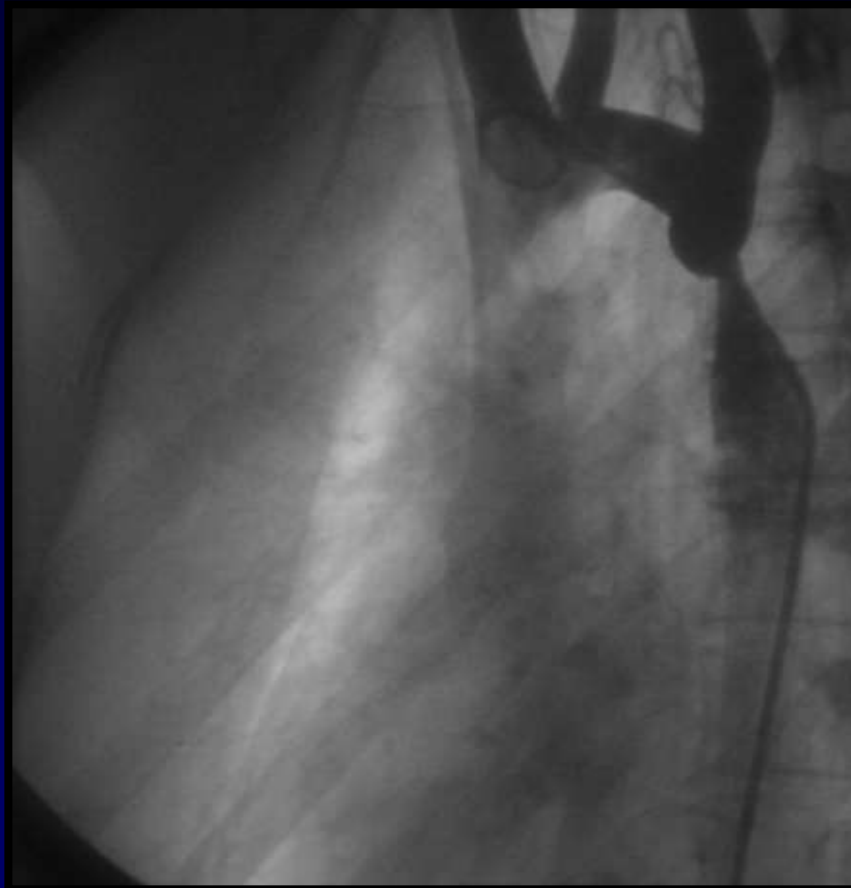
Rapid pacing to stabilise balloon position



Coarctation of Aorta

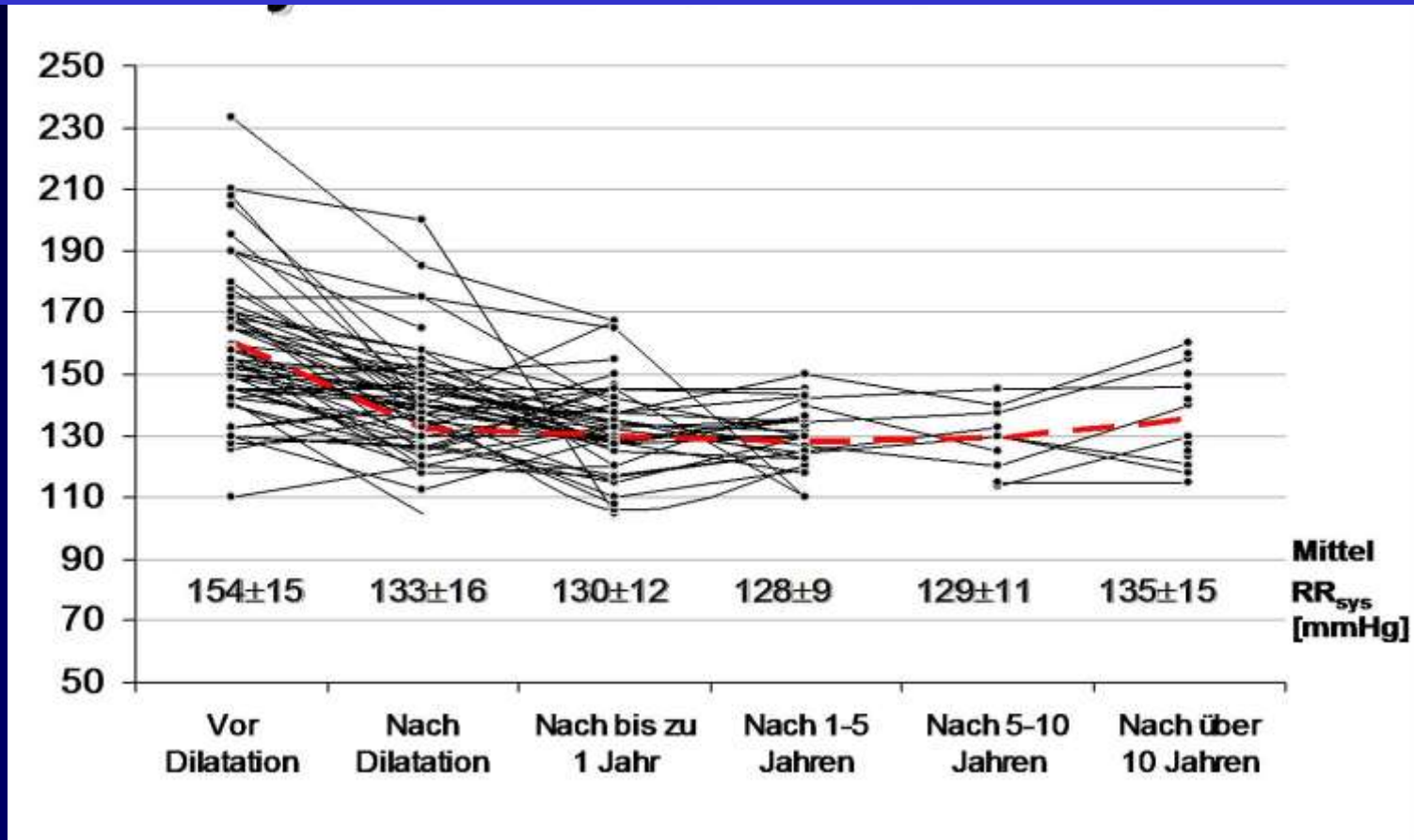
- Anatomy can be complex
- Gradients can be mild under GA??
- Rapid pacing for stent delivery
- Covered vs open cell bare metal stents
- Residual / recurrent hypertension common
- Calcium, arteritis, syndromes carry higher risk of aortic rupture
- Surgeons less keen to operate

CP Stent for native coarctation



Intervention not the complete cure

Systolic Blood Pressure Follow Up



The important information

- How long does the interventional result last?
- What are the rates of 'instent' stenosis?
- What is the incidence of aneurysm?
- Stent fracture?
- What are the 'Freedom from reintervention' rates
- What is the incidence of hypertension requiring medical treatment?

And don't forget important comorbidity:
Bicuspid aortic valve aortopathy

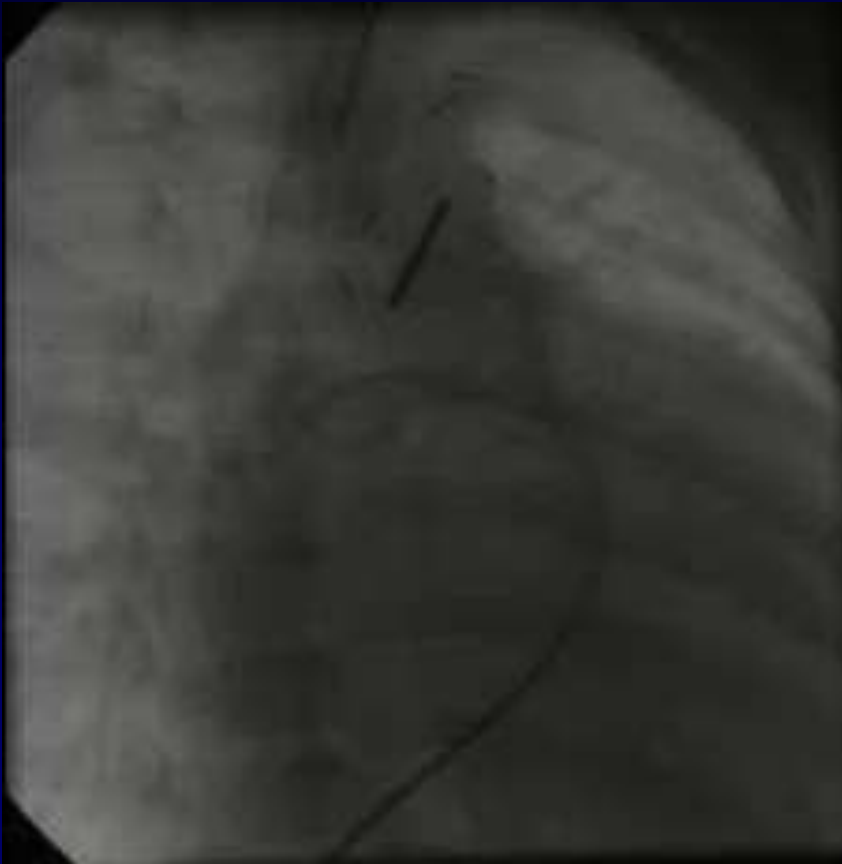
Long Term post tetralogy & Rastelli Type repairs

DORV, TGA VSD PS, Truncus, Ross etc

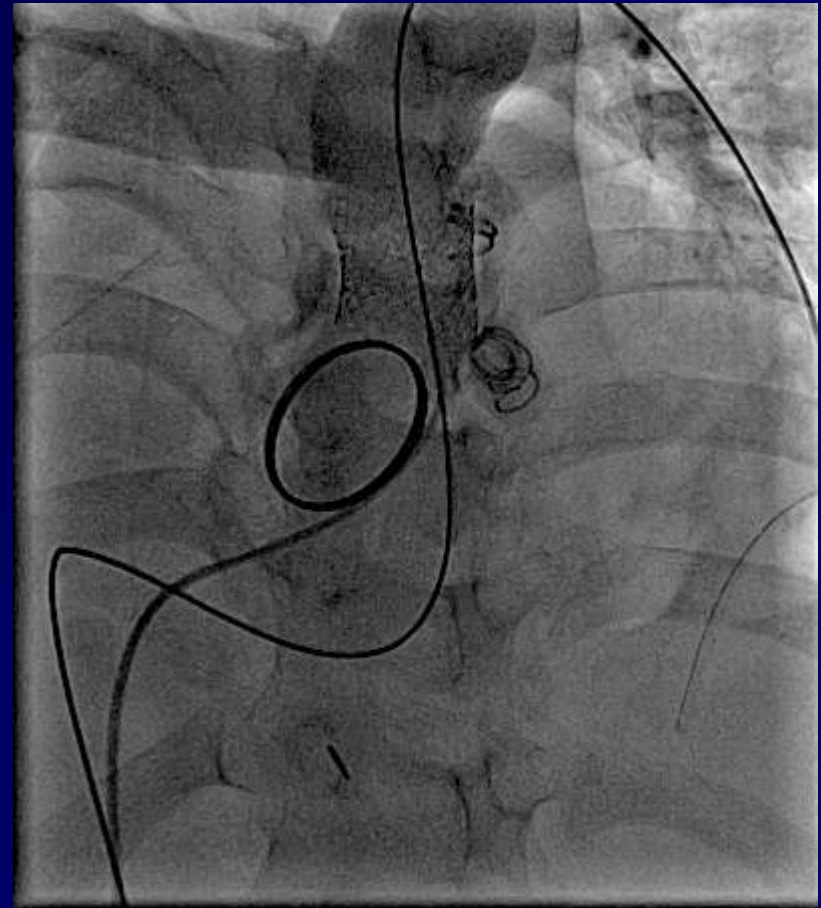
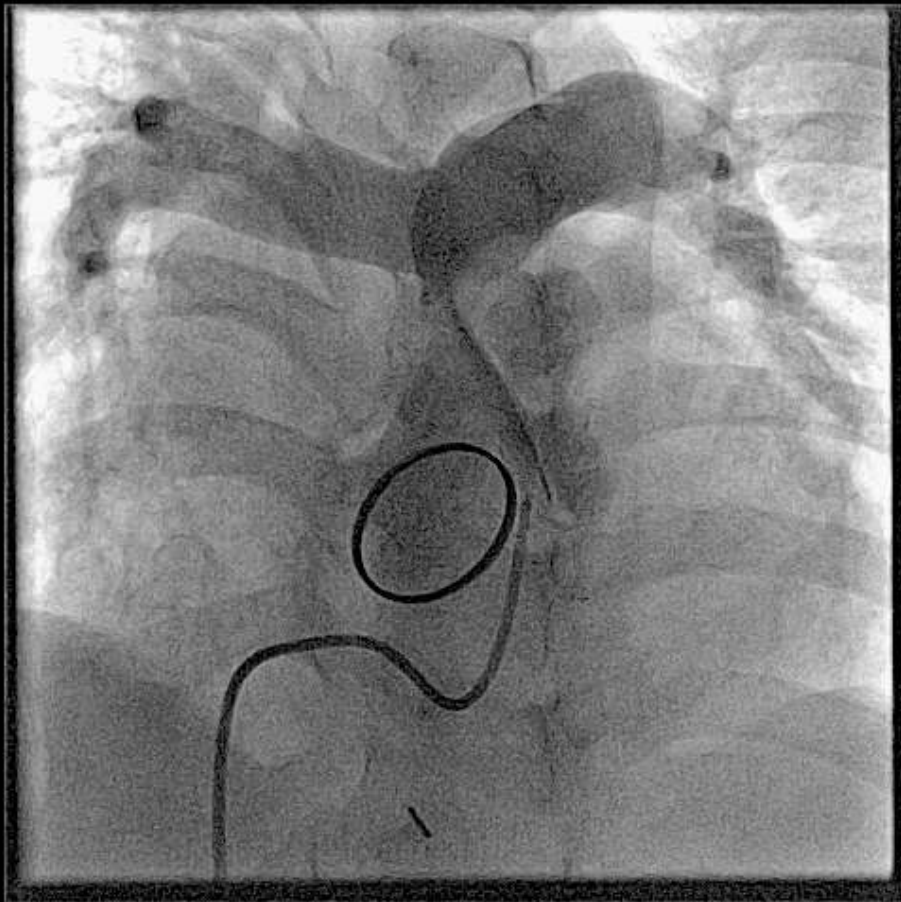
- Branch PA stenoses considerations:
- Pre-existing stents
- Access (venous occlusion common)
- Stability of delivery sheath in dilated RV with Pulmonary regurgitation

Long Term post tetralogy & Rastelli Type repairs

DORV, TGA VSD PS, Truncus, Ross etc



Long Term post tetralogy & Rastelli Type
repair: Complex++
DORV, TGA VSD PS, Truncus, Ross etc

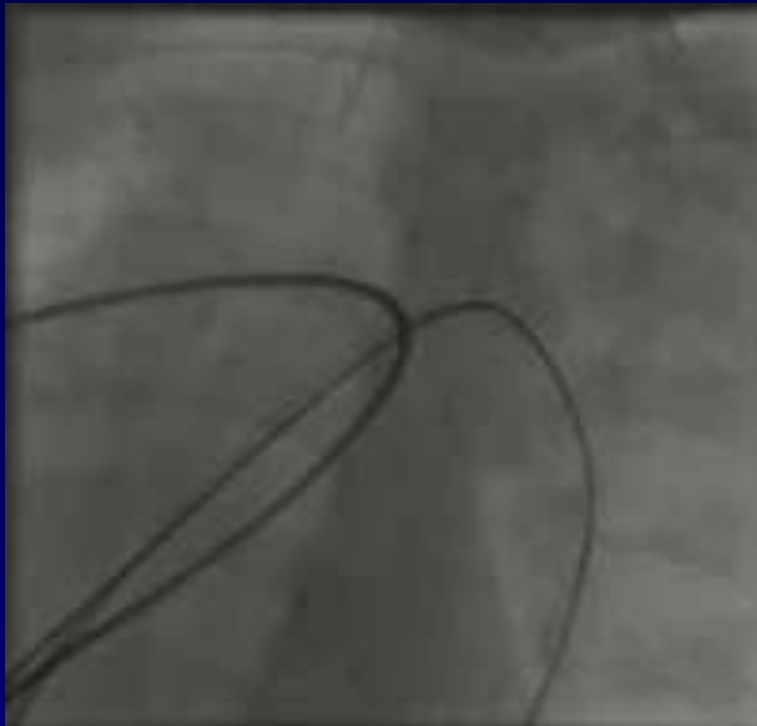


Long Term post tetralogy & Rastelli Type
repair: Complex++
DORV, TGA VSD PS, Truncus, Ross etc

Multiple procedures often required
PA stent
RVOT prestenting++
Calcification
Risk of homograft fracture

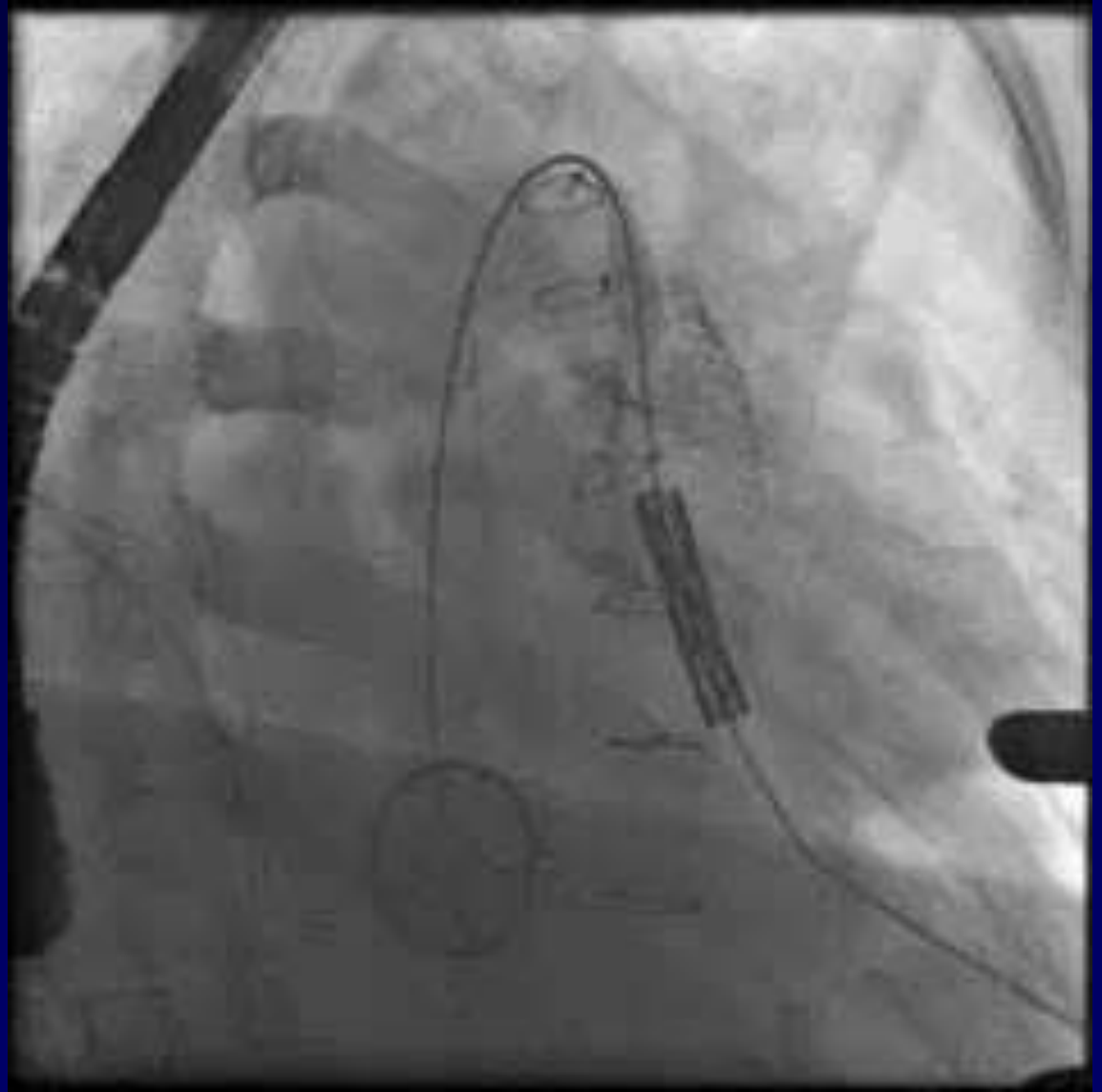
PA Stents

- Important implications for competence of pulmonary valve
- Good news: no sizing constraints sheath & balloon size



Percutaneous Pulmonary Valve

More involved
Access
Manipulation
Pre-stent x 2-3 common



Percutaneous Pulmonary Valve

More involved
Access
Manipulation
Pre-stent x 2-3 common



Long Term post radical palliation for univentricular heart

Mostly result of substrate and physiological failure

Multiple procedures often required

Refenestration

PA stents

Caval / conduit stents

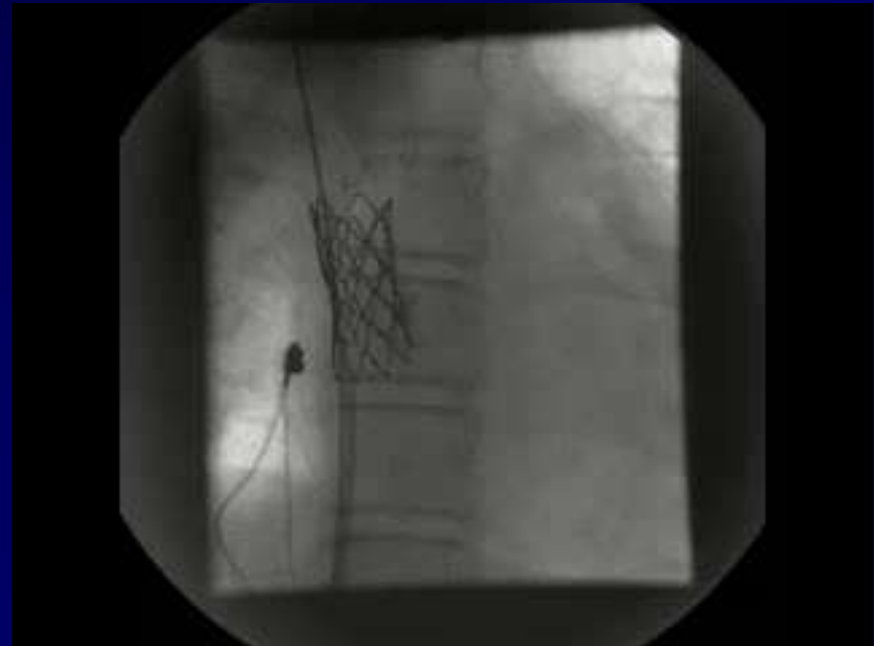
AP & VV collaterals

May have implications for transplant viability / morbidity

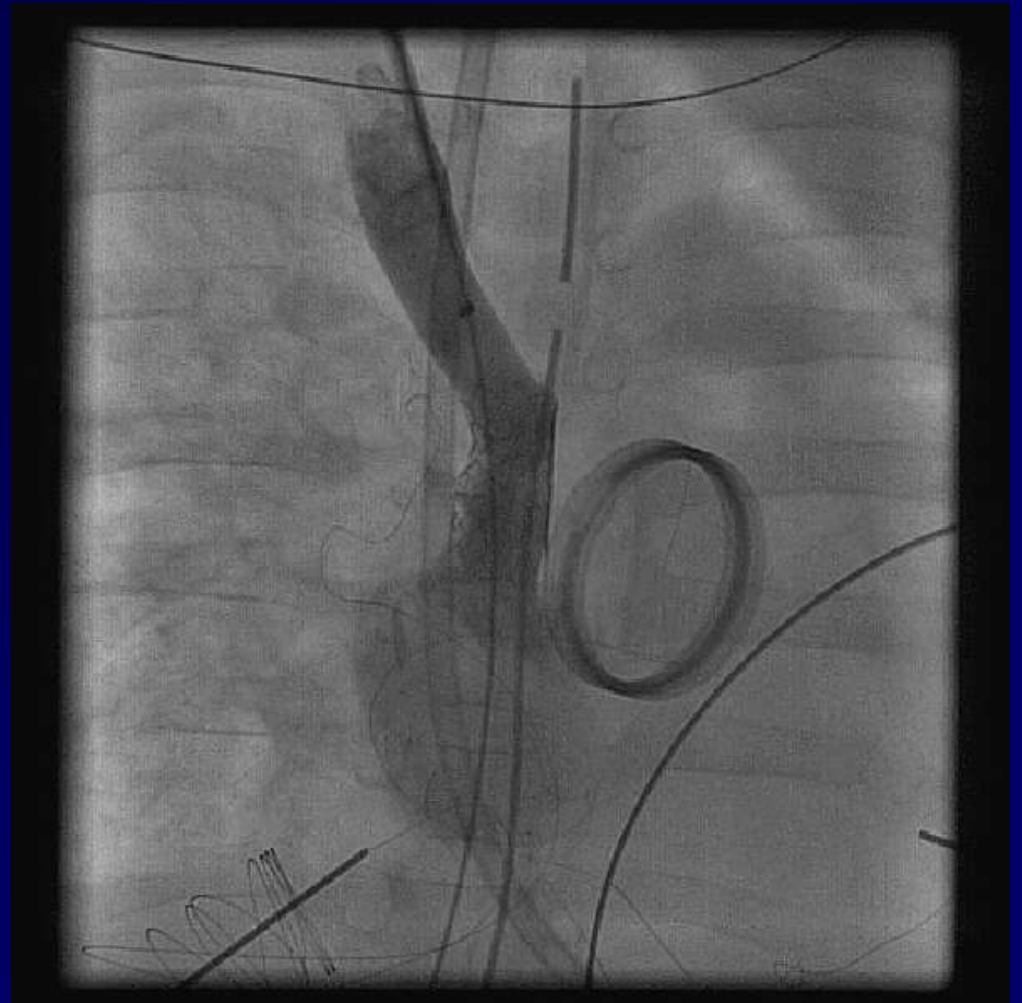
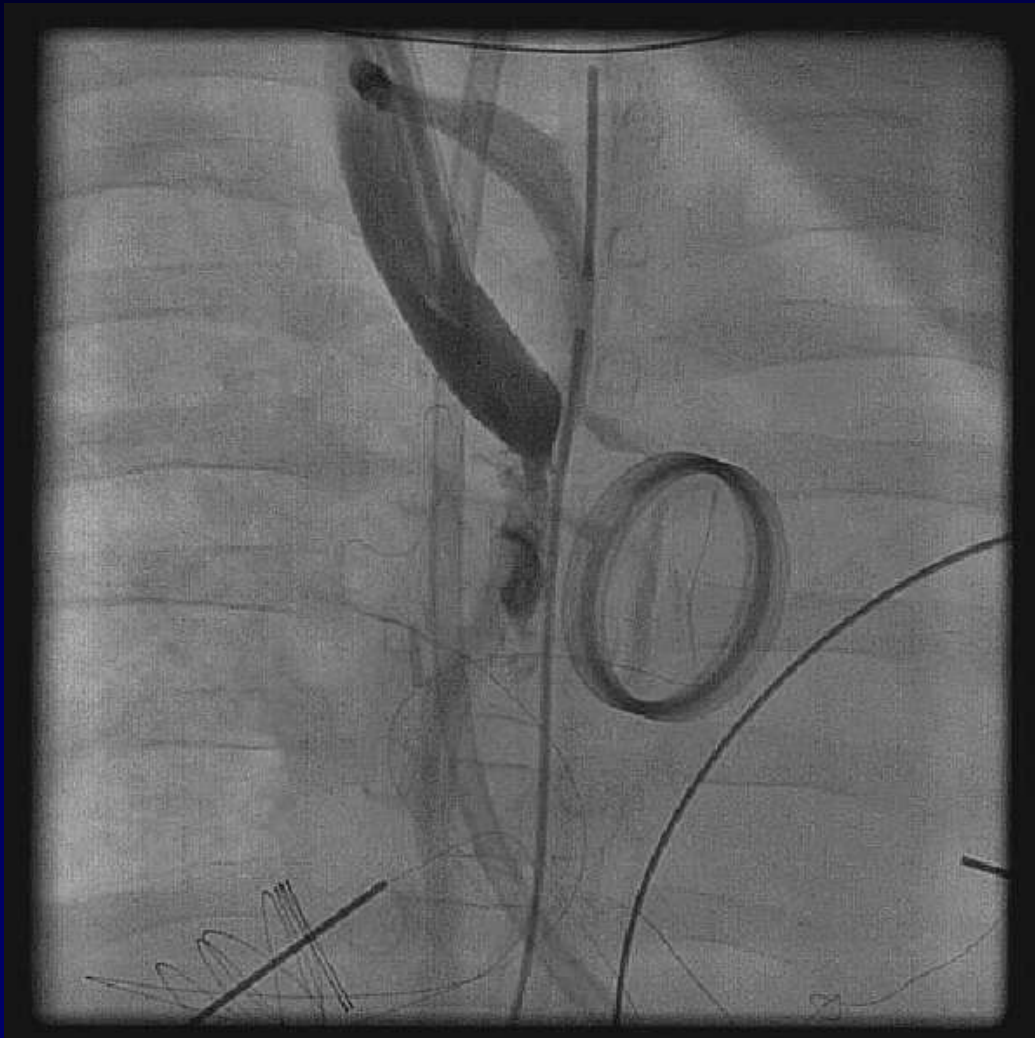
Long Term post radical palliation for univentricular heart veno venous collateral



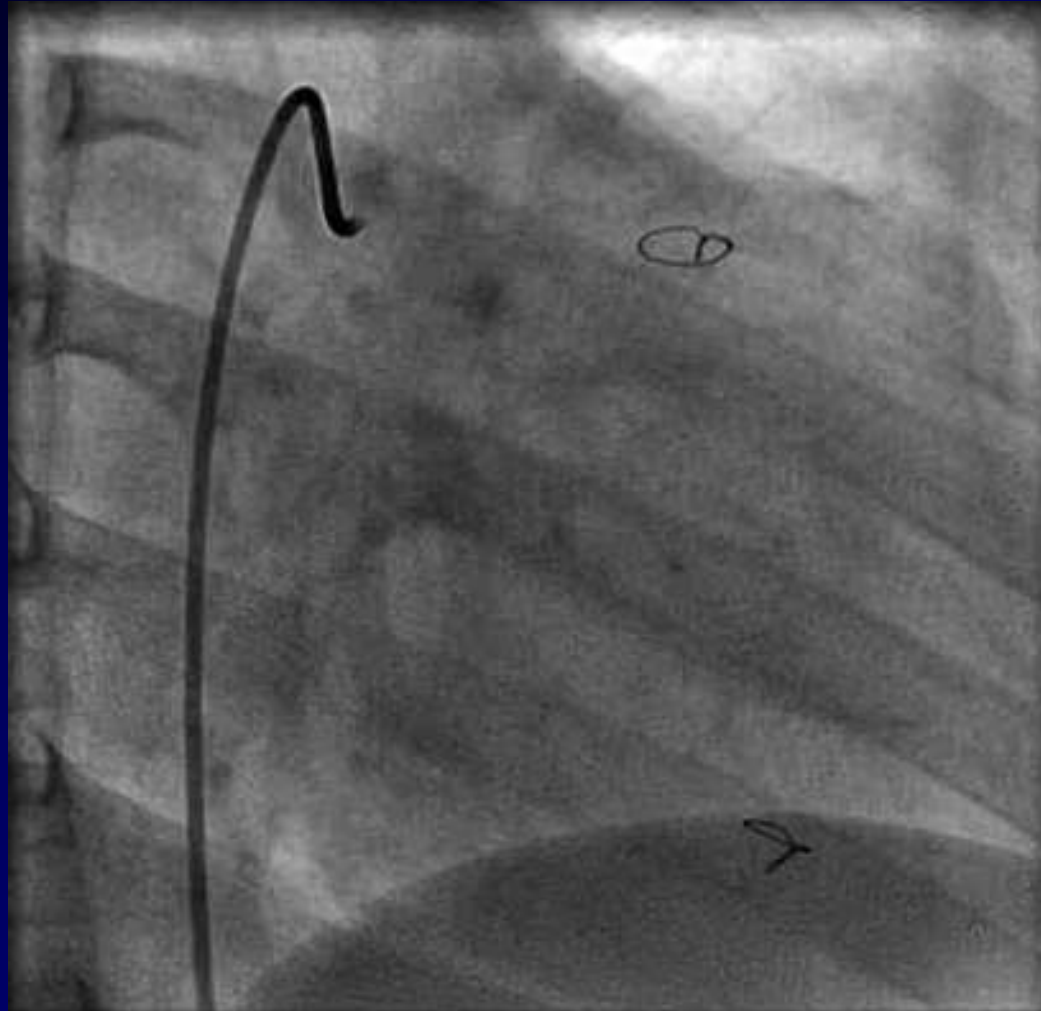
Long Term post radical palliation for Obstruction superior aspect lateral tunnel



SVC stenting post radical palliation

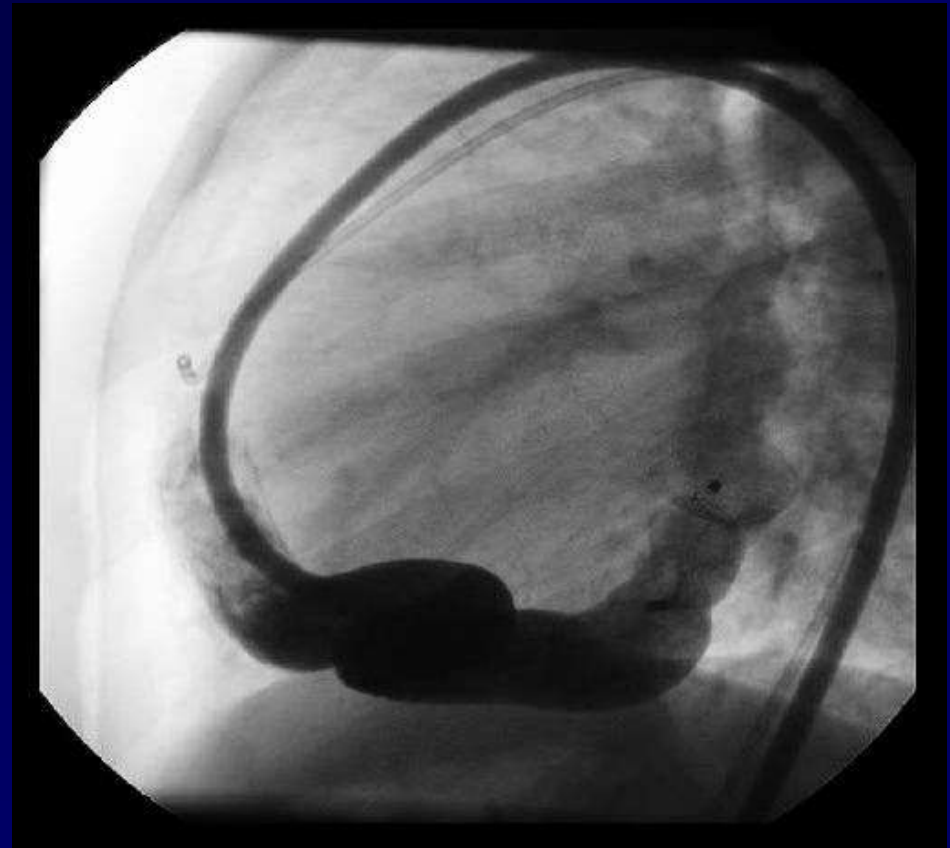


Chronic total occlusion LCA Post switch



Presentation congenital heart disease in adulthood

Large R Coronary artery fistula closure with duct device



Interventions Adult Congenital Heart Disease

- Can be for new or established disease
- Present imaging challenges
- Use MRI freely
- Substrate and anatomical challenge
- Often palliative but usually marked improvement in quality of life
- Collaborate with your 'paediatric interventionist'

Kamsahamnida!

