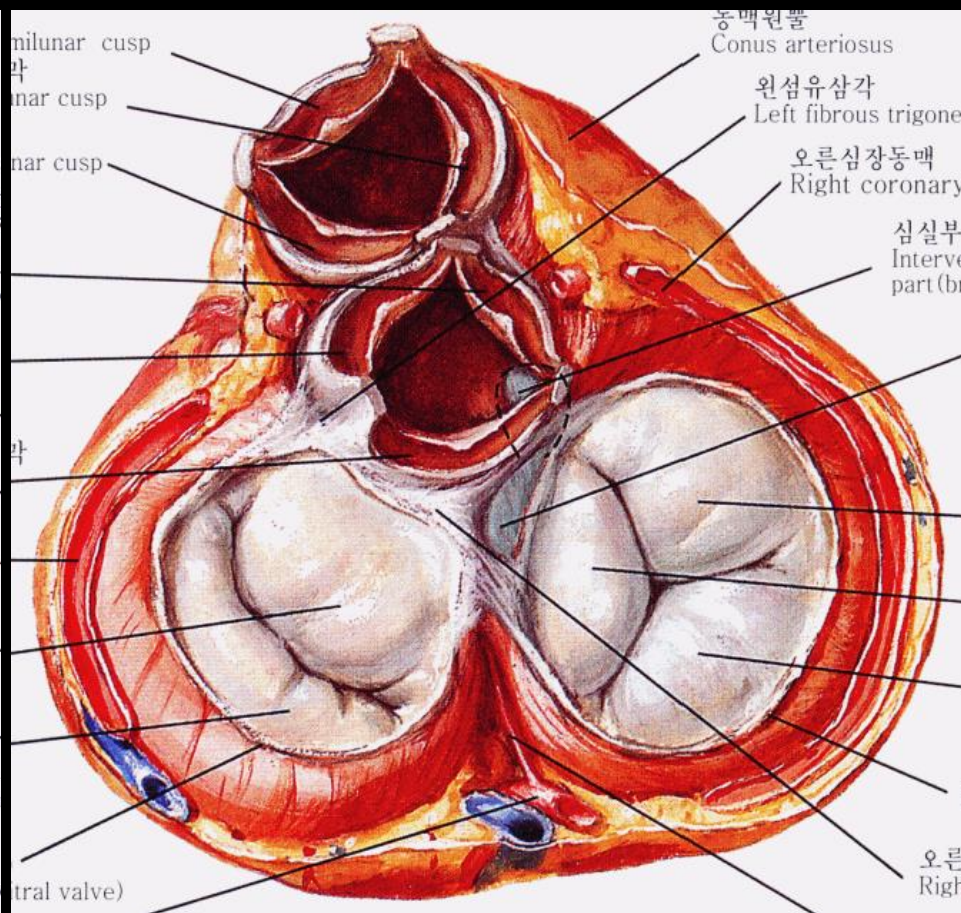
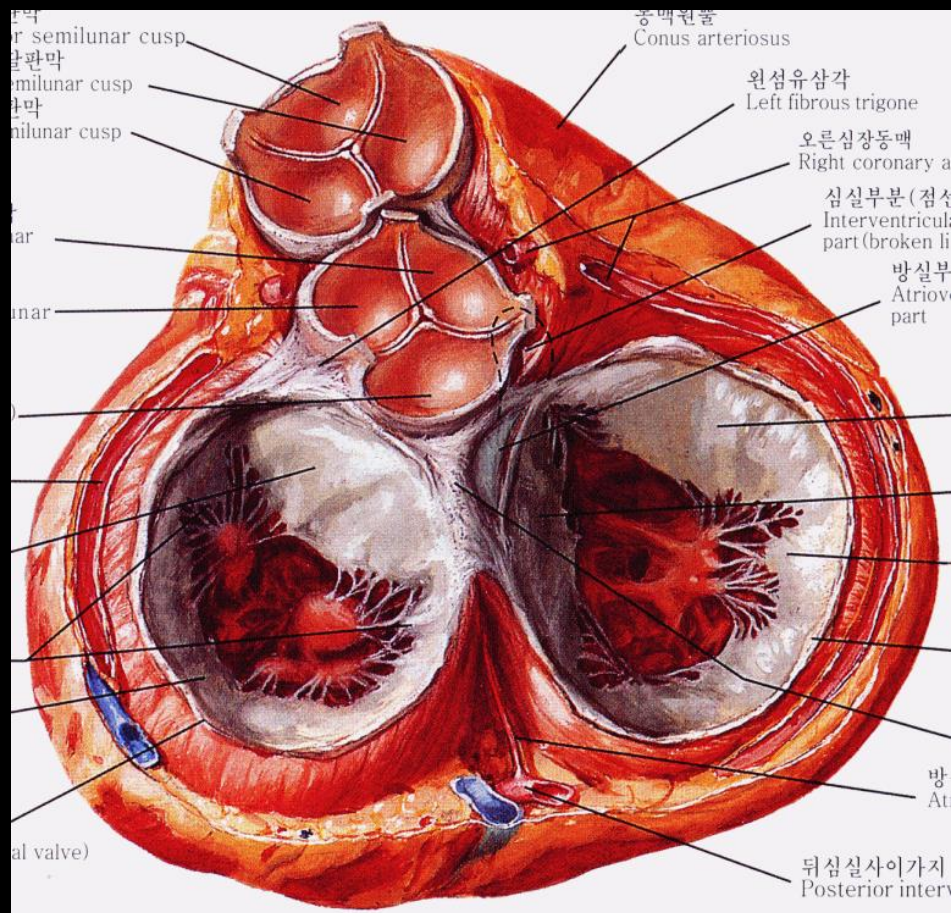


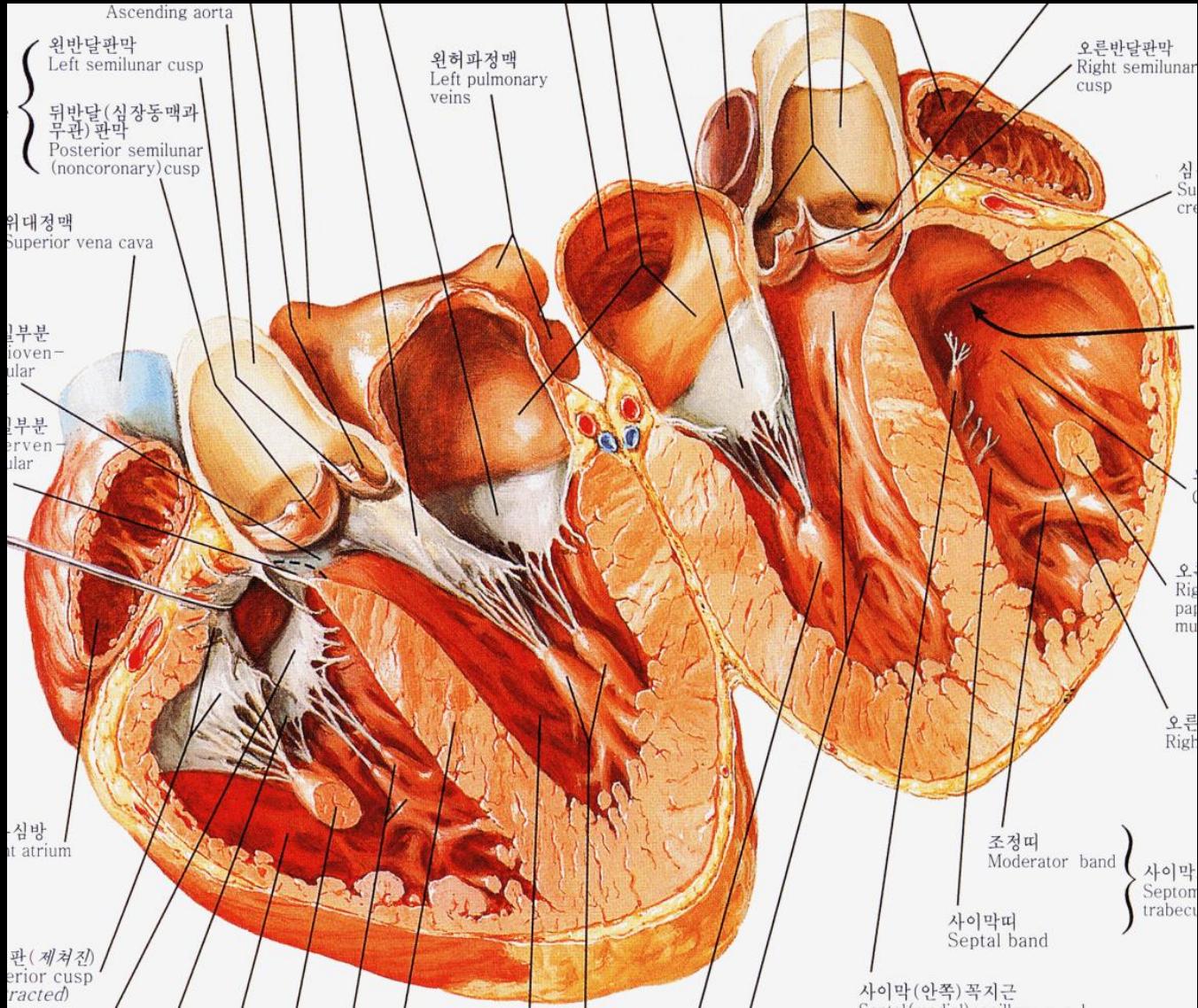
# AVSD (atrioventricular septal defect)

서울아산병원 소아심장외과

최은석







# Terminology

- Atrioventricular septal defect (AVSD)
- Atrioventricular canal defect
- Endocardial cushion defect (ECD)

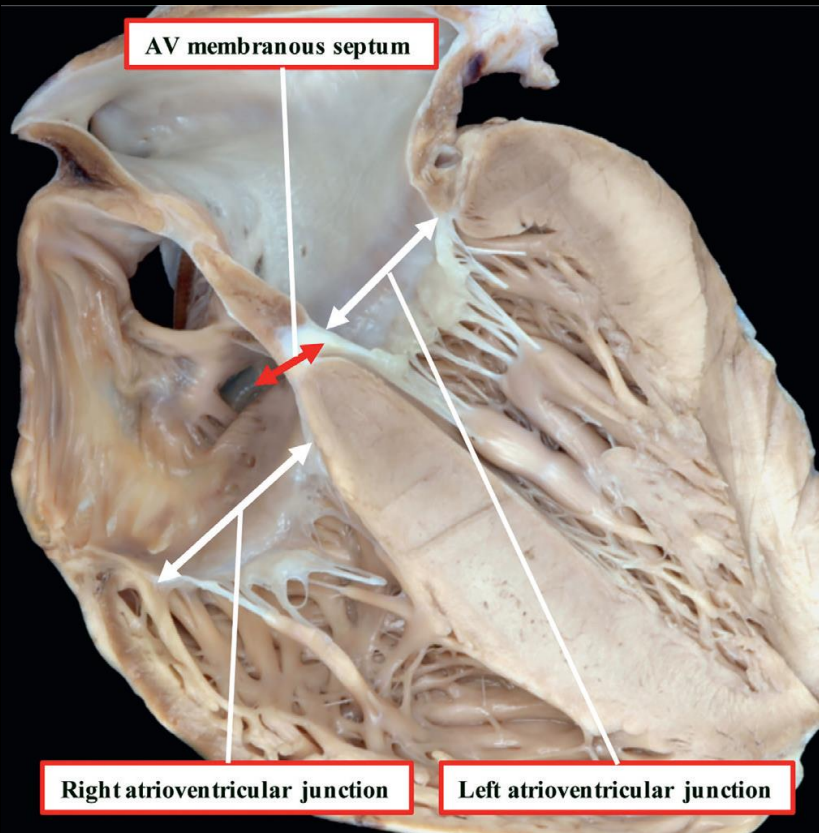


# AVSD

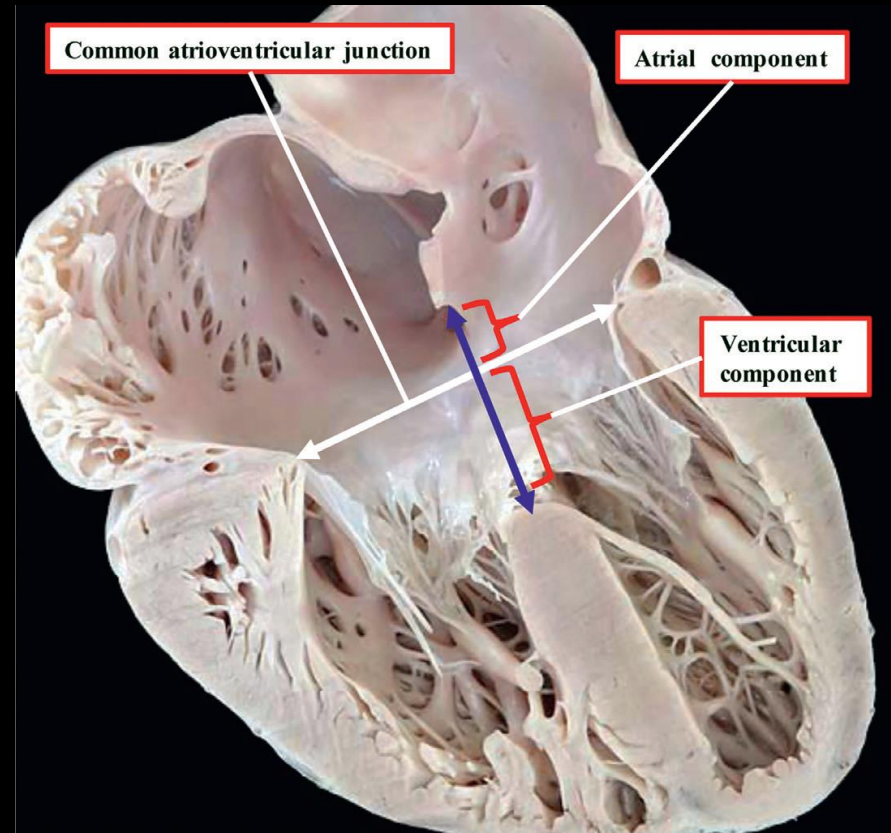
- 5%
- Down syndrome
- **Anatomic features**
  - **Common atrioventricular junction**
  - **Trifoliate left AV valve**
  - **Unwedging of aortic valve**



# Common AV Junction

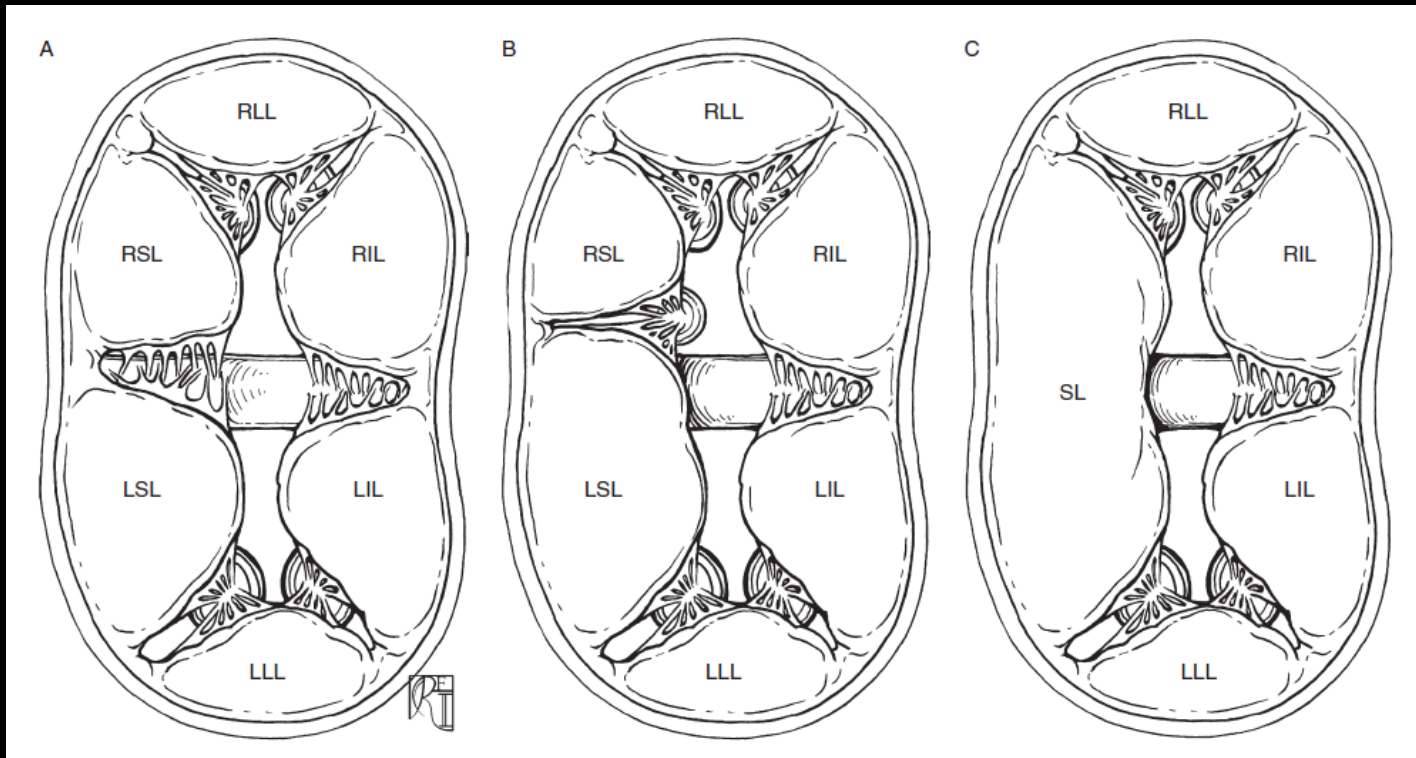


Normal Heart



AVSD

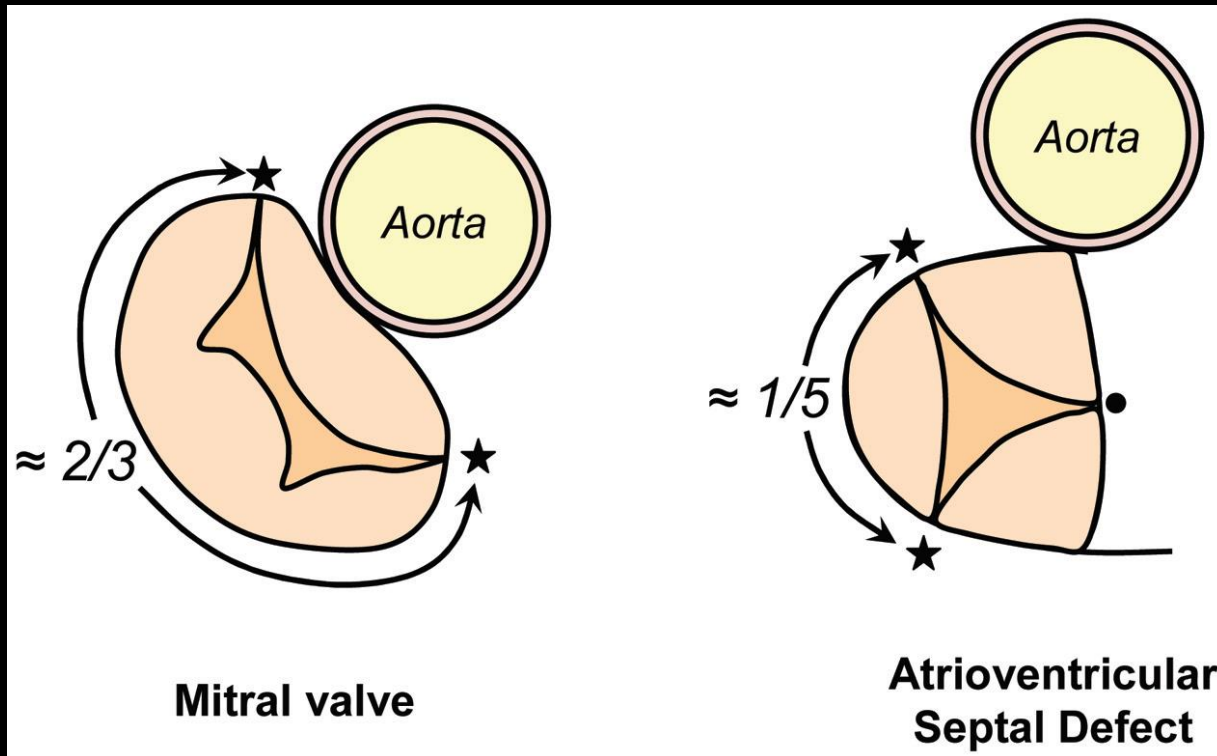




- Superior (anterior) bridging (common) leaflet
- Inferior (posterior) bridging (common) leaflet
- Left mural (lateral) leaflet
- Right mural (lateral) leaflet

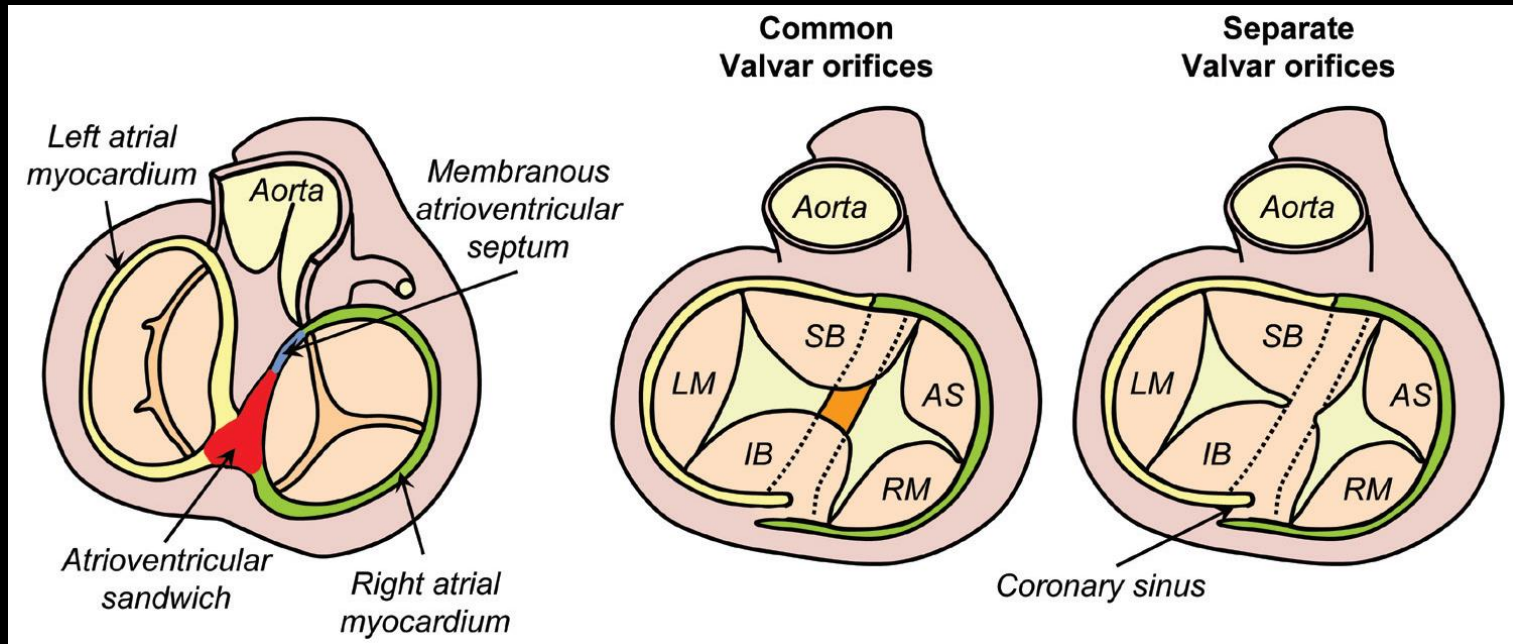


# Trifoliate Left AV Valve





# Unwedging of Aortic Valve

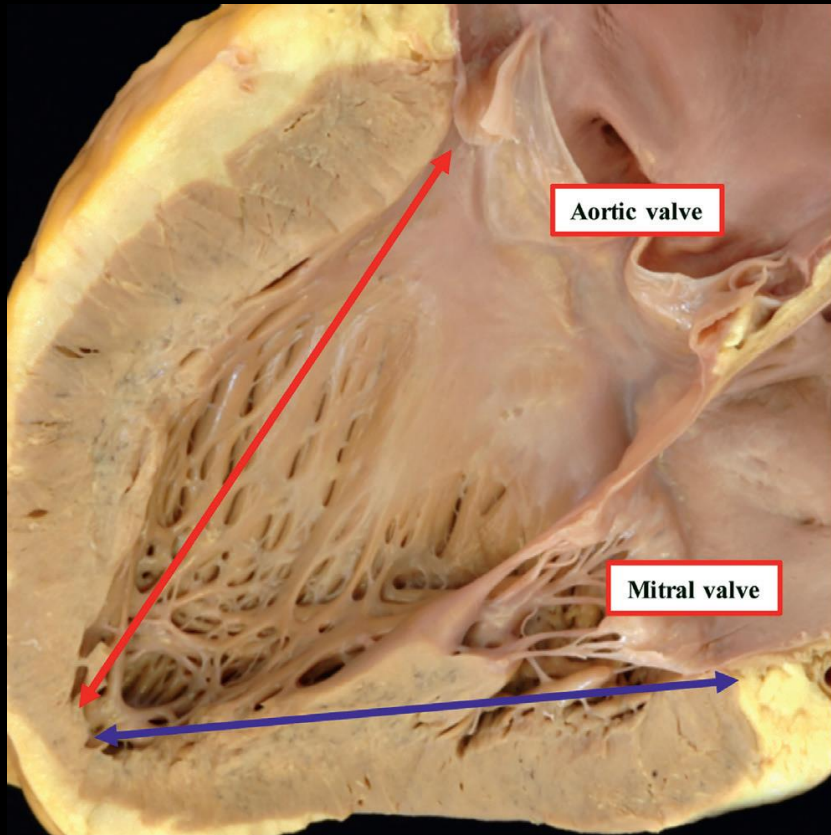


Normal Heart

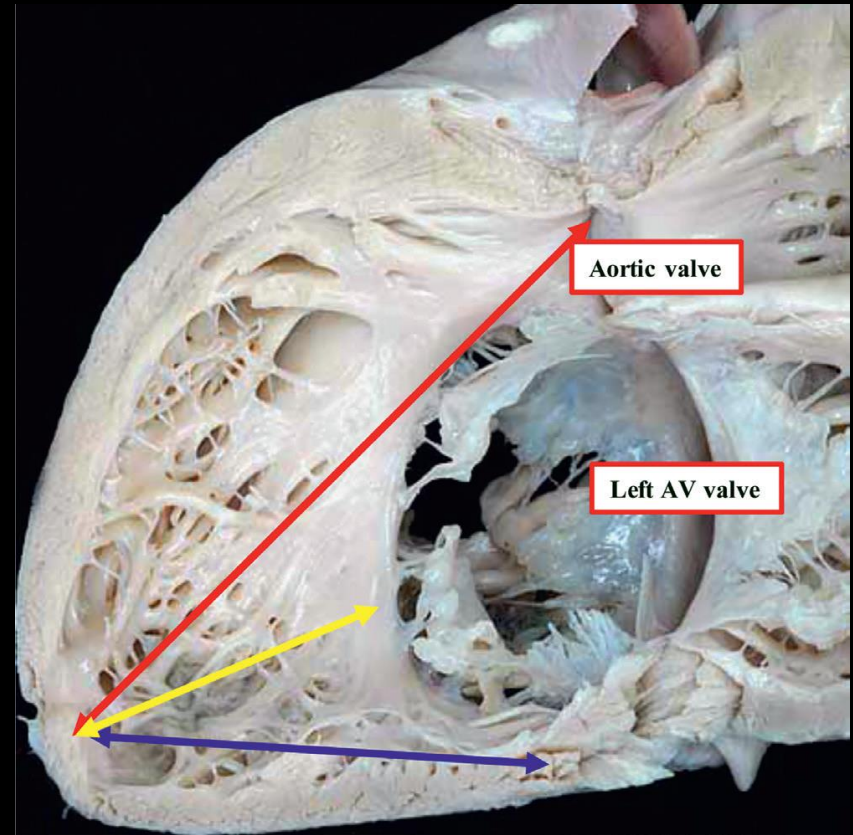
AVSD



# Dimension of the LV: Inlet $\neq$ Outlet

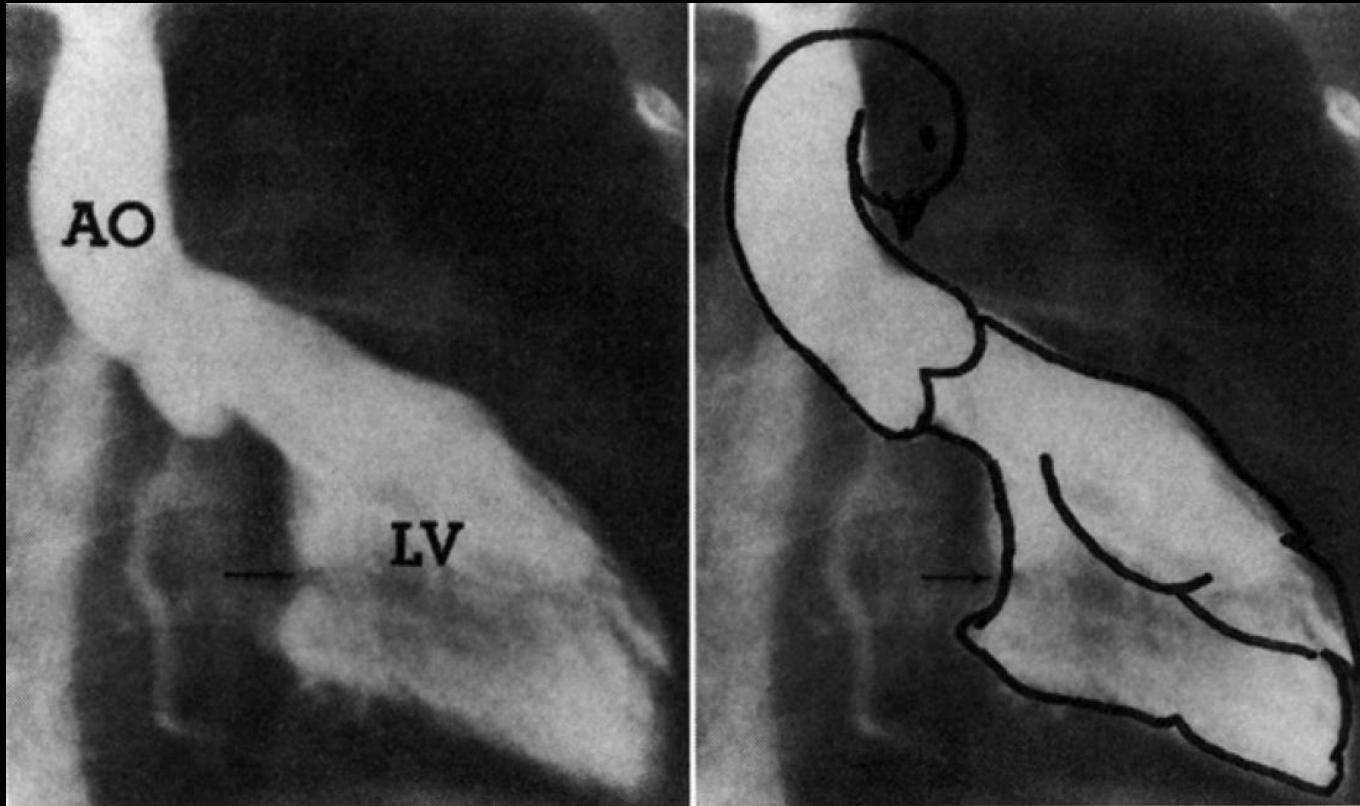


Normal Heart



AVSD





- LVOT is elongated and narrowed
  - **Goose-neck deformity**
  - Caused by the unwedging of the aorta

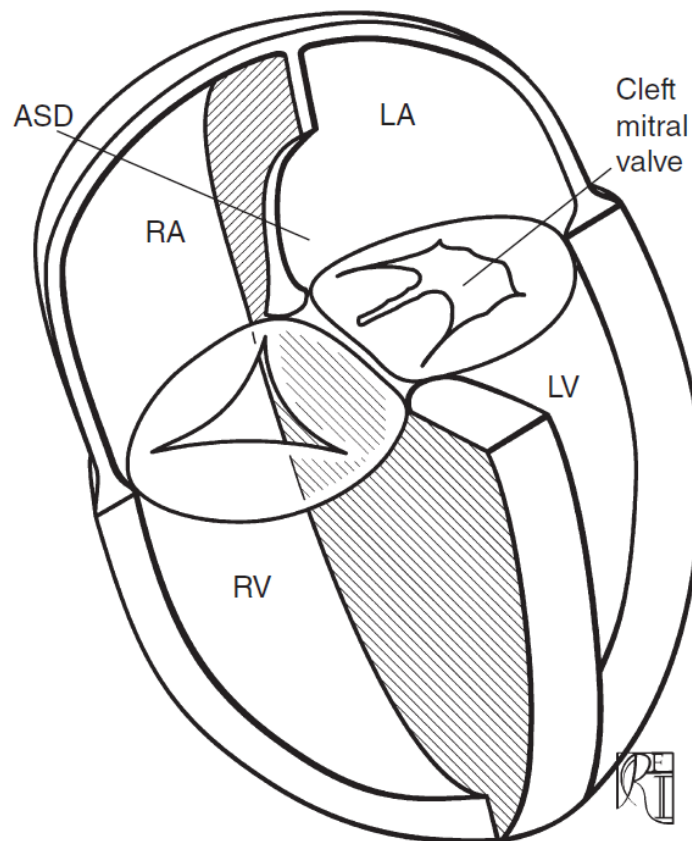


# Wide Spectrum

- **AVSD**
  - **Partial**
    - Intermediate (transitional)
  - **Complete**
    - AVSD with TOF
    - AVSD with DORV
    - Unbalanced AVSD
    - Heterotaxy syndrome



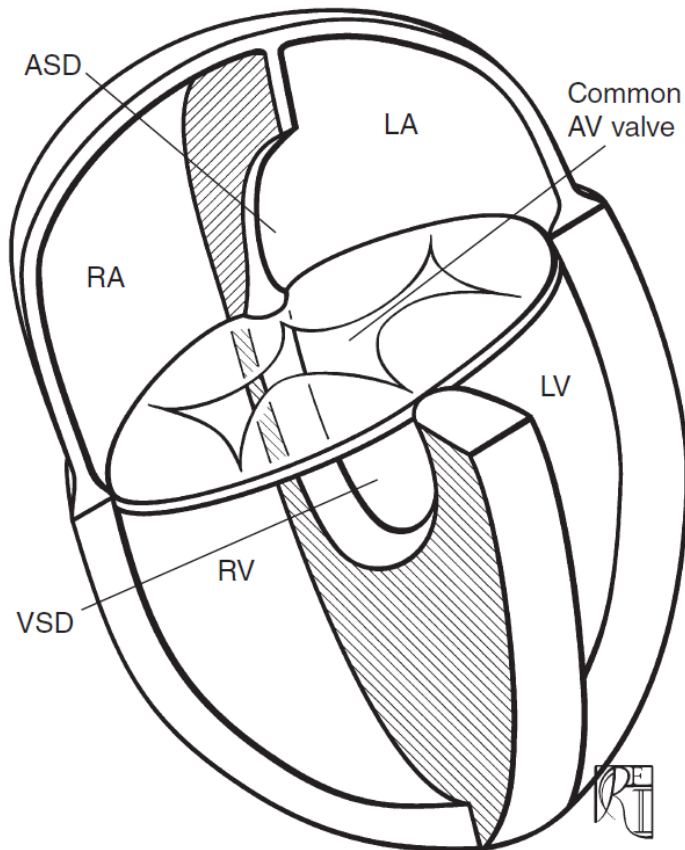
# Partial AVSD



- ASD
  - Primum
- Left AV valve cleft
  - insufficiency



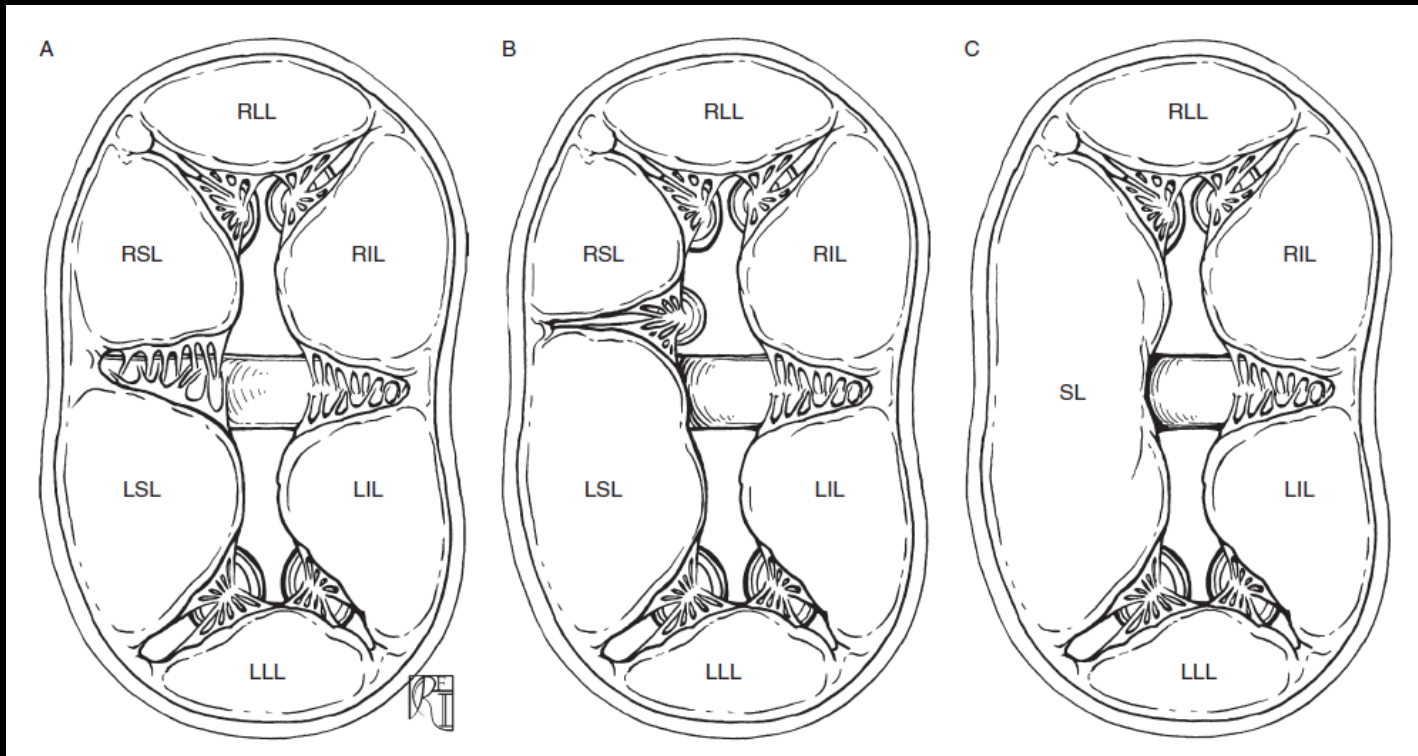
# Complete AVSD



- VSD
- ASD
- Common AV valve
- Bridging leaflet



# Rastelli classification



70%

10%

20%



# Hemodynamics

- **Left to right shunting**
  - ASD
  - VSD
  - AV valve regurgitation
- **AV valve regurgitation**





# Symptom and Sign

- **Congestive heart failure**
  - Poor feeding
  - Inadequate weight gain
  - Tachypnea
  - Sweating
  - Frequent URI



# Diagnosis

- **Echocardiography**
  - VSD, ASD
  - Valvular abnormalities
  - Associated anomalies

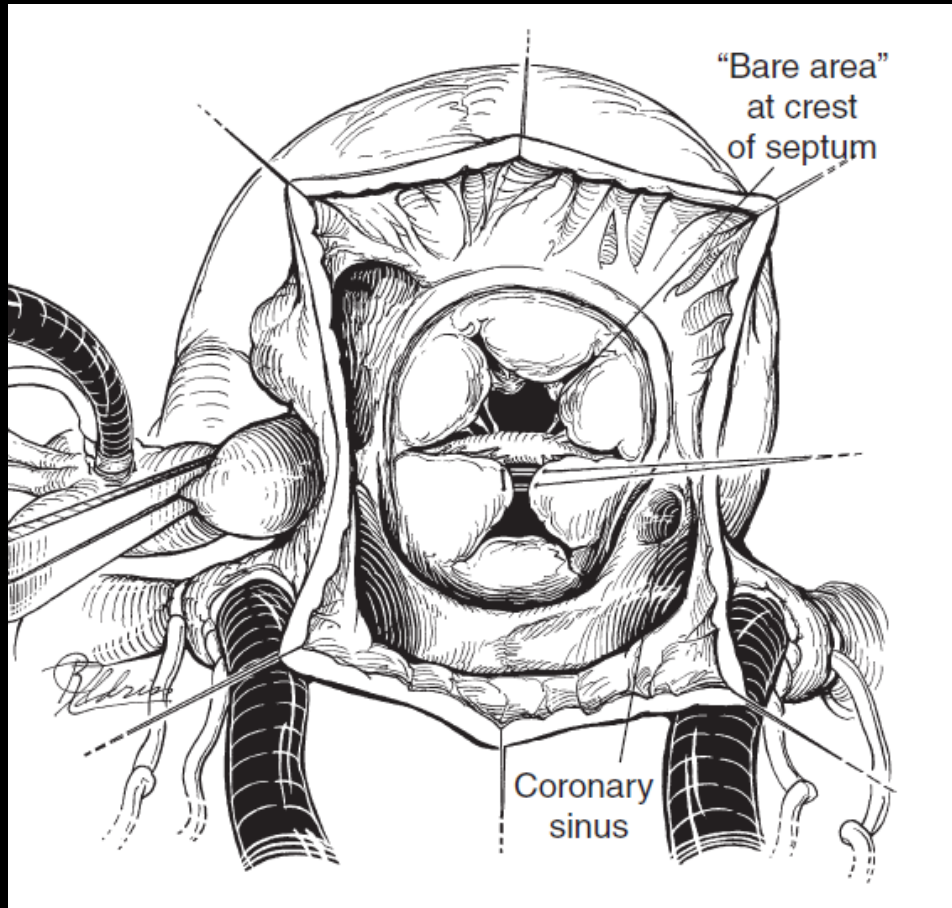


# Operations

- **Timing**
  - Partial: 1 to 4 years
  - Complete: 3 to 5 months
  - Exceptions
- **Early** primary repair
  - vs. **PAB**
- **Intraoperative TEE**

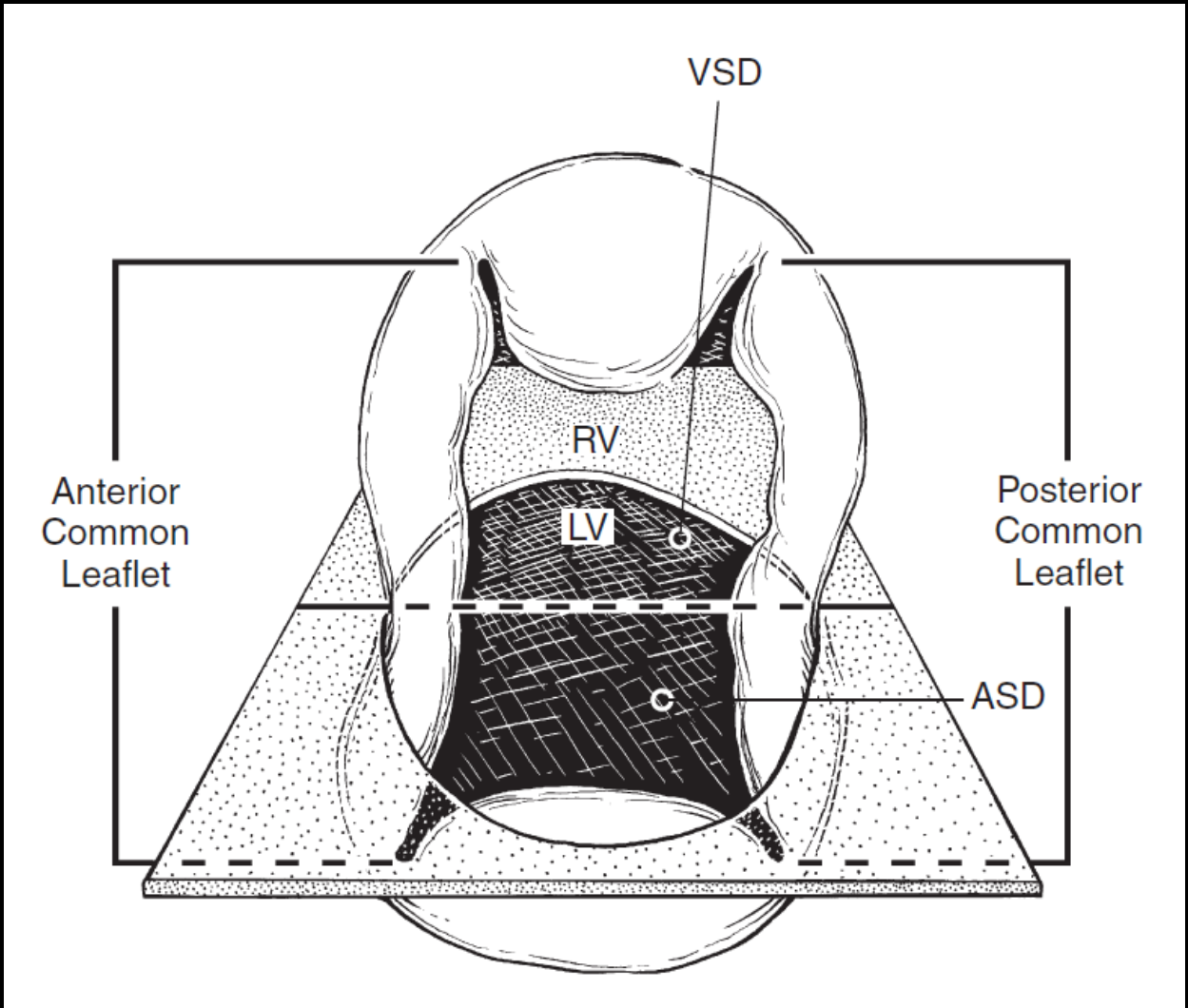


# Surgical repair of cAVSD

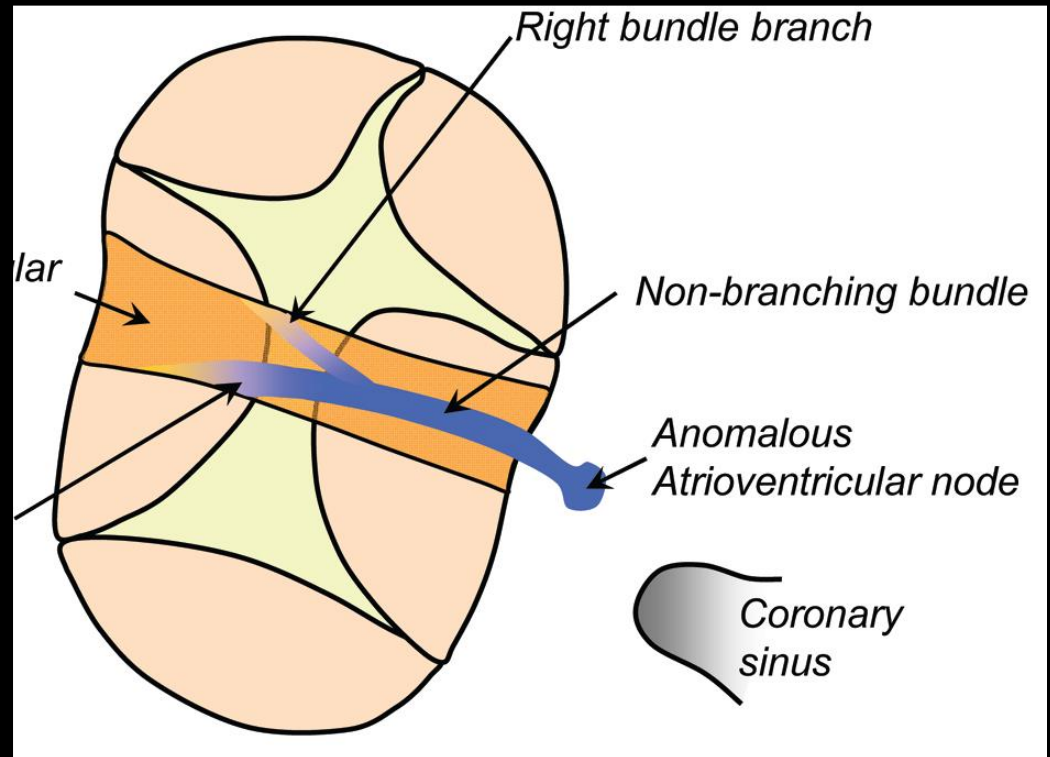
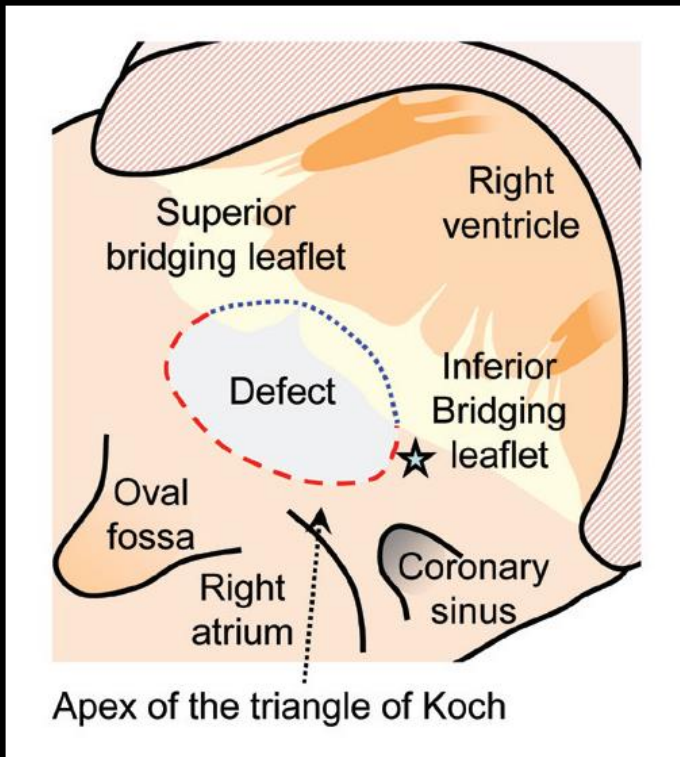


- Septal defects closure
- AV valve repair
  - Cleft closure
  - annuloplasty

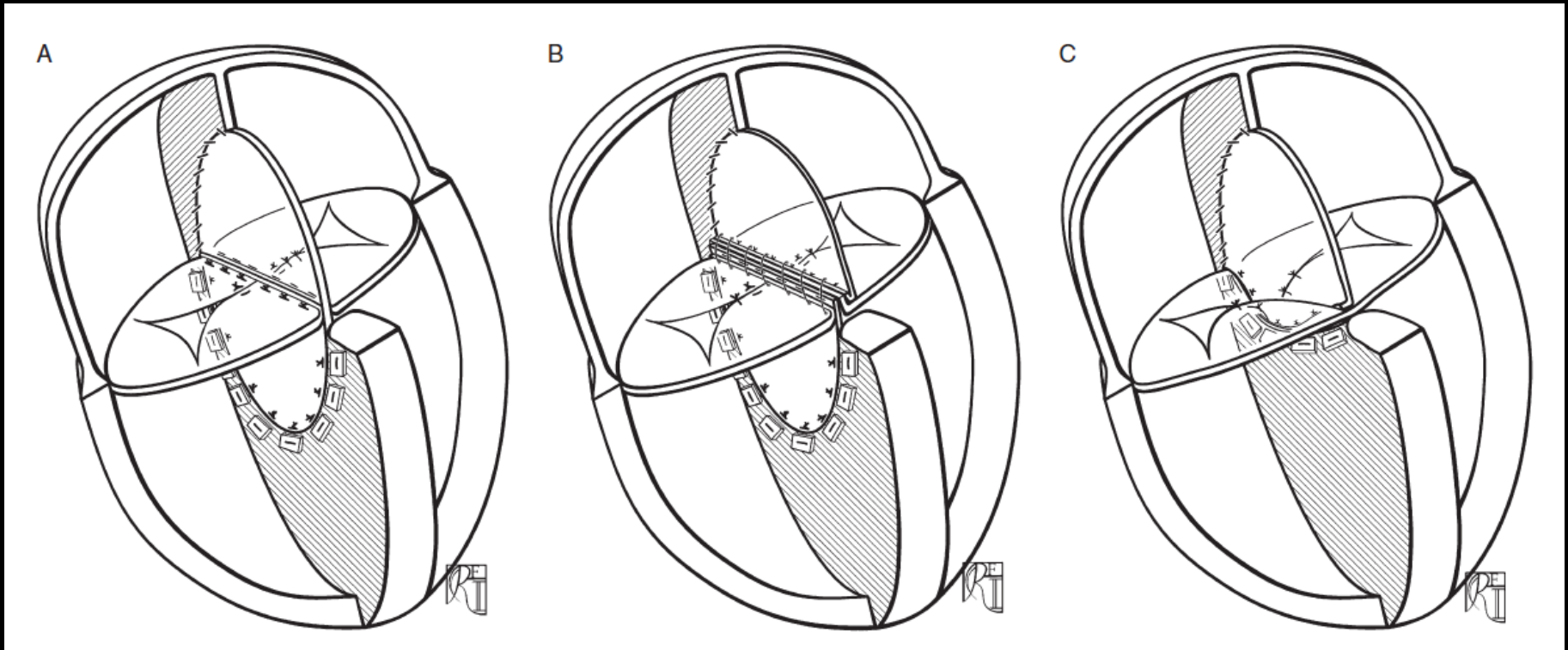




# AV conduction



# Different Surgical Techniques



Single-patch

Two-patch

Mod. single-patch

# Postoperative Complications

- Pulmonary hypertensive crisis
- Complete AV block

- Left AV valve insufficiency
- LVOTO





# Prognostic Factors

- Age at operation
- Preop. valve incompetence
- Double orifice left AV valve
- Zone of apposition
- Trisomy 21



# CASE



서울아산병원  
소아청소년병원 심장외과  
Asan Medical Center Children's Hospital Cardiac Surgery



# Brief Hx

- GA 38+6 wks
- 2.8 kg, female
- OPD f/u for AVSD

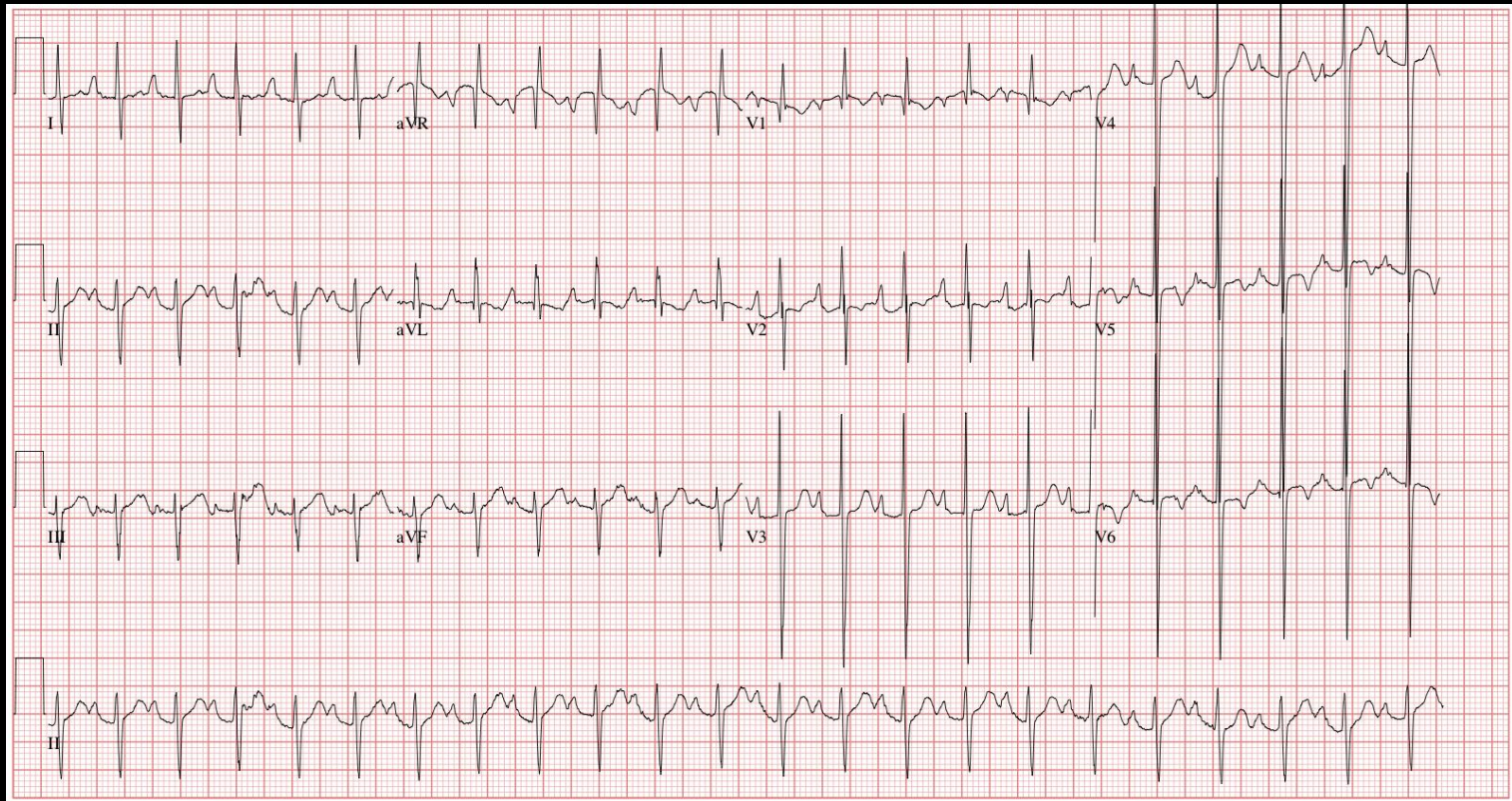


# Preop. CXR

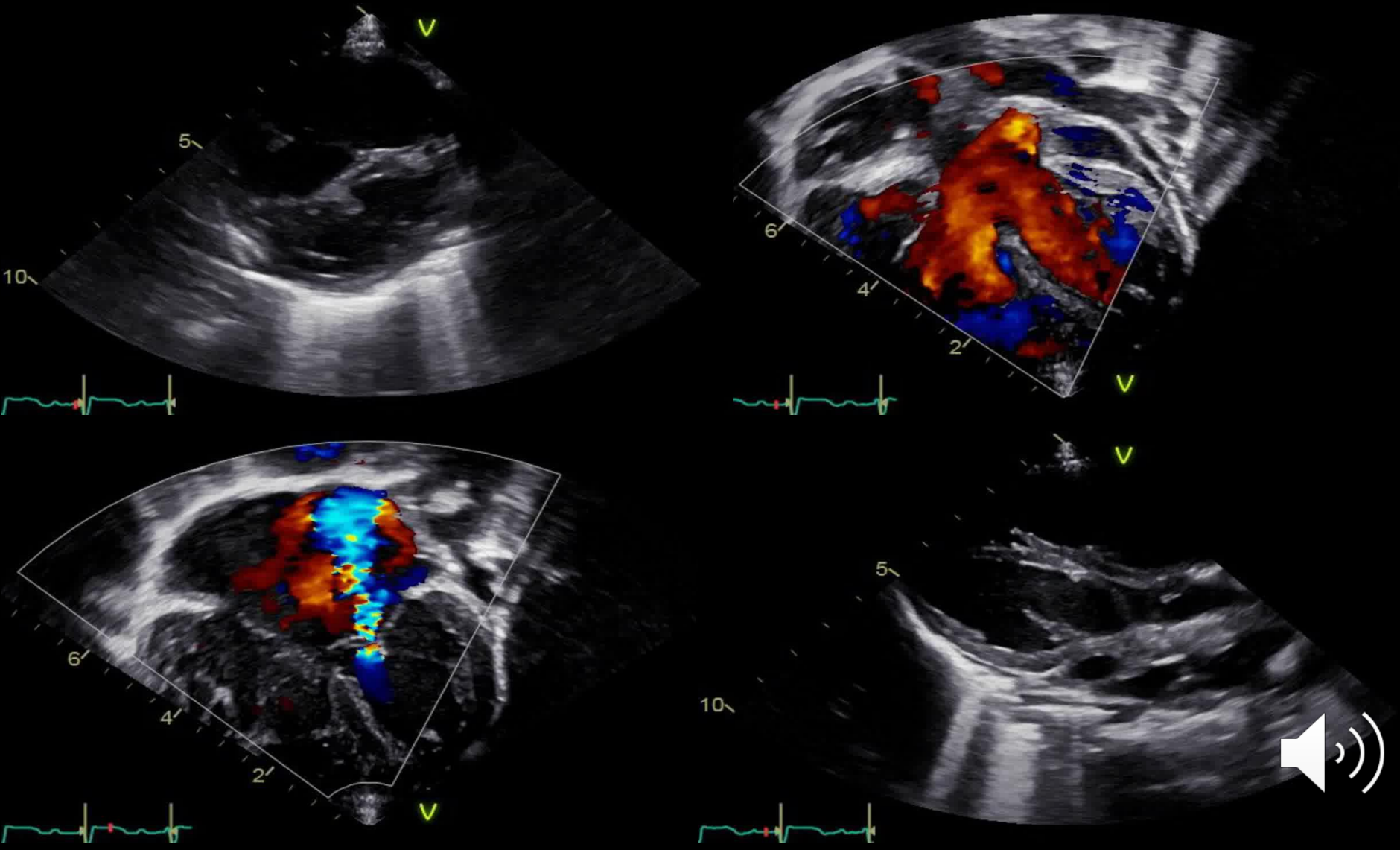
R



# Preop. ECG



# Preop. EchoCG



# Operation

- F/14 mon, 6.9kg
- Diagnosis
  - Complete AVSD
    - Spontaneously closed VSD
    - Left AV valve regurgitation (moderate to severe)
    - ASD (single atrium)
- Operation
  - Atrial partitioning
  - AV valve repair





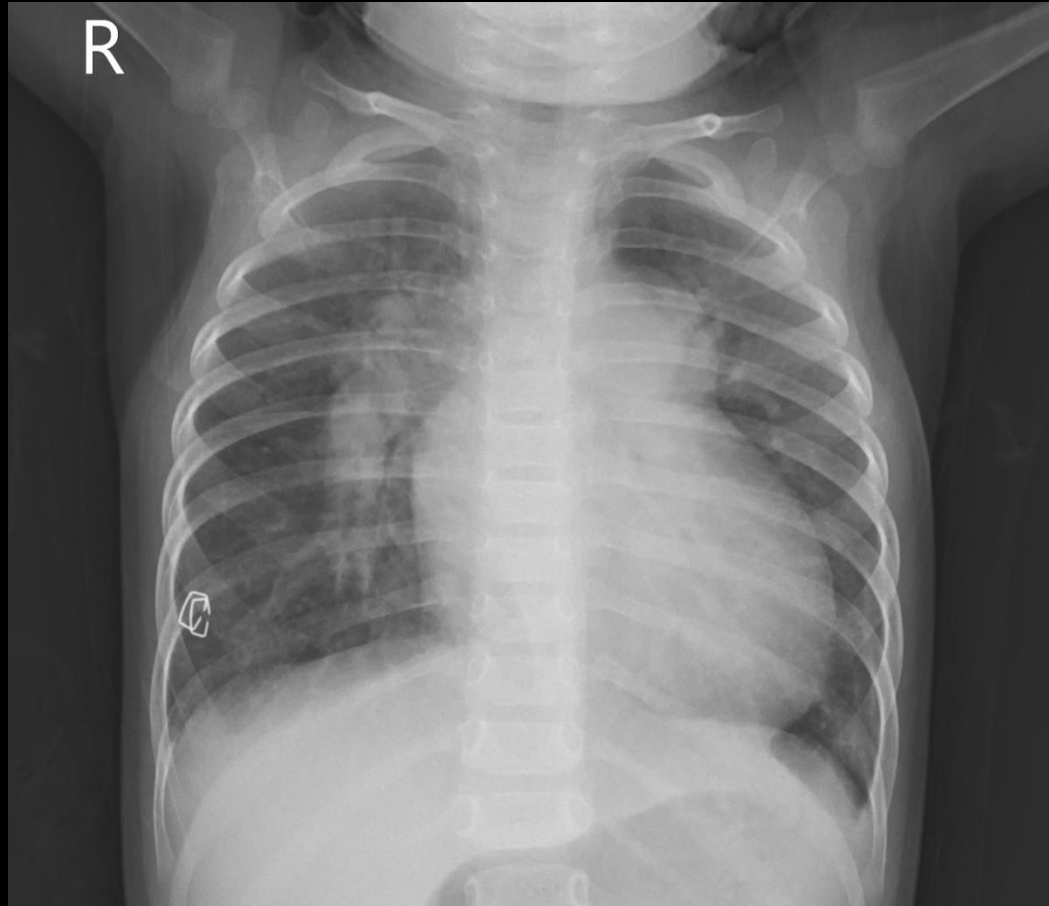


# Postop. course

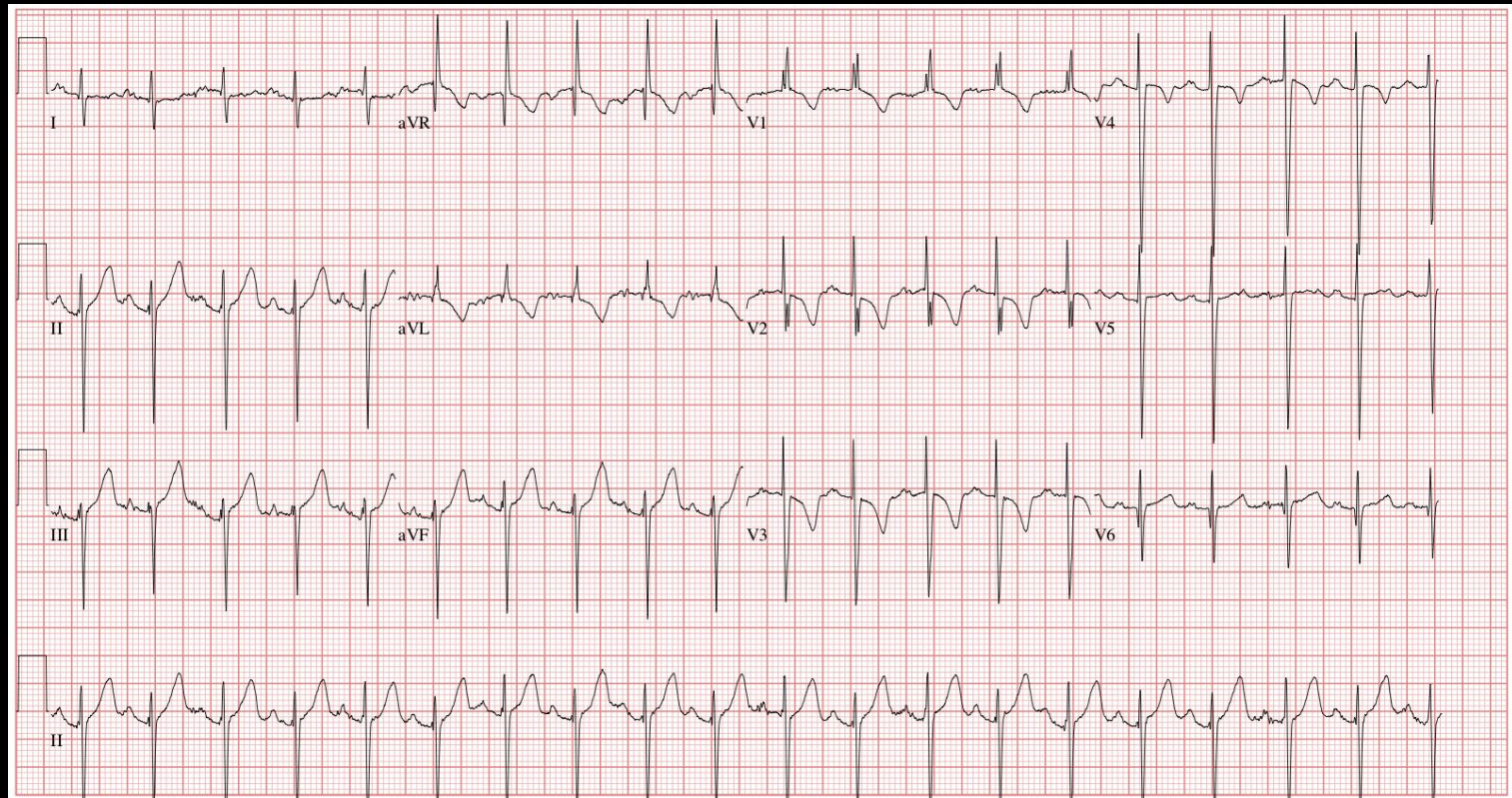
- POD #1 extubation
- POD #3 Transfer to general ward
- POD #8 discharge



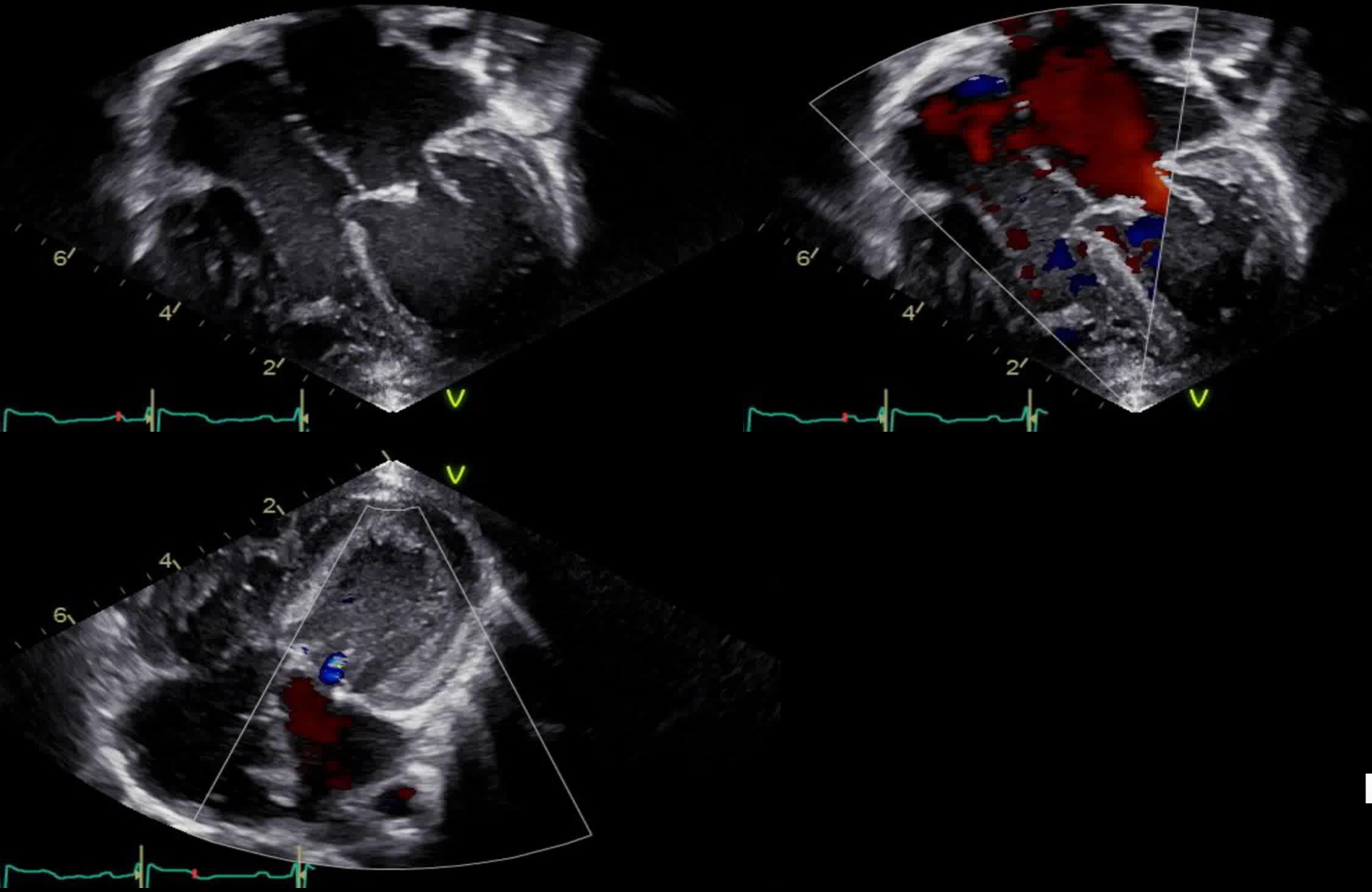
# Postop. CXR



# Postop. ECG



# Postop. EchoCG



# Take-home message

- AVSD

- Anatomic features

- **Common atrioventricular junction**

- **Trifoliate left AV valve**

- **Unwedging of aortic valve**



# Reference

- Stark JF. (2007). *Surgery for Congenital Heart Defects* (3<sup>rd</sup> ed.)
- Mavroudis C, Backer CL. (2013). *Pediatric Cardiac Surgery* (4<sup>th</sup> ed.)

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