

Classification according to location

- Secundum ASD (75-85%)
 - ↳ in the region of fossa ovalis, may be associated with:
 - PAPVR
 - Pulmonic stenosis
 - Mitral valve prolapse
 - ↳ Small: asymptomatic, closes within 1st yr spontaneously
 - ↳ Large: Dilatation of RA + RV, symptomatic later on.
- Primum ASD (10-15%)
 - ↳ at lower portion, usually large, associated with:
 - cleft mitral valve
 - Common AV canal
- Sinus venous defects
- Sinus venous defects of IVC type
- Coronary sinus defect

- CVA resulting from paradoxical embolization is a rare complication but important
- Atrial fibrillation / Flutter is a late complication
- Lutembacher syndrome: ASD + Mitral stenosis (from rheumatic fever)
- platypnea - orthodeoxia
 - ↳ Dyspnea induced by the upright position + relieved by recumbency
 - ↳ Arterial desaturation in the upright position with improvement during recumbency

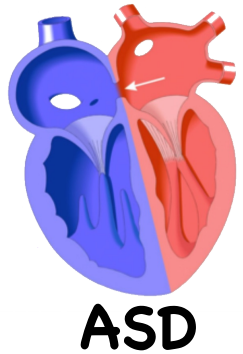
- ### Heart Sounds & Murmur
- Wide fixed splitting of S2
 - Accenuated S2 due to pulmonary HTN
 - No murmur

Hemodynamics

Blood returned from lungs to LA then :

- ± 2/3 to LV then aorta (low CO)
- ± 1/3 to RA + RV to pulmonary artery (Pulmonary plethora)

Later on pulmonary HTN occurs + Shunt reversal with cyanosis



ECG

- RAD, rSR' in V1
- LAD in Ostium Primum defect
- Tall P wave; R atrial enlargement
- Atrial fibrillation, Atrial flutter

Enlarged P wave indicating Right atrial hypertrophy

Also note that the aVF is predominantly negative as compared to Lead I indicating Right Axis Deviation

rSR' seen and tall R wave indicating RBBB and RVH

LAD with rSR' in V1 is suggestive of Ostium primum defect

Treatment

Amplatzer-occlusion device + Surgery

Chest X-Ray

- Dilatation of RA + RV
- Enlarged main pulmonary arteries + pulmonary vessels



Chromosomal disorders associated with VSD

- T21, T13, T18
- TOF
- Hand-Heart Syndrome

Classification

1. Type I (Conal, outlet, Subpulmonic)

- Not common
- Spontaneous closure uncommon
- Associated with aortic regurgitation

2. Type II (perimembraneous)

- Most common
- Close spontaneously

3. Type III (AV canal, Inlet)

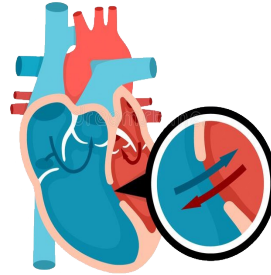
- Associated with AV defect
- Doesn't close spontaneously

4. Type IV (Muscular)

- often multiple
- close spontaneously

Hemodynamics

- During ventricular contraction, some of blood leaks from LV to RV, passes through the lungs & reenters the LV, this has 2 net effects:
 1. Volume overload on LV
 2. Pulmonary HTN with pressure overload on RV



VSD

The most common congenital heart disease

Murmur & Heart sounds

- PSM at left sternal border, Max intensity is best heard at 3rd, 4th, 5th left interspace
- Accentuated S2 due to pulmonary HTN

Small restrictive VSD

- 75% Spontaneously closed < 2yrs
- Rarely produce PH
- Asymptomatic
- Murmur can be present since a few days after birth

Large / Non-restrictive VSD

- Rarely close spontaneously
- Produce PH in less than 2 yrs
- Recurrent chest infection
- Defective growth
- Moderate cyanosis with exertion
- CHF in 1st yr of life
- Functional capacity markedly reduced
- Symptoms develop soon after birth

Symptoms

- Asymptomatic if a small defect
- Low CO symptoms
 - Feeding difficulties
 - Fatigue
 - Forehead sweating
 - FTT
- Recurrent chest infections

Complications

- Heart: HF, infective endocarditis
- Chest: Recurrent chest infections
- Shunt: Eisenmenger Syndrome

Eisenmenger Syndrome

- Shunt reversal (R→L)
- Cyanosis
- Permanently damages the BV in the lung

Chest X-Ray

- Cardiomegaly
- ↑ pulmonary blood flow (plethora)



ECG

- Biventricular hypertrophy (L then R)
 - ↳ Katz-Wachtel sign: large biphasic QRS complexes in V2-4

