SNS COLLEGE OF PHYSIOTHERAPY

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Coimbatore– 641035

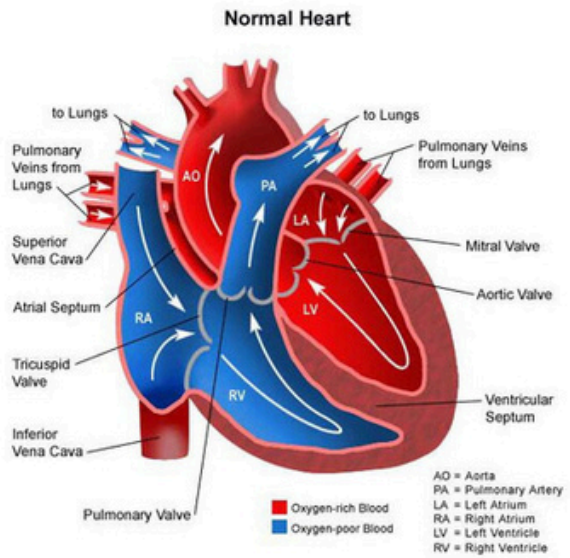
COURSE NAME :Clinical cardio respiratory

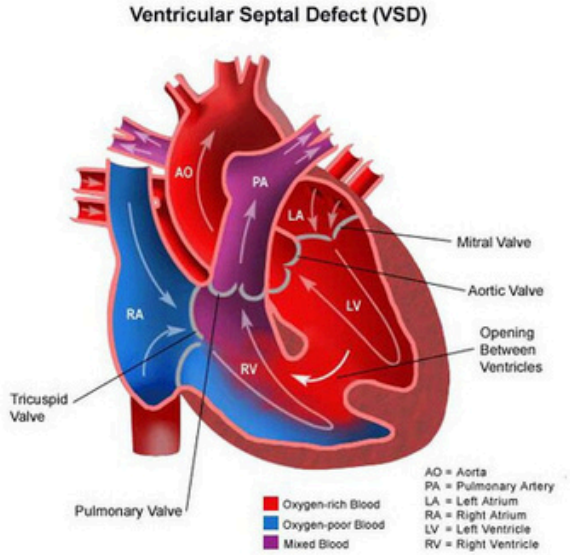
SUBJECT CODE : 6286

TOPIC : Ventricular Septal Defect (VSD)

INTRODUCTION

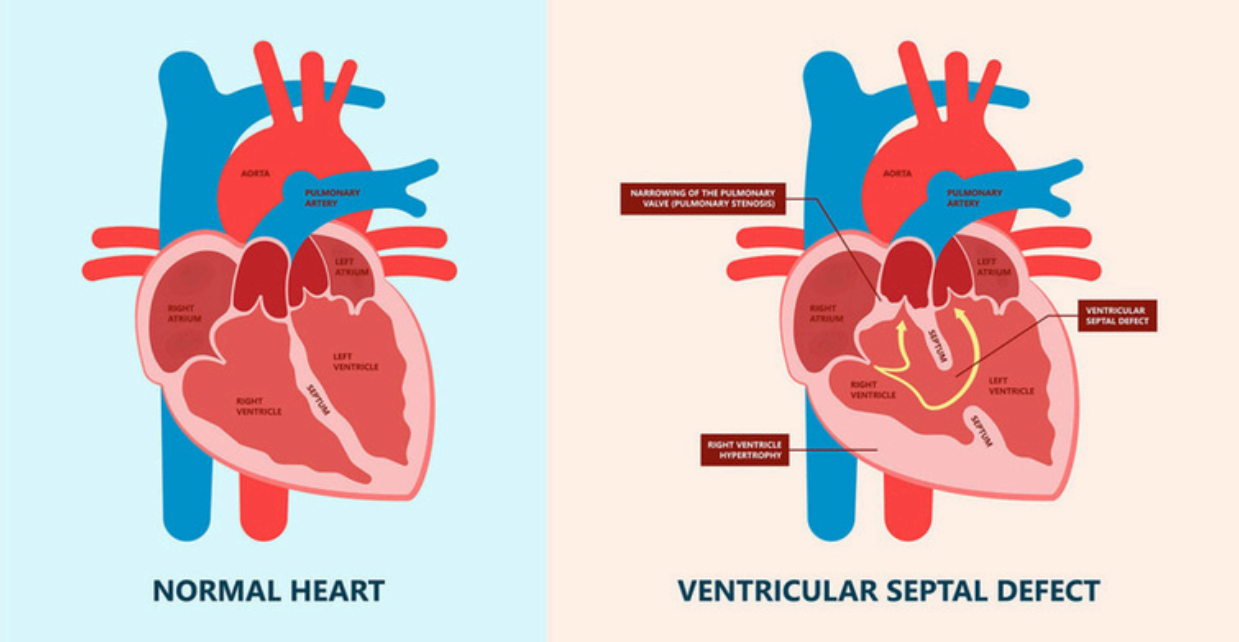
- Ventricular Septal Defect (VSD) is the most common congenital heart defect.
- It is characterized by an abnormal opening in the ventricular septum, leading to abnormal blood flow between the right and left ventricles.
- This results in increased pulmonary blood flow and may cause pulmonary hypertension and heart failure if not treated early





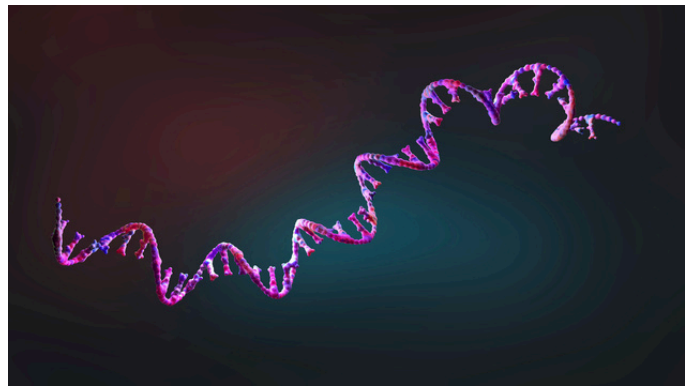
DEFINITION

Ventricular Septal Defect (VSD) is a congenital cardiac anomaly in which there is an opening in the interventricular septum, allowing blood to pass from the left ventricle to the right ventricle.



CAUSES

- Congenital failure of ventricular septum formation
- Genetic factors
- Maternal infections (rubella)
- Alcohol or drug exposure during pregnancy
- Chromosomal abnormalities
- Association with other congenital heart diseases



PATHOPHYSIOLOGY

- Left ventricular pressure is higher than right ventricular pressure
- Blood flows from left ventricle to right ventricle (left-to-right shunt)
- Increased pulmonary blood flow

  Volume overload of left atrium and left ventricle
- Leads to:

  > Pulmonary hypertension

  > Left ventricular hypertrophy

  > Congestive heart failure

  > Eisenmenger's syndrome (late stage)

TYPES

- Membranous (most common)
- Muscular
- Inlet
- Outlet

CLINICAL FEATURES

- Small VSD
  - Often asymptomatic
  - Loud systolic murmur
- Moderate to Large VSD
  - Breathlessness
  - Poor feeding and failure to thrive (infants)
  - Recurrent respiratory infections
  - Excessive sweating
  - Fatigue
  - Signs of heart failure

DIAGNOSIS

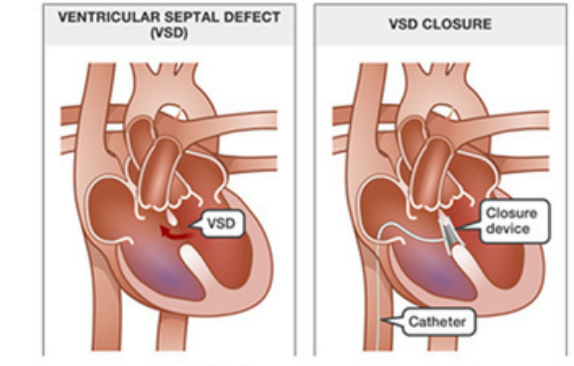
- Clinical examination: Harsh pansystolic murmur
- Chest X-ray: Cardiomegaly, increased pulmonary vascular markings
- ECG: Left ventricular hypertrophy
- Echocardiography: Gold standard
- Cardiac catheterization: To assess pulmonary pressures (if required)

Medical management

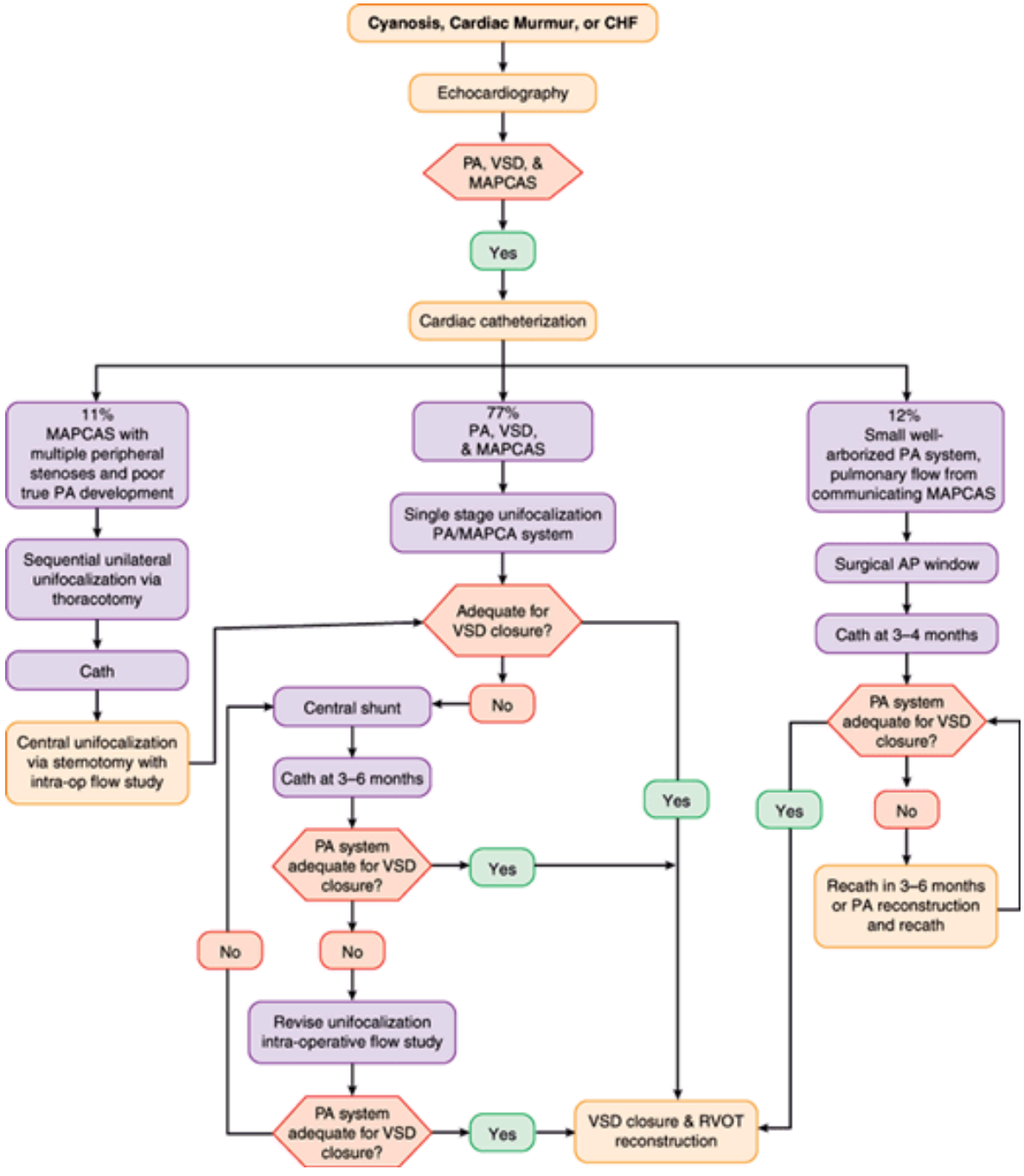
- Observation for small VSDs (may close spontaneously)
- Diuretics to reduce pulmonary congestion
- ACE inhibitors to reduce cardiac workload
- Digoxin for heart failure
- Nutritional support in infants
- Antibiotic prophylaxis if indicated

SURGICAL MANAGEMENT

1. Surgical closure using patch
2. Transcatheter device closure (selected cases)
3. Surgery indicated for:
   - Large VSD
   - Heart failure not responding to medical treatment
   - Pulmonary hypertension
4. Early surgical correction improv



VENTRICULAR SEPTAL DEFECT (VSD)- HOLE IN THE PARTITION BETWEEN THE VENTRICLES (BOTTOM CHAMBERS OF HEART)


Cyanosis, Cardiac Murmur, or CHF
Echocardiography
PA, VSD, & MAPCAS
Yes
Cardiac catheterization
11% MAPCAS with multiple peripheral stenoses and poor true PA development
77% PA, VSD, & MAPCAS
12% Small well-arborized PA system, pulmonary flow from communicating MAPCAS
Sequential unilateral unifocalization via thoracotomy
Single stage unifocalization PA/MAPCA system
Surgical AP window
Cath
Adequate for VSD closure?
Cath at 3–4 months
Central unifocalization via sternotomy with intra-op flow study
Central shunt
No
PA system adequate for VSD closure?
Cath at 3–6 months
Yes
Yes
No
PA system adequate for VSD closure?
Yes
No
Recath in 3–6 months or PA reconstruction and recath
No
No
Revise unifocalization intra-operative flow study
PA system adequate for VSD closure?
Yes
VSD closure & RVOT reconstruction

In class assessment

1. Define Ventricular Septal Defect.
2. Which ventricle has higher pressure in VSD?
3. Name the most common type of VSD.
4. What is the direction of shunt in VSD?
5. Mention one clinical feature of large VSD.
6. Name the gold standard investigation for VSD.
7. List one complication of untreated VSD.
8. Mention one role of physiotherapy in VSD.
9. Which syndrome occurs in late untreated VSD?
10. Name one indication for surgical closure of VSD.

Thank you