

# **ATRIAL SEPTAL DEFECT IN PEDIATRICS**



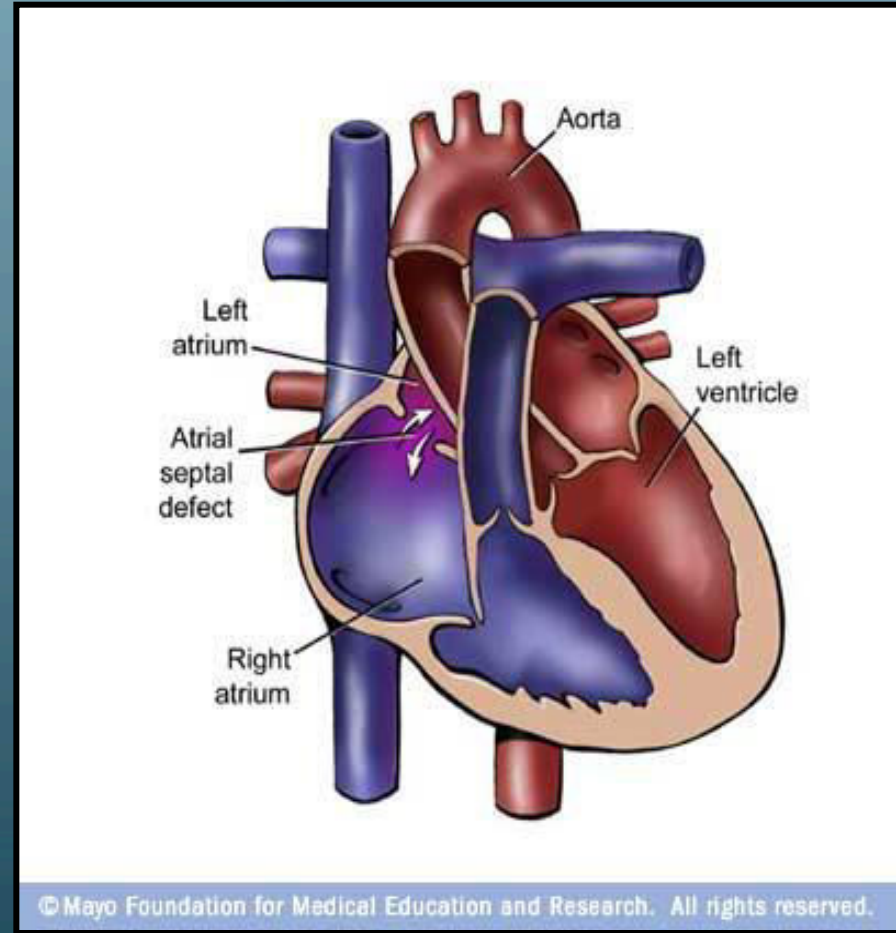
**By**

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**8<sup>th</sup> Semester**

# INTRODUCTION

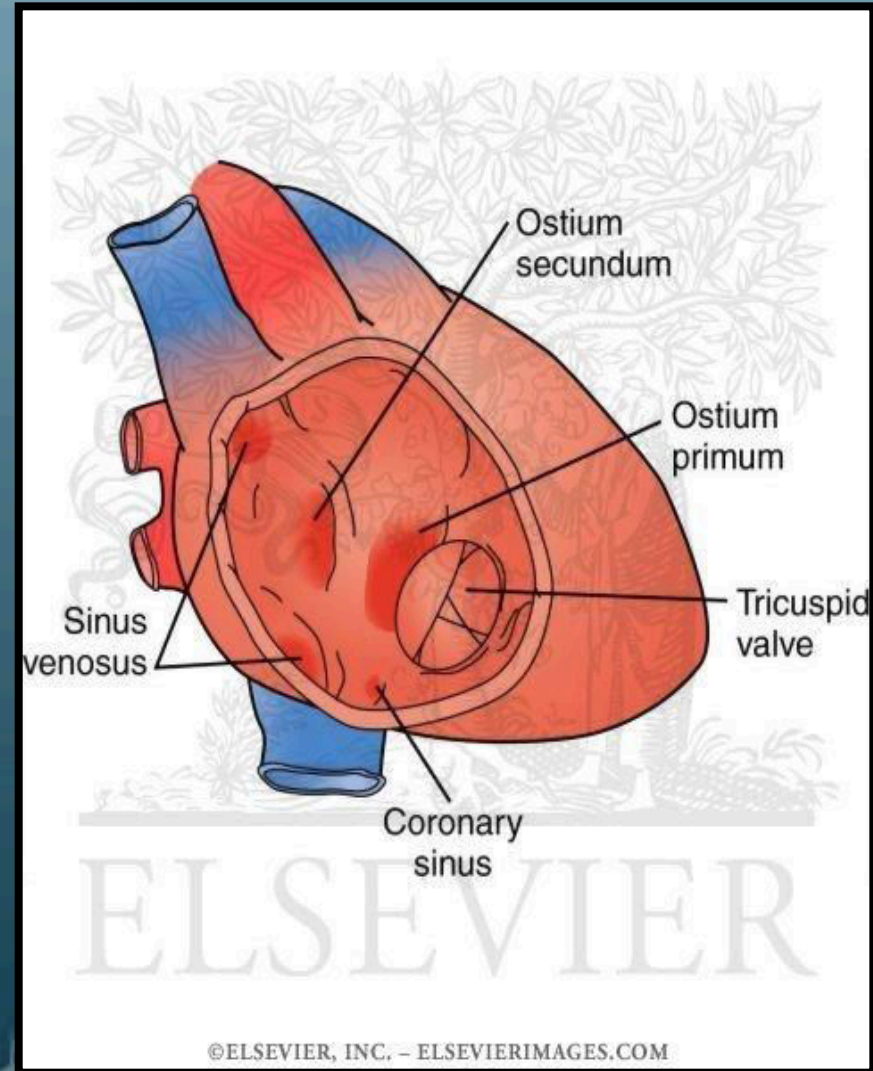
❖ *It is a acyanotic type of congenital heart disease where there is an abnormal communication between the two atria with left to right shunt.*



❖ *Constitutes 13 % of congenital heart diseases.*

# TYPES OF SEPTAL DEFECTS

- *Ostium primum.*
- *Ostium secundum.* (70%)
- *Sinus venosus defect.*
- *Coronary sinus defect.*



# ETIOLOGY

- **Congenital:**

1. *Holt oram syndrome : Atrial septal defect with bony abnormalities.*

2. *Down's syndrome (Trisomy 21).*

3. *Ellis-Van Creveld syndrome.*

4. *Trisomy 13.*

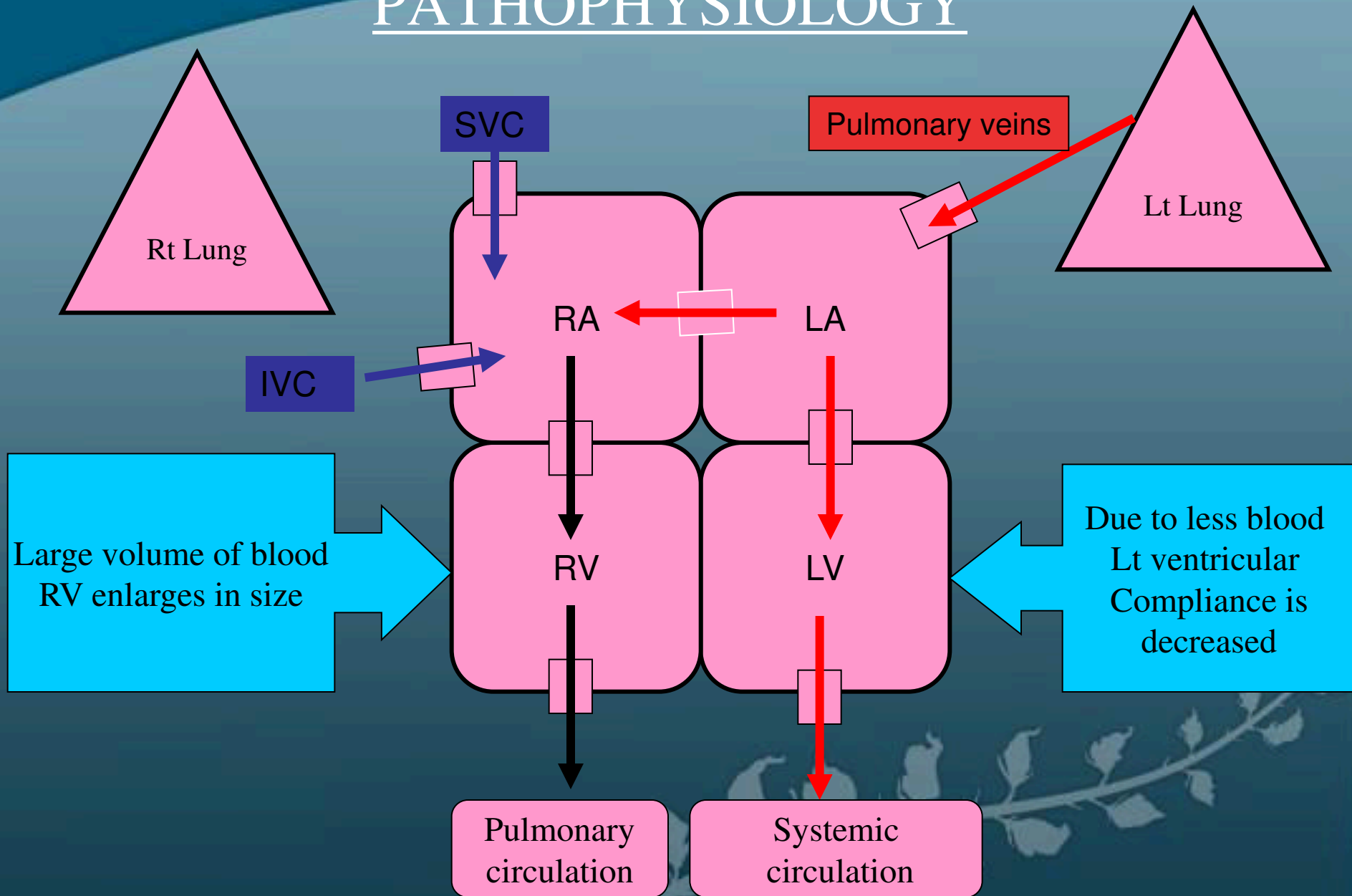
5. *Trisomy 15.*

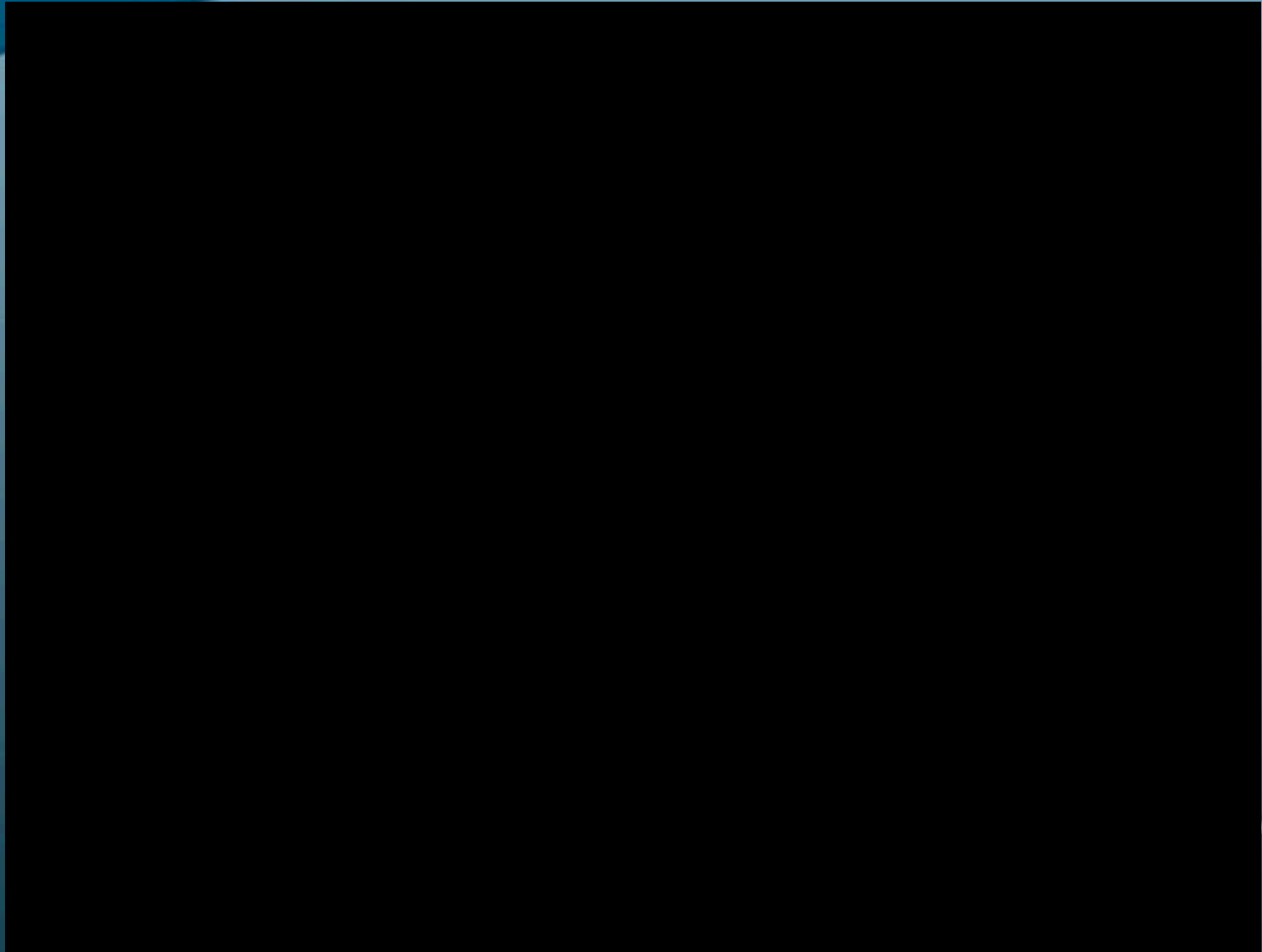
- **Acquired:**

1. *Rubella infection during 1<sup>st</sup> trimester of pregnancy*

2. *Maternal intake of alcohol and drugs like cocaine and Anti Epileptic Drugs*

# PATHOPHYSIOLOGY





RIGHT ATRIUM

Through normal  
tricuspid valve

DELAYED DIASTOLIC  
MURMUR

RIGHT VENTRICLE


Through normal  
Pulmonary valve

EJECTION SYSTOLIC  
MURMUR

PROLONGED EJECTION  
PHASE

PULMONARY ATERY

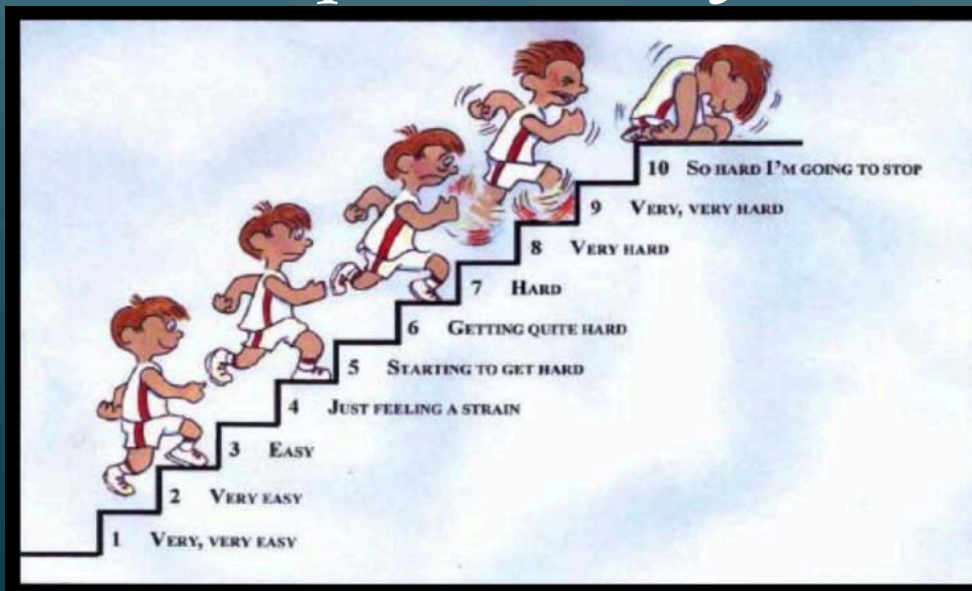
# PRESENTATION

- *Ostium secundum is well tolerated, so patients present late in life.*
  - *Ostium primum is least tolerated (as it is usually associated with cleft in AV valves), so patients present early in childhood.*
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- A decorative graphic of a leafy branch with small leaves, extending from the bottom right corner towards the center of the slide.



# CLINICAL FEATURES

- *Asymptomatic condition*
- *In older children ,*
  - Varying degree of effort intolerance.*
  - Frequent chest infections.*



# CARDIOVASCULAR SYSTEM EXAMINATION

- **On Inspection:**

- i. Mild left precordial bulge*

- **On Palpation :**

- i. Parasternal impulse due to hyperdynamic RV impulse at end of systole.*

- ii. Dilated Pulmonary Artery trunk palpable at 2<sup>nd</sup> lt intercostal space.*

- **On Auscultation:**

i.  $S_1$  in all areas – Normal, can be loud (due to loud tricuspid component)

ii.  $S_2$  in pulmonary area – Wide fixed split with being  $P_2$  accentuated.

## **MURMURS :**

Shunt murmurs : Absent

Flow murmurs: (a). Tricuspid – Delayed diastolic  
(b). Pulmonary – Ejection systolic

## DIAGNOSIS

- **Chest roentgenogram:**

*Cardiomegaly*

*Enlargement of Pulmonary artery.*

*Increased pulmonary vascularity.*

- **Electrocardiogram:**

*Ostium secundum: Right axis deviation.*

*Ostium primum: Left axis deviation  $> 30^\circ$ .*

- **Echocardiogram:**

- a. *Location and size of defect.*

- b. *Right ventricular volume overload.*

- c. *Flattening and abnormal movements of ventricular septum.*

- ❖ *Shunt confirmed by **colour Doppler study.***

## COMPLICATIONS

1. *Frequent chest infections.*
  2. *Atrial fibrillations.*
  3. *Eisenmenger's syndrome.*
  4. *Paradoxical embolisation*
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- A decorative graphic of a leafy branch, rendered in a light blue color, curves across the bottom right corner of the slide.

# TREATMENT

## MEDICAL

Antibiotics for chest Infections.

## SURGICAL

Closure of the defect.

Open heart surgery.

Closed surgery by intravenous Catheterization of closure devices



**Amplatzer PFO Occluder**  
Illustration courtesy of  
AGA Medical Corp.



**CardioSEAL Septal Occluder**  
Illustration courtesy of  
NMT Medical



**Gore Helix Septal Occluder**  
Illustration courtesy of  
W. L. Gore & Associates, Inc.



*Thank You*