SNS COLLEGE OF PHYSIOTHERAPY

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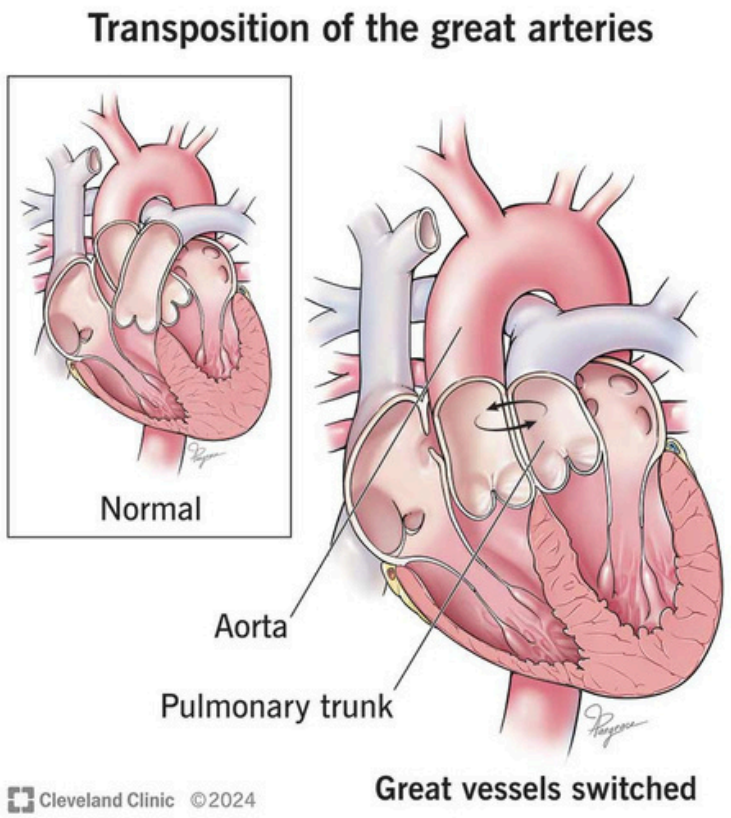
COURSE NAME :Clinical cardio respiratory

TOPIC : Transposition of the Great Vessels (TPGV / TGA)

SUBJECTBCODE : 6286

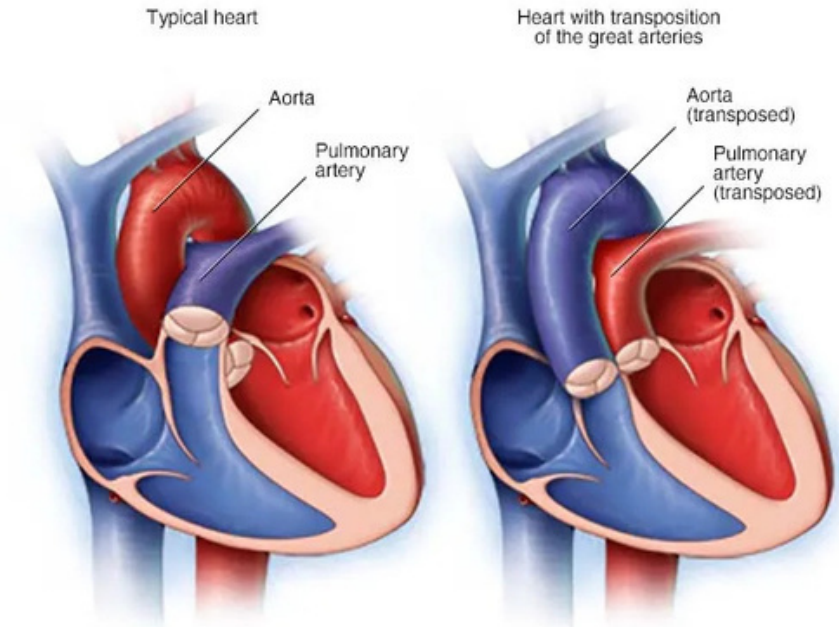
INTRODUCTION

- Transposition of the Great Vessels is a severe cyanotic congenital heart disease in which the positions of the aorta and pulmonary artery are reversed.
- As a result, oxygen-poor blood circulates through the body while oxygen-rich blood circulates through the lungs, leading to severe hypoxemia soon after birth.
- Survival depends on the presence of mixing between systemic and pulmonary circulation.



Definition

Transposition of the Great Vessels (TPGV) is a congenital cardiac defect in which the aorta arises from the right ventricle and the pulmonary artery arises from the left ventricle, resulting in parallel rather than series circulation



Causes

- Congenital abnormal development of the truncus arteriosus
- Genetic factors
- Maternal diabetes
- Maternal infections (e.g., rubella)
- Alcohol or drug exposure during pregnancy
- Often associated with other defects (ASD, VSD, PDA)

Pathophysiology

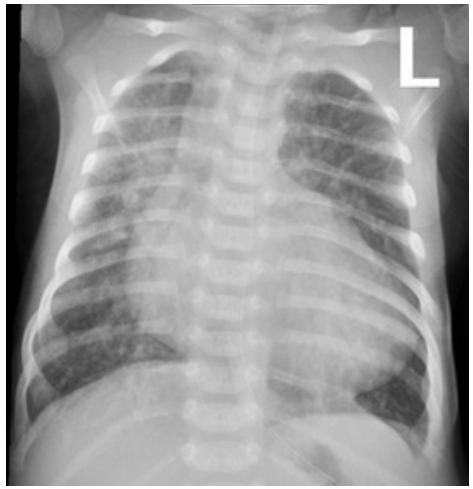
1. Aorta originates from right ventricle → deoxygenated blood goes to body
2. Pulmonary artery originates from left ventricle → oxygenated blood goes back to lungs
3. Results in two separate parallel circulations
4. Life is possible only if there is mixing of blood through:
   - Atrial Septal Defect (ASD)
   - Ventricular Septal Defect (VSD)
   - Patent Ductus Arteriosus (PDA)
5. Leads to severe cyanosis and metabolic acidosis if untreated

CLINICAL FEATURES

1. Neonates
- Severe cyanosis soon after birth
- Rapid breathing (tachypnea)
- Poor feeding
- Failure to thrive
- Signs of hypoxemia

Diagnosis

- Pulse oximetry: Severe hypoxemia
- Chest X-ray: Egg-on-side appearance of heart
- ECG: Right ventricular hypertrophy
- Echocardiography: Gold standard
- Cardiac catheterization: For balloon atrial septostomy if needed

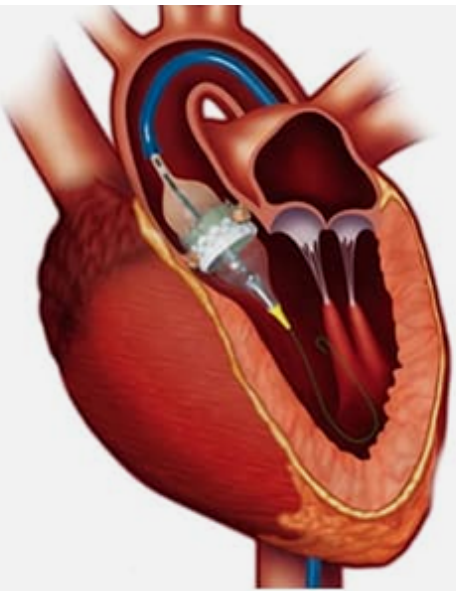


Medical management

- Prostaglandin E1 infusion to keep ductus arteriosus open
- Oxygen therapy
- Correction of acidosis
- Balloon atrial septostomy (Rashkind procedure) to improve mixing
- Supportive care until surgery

SURGICAL management

- Arterial Switch Operation (Jatene procedure) – definitive treatment
- Performed in early neonatal period
- Aorta and pulmonary artery are reconnected to correct ventricles
- Early surgery offers excellent prognosis



In class assessment

1. Expand TPGV.
2. Define Transposition of the Great Vessels.
3. Is TPGV a cyanotic or acyanotic heart disease?
4. Which ventricle gives rise to the aorta in TPGV?
5. Name one defect that allows survival in TPGV.
6. What is the gold standard investigation for TPGV?
7. Name the definitive surgery for TPGV.
8. What drug is used to keep the ductus arteriosus open?
9. Mention one clinical feature of TPGV.
10. State one role of physiotherapy in TPGV.

Thank you