



Transposition of the great arteries (TGA) is a congenital heart defect where the aorta and pulmonary artery are switched in position. This results in **parallel circulations**, where oxygenated blood circulates to lungs, and deoxygenated blood circulates to the body.

PRESENTATION

Epidemiology

- ~ 20% of all cyanotic CHD
- Associated cardiac defects**
 - VSD, LVOTO, abnormal valves and/or coronary arteries
- Etiology**
 - Multifactorial/unknown
 - Infants born to mothers with diabetes
 - DiGeorge Syndrome (22q11 deletion)

PHYSICAL EXAM

General Exam

- Persistent cyanosis from birth
- Tachypnea
- Decreased SpO₂

Cardiac Exam

- Single, loud S₂
- Usually no murmur
- Diminished femoral pulses if associated with coarctation or heart failure

PATHOPHYSIOLOGY

- Right ventricle connected to aorta, and left ventricle connected to pulmonary artery □ complete isolation of pulmonary and systemic circuits
- Two main forms of TGA
 - D-TGA (most common) – ventricles in normal positions, aorta and pulmonary artery reversed
 - L-TGA – ventricular positions reversed (ventricular inversion), as well as aorta and pulmonary artery being reversed (systemic venous drainage directed to pulmonary artery, and pulmonary venous drainage directed to the aorta as normal)

Patent ductus arteriosus (PDA) (or large ASD or VSD) critical to prevent severe cyanosis and decompensation

DIAGNOSIS/INVESTIGATIONS

Prenatal Diagnosis

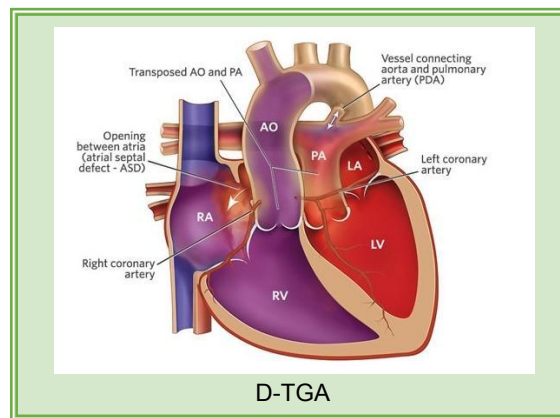
- TGA can be difficult to diagnose with fetal ultrasound

Imaging

- Echocardiography (confirmatory test)
 - Pulmonary artery arising from left ventricle, and aorta arising anteriorly from right ventricle
 - Assess for associated ASD, VSD, or PDA
- Chest X-Ray
 - “Egg on a string” appearance of heart

Other

- ECG – often normal, may have RVH or RAD
- Hyperoxia test – **positive** – decreased SpO₂, unresponsive to supplemental oxygen



MANAGEMENT

Initial postnatal management = ensure mixing between systemic and pulmonary circulations

- Infusion of prostaglandins (PGE₁) – prevents closure of PDA
- Balloon Atrial Septostomy – right heart catheterization to create ASD or enlarge existing ASD

Surgical repair – recommended within first 10 days of life

- Arterial Switch Procedure – transecting and connecting aorta to the left ventricle and pulmonary artery to the right ventricle with coronary artery transfer to the neo-aorta being the previous pulmonary artery

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