

TRANSPOSITION OF THE GREAT ARTERIES (TGA)

UNDERSTANDING, TREATMENT, AND LIFELONG CARE

Transposition of the Great Arteries (TGA) is a congenital heart defect in which the two main arteries leaving the heart are switched. This creates two separate circulations that require early treatment and lifelong follow-up.



PRESENTS SHORTLY AFTER BIRTH



LOW OXYGEN (CYANOSIS)



EARLY TREATMENT SAVES LIVES



EXCELLENT LONG-TERM OUTCOMES

TYPES OF TGA



Dextro-Transposition (d-TGA)

- Most common form
- Requires intervention in the newborn period
- Usually repaired with an arterial switch operation



Congenitally Corrected TGA (cc-TGA)

- Rare form
- Ventricles and valves are also switched, partially correcting blood flow
- Often associated with other defects and rhythm abnormalities

INITIAL NEWBORN MANAGEMENT



Stabilization

- Supplemental oxygen
- Intensive care monitoring
- Correction of acidosis and metabolic abnormalities



Prostaglandin Infusion (Alprostadil)

- Keeps the ductus arteriosus open
- Improves mixing of blood



Balloon Atrial Septostomy (Rashkind Procedure)

- Performed when atrial mixing is inadequate
- Creates a larger ASD to improve oxygenation

WHEN TO SEEK IMMEDIATE MEDICAL ATTENTION



Chest pain during exercise



Fainting



Palpitations



Shortness of breath



Decreased exercise tolerance



Cyanosis (blue color)

RECOMMENDED LONG-TERM FOLLOW-UP



INFANCY & CHILDHOOD

- Regular visits with a pediatric congenital cardiologist
- Echocardiogram every 1–2 years (or as indicated)
- ECG at routine visits



ADOLESCENCE

- Exercise assessment
- Advanced imaging when needed
- Screening for coronary and aortic complications



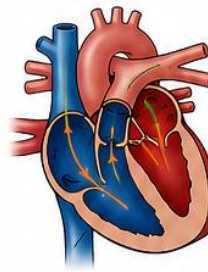
ADULTHOOD

- Follow-up with an adult congenital heart specialist
- Lifelong surveillance is essential
- Periodic MRI or CT imaging may be required



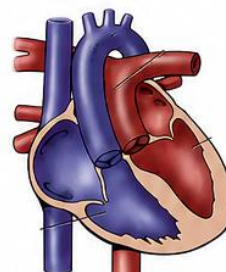
WHAT IS TGA?

HEALTHY HEART



The **aorta** (red) arises from the left ventricle and the pulmonary artery (blue) arises from the right ventricle.

TGA (TRANSPOSITION)



The **aorta** arises from the **right** ventricle and the pulmonary artery arises from the **left** ventricle.

DEFINITIVE SURGICAL REPAIR

Arterial Switch Operation (ASO) is the current standard treatment.



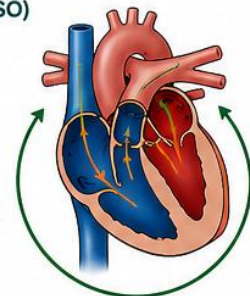
TIMING

Usually performed during the first 1–3 weeks of life.



PROCEDURE

The great arteries are switched back to their normal positions and the coronary arteries are transferred to the new aorta.



OUTCOMES

- ✓ Survival exceeds 95% at major congenital heart centers
- ✓ Most children achieve normal growth and development
- ✓ Excellent long-term quality of life

POTENTIAL LONG-TERM COMPLICATIONS



Coronary Artery Issues – Narrowing or kinking, rare ischemia



Neo-aortic Root Dilation – Enlargement of the aortic root, mild valve regurgitation may occur



Pulmonary Artery Stenosis – Branch pulmonary artery narrowing may develop



Ventricular Dysfunction – Usually uncommon, but requires ongoing surveillance



Arrhythmias – Supraventricular tachycardia, atrial arrhythmias, and rarely ventricular arrhythmias

ACTIVITY & SPORTS PARTICIPATION

MOST PATIENTS AFTER SUCCESSFUL ASO

Children and adolescents with:

- Normal heart function
- No significant valve disease
- No coronary abnormalities
- No significant pulmonary artery stenosis
- No important arrhythmias

can usually participate in:

- Recreational activities
- Physical education classes
- Most competitive sports*

*After evaluation and clearance by their congenital cardiologist.

ACTIVITY RESTRICTIONS MAY BE NEEDED IF THERE IS:

- ⚠ Significant coronary artery abnormalities
- ⚠ Moderate-to-severe ventricular dysfunction
- ⚠ Significant neo-aortic valve regurgitation
- ⚠ Severe pulmonary artery stenosis
- ⚠ Clinically important arrhythmias
- ⚠ Exercise-induced symptoms

Formal exercise testing is recommended before high-intensity competitive sports or if symptoms develop.



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