

Truncus Arteriosus



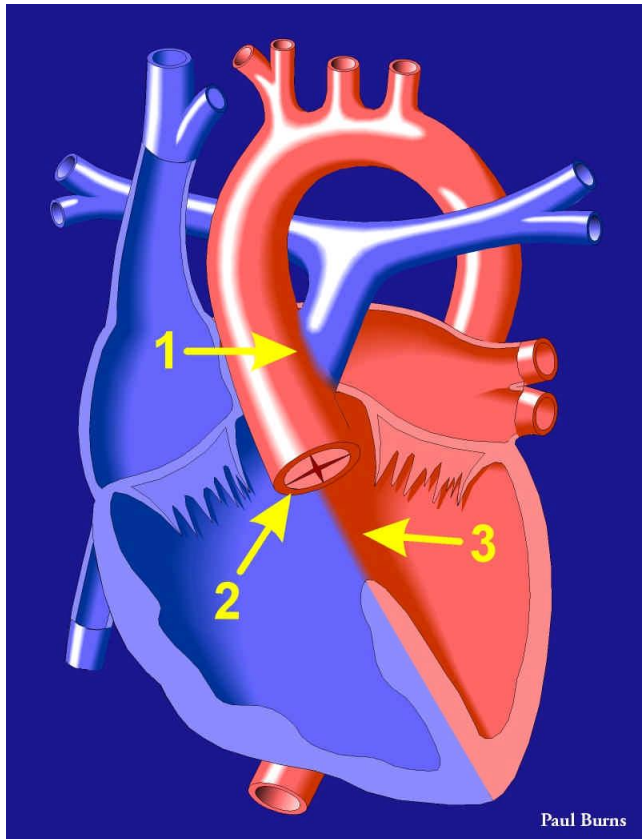
What Is It?

In this rare defect, the two large arteries that leave the heart, the aorta and the pulmonary artery, are combined in one large vessel, known as the Truncus Arteriosus (1 in diagram below). This vessel carries blood to the lungs as well as to the body.

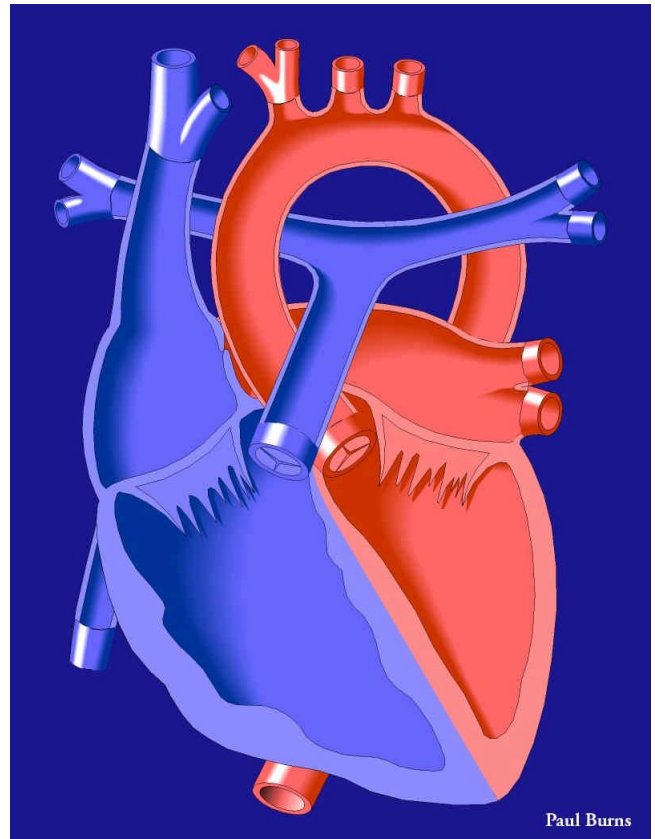
In addition, there is a large hole (3) in the ventricular septum - the muscle wall that separates the left and right ventricles (the heart's pumping chambers). This hole is known as a Ventricular Septal Defect (VSD) and the truncal artery overrides (straddles) the VSD.

The valve of the Truncus Arteriosus (Truncal Valve) is often abnormal in form, sometimes with four valve "leaflets" or flaps rather than the normal three (2). The valve can be thickened and narrowed, causing obstruction to blood as it leaves the heart. It can also leak, causing blood that leaves the heart to dump back into the pumping chamber across the leaky (insufficient) valve.

Truncus Arteriosus can occur with other genetic disorders.



Truncus Arteriosus



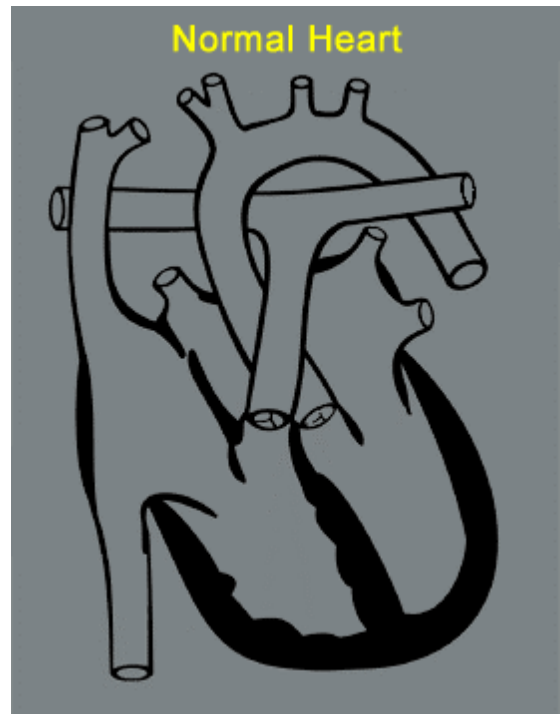
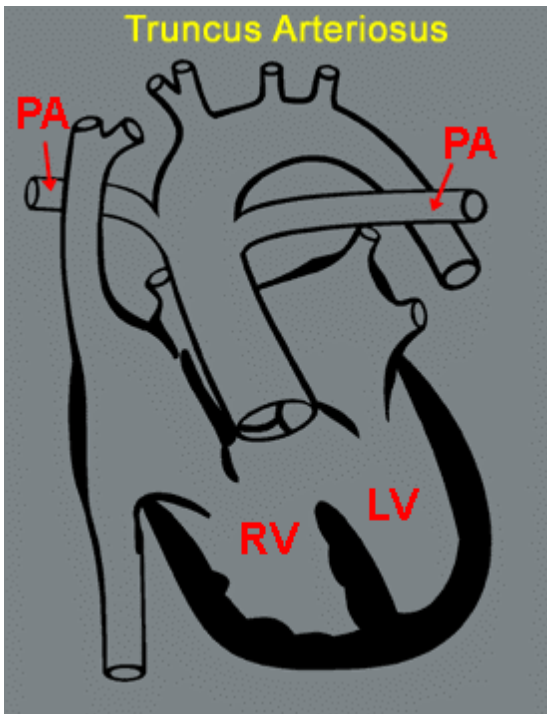
Normal Heart

What Are Its Effects?

As the Truncal Valve is directly above the Ventricular Septal Defect, blood is pumped from both the right and left ventricles (RV and LV) to the lungs and to the body. The mixing of oxygen-rich and oxygen-poor blood reduces the efficiency of the circulatory system.

Pulmonary (lung) resistance is lower than systemic (body) resistance. Therefore, there is usually increased blood flow to the lungs. This increased pulmonary blood flow can lead to congestive heart failure. These infants have rapid breathing, irritability, difficulty feeding and gaining weight.

Because the lung arteries are connected to the high pressure pumping chambers (ventricles) there is high blood pressure in the lung arteries. If the lungs are exposed to both high pressure and extra blood flow for an extended time (months to years), irreversible pulmonary hypertension can occur.

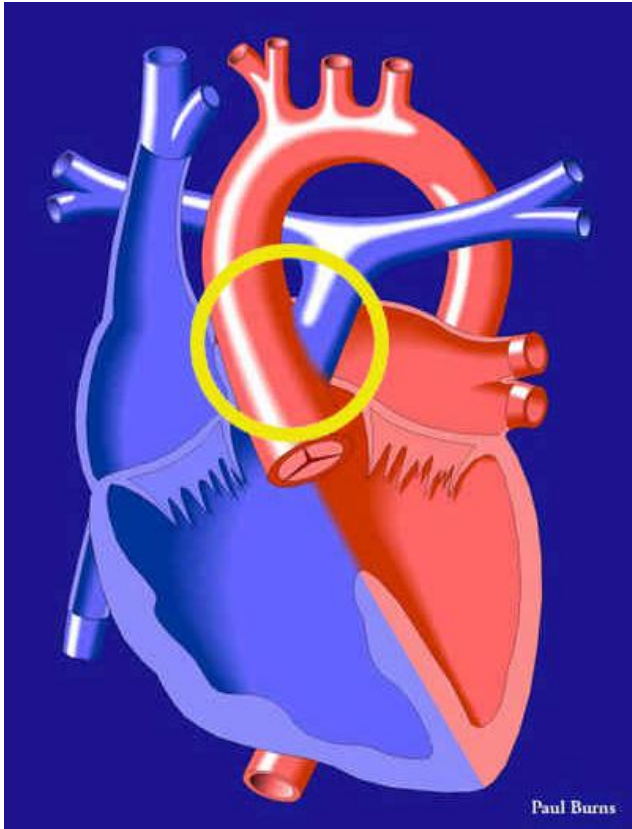


How Is It Treated?

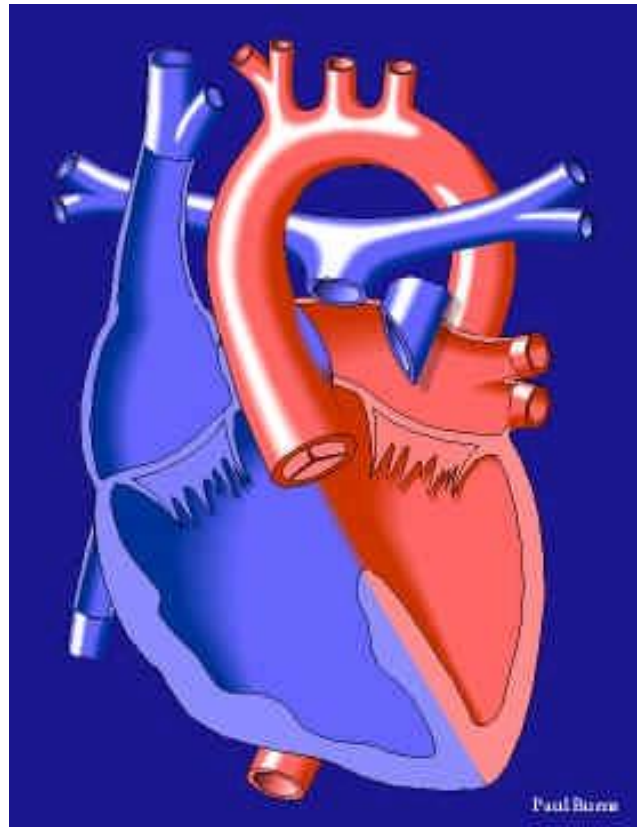
Surgical treatment of this defect involves the separation of the pulmonary arteries from the Truncus Arteriosus. These are then connected to the right ventricle through a valved tube, or conduit (light blue in the illustration below), made of homograft material (human tissue that has been cryopreserved, or stored cold).

The Ventricular Septal Defect (VSD) is closed with sutures or a patch, as is the point of the detachment of the pulmonary artery from the Truncus Arteriosus. The Truncus vessel now assumes the functional role of the aorta, carrying blood from the left ventricle to the body. If the Truncal Valve is unable to function properly, it is replaced or repaired at this time.

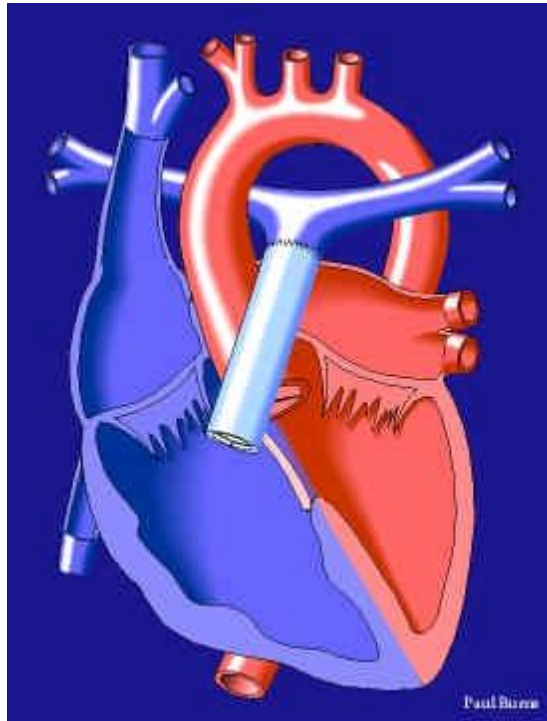
This is among the more complicated procedures to be performed on a newborn and the recovery involves close monitoring of the patient. The postoperative hospital stay is variable in length, with an average of 5 to 10 days.



Note Attachment of Aorta to Pulmonary Artery



**Pulmonary Artery is Separated from Aorta;
Former Area of Attachment is Closed with
Sutures**



Homograft tube, or conduit, connects the pulmonary artery to the right ventricle

Surgical Repair of Truncus Arteriosus