

Tricuspid Atresia

In Tricuspid Atresia, (TA), the tricuspid valve, which is the valve between the right atrium and right ventricle, fails to develop. The right ventricle is underdeveloped and small. The venous blood (blue blood) that enters the right atrium must flow across a hole between the atria (ASD) to the left atrium where it mixes with the oxygen rich blood (red blood). This mixed blood flows through the mitral valve into the left ventricle, where most of the blood flows into the aorta and out to the body. The rest of the blood flows across a hole that occurs between the ventricles (VSD). Because of the mixed "red" and "blue" blood going to the body, the child may appear bluish in color.

Because blood vessels of the lungs are changing over the first year of life the complete surgical repair must be done in stages:

- *Modified Blalock Taussig Shunt* - If needed at birth, additional blood supply to the lungs is provided through a tube from the aorta attached to the pulmonary artery. This surgery generally does not require heart lung machine (cardiopulmonary bypass) and may be performed either through the middle of the chest (sternotomy) or through a side incision (thoracotomy).
- *Bidirectional Glenn Shunt or Cavopulmonary Anastomosis* - Between three and eight months of age, the lungs mature to the point that bloods flows more easily to the lungs. A direct connection between the superior vena cava and the pulmonary artery is made allowing the blue blood that returns blood from the upper body to flow directly to the lungs and the shunt is taken down. This surgery is performed through the middle of the chest (sternotomy) generally using the heart lung machine.
- *Fontan Procedure* - When the child is between 16-24 months of age, the inferior vena cava, which brings the blue blood from the lower part of the body to the heart, is connected to the pulmonary artery by creating a channel or baffle through the right atrium to the pulmonary artery. Now all the "blue" blood (systemic blood) flows to the lungs, becomes oxygenated, returns to the left side of the heart and pumps "red" blood via the single ventricle to the body. This surgery is performed through a sternotomy utilizing the heart lung machine.