

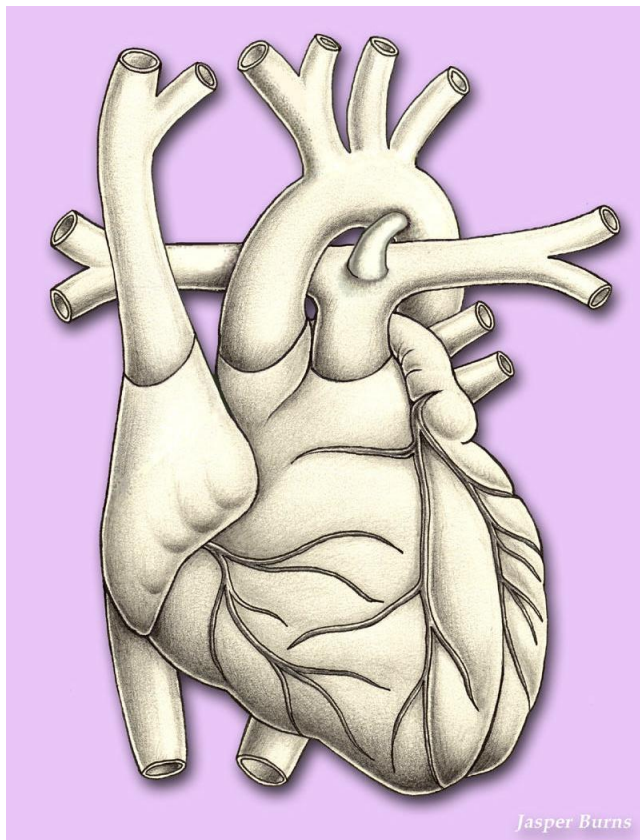
Patent Ductus Arteriosus



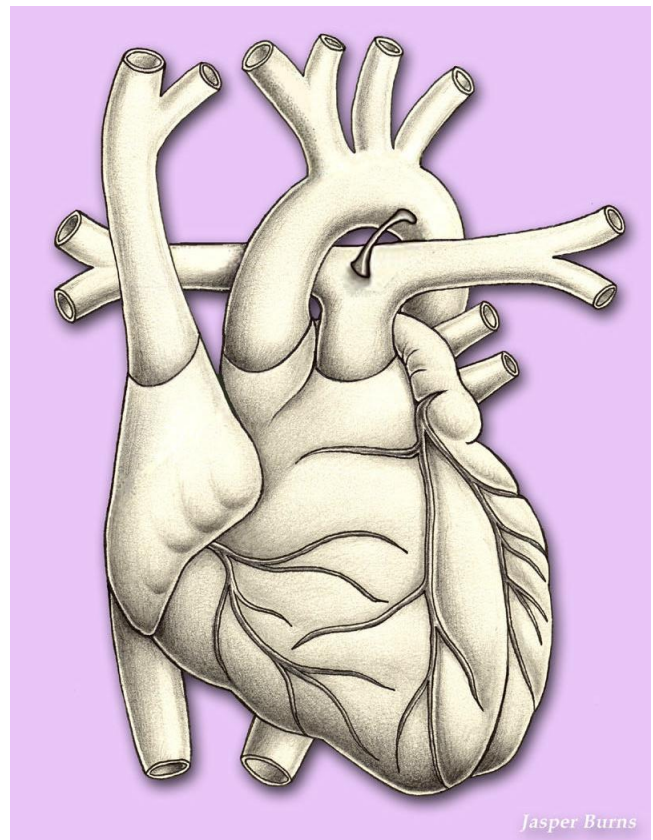
What Is It?

A Ductus Arteriosus is a minor vessel, sometimes persisting from the fetal structure of the heart in a newborn baby, which connects the aorta to the pulmonary artery.

It is termed a Patent Ductus Arteriosus (PDA) when it is open, allowing blood to flow from the aorta into the pulmonary artery. After the PDA closes, the resulting fiber-like structure is known as a ligamentum arteriosum.



Patent Ductus Arteriosus



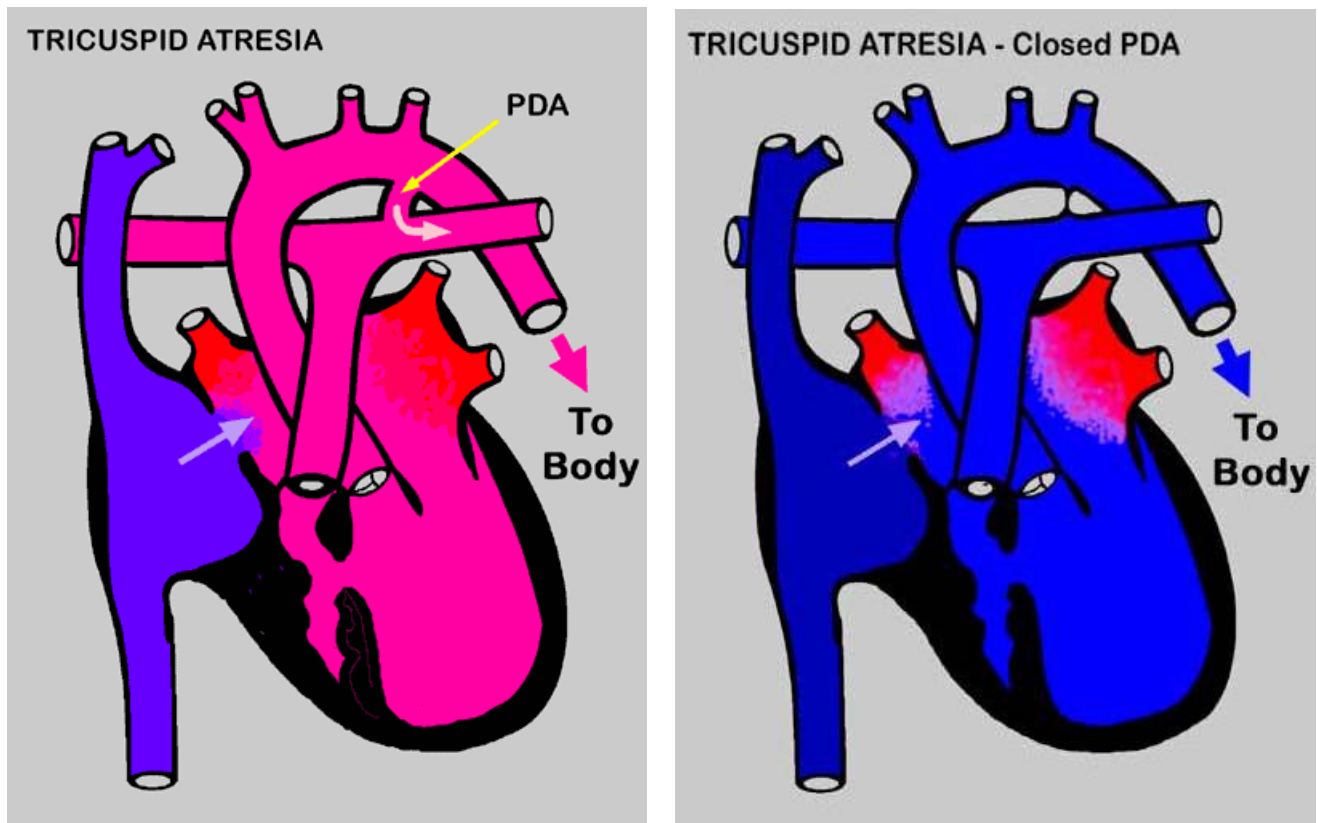
Closed Ductus Arteriosus, or Ligamentum Arteriosum

What Are Its Effects?

The persistence of the Patent Ductus Arteriosus (PDA) after birth causes difficulties because it allows the mixing of oxygen-poor blood being carried to the lungs by the pulmonary artery with oxygen-rich blood being carried by the aorta to the body. If the ductus arteriosus remains open (patent), heart failure may occur.

In some congenital heart defects, (e.g. Tricuspid Atresia, Hypoplastic Left Heart), the PDA is actually a benefit as it allows necessary mixing of blood. However, when the PDA closes, as it normally does soon after birth; children with these defects experience problems which require treatment.

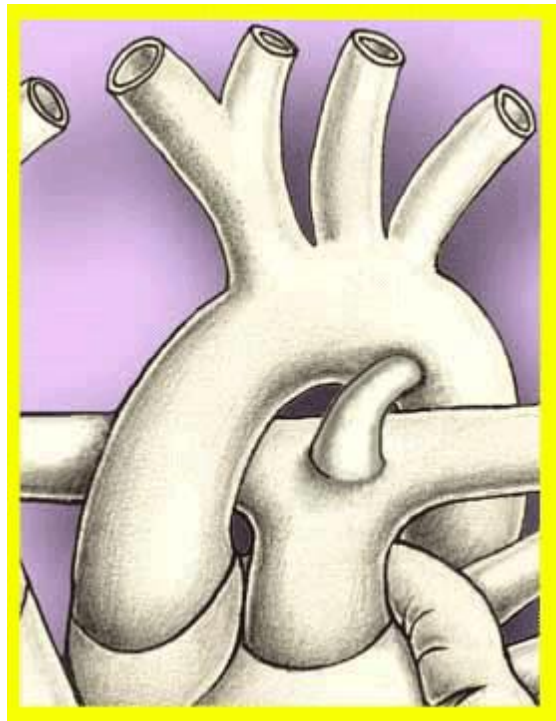
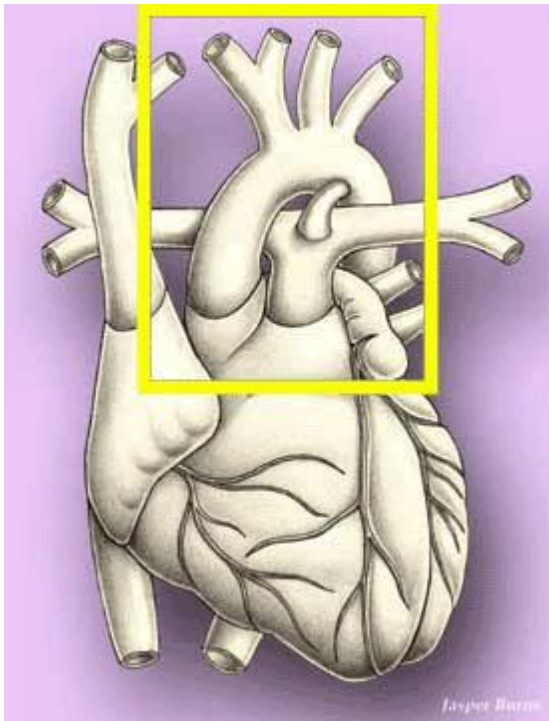
The diagram below shows the dramatic effect of PDA closure in a heart affected by Tricuspid Atresia. This is represented by the change in color of the blood (the redder, the higher the oxygen concentration).

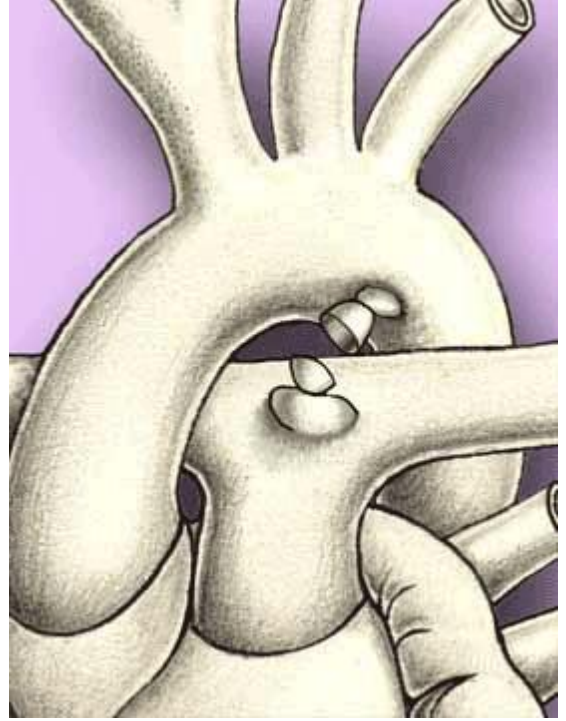
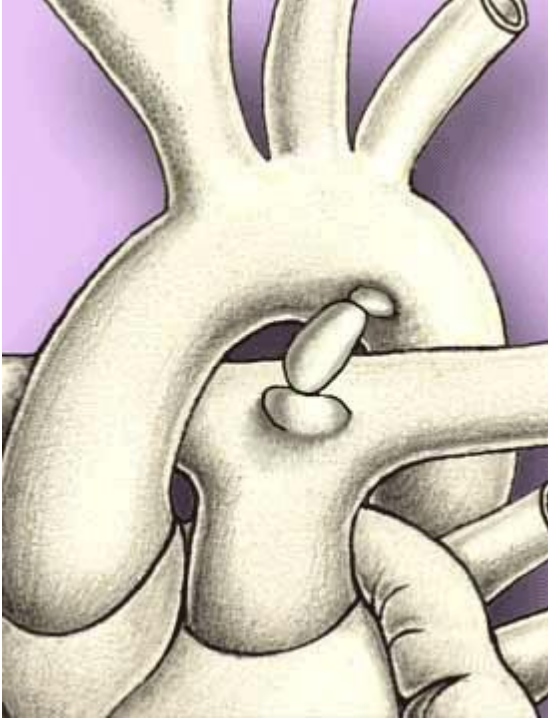


How Is It Treated?

If the Patent Ductus Arteriosus remains open, pharmaceutical treatment with indomethacin or ibuprofen may be used to encourage its closure. If the PDA still does not close, surgical intervention may be necessary.

When a PDA of any size persists after birth, it is surgically closed by means of ligation and, in some cases, division. Ligation is the tying off of the ductus (PDA) with a "ligature" (or two ligatures, as in the illustration below) made of a synthetic material. The vessel may or may not be divided after ligation.





Ligation and Division of Patent Ductus Arteriosus