Anomalous Left Coronary Artery

children's heart center

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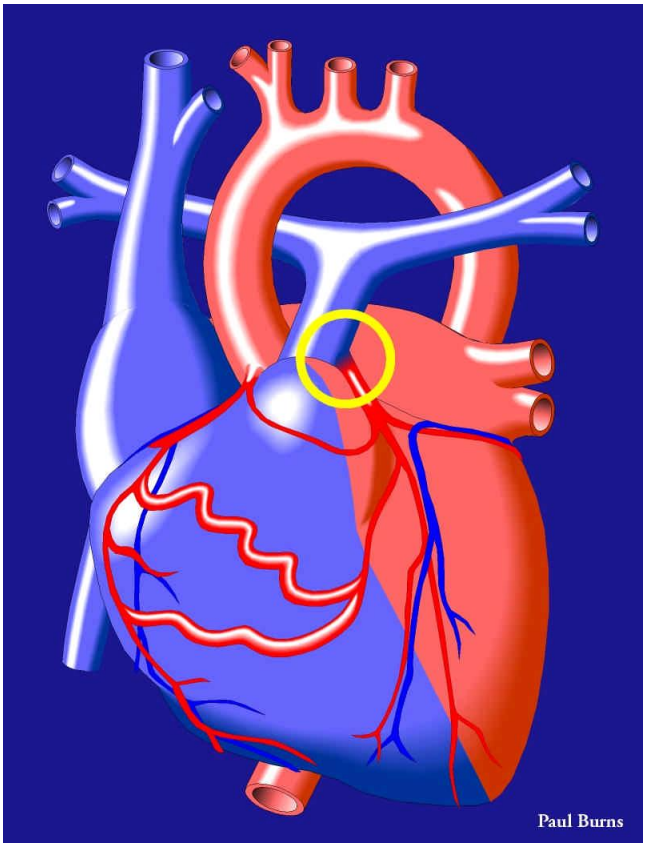
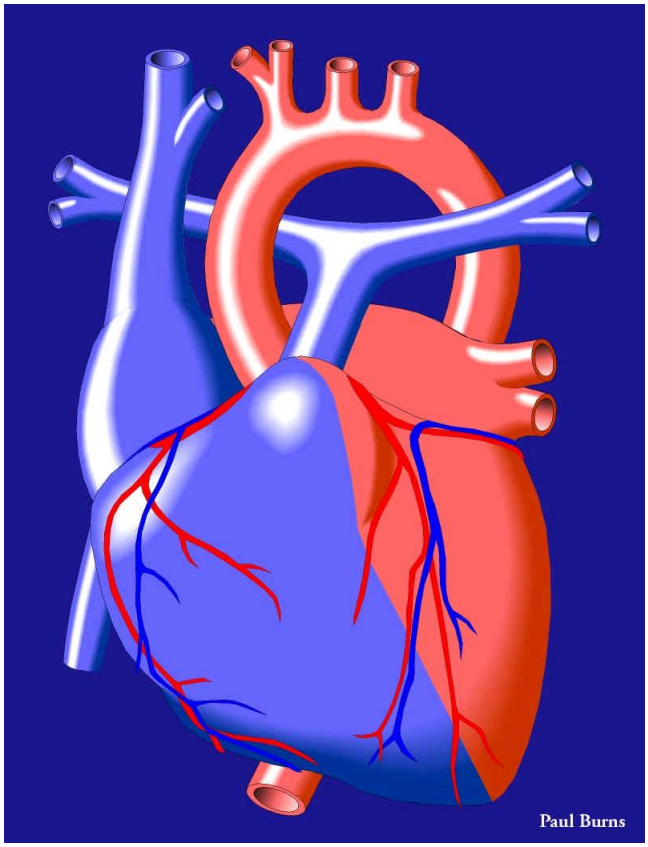
What Is It?

In this very rare defect, affecting boys and girls equally, the left coronary artery, which supplies oxygen-rich blood to the heart muscle, is "anomalous," or abnormal, in form.

In the normal heart, the left coronary artery arises from the aorta, the large vessel that carries oxygen-rich blood from the heart to the body. However, in this case, the left coronary artery arises from the pulmonary artery (as shown in the yellow circle in the diagram) instead of from the aorta.



Anomalous Left Coronary Artery

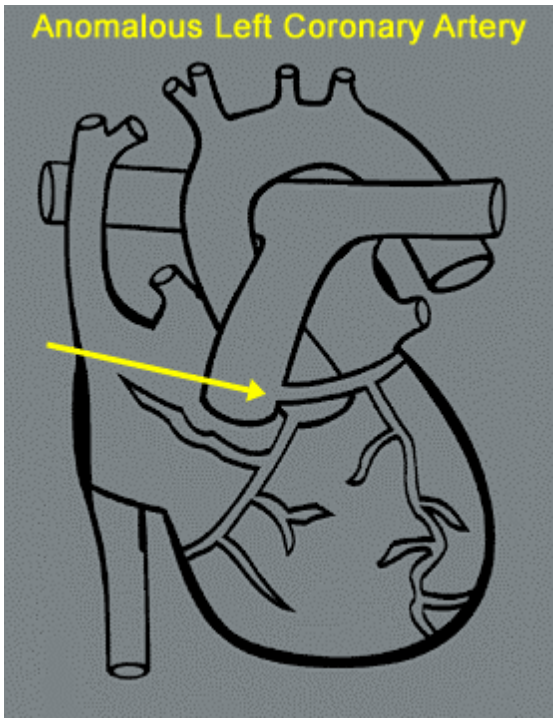


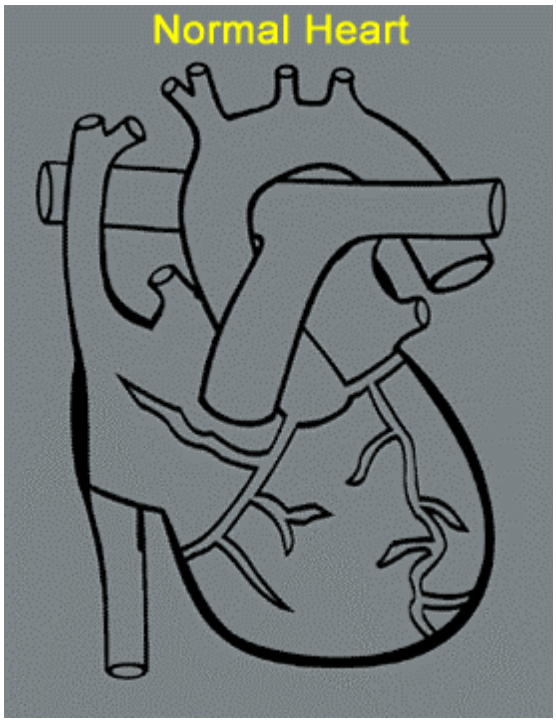
Normal Heart

What Are Its Effects?

The pulmonary artery carries oxygen-depleted blood from the heart to the lungs. Because the anomalous left coronary artery receives its blood from the pulmonary artery rather than the aorta, it supplies the heart muscle with blood that is low in oxygen.

Secondly, as the blood pressure is three times lower in the pulmonary artery than in the aorta, blood will tend to flow backwards into the pulmonary artery from the coronary artery. This stealing of blood away from the heart muscle can have dire consequences resulting in heart attacks in children in the first year of life. This defect results in decreased heart function, poor feeding and irritability.





How Is It Treated?

Fortunately, this defect can be treated through surgery. There are various ways in which this is done. Whenever possible, the left coronary artery is simply detached from the pulmonary artery and sutured directly onto the aorta.

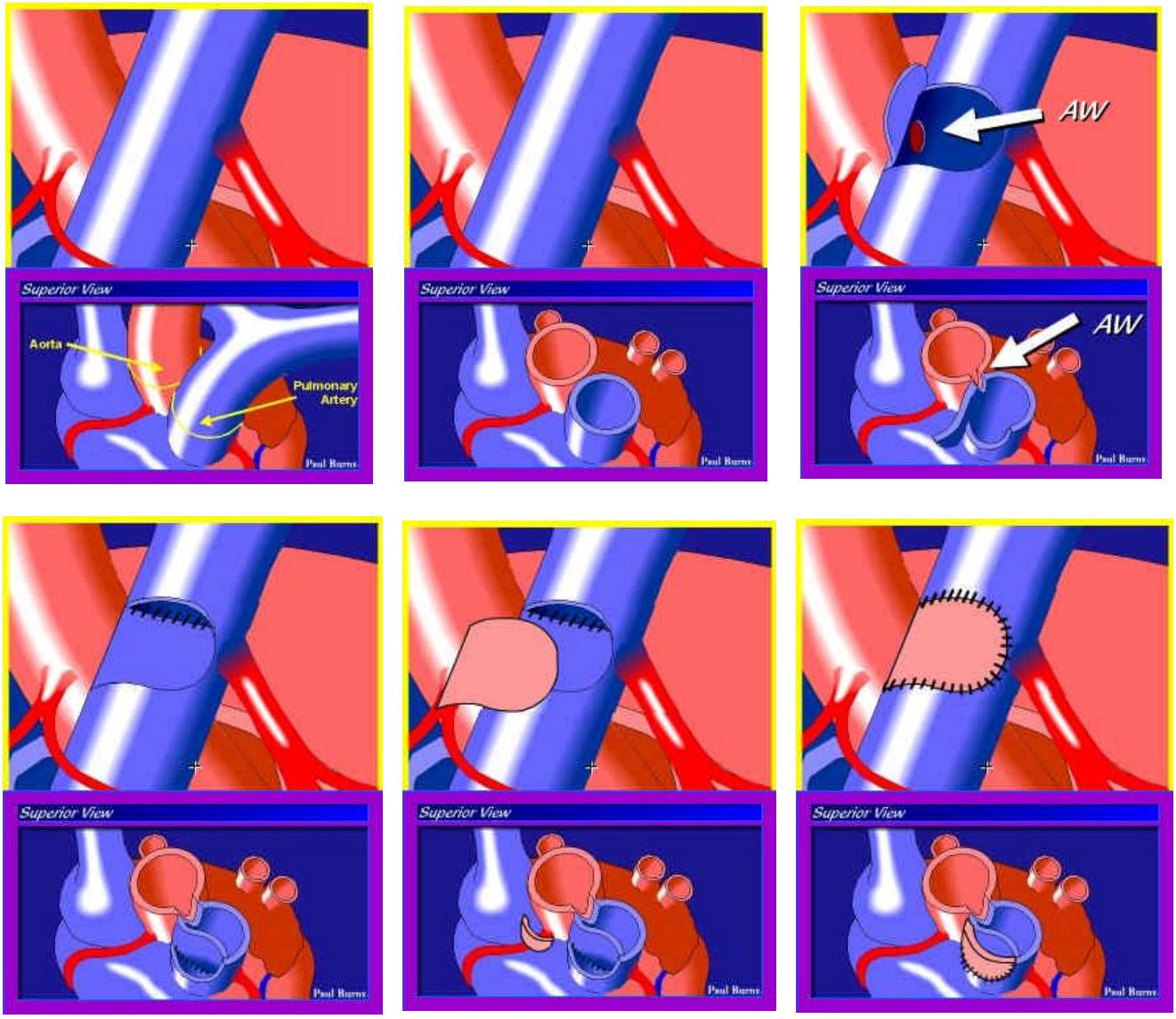
In other cases, a tunnel is constructed across the interior of the pulmonary artery that carries blood from the aorta to the left coronary artery. This involves creating a tunnel connection between the aorta and the pulmonary artery-based left coronary artery.

Then, a piece of the front (anterior) pulmonary artery wall is sutured to the back of the inside of the pulmonary artery, also covering the opening of the left coronary artery. This forms a tunnel from the aorta to the left coronary artery that is separate from the blood flow in the pulmonary artery, along the back (posterior) wall of the pulmonary artery.

Oxygen-rich blood from the aorta passes through this tunnel and enters the left coronary artery.

After the tunnel has been created, the hole in the front of the pulmonary artery is repaired with a patch (shown in pink in the diagrams on the following page).

Recovery from the surgical repair of this defect may be difficult; irregular heartbeat may occur, as well as other complications. However, gradual improvement can be expected in most cases. The length of the postoperative hospital stay is generally 10 days to 3 weeks.



Surgical Repair of Anomalous Left Coronary Artery