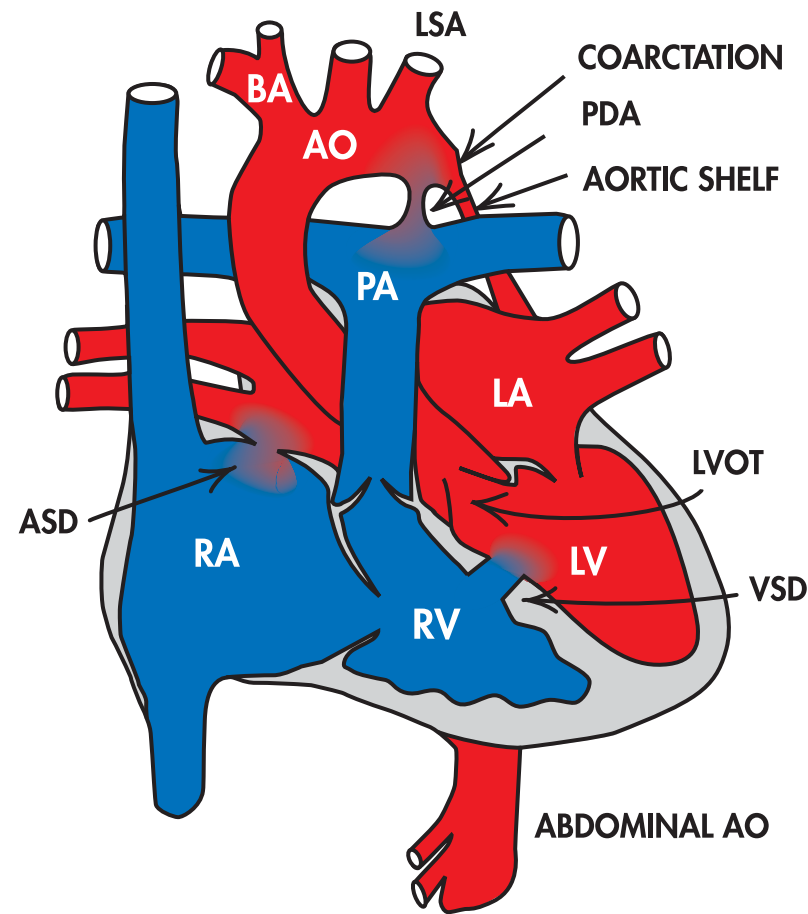
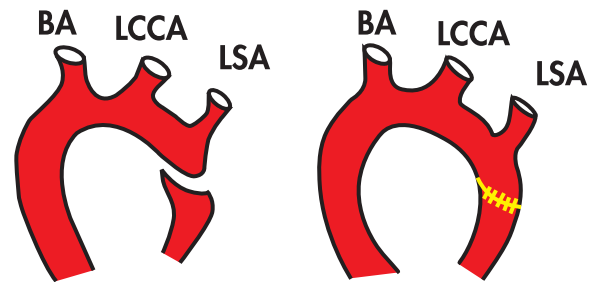


Coarctation of the Aorta

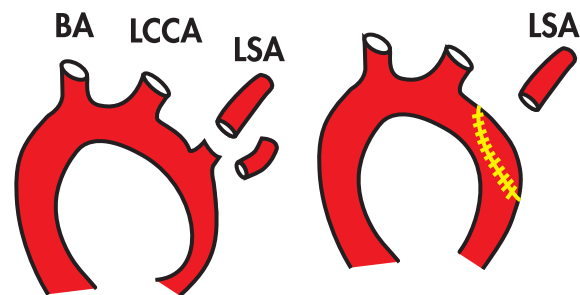
Coarctation of the Aorta



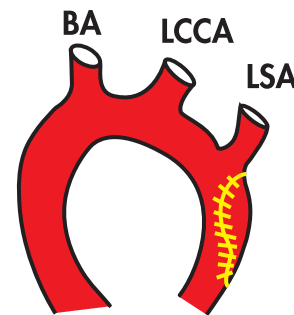
RESECTION WITH END-TO-END ANASTOMOSIS



LEFT SUBCLAVIAN ARTERY PATCH



SYNTHETIC PATCH AORTOPLASTY



In General

Coarctation of the aorta (CoA, coarcted aorta, aortic coarctation) describes a narrowing of the proximal portion of the descending aorta (thoracic AO) typically located just distal to the origin of the left subclavian artery (LSA) and just opposite the PDA, where a naturally occurring aortic shelf is located (aortic isthmus). There are usually no symptoms of CoA at birth, but symptoms can develop as early as the first week.

- The coarctation may be a small, isolated narrowing, or (less commonly) it may involve a longer segment of the AO.
- Arm pressures will be significantly higher than ankle pressures (10mm/Hg or greater).
- Any pressure gradient across the aortic shelf greater than 16mm/Hg is considered abnormal.
- If the PDA is open, adequate lower extremity perfusion will often be unimpaired.
- Varying degrees of hypoplasia of the aortic arch are usually present.
- The left ventricle (LV) is often hypertrophic.
- Rarely, a coarctation may be present in the lower thoracic, or abdominal AO, rather than at the level of the PDA.

Echocardiography:

- CoA is best seen in the suprasternal view.
- In the subxyphoid views, if the abdominal AO is non-pulsatile, always consider whether CoA may be present.
- Bicuspid aortic valve is present about 50% of the time.

Associated Cardiac Abnormalities May Include:

- **PDA, VSD, ASD** (refer to pages 8-11)
- Outflow tract obstructions (refer to **Aortic Stenosis and Associated Outflow Lesions**, page 20)
- Inflow obstructions such as **Cor Triatriatum** (see page 30) and rarely, mitral stenosis
- **Transposition of the Great Arteries D-Type** (see page 58)
- **Double Outlet Right Ventricle** (see page 32)

Occasionally, CoA may be a hidden defect. For example, PDA ligation in a newborn may develop into CoA even if it was not present prior to surgery. For this reason, *it is important for the echocardiographer to always Doppler the aorta in every follow-up study of any neonate, especially one who has undergone PDA ligation.*

Surgical Repair

Resection with End-to-End Anastomosis

- The coarcted portion of the aorta (AO) is resected. The 2 ends of the AO are then sutured together in an end-to-end anastomosis.
- This is the preferred surgical repair because it preserves the left subclavian artery (LSA).

Synthetic Patch Aortoplasty

- The coarcted portion of the AO is resected and replaced with a synthetic patch or homograft.
- This procedure has the advantage of preserving the LSA. However, it may result in an elevated risk for aortic aneurysm later in life.

Left Subclavian Artery Patch (Subclavian Flap Aortoplasty)

- A portion of the LSA is excised and the artery divided. The artery is closed at the proximal end. The tissue resulting from division of the artery is used to repair the coarcted area.
- Because native tissue is used, this procedure carries with it a low rate of rejection and recurrence of CoA.
- The disadvantage is loss of the LSA and impairment of blood supply to the left arm.