Coarctation of the aorta

Aortic coarctation is a congenital narrowing of the aorta. It is most often localized distal to the left subclavian artery near the ductus arteriosus. This narrowing leads to a **pressure drop behind the obstruction and a pressure rise in front of it.** In young infants, the pressure gradient may mask left ventricular failure, persistent patency of the ductus arteriosus, and in older development of the collateral circulation.

Classification

According to the location in relation to the *ductus arteriosus*

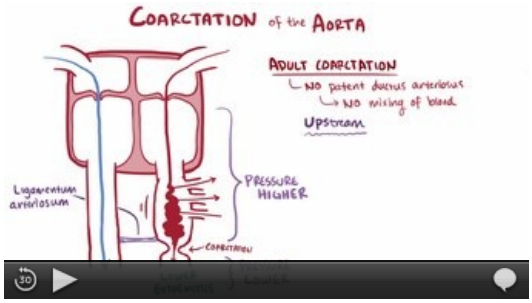
- preductal,
- juxtaductal,
- postductal.

According to the hemodynamic picture

- With an open *ductus arteriosus*,
- With closed *ductus arteriosus*.

Clinical signs

The basic symptom is the absence of femoral pulsation. Severe coarctation manifests in early infancy as **non-palpable femoral pulsation**, anuria, metabolic acidosis. Less severe defects are sometimes not detected until school age, due to a murmur heard on the back between the shoulder blades, or even later with the finding of hypertension and atherosclerotic changes in the surrounding area.



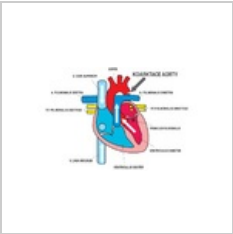
Diagnosis

We look for a history of other congenital heart defects (CHD) and arterial hypertension (especially in children and younger patients). On physical examination, both pressure and pulse should be examined in both upper and lower extremities.

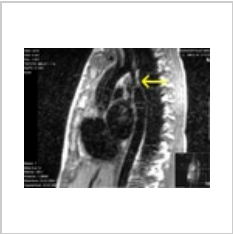
Echocardiography is the basic diagnostic method nowadays, it can also be used prenatally. Of the non-invasive examinations, ECG is the key. The ECG may be normal or show signs of hypertrophy and left ventricular load. CT angiography or MRI can be used to view the anatomy before intervention or surgery. Invasive catheterization is important where coronary angiography needs to be supplemented or to clarify the significance of associated CHD's. [1]

Treatment

Coarctation surgery is indicated in all cases. It is indicated electively in toddler or preschool age. Critical defects are operated on immediately. The functional outcome of the operation is usually excellent. There is a risk of recoarctation, which can be removed with balloon angioplasty.

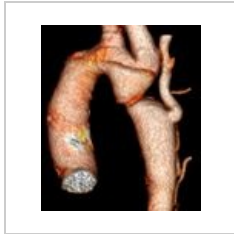


Aortic coarctation scheme



MRI of the aortic coarctation

CT 3D reconstruction of aortic coarctation - collateral circulation



CT 3D reconstruction of aortic coarctation – detail

References

Related articles

- Congenital heart defects
- Acquired heart disease

External link

- Aortic coarctation - Shelter - Audio recordings (TECHmED) (https://www.techmed.sk/kontinualny-selest/)

Resource

- BENEŠ, Jiří. *Studijní materiály* [online]. ©2007. [cit. 2009]. <http://www.jirben.wz.cz/>.

Literature

- POVÝŠIL, Ctibor – ŠTEINER, Ivo. *Speciální patologie.* 2. edition. Praha : Galén : Karolinum, 2007. 430 pp. ISBN 978-80-246-1442-7.

Reference

1. ČEŠKA, Richard – ŠTULC, Tomáš. *Interna.* 2. edition. TRITON, 2022. 870 pp. ISBN 978-80-7387-885-6.