

Coarctation of the Aorta (CoA) – MBBS Final Year Handout

Author: Dr Bilal Ahmed Sethi • www.neonwgh.com

Introduction

Definition: Coarctation of the Aorta is a congenital narrowing of the aorta, usually at the level of the ductus arteriosus, leading to increased left ventricular afterload and decreased blood flow to the lower body.

Epidemiology: Accounts for approximately 5-8% of congenital heart defects. Often associated with other cardiovascular anomalies such as bicuspid aortic valve.

Etiology

Cause	Details
Congenital anomaly	Improper development of the aortic arch during fetal growth
Genetic associations	Turner syndrome

Pathophysiology

The narrowed aortic segment leads to increased pressure proximal to the coarctation and reduced pressure distally.

Collateral circulation may develop to bypass the obstruction.

Left ventricular hypertrophy (LVH) occurs due to increased afterload.

Clinical Features

Category	Details
Symptoms – Infants	Heart failure, poor feeding, irritability, poor growth
Symptoms – Older children/adolescents	Hypertension, headaches, leg fatigue, claudication
Signs	BP higher in upper limbs, delayed/weak femoral pulses, systolic murmur (left infraclavicular/back)

Diagnosis

Method	Findings/Use
Physical examination	Differential pulses and BP
Chest X-ray	Rib notching, '3 sign'
Echocardiography	Confirms diagnosis and associated anomalies
MRI/CT Angiography	Detailed anatomy

Management

Type	Details
Medical (neonates)	Prostaglandin E1 infusion to maintain ductal patency, treat heart failure (diuretics, inotropes)
Surgical	Resection with end-to-end anastomosis
Interventional	Balloon angioplasty with/without stenting in older children
Long-term follow-up	Monitor for re-coarctation, hypertension, aneurysm

Complications

Timing	Details
Early	Heart failure, renal dysfunction
Late	Persistent hypertension, re-coarctation, aortic aneurysm, stroke