

PATENT DUCTUS ARTERIOSUS

PDA is the **3rd** most common CHD, **Female**>Male, it more common in **premature** infants & those with **congenital Rubella syndrome**.

Note: See also PDA in premature infant with RDS (chapter 1).

Path. PDA lie between the bifurcation of pulmonary artery & the aortic

arch, just distal to the origin of the left subclavian artery. Functional closure of the ductus normally occurs soon after birth, but if the ductus remains patent when pulmonary vascular resistance falls, aortic blood is shunted into the pulmonary artery. PDA in premature infant has a normal structure, whereas in term infant it deficient in endothelial and muscular layer, thus it rarely closes

spontaneously if persist beyond the 1st few weeks of life. **C.M.** It is usually **similar to those of VSD**. The shunt is also depends on the **size** of the ductus and on **ratio** of pulmonary to systemic vascular resistance. **Small PDA** usually **asymptomatic**, whereas **large PDA** results in **HF**

similar to that of VSD; additional manifestations include: **wide pulse pressure & bounding peripheral arterial pulses** due to run-off

(escape) of blood from aorta into the pulmonary artery during diastole. The **murmur** is either **systolic** or **continuous** (systolic & diastolic) which described as being "**machinery**" or "**rolling thunder**", although the diastolic component of the murmur may be less prominent or absent when PVR is increased. It may be localized to the 2nd left intercostal space & radiated down the left sternal border or to the left clavicle. It is

often associated with **thrill**. Increased blood flow across the mitral valve

→ **mid-diastolic murmur**.

Inv. CXR & ECG are **normal** in small PDA, whereas large PDA include:- **⊛ CXR**; cardiomegaly, prominent pulm artery & pulm vascular markings.

⊛ **ECG**; L.V. or biventricular hypertrophy. ⊛ **Echo & Doppler** are diagnostics (PDA can be visualized through the

suprasternal notch). ⊛ **Catheterization** is indicated in patient with atypical finding & also for contrast injection to show the ductus.

Cx.

☒ **Small PDA** has **no** early sequelae (except infective endarteritis) but may cause **late sequelae** (*see below*).

☒ **Large PDA** if untraeted → **HF, infective endarteritis, & pulmonary**

hypertension which eventually → Eisenmenger syndrome. **Other rare Cxs** include: aneurysmal dilatation of the pulmonary artery or the ductus; calcification or noninfective thrombosis of the ductus with embolization. **Rx.** Irrespective of age & size (whether it is small or large), PDA require

catheter or surgical closure, except when Eisenmenger syndrome has developed. After closure, the symptoms will disappear rapidly, whereas radiographic findings disappear over several months. **Aortico-pulmonary Window Defect** is **similar to large PDA** except that it is due to a defect (opening) instead of a ductus which usually large &

best visualized by color flow Doppler or MRA. It requires surgical closure

at early infancy