

PDA (Patent Ductus Arteriosus)

Objective : To show the definition and management of PDA (Patent Ductus Arteriosus)

Embryology and Pathologic Anatomy

The ductus arteriosus normally extends from the main or left pulmonary artery to the descending aorta just distal to the origin of the left subclavian artery.

Closure occurs usually after birth. Final closure may occur at any age but is uncommon after 6 months.

Incidence, Mortality, and Morbidity

The incidence increases greatly with prematurity and with decreasing birth weight and is related to several factors, including decreased smooth muscle in the ductal wall, diminished responsiveness of the ductal smooth muscle to oxygen, and possibly elevated circulating levels of vasodilatory prostaglandins.

Clinical Manifestations and Diagnosis

Tachypnea, poor feeding, growth failure, recurrent respiratory tract infections, exercise intolerance. Eisenmenger's complex or cardiac failure may develop if a large PDA is not treated early.

Those with a small PDA are either asymptomatic or are minimally symptomatic.

Physical examination

A machinery murmur a systolic or continuous murmur, which is heard best in the pulmonic area and radiates toward the middle third of the clavicle.

Investigation

- CXR

It may be normal or shows pulmonary congestion (plethoric lungs) while cardiomegaly is seen if cardiac failure is present.

- Electrocardiogram

- Echocardiography

It is diagnostic

- Cardiac catheterization

It's not required for those with classic findings.

Treatment

Surgery is indicated for large PDAs or for those PDAs which didn't close spontaneously.

Management of PDA in Premature Infants

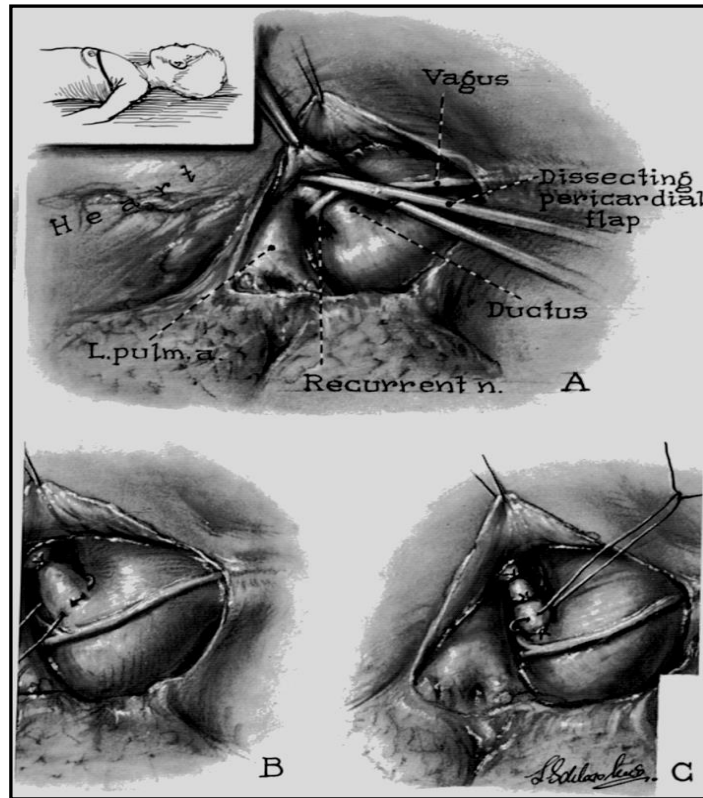
Two therapeutic options are available:

1. Pharmacologic closure with prostaglandin inhibitors such as indomethacin

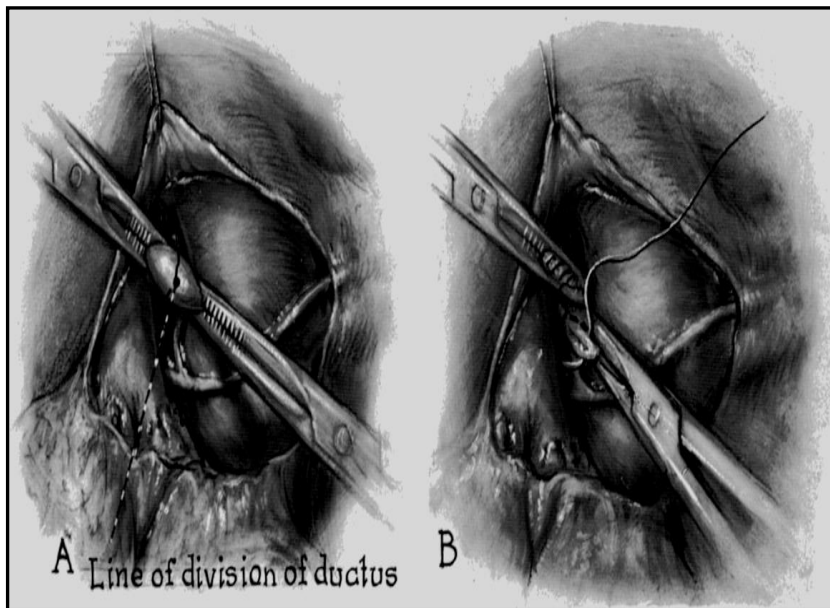
Final closure may be achieved in more than 70% of infants, although the ductus may reopen transiently in some children. Reopening occurs most frequently in the most premature infants and may be treated with a second course of indomethacin, but the success rate is lower. The success of therapy with indomethacin is related to the birth weight and postnatal age of the infant. Term infants are generally unresponsive to pharmacologic therapy.

2. Surgical closure

Used if there is a contraindication to indomethacin or failure of the PDA to close.



Operative treatment of PDA by ligation.



Treatment of PDA by division.

Video-assisted dissection technique for ligation of PDA.

