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# Study of Patent Ductus Arteriosus in South Indian Population

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**ABSTRACT**

Patent ductus arteriosus is one of the congenital anomalies that occurs when ductus arteriosus, a channel connecting between arch of aorta and pulmonary artery fails to obliterate leading to patent ductus arteriosus which causes shunting of blood from aorta to pulmonary artery. Sixty heart specimens from south Indian population are studied for patent ductus arteriosus. Length, breadth etc. were noted and studied. Out of sixty heart specimens, in one specimen (1.66%), tubular type of patent ductus arteriosus was found connecting arch of aorta and pulmonary artery, measuring 3 cm in length and 0.8 cm in width. Patent ductus arteriosus is one of the congenital anomalies that occurs when ductus arteriosus, a channel connecting between arch of aorta and pulmonary artery fails to obliterate leading to patent ductus arteriosus which causes shunting of blood from aorta to pulmonary artery. As an isolated lesion, patent ductus arteriosus represents 5-10% of all congenital heart lesions. It occurs approximately 0.008% of live premature births. Many studies were carried out on PDA which was 0.02%-0.06% of live births. Incidence was increased by 20% in premature infants. 10% more common in ventilated preterm babies. Risk is increased up to 30% in babies born with history of perinatal asphyxia and in babies born at high altitudes. In the present study, it was noted in 1.66% of cases. Surgical treatment is limited to its ligation and resection depending upon the dimensions and types of patent ductus arteriosus.

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**Key Words**
Patent ductus arteriosus, ductus arteriosus, pulmonary artery, shunting of blood

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## INTRODUCTION

Ductus arteriosus is a foetal blood vessel that transports oxygenated blood from placenta to bypass the foetal lung in utero. Patent ductus arteriosus is one of the congenital anomalies that occurs when ductus arteriosus, a channel connecting between arch of aorta and pulmonary artery fails to obliterate leading to patent ductus arteriosus which causes shunting of blood from aorta to pulmonary artery which leads to continuous machinery murmur. It remains patent after birth. It leads to left to right shunt that can lead to heart and lung diseases.

## MATERIALS AND METHODS

Sixty heart specimens were studied from south Indian population. Type of patent ductus arteriosus, length, breadth were measured. Patency of patent ductus arteriosus was studied and noted.

## RESULTS AND DISCUSSIONS

Sixty heart specimens were studied out of which in one heart specimen (1.66%) patent ductus arteriosus was noted. It was of tubular type of patent ductus arteriosus. Lumen of which was patent and was measuring 03cm in length, 0.8cm in width.

**Fig.1:** Patency of Patent Ductus Arteriosus was Studied and Noted

**Fig.2:** Sixty Heart Specimens were Studied Out of which in One Heart Specimen (1.66%) Patent Ductus Arteriosus was Noted. It was of Tubular Type of Patent Ductus Arteriosus. Lumen of which was Patent and was Measuring 03cm in Length, 0.8cm in Width.

Patent ductus arteriosus is one of the common congenital anomalies of great vessels occurring in 8/10000 live births especially in premature female babies born to mothers who had suffered from rubella infection[1].

Patent ductus arteriosus occurs when ductus arteriosus a channel connecting between pulmonary artery and arch of aorta fail to obliterate. Hence causing shunting of blood from aorta to pulmonary circulation[2].

Functional obliteration of ductus arteriosus occurs at birth of after few times by contraction of smooth muscles of ductus arteriosus. Anatomical obliteration of ductus arteriosus is enhanced by proliferation of tunica intima of ductus arteriosus in 01-03 months after the birth of baby[3].

Most of the anatomical closure of ductus arteriosus are mediated by bradykinins which are released by lungs during their inflation aiding in proliferation of tunica intima of ductus arteriosus[4].

Prostaglandin E and intrauterine asphyxia sustain the patency of ductus arteriosus hence preventing the closure of pda. Prostaglandin inhibitors like indomethacin promote closure of ductus arteriosus. In case of patent ductus arteriosus after birth, surgical treatment is limited to its ligation and resection depending upon the dimensions and types of patent ductus arteriosus[5].

Although no significant sex difference is observed in the occurance of ductus arteriosus by studies conducted by moreyba borges[6].

101 cases were studied by majeda *et al.*, it was noted that incidence of patent ductus arteriosus in ventilated pre term babies were 10% more common[7].

Luke *et al.*, studied incidence of patent ductus arteriosus in United States children born at term and it was noted between 0.02% and 0.06% of live births. The incidence is increased in children who are born prematurely (20% of premature infants) and risk is increased up to 30% in babies born with history of perinatal asphyxia and in babies born at high altitudes[8].

As an isolated lesion, patent ductus arteriosus represents 5-10% of all congenital heart lesions. it occurs approximately 0.008% of live premature births[9].

Morbidity is doubled in preterm and premature babies with patent ductus arteriosus[10].

Prophylactic paracetamol was studied by tin thu et al., and found to be effective for preventing patent ductus arteriosus[11].

## CONCLUSION

Patent ductus arteriosus is one of the congenital anomalies that occurs when ductus arteriosus, a channel connecting between arch of aorta and pulmonary artery fails to obliterate leading to patent ductus arteriosus which causes shunting of blood from aorta to pulmonary artery. As an isolated lesion, patent ductus arteriosus represents 5-10% of all congenital heart lesions. It occurs approximately 0.008% of live premature births. Many studies were carried out on PDA which was 0.02%-0.06% of live births. Incidence

was increased by 20% in premature infants. 10% more common in ventilated preterm babies. Risk is increased up to 30% in babies born with history of perinatal asphyxia and in babies born at high altitudes. In the present study, it was noted in 1.66% of cases. Surgical treatment is limited to its ligation and resection depending upon the dimensions and types of patent ductus arteriosus.

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