

Are there surgical options for PDA?

There are two methods for surgical repair. Both have advantages and disadvantages. The first is a complete ligation (tying-off) of the duct. The PDA is accessed via a thoracotomy (incision into the chest), followed by direct visualization and ligation (tying-off). Post-operative complications are not common, but can occur. About 3% of dogs will have residual blood flow through the PDA after ligation and will require a second surgery to religate the duct.

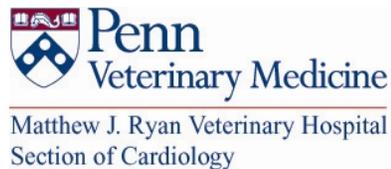
The second is transcatheter placement of a coil via the femoral artery. These coils are made of wire coated with strands of dacron in order to promote thrombosis (blood clot formation) within the duct and subsequent occlusion. Though this is a much less invasive procedure than direct ligation, which requires a thoracotomy, the procedure is difficult to perform in very small animals. Additionally, occasionally the shape of the duct is not amenable to this procedure. In some cases, surgery may be delayed until the patient grows to adequate size. Your veterinarian will discuss the options with you that best suit your pet's needs and will be happy to answer any questions that you might have.

What is the long term prognosis for PDA?

Uncorrected, the prognosis for most patients with PDA is poor. Without correction, patients usually progress to left-sided congestive heart failure, for which mortality is very high. There is a small population of dogs that have a PDA small enough that congestive heart failure does not occur, but few dogs fit into this group.

Fortunately, there are excellent surgical options available. Of all the congenital malformations in companion animals, PDA is the one most amenable to complete repair. With surgical correction, the prognosis is excellent for a long, normal life depending on how advanced the changes in the heart are at the time of diagnosis.

Thank you for visiting the cardiology service at the Ryan Veterinary Hospital. If you have any further questions, please do not hesitate to contact us.

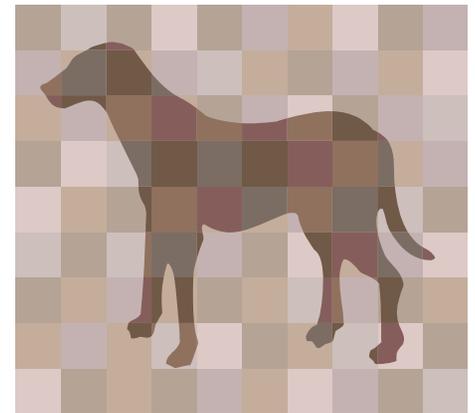


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Understanding Patent Ductus Arteriosus

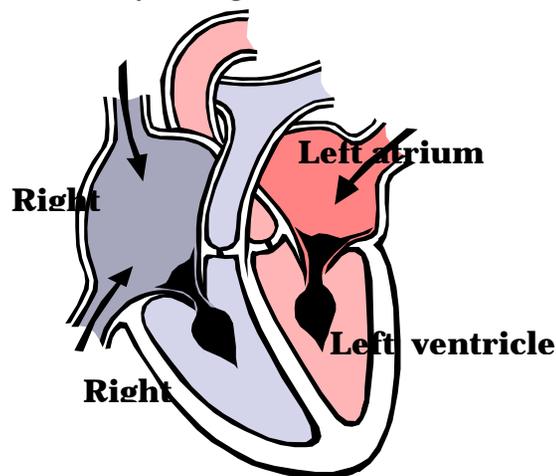


Many Species. One Medicine.

Patent Ductus Arteriosus

How does the heart work?

The heart is the organ responsible for maintaining the circulation of blood within the body. It is a four-chambered organ containing right and left atria (upper chambers) and ventricles (lower chambers). The right side pumps deoxygenated blood returning from the venous system in the body into the lungs. From the lungs, oxygenated blood enters the left side of the heart where it is pumped out into the tissues of the body through the arteries.



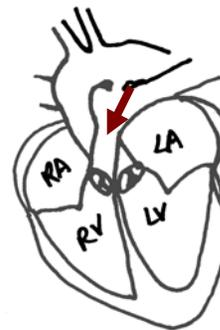
What is patent ductus arteriosus?

The ductus arteriosus is a blood vessel that provides a communication between the systemic circulation (that which carries oxygenated blood throughout the body) and the

pulmonary circulation (that which goes through the lungs). The connection is between the descending aorta (out to the body) and the pulmonary artery (into the lungs). In utero, this connection allows blood to bypass the lungs as the fetus' blood is oxygenated by the placenta. Normally, the ductus arteriosus closes within 3 to 4 days after birth. A patent ductus arteriosus (PDA) results when the duct fails to close or has incomplete closure.



Normal Heart



Heart with PDA

PDA is the most common cardiac congenital malformation in the dog, though it is quite uncommon in the cat. Small breeds such as Miniature poodles, Maltese, Bichon frises, and others are predisposed to ductal patency. Females are also more commonly affected than males. A hereditary basis for PDA has been proven in Miniature and Toy poodles.



How is a PDA detected?

PDA's can be detected as early as a week of age by using a stethoscope to auscultate the heart. Patients often appear completely normal and healthy. It is signified by a continuous (throughout contraction and relaxation phases of the heart cycle), "machinery" like murmur that is loudest over the left base of the heart (or the armpit). The murmur is usually accompanied by "bounding" (very strong and forceful) arterial pulses which result from a large arterial pressure difference between the contraction (systolic) and relaxation (diastolic) phases of the heart cycle.

