



**Patent ductus arteriosus is one of the more common congenital heart defects in dogs. The condition is often discovered in apparently healthy dogs by a vet during a routine examination (such as before vaccination).**

**If your vet identifies a heart murmur in your puppy it is essential to have further investigation to establish the cause of the murmur so that appropriate treatment can be given early.**

### **What is a patent ductus arteriosus?**

The dog's heart, like that of humans, is a muscular pump with four separate chambers. The right side of the heart sends blood to the lungs where it picks up oxygen. The left side of the heart pumps the blood around the body. The ductus arteriosus is a blood vessel used to bypass the puppy's lungs in the womb and this normally closes within a few days after birth. In dogs with a patent ductus arteriosus, this bypass fails to close and some blood is therefore able to re-enter the circulation in the lungs without passing through the body. This can lead to a condition where the lungs are receiving extra blood flow.

### **How would I know if my dog has a patent ductus arteriosus?**

Patent ductus arteriosus (PDA) is a congenital heart defect, ie it is caused by abnormal development of the puppy after birth. In many cases the first sign of disease is a murmur that is detected by their vet during a routine health check. When you bring home a new puppy it is always advisable to ask your vet to check for any heart murmurs.

PDA is seen in many small breeds of dog (Bichon Frise, Keeshund, Maltese Terrier, Poodle among others) and is also more common in female dogs. The initial signs of a PDA may also include reluctance to exercise, shortness of breath or coughing. Heart failure may occur in dogs with unrecognised or untreated PDA.

### **How will my vet know what is wrong with my dog?**

If your vet hears a murmur when listening to your dog's heart they will want to do some other tests. Heart murmurs are caused by abnormal blood flow and the murmur of a PDA is very characteristic. Often, the vet will be able to predict the presence of a PDA by listening carefully to the murmur. Very quiet heart murmurs can be present in an otherwise healthy pet so a diagnosis of PDA or other congenital heart disease is not necessarily inevitable.

Ultrasound is the method of choice for finding the cause of a heart murmur. If a heart murmur is heard, an ultrasound examination is recommended. Ultrasound examination of the heart requires considerable knowledge and experience and should always be performed by someone experienced in examining young dogs.

X-rays are important in the diagnosis and monitoring of heart disease but will not always identify the cause of a heart murmur. In dogs with PDA, several characteristic findings are typically present on X-rays, and your vet may be able to predict the presence of PDA by carefully examining the X-rays. X-rays are also used to see if signs of heart failure are present. If there are signs of heart failure, treatment should be started.

### **Will my dog get better?**

Your vet will discuss the outlook and long term management of your dog with you. They will typically recommend surgery to correct the condition and with successful treatment, your dog can lead a full and long life.

### **Can patent ductus arteriosus be treated?**

The unsealed blood vessel can be closed using traditional open-chest surgery to tie off the PDA. Alternatively the vessel can be closed by PDA coil or device occlusion. This involves placement of a metal device that induces the formation of a clot, effectively closing off the blood vessel. The PDA closure device is usually delivered through a catheter placed in an artery in the leg and then guided into the PDA. This

## Congenital heart disease - patent ductus arteriosus



surgical technique is highly specialised and is usually only available at large referral centers or veterinary schools. However, it is a relatively non-invasive approach and your dog should be discharged 24-48 hours after the procedure.

### How long will my dog live?

Many animals with patent ductus arteriosus live a normal life span with no signs of heart disease provided surgery (or coil occlusion) is carried out when they are young and before the development of heart failure. If the surgery is carried out in an older dog or in an animal with congestive heart failure, then the outlook is less favorable.

Affected dogs and their parents (who could be genetic carriers of the condition) should be not be allowed to breed.

**If you want any other information on health issues concerning your dog please contact your local Veterinary Surgeon.**