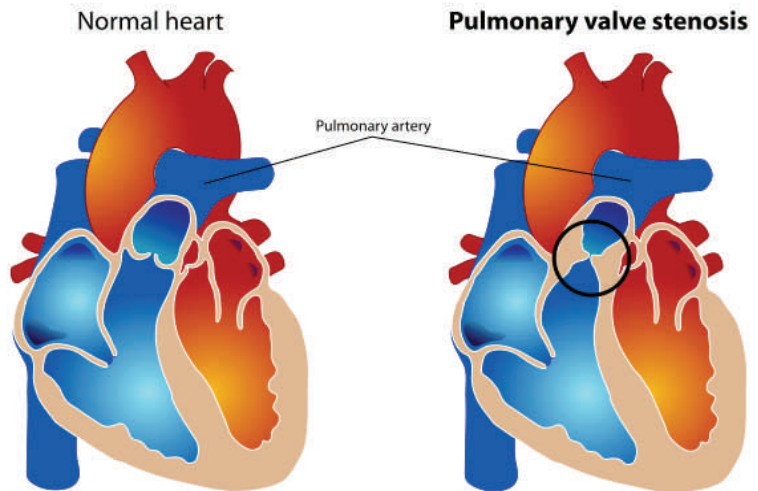




Pulmonic Stenosis (PS)

What is Pulmonic Stenosis ?

Pulmonic Stenosis (PS) is one of the most common congenital heart defects in the dog. A congenital defect is an abnormal development of an anatomical structure during the fetal life and is therefore present since birth. PS is characterised by an obstruction at the level of the pulmonic valve, between the right ventricle and the pulmonary artery. Venous blood returning from the periphery of the body enters the right atrium and then moves into the right ventricle, where it is pumped into the pulmonary artery and lung circulation to be re-oxygenated. If the pulmonic valve, or the anatomical area just below or above the valve, is narrow the blood has to “squirt” through this point to enter the pulmonary artery. This causes a flow turbulence that your vet has detected during auscultation as a “heart murmur”. Pulmonic stenosis can develop in any dog breed; however, Beagle, Samoyed, English Bulldogs, Fox terrier, Miniature-Schnauzer, West Highland white terriers, and Chihuahua seem predisposed. In the majority of cases, the valvular



lesion is simply caused by an incomplete development of the valve (type A); however, in other cases, other surrounding anatomical structures can be affected (type B). Finally, some cases of PS are caused by an abnormal left coronary artery, which originates from a wrong site and runs around the pulmonary artery causing a sort of “strangulation” at the level of the valve. PS causes a reduced pulmonary flow, which results in reduced blood oxygenation. As a result of this, the dog may become

exercise intolerant and may experience fainting episodes. Simultaneously, the right ventricle builds up new muscle fibers to overcome the valvular resistance and becomes thicker. With time, the thicker ventricle will become less compliant causing clinical signs of right-sided heart failure (liver enlargement and fluid in the abdomen). Finally, a thicker ventricle can induce an abnormal heart rhythm, which can also be responsible for fainting

How can we diagnose and treat dogs with PS?



PS is usually found in young dogs. Often, the only sign of the heart defect is a heart murmur detected on routine physical exam by a veterinarian. The echocardiogram (ultrasound of the heart) will confirm the diagnosis of PS by direct visualisation and will also help exclude other concurrent congenital heart defects. The exam will also determine the severity of the lesion through the measurement of the pressure gradient with Doppler techniques. A gradient below 40 mmHg is considered benign and is associated with a good prognosis. A gradient above 80 mmHg is considered severe. Dogs with a gradient between 40 and 80 mmHg may be symptom free for years but they may still develop signs at a later stage. In these cases echocardiographic monitoring is always recommended.

The key to successful management and treatment of PS is early diagnosis before the onset of clinical signs and balloon valvuloplasty (BVP). This is a minimally invasive per-catheter procedure (keyhole surgery) that has demonstrated a good success rate (approximately 90%). Per-catheter intervention to reduce the severity of PS in dogs is commonly available at specialist referral clinics.

