

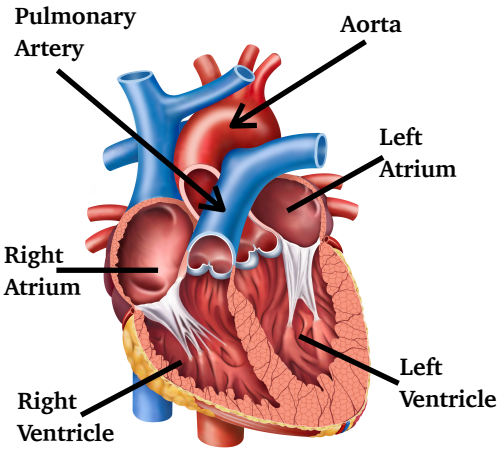
Pulmonic Stenosis

Pulmonic stenosis is one of the most common congenital heart defects diagnosed in dogs; it rarely occurs in cats. Congenital heart defects are present at birth and are due to malformation during development. With PS, the pulmonary valve does not form properly and as a result does not fully open. This causes an obstruction to the blood flow leaving the right ventricle.

PS causes an increased workload on the right ventricle (RV) due to incomplete opening of the pulmonary valve. With PS, the RV has to generate much higher pressure to push blood through the narrowed valve opening, and out to the lungs. Increased pressure/workload on the heart causes thickening (hypertrophy) of the wall. In severe cases, this thickening can result in dysfunction and lead to right-sided congestive heart failure (CHF) or arrhythmias (irregular heart beat)

QUICK FACTS:

- ♥ Pulmonic stenosis (PS) is one of the three most common congenital heart defects in dogs
- ♥ Some breeds such as the Beagle, Chihuahua, Boxer, English & French Bulldog, and various type of Terriers are predisposed to PS
- ♥ Dogs with mild (and some with moderate) PS can live a completely normal lifespan
- ♥ Echocardiography is the only non-invasive test to diagnosis and assess the severity of PS
- ♥ In severe cases, balloon valvuloplasty procedure can decrease severity and improve survival
- ♥ Treatment is not needed for mild cases. Severe cases may develop arrhythmias or show signs of CHF such as lethargy, abdominal distension, fainting.



A heart murmur in the left basilar (armpit) region is the hallmark exam finding of PS. Heart murmurs are abnormal heart sounds that occur due to abnormal blood flow. Another type of congenital heart defect called subaortic stenosis also causes the same type of murmur. An **echocardiogram** (ultrasound of the heart) is a non-invasive test that allows us to look inside the heart to diagnose the exact cause of the heart murmur, and also allows us to accurately assess the severity of PS. Other tests that may be indicated for patients with PS:

- ◆ Electrocardiogram (ECG) or Holter - to assess electrical activity in the heart, particularly if there is an irregular heart beat (arrhythmia)
- ◆ Angiogram - dye injection with fluoroscopy (live X-ray)

Treatment is not needed for mild PS. For dogs with severe PS, a minimally-invasive balloon valvuloplasty procedure can be done to dilate/open the stenotic pulmonary valve. This can decrease the severity of PS and significantly improve survival. Medications such as atenolol may also be used to decrease the workload on the heart and minimize arrhythmias (if present). If left untreated, some dogs will progress to right-sided CHF with clinical signs such as ascites (fluid accumulation in the abdomen), poor appetite, weakness or fainting. These patients will require diuretics such as furosemide, to minimize their clinical signs.

Fluoroscopy image - balloon valvuloplasty - balloon cinched due to stenotic pulmonary valve

