



What is pulmonic stenosis?

Pulmonic stenosis describes a narrowing around the pulmonic valve which is located in the large artery leaving the right side heart carrying blood to the lungs. The signs of this disease include a heart murmur, impaired ability to exercise, fainting and heart failure

What causes this disease?

Pulmonic stenosis is a genetic disease more common in certain breeds such as English bulldog, terrier breeds and French bulldogs. This condition results in a narrowing of the pulmonic valve usually due to abnormal development of the valve but, in some cases, adjacent or surrounding structures contribute to the narrowing. This condition is present from birth and the consequences of this lesion become more apparent if the tricuspid valve starts to leak.

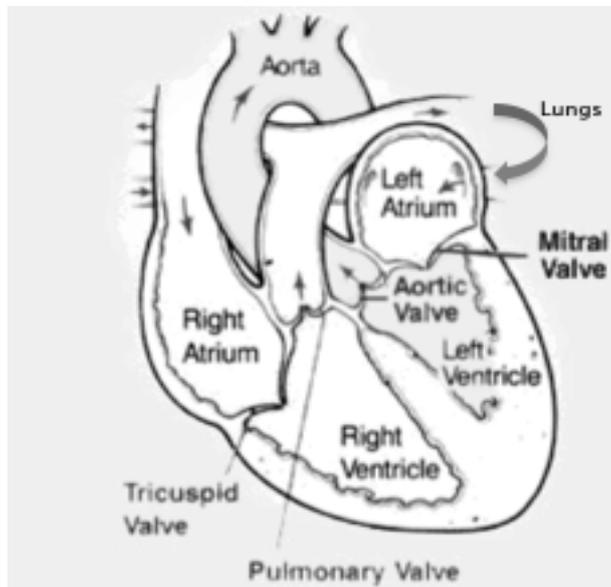
required especially in predisposed breeds with a loud heart murmur and also in individuals intended for breeding. Even in dogs with severe disease, signs of reduced heart output such as collapse and reduced ability to exercise are rare in the first year of life so the absence of signs should not preclude investigation.

Mildly affected dogs may tolerate this condition without ever showing signs however more severely affected cases are likely to show signs in the first few years of life.

How is the pulmonic stenosis diagnosed?

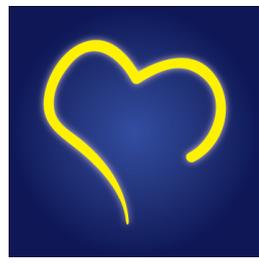
Echocardiography (ultrasound of the heart) is a safe and painless test that can be performed without any anaesthetic or sedation. In our centre you can stay with your pet to reduce their anxiety whilst this test is performed. Ultrasound allows us to assess heart size, function and measure the speed of blood flow through the heart valves as changes in these parameters are the hallmarks of this disease.

The speed of blood flow through the valve allows us to calculate the pressure difference and this gives an indication of disease severity – mildly affected dogs have pressure gradients of <40mmHg, moderately affected dogs have pressure gradients of 40–79mmHg and severely affected dogs have pressure gradients >80mmHg.



What are the signs of this disease?

The most common sign of this condition is an audible heart murmur that is detected at puppy checks. Whilst non-pathological murmurs (also known as “innocent” or “puppy” murmurs) may also be present at this age further investigation may be



In some dogs abnormal heart rhythms are associated with this condition and this can have implications for treatment. As some abnormal heart rhythms are intermittent, we often place heart monitors (also known as Holter monitors or ambulatory ECGs) onto dogs that they wear at home for 24 hours whilst performing normal activities. At our centre, these recordings are analysed by veterinary cardiologists rather than technicians trained to analyse recordings from human patients.

Screening of breeding dogs

We advise pre-breeding screening in breeds such as French bulldogs where the disease is common. Pre-breeding screening involves both auscultation (listening with a stethoscope) and also echocardiography to distinguish between flow murmurs and murmurs caused by heart disease. Dogs with this condition should not be used for breeding.

How is pulmonic stenosis treated?

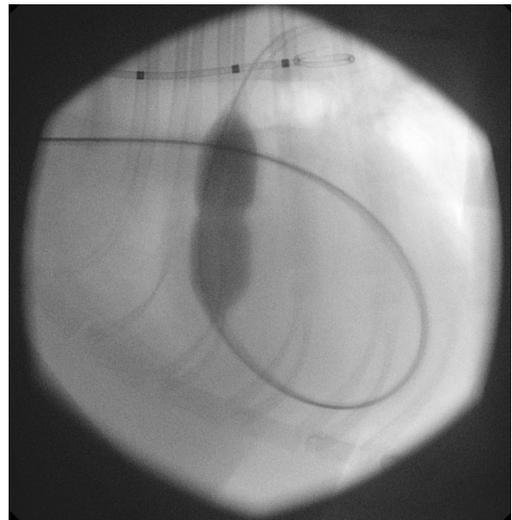
Medical treatment with beta blockers such as atenolol can help to alleviate some of the signs associated with aortic valve stenosis. Beta blockers dampen the effects of adrenaline on the heart muscle and, by minimising surges in heart rate, can partially alleviate that problems associated with the partial obstruction to blood flow.

If dogs develop signs of heart failure then additional medications are required.

Surgical treatment using a keyhole technique where a special catheter is guided into the narrowed valve from a vein

in the neck is often very successful in dogs but is not suitable for all cases.

The image below shows a balloon catheter procedure to widen a narrowed pulmonic valve. The narrowed valve is located at the balloon's "waist" and this narrowing should disappear as the balloon is inflated.



Lifestyle management

Dogs with pulmonic stenosis should be fed a proprietary diet and kept at the correct body weight. There is no evidence that a raw diet or supplements will help this condition.

Dogs should be allowed to exercise but, if possible, surges in activity should be avoided as this is when collapse may occur.

Pulmonic stenosis does not preclude sedation or general anaesthesia and we can advise your vet on appropriate drug regimes.

Whilst mild cases of this condition may be tolerated without ever showing any signs, dogs with severe disease will require regular monitoring by a specialist veterinary cardiologist.