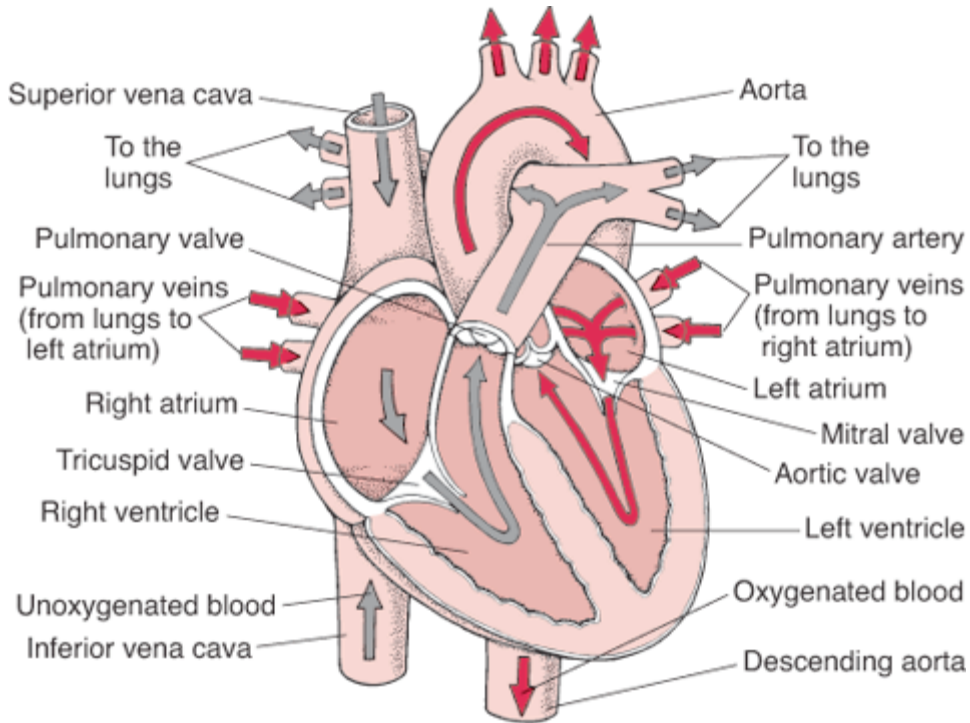


Subaortic Stenosis

Outline of a normal heart



Your dog has been diagnosed with Subaortic Stenosis (SAS). SAS is a congenital defect that causes an abnormal narrowing of tissue just below the aortic valve. The region tends to progressively narrow over the first year of life. It is commonly heritable so the breeder of your puppy should be notified if possible.

In order for you to understand how this disease may affect your dog, it is important to understand how blood travels through the heart. The venous blood from the body drains into the right atrium, through the tricuspid valve, and into the right ventricle. The right ventricle then pumps this un-oxygenated blood to the lungs through the pulmonary artery. Moving through capillaries, the blood picks up oxygen from the lungs. This blood then drains through large pulmonary veins into the left atrium, through the mitral valve and into the left ventricle where it is pumped through the aorta and back to the body.

Dogs with SAS have a narrow region of tissue just below the aortic valve that causes an acceleration of blood flow as it crosses the region. The abnormal blood flow is what causes the heart murmur that was auscultated by your veterinarian. Because the outflow tract is abnormally narrowed, the pressure the left ventricle must overcome in order to

pump blood into the aorta is elevated. This change in pressure is termed the pressure gradient – the degree of elevation of the pressure gradient is how SAS is classified. The left ventricular muscle thickens in order to overcome the increase in pressure. The thickened muscle is inadequately perfused by the coronary circulation and becomes damaged. This damaged heart muscle can cause rhythm disturbances and also eventually lead to congestive heart failure.

In normal dogs, the pressure gradient across the aortic valve is less than 20mmHg. In dogs with mild SAS, the pressure gradient is between 20 and 50mmHg. Dogs with moderate SAS have a pressure gradient between 50 and 80mmHg and dogs with severe SAS have a pressure gradient greater than 80mmHg.

An echocardiogram is used to make the diagnosis of SAS and to classify its severity. It is also important to evaluate for concurrent defects. Many dogs with SAS also have aortic insufficiency (leaky aortic valve) as well as an abnormally formed mitral valve (mitral valve dysplasia).

Dogs with mild SAS have a good prognosis and generally live a full life. They can develop late complications (endocarditis, muscle failure) but this is rare. Dogs with moderate SAS have a good prognosis in the short term and fair to good long term. A small percentage of dogs with moderate SAS die suddenly. They are at higher risk than the first group of developing late complications but the risk is relatively low. Dogs with severe SAS are at a high risk for sudden death.

There is no definitive therapy for SAS. Dogs who have had open heart surgery to remove the abnormal tissue die suddenly at the same rate as though who don't undergo surgery. Medical therapy with a beta blocker appears to reduce the incidence of sudden death in dogs with severe SAS.

Fortunately, most dogs with SAS are unaware that they are sick and feel like normal dogs.