

Subaortic Stenosis

Subvalvular aortic stenosis (SAS) is a relatively common congenital heart defect in the dog and a rare defect in the cat. It is an inherited condition and is most often identified in large and giant breed dogs such as the Newfoundland, Golden Retriever, Boxer, Rottweiler, German Shepherd, English Bulldog, Great Dane, German Short-haired Pointer, and Bouvier des Flandres. It is reported in many other purebreds as well as mixed breeds of dogs.

The heart is anatomically divided into four chambers separated by four valves. The four heart valves ensure blood flows in one direction through the heart. The aortic valve separates the main pumping chamber (left ventricle) from the aorta, the large blood vessel that carries blood from the heart to the body. In dogs with SAS, there is added fibrous or muscular tissue below the aortic valve, hence the term “subaortic”). This abnormal tissue creates an obstruction (stenosis) the heart has to overcome to pump blood to the body. This stenosis makes the heart work harder than normal. The heart murmur is created by blood being pumped across the stenosis into the aorta.

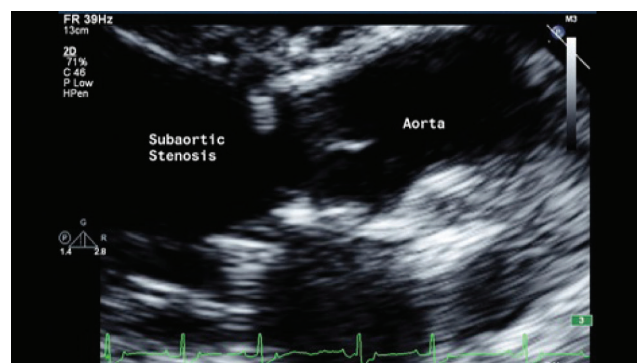
Prognosis in patients with SAS varies with the severity of the defect. Symptoms from SAS may include lethargy, weakness following exercise or excitement, fainting, and, in some advanced cases, coughing and difficulty breathing secondary to congestive heart failure. Dogs with mild SAS may have no clinical signs while moderately to severely affected dogs may be more symptomatic and are at an increased risk of sudden death secondary to arrhythmias.

Definitive diagnosis of SAS and the determination of disease severity are accomplished noninvasively with an echocardiogram with Doppler performed by a board-certified veterinary cardiologist. Echocardiography allows visualization of the four heart chambers and valves as well as the anatomy of the subaortic area. Doppler allows estimation of the pressure created in the heart by

the obstruction/stenosis. The degree of pressure elevation correlates with the SAS severity. In patients with an irregular heart rhythm, an electrocardiogram (ECG) is indicated to assess the type of rhythm problem and whether treatment is required.

All dogs with SAS are at an increased risk for developing infections of their aortic valve (endocarditis) and should receive antibiotics when they have wounds or are undergoing surgery or dental procedures. Dogs with moderate to severe disease should be limited to low impact activity (leashed walks, short trips to the back yard) and avoid vigorous exercise. Cardiac medications in the form of beta-blockers are indicated for severely affected dogs. Additional therapy to treat specific arrhythmias and heart failure may also be required. Surgical and catheterization procedures to correct SAS are available at some university veterinary hospitals; however, they have not yet been shown to improve survival times.

Prognosis in dogs with SAS is variable. Mildly affected dogs are expected to have normal life spans without becoming symptomatic. Severely affected dogs may die suddenly when young to middle-aged. It should be noted that SAS can be progressive in some dogs, so even mildly affected, asymptomatic dogs should be reexamined as recommended by your cardiologist.



The abnormal tissue obstructing normal flow out of the left ventricle is shown.

