

Are there surgical options for PS?

Balloon valvuloplasty is a surgical procedure utilizing cardiac catheterization to treat PS. Using fluoroscopy, a balloon catheter is passed via the femoral or jugular vein across the pulmonic valve. The balloon is positioned across the obstruction and inflated with fluid under pressure. This stretches or breaks the obstructing tissue allowing blood to flow across the stenosis more easily and reducing the pressure gradient between the right ventricle and the pulmonary artery. The procedure has a good success rate, is minimally invasive, and is relatively low risk. The most common complication is recurrence of the stenosis.

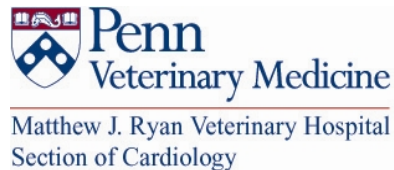
Balloon valvuloplasty is usually recommended for dogs with severe pulmonic stenosis whether or not they are symptomatic at the time of diagnosis. These dogs are prone to developing ventricular arrhythmias that can result in sudden death. Medications such as beta blockers may be prescribed to help reduce the risk of arrhythmias. These patients should be monitored closely for signs of weakness or fainting.

How is pulmonic stenosis managed?

The prognosis for PS relates to the severity of the stenosis as measured by the pressure gradient using Doppler echocardiography and the presence or absence of other concurrent cardiac disease. Dogs with mild stenosis usually have normal life spans and do not require therapy. Dogs with moderate stenosis usually have normal life spans, but may experience varying degrees of clinical signs requiring medical therapy.

Congestive heart failure is a rare potential sequelae to pulmonic stenosis. To learn more about the management of congestive heart failure, please read the CHF pamphlet.

If you have any other questions, please do not hesitate to contact us. Thank you for visiting the Cardiology Service at the Ryan Veterinary Hospital.

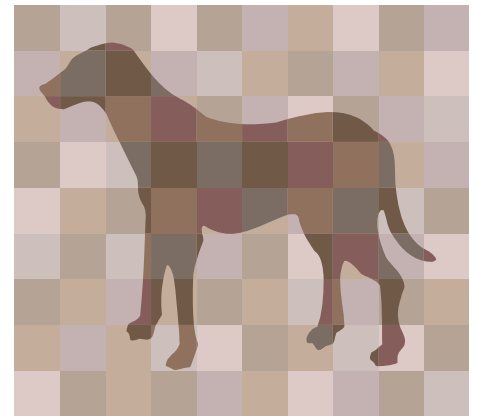


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Understanding Canine Pulmonic Stenosis

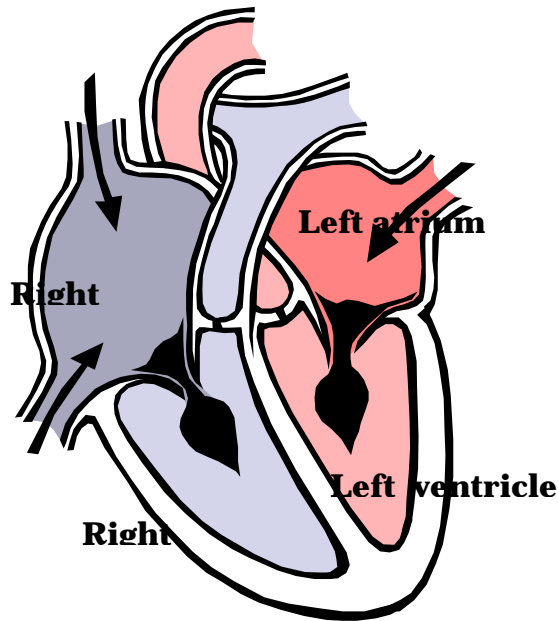


Many Species. One Medicine.

Pulmonic Stenosis

How does the heart work?

The heart is the organ responsible for maintaining the circulation of blood within the body. It is a four-chambered organ containing right and left atria (upper chambers) and ventricles (lower chambers). The right side pumps deoxygenated blood returning from the venous system in the body into the lungs. From the lungs, oxygenated blood enters the left side of the heart where it is pumped out into the tissues of the body through the arteries.



What is pulmonic stenosis?

Pulmonic stenosis is the third most common canine congenital heart defect. Stenosis means narrowing; pulmonic stenosis (PS) is a term that refers to a narrowing of the right ventricular outflow tract. The pulmonic valve permits blood flow between the right ventricle and the pulmonary artery. Stenosis of the valve itself is by far the most common form of the disease; though, rarely stenosis above or below the valve can occur. This narrowing of the valve in most dogs is attributed to valvular dysplasia (abnormal development of the pulmonic valve).

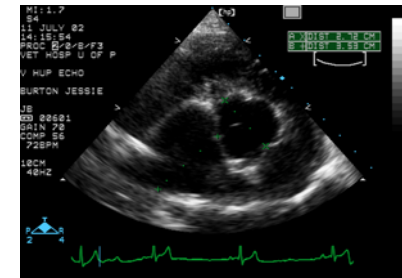
The narrowing causes pressure overload in the right ventricle which can ultimately lead to right ventricular hypertrophy (thickening of the heart muscle).



PS is most commonly seen in English bulldogs, terriers, Miniature schnauzers, American cocker spaniels, Samoyeds, Keeshonds, Mastiffs, and Beagles. A hereditary basis for PS has been proven in Beagles and is suspected in other breeds.

How is pulmonic stenosis detected?

Pulmonic stenosis patients are often identified when a heart murmur is detected at the left heart base during a routine physical examination of an otherwise healthy puppy. Generally puppies appear bright, alert, and happy. In animals with clinical signs, exercise intolerance, general fatigue, syncope (fainting), or ascites (excessive fluid in the abdomen) may be noted.



Definitive diagnosis is made using echocardiography. The pulmonic valve can be examined for thickening or “doming” (though sometimes the valve can be difficult to visualize), and both supralvalvular and subvalvular lesions can be appreciated. The degree of hypertrophy of the right ventricle gives some information as to the severity of the stenosis, but a definitive grading requires measuring the pressure gradient between the right ventricle and the pulmonary artery. In dogs with PS, the pressure gradient is abnormally increased and correlates with the severity of the stenosis.