

CLIENT INFORMATION SHEET
PULMONIC STENOSIS (PS)
BALLOON VALVULOPLASTY (BVP)

Pulmonic stenosis (PS) is a common congenital abnormality that is due to an abnormal development of one of the valves of the heart known as the pulmonary valve. The pulmonary valve separates the right ventricle from the large vessel leading to the lungs (main pulmonary artery). With pulmonic stenosis, valvular malformation causes the opening between the right ventricle and the main pulmonary artery to be narrowed, which in turn obstructs the outflow of blood into the lungs. As a consequence, the right ventricle is forced to pump harder to push the blood through a narrowed orifice. This leads to thickening of the walls of the right ventricle (hypertrophy). As blood rushes past the narrowed orifice and strikes the walls of the pulmonary artery past it, an audible murmur is created. Dogs with severe pulmonic stenosis are at risk of developing exercise intolerance, collapse, arrhythmias, and right-sided congestive heart failure by the time they are 3-5 years of age.

Some patients with PS can also have a concurrent abnormalities such as a patent foramen ovale or septal defect, allowing unoxygenated blood to bypass the lungs. These dogs may experience weakness with exercise and hypoxemia. Over time, if this shunting is severe, the body will make more red blood cells (a term called polycythemia).

Balloon Valvuloplasty:

This interventional treatment of PS involves catheterization of the heart under general anesthesia. A long catheter is usually fed through the jugular vein (the large vein of the neck) and into the right side of the heart. At the tip of this catheter is a long balloon. When inflated, the balloon dilated the pulmonic valve opening, stretching it to a more physiologically appropriate diameter. This procedure is generally successful at reducing the pressure gradient across the pulmonic valve to a mild to moderate range, and long-term prognosis following balloon valvuloplasty is generally good but is contingent on the nature of the narrowing.

Possible Complications include:

General anesthesia

- Pneumonia secondary to aspiration of stomach contents
- Changes to the heart rhythm and blood pressure
- Uncommonly, death

Interventional Procedure/Surgery

- Failure to reduce pressure gradient or restenosis (10%)
- Arrhythmias and low blood pressure with deoxygenation
- Pericardial effusion or vessel trauma
- Uncommonly, death

After the procedure:

- Your pet will be hospitalized ~ 24 hours for continued monitoring and recovery from anesthesia.
- A recheck echocardiogram will be performed the day after the procedure to assess the pressure gradient.
- Detailed instructions regarding aftercare and recheck recommendations will be provided at discharge.

At home care:

- No neck collars or neck leads for 5-7 days post operatively to allow jugular vein to heal
- Moderate to strict activity restriction for 2 weeks while your pet's vessel heals and heart recovers
- Mild to moderate activity restriction for at least 4-6 weeks while your pet's heart remodels
- Typical recheck schedule:
 - 3-6 month recheck with NCSU or local cardiologist for heart auscultation and echocardiogram
 - Additional rechecks and atenolol therapy will be recommended per clinician discretion