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INFO: Pulmonic stenosis (PS)

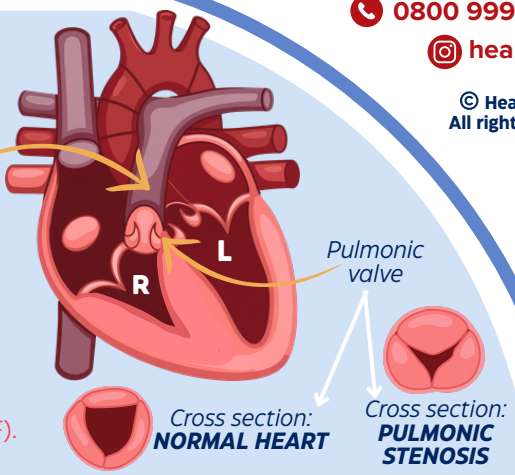
WHAT IS PS?

A **congenital defect** (an abnormality your pet was born with) of the **pulmonic valve**, in the main artery leaving the right side of the heart (the pulmonary artery).

A stenosis is a **narrowing** - a 'pinch point'. In PS this is caused by **fusion** or **thickening** (sometimes both) of the pulmonic valve leaflets.

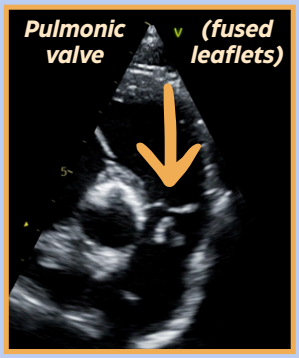
The right heart has to **work harder** to force blood through the narrowed pulmonary artery, causing **increased pressure** and **thickening** of the heart muscle.

The right heart becomes **enlarged**, leading to **congestive heart failure** (CHF).



HOW DO YOU DIAGNOSE PS?

- Your vet may hear a **heart murmur** ('whooshing' noise) - this simply indicates a change to the normal blood flow, it **does not tell us what the cause is.** They may recommend a heart scan to investigate.
- **Echocardiography** (heart ultrasound scan) is the only way to definitively diagnose PS. It is used to look at the heart structures and function, assess severity of disease to determine appropriate treatment and look for other defects.
- **ECG** monitors electrical activity, checking heart rate and rhythm. Patients can develop irregular rhythms (arrhythmias) as disease progresses.



The pulmonary artery (echocardiography)

WHAT ARE THE CLINICAL SIGNS?

Speak to your vet if you think your pet may have any of these signs.

It is common for young patients to have no clinical signs and still have severe structural changes.

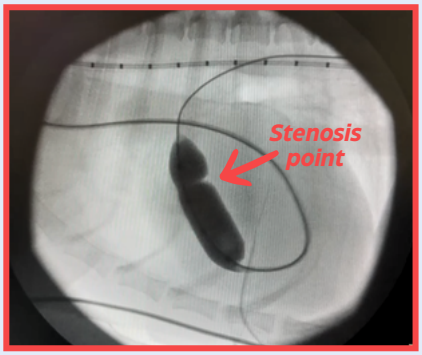
Clinical signs can include:

- Lethargy
- Reduced exercise tolerance
- Breathlessness / increased respiratory rate or effort, particularly on exertion or excitement
- Pale or blue / purple tinged gums or tongue colour, particularly on exertion or excitement
- Weakness or collapse
- Abdominal swelling
- Decreased appetite

HOW IS PS TREATED?

Treatment depends on the category of PS, diagnosed on echocardiography.

- **Mild**: usually no treatment is indicated, and patients lead a normal life. Some progress as they age, so they may be monitored.
- **Moderate**: drugs such as **beta blockers** may be used to reduce the workload of the right heart, support cardiac function and control arrhythmias. Patients require monitoring as their disease progresses.
- **Severe** (or advanced 'moderate' PS): beta blockers are used, but certain patients can benefit from a keyhole surgical procedure called **Balloon Valvuloplasty** (BVP). This is where a balloon is inflated across the narrowed valve to stretch it open. This is not a curative procedure, but can **significantly improve patient outcome and lifespan**. Other keyhole procedures include placing a **stent** implant across the valve, to hold it open.



Balloon inflation during BVP (fluoroscopy)


Balloon used for BVP

If patients develop signs of **CHF**, additional drugs are added (**diuretics**, **ACE inhibitors**, **anti-arrhythmics** / **rate control**) to manage ascites (fluid build up in the abdomen), support heart function and control arrhythmias. Beta blockers may need to be stopped in later stages.

PS is hereditary - patients with PS should not be used for breeding.

WHAT IS THE PROGNOSIS?

This depends on the severity of the PS, how early it is diagnosed and how quickly patients progress.

Medication and surgery can make a huge difference if patients are good surgical candidates.

Monitoring with echocardiography will help to optimise your pet's treatment.

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