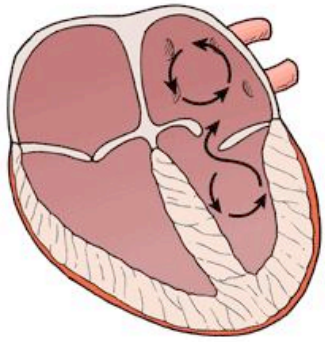
DEGENERATIVE VALVULAR DISEASE

Chronic degenerative valvular disease (often called “mitral valve disease”) is the most common heart disease in dogs. It is a progressive deterioration of the main valves in the heart, mostly the mitral valve which separates the left atrium (upper chamber) from the left ventricle (lower chamber). The tricuspid valve is a similar valve found on the right side of the heart, and can also be affected to a lesser degree.

Healthy valves close completely when the heart pumps, stopping backflow of blood. Diseased valves can bulge backwards (called **prolapse**), allowing leaks to occur which causes turbulent blood flow we hear with a stethascope, called a **murmur**.



A prolapsed mitral valve allows blood to leak backwards into the left atrium as the heart beats.

As the leak worsens, the left atrium and ventricle become enlarged. Eventually blood flow into the heart slows and fluid leaks out of the blood into the lungs. This is called pulmonary oedema, and causes difficulty in breathing, often with a soft cough. The patient is now in congestive heart failure.

Affected animals are usually middle aged to older dogs of small breeds, especially cavalier King Charles spaniels and chihuahuas. Whippets, dachshunds and some terriers can also be affected as well as some larger breeds such as spaniels, border collies, German shepherds and Labrador retrievers.

Clinical Signs can often include:

- Reduced ability to exercise, slowing down or even collapsing after exertion.
- Coughing or breathlessness, especially at night or first thing in the morning
- Reduced appetite, increased drinking, weight loss.

How is it diagnosed?

The **presence of a heart murmur** in a pre-disposed breed is suggestive, but this does not give a diagnosis as there are many other causes of heart murmurs.

Echocardiography (cardiac ultrasound scan) is the gold standard diagnostic test, allowing real time measurements of heart size, assessment of the valves, and colour mapping to show any leaks. It is painless and non-invasive, and usually does not even require sedation. A small amount of hair clipping is usually necessary for ultrasound scans.

A **blood test** called NT-proBNP may be used initially as a screening test to determine how advanced the disease is likely to be:

- A high result suggests the heart is under stress and probably enlarged, but an ultrasound scan is needed for a definitive diagnosis and to make a treatment plan.
- A normal result indicates the heart is less likely to be enlarged. This still does not tell us why a murmur is present so an ultrasound scan may still be recommended.

An **electrocardiogram (ECG)** monitors electrical activity of the heart, and gives important information about heart rate and rhythm. Sometimes we may fit a portable monitor called a Holter monitor to assess this over a longer period. of time away from the clinic.

Radiographs ("X-Rays") assess fluid build up in the lungs or other lung disease.

Can it be treated?

This is usually a slowly progressive disease (over some years in most dogs). There is no evidence of treatment benefit where there is no heart enlargement on ultrasound scan.

If the heart has become enlarged, there is one drug called **pimobendan** which can slow progression, support heart function and improve overall survival. This should only be prescribed when enlargement has been shown on an ultrasound scan.

When dogs develop congestive heart failure, there are other cardiac treatments which can improve heart function and control fluid build up:

- Diuretics such as furosemide remove excess fluid which collects in the lungs and the abdomen. It is normal for these to cause increased drinking and urination. Spironolactone is a weak diuretic which is also has additional benefit of slowing scarring within the heart in the longer term.
- ACE inhibitors – such as benazapril improve circulation and help the heart to pump efficiently.
- Anti-arrhythmic or rate-control drugs – such as digoxin and diltiazem, sotalol or amiodarone may be prescribed to slow heart rate or control irregular beats to improve cardiac efficiency.

There are currently two centres in the UK performing mitral valve surgical repair (under heart bypass). This is major surgery and is very expensive, but can provide a longer term improvement in patients with congestive heart failure. Please contact us for more information if you think you may wish to consider surgery for your pet.

Can we screen for mitral valve disease? This disease is hereditary, but screening is difficult since it develops later in life. As yet there is no available genetic test.
In Cavalier King Charles spaniels there is an approved testing scheme involving auscultation (listening with a stethoscope) and an echocardiogram (heart scan), organised by the Kennel Club and the Veterinary Cardiovascular Society. This is recommended prior to breeding:
https://www.thekennelclub.org.uk/health-and-dog-care/health/getting-started-with-health-testing-and-screening/heart-scheme-for-cavalier-king-charles-spaniels/

How can I monitor my dog at home? Dogs with mild disease who do not show symptoms can enjoy walks as normal and there is no need to change their diet. Dogs with more advanced disease can still go for walks, but do not over-exert them; allow breaks and carry extra water if needed.

Measuring your dog's **breathing rate** at home when sleeping is a useful guide to how effective the medications are. Less than 30 breaths per minute is ideal, but if it is consistently higher than this please contact us or your own vet. There is a useful **App** called **"Cardalis"** available free of charge for Apple and Android mobile devices which can help you to do this and keep a record of the readings to show us at your next appointment.

This is not generally a painful disease but breathlessness can be very tiring and distressing. Please contact your own vet immediately if your dog develops sudden breathing difficulties, coughing, pale or blue-ish coloured gums or tongue, fainting or collapse. **Your vet will be able to assess and stabilise your pet and can then contact us for advice.**