

## Heart rhythm disturbance (atrial fibrillation)



There are many different heart problems that can affect cats. Some of these affect the rhythm of the heart beat and one such condition is atrial fibrillation. This is most commonly seen in association with severe heart disease. Atrial fibrillation does not cause any specific signs so it is unlikely that you will identify this as a cause of illness in your pet. Signs of heart disease can also be hard to recognise in the cat but may include excessive lethargy, inappetence and rapid or laboured breathing. However, any heart disease should be taken very seriously and an early visit to your vet can help to achieve the best outcome.

### What is atrial fibrillation?

Atrial fibrillation is one type of disturbance of the normal heart rhythm (dysrhythmia). To understand this disease we first need to know how the normal heart functions:

*In the normal heart electrical activity is initiated from a natural pacemaker in the heart and follows a set path around the heart muscle. As the electrical activity moves through the muscle the muscle begins to contract. The electrical signals move in an ordered way like a wave over the heart surface from the chambers at the top of the heart (atria) to the lower chambers (ventricles). As the electrical signals pass through the heart muscle contracts in a synchronised fashion, like squeezing a tube of toothpaste. The heart is divided into a left and right side and there are 2 chambers on each side (one atrium and one ventricle, linked together through a valve). In the normal heart the upper chambers (the atria) contract first squeezing the blood out of the atria and into the main pumping chambers, the ventricles. When the ventricles are full they begin to contract to pump blood around the body (from the left side of the heart) or around the lungs (from the right side).*

Atrial fibrillation normally occurs in enlarged hearts where the atrial muscle is already stretched. Damage to the muscle caused by the stretching can make it more likely that a spontaneous electrical pulse will be generated in an area outside the pacemaker. In atrial fibrillation there is disruption of the normal electrical activity throughout the atria resulting in random and chaotic atrial muscle contractions and preventing normal atrial contraction. The electrical pathways in the ventricles are still intact, allowing the ventricular muscle to contract in an organised manner but because the electrical signals that the ventricles receive from the atria are random and so much more frequent and chaotic than normal the ventricles often do not have time to contract and relax before a new signal arrives telling them to contract again. Hence the contractions are not regular and there is a variable time between each heart beat. When you listen to a heart in atrial fibrillation you hear an erratic 'jungle drum beat' rather than the regular 'lup-dup' sound. Some people say that atrial fibrillation sounds like shoes in a tumble dryer.

Atrial fibrillation is normally a rapid heart rhythm and because the ventricles are contracting so often they do not have time to fully fill with blood between each beat. The amount of blood leaving the heart is therefore reduced and this poor blood supply can result in signs of exercise intolerance and even exacerbate heart failure.

### Why has my cat got atrial fibrillation?

Atrial fibrillation usually only occurs in cats with enlargement of the upper chambers of the heart (the atria). This enlargement of the heart can be caused by a variety of diseases. Occasionally it is caused by congenital heart disease (where the heart develops abnormally from birth). More commonly it is caused by heart muscle disease (cardiomyopathy) that develops after birth, normally during adult life. There are several forms of cardiomyopathy, with hypertrophic cardiomyopathy (HCM) being the most common. Dilated cardiomyopathy (DCM) is now rare in cats.

A few drugs (most notably digoxin, which may be used in the treatment of some heart diseases) can also cause atrial fibrillation. If your cat is receiving any medication make sure you mention this to your vet even if you think they already know.

### How will my vet know that my cat has atrial fibrillation?

Your vet may suspect that your cat has atrial fibrillation when they listen to your cat's heart. However, in order to confirm the diagnosis an ECG examination is essential. This is a simple test which records the electrical activity from your cat's heart. If atrial fibrillation is detected then other tests are indicated to look

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for underlying heart disease. These tests will almost certainly include X-rays and ultrasound examination of the heart but sometimes blood tests are also required.

Even for a vet, it is very difficult to accurately assess heart rate in atrial fibrillation without an ECG. This is because some of the heart beats are so weak that they are very hard to hear with a stethoscope and do not result in a pulse that is strong enough to feel.

### What is the treatment for atrial fibrillation?

Although in people there are some treatments specifically aimed at converting the heart rhythm back to normal this is rarely undertaken in cats. Cats with atrial fibrillation usually have an underlying heart disease that requires management. Some drugs can be given to try to slow the heart rate and allow more time for the heart to fill properly between contractions. It is very difficult to effectively monitor your cat's heart rate at home when they have atrial fibrillation, but your vet may well ask you to monitor breathing rate and other symptoms to ensure that the heart condition is adequately controlled.

### Will my cat get better?

It is unusual for cats with atrial fibrillation to ever go back to having a normal heart rhythm. Since cats with atrial fibrillation usually have a severe underlying heart disease the long term outcome is unfortunately not good in most cases.

If you have any concerns about your cat contact your own vet for further advice.

**If you want any other information on health issues concerning your cat please contact your local Veterinary Surgeon.**