A Comprehensive guide on Heart Murmurs in Dogs

We are genuinely sorry a heart murmur (or other cardiac abnormality) has been heard in your pet dog, a special family member. We understand this can be upsetting and raise all sorts of uncertainties and concerns. We hope this document will help in providing some understanding, enable you to make an informed decision about how to approach this discovery and help you take a next step to obtaining more information and if necessary providing treatment, if you wish to do so.

General Statement
A heart murmur is an audible sound heard with a stethoscope during a clinical examination, indicating abnormal turbulent blood flow through the heart. This alerts the clinician to the presence of a change from a previously normal heart to one where some degree of disease is now present. A murmur is an additional, variably loud whooshing sound usually heard between the two clearly separate heart sounds (‘lub’- ‘dup’) in the healthy heart, which occur at the time of valve closure.

It is true that some heart murmurs are more significant than others; some being quite innocent and having no effect on quality of life or longevity. Others however, are more serious and their cause needs treatment as soon as possible to reduce the possible impact on quality of life and longevity.

Types of heart murmur and their various outcomes
A heart murmur indicates heart disease is present, perhaps a leaking or narrowed heart valve. This may have been present since birth (congenital) such as a young dog with a ‘hole-in-the-heart’, or acquired at some point since birth, for example in a middle aged Cavalier King Charles Spaniel (CKCS) or a larger breed dog where the heart muscle becomes greatly weakened leading to heart failure (Dilated Cardiomyopathy). A few congenital murmurs can and need to be corrected by surgery, whilst some don’t need any treatment at all; other congenital murmurs can be helped by simple medication such as a beta-blocker (to slow and relax the heart). Similarly, some acquired heart murmurs don’t ever affect your dog, whilst others are already affecting the patient with exercise intolerance, faster breathing or a cough perhaps. Since most of the acquired murmurs are due to a disease process that has developed, the background cause and the murmur itself is expected to worsen as your dog gets older; however, some dogs don’t require treatment yet, but may do so in future months or years, which is why monitoring a heart murmur is recommended. Congestive Heart Failure (CHF) is a treatable syndrome accompanying any form of heart disease where the dog’s own natural powers of compensation have been overwhelmed and they are now outwardly affected by exercise intolerance, faster breathing and coughing. All but the most innocent heart murmurs may lead to development of CHF. Most dogs respond well to treatment and live far longer than they might have done, had treatment not been available.

Heart murmurs heard in puppies
From time to time, a heart murmur is heard in a puppy at either pre-vaccination checks or during the two vaccination appointments themselves. While some of these are clearly abnormal and loud, perhaps accompanied by clinical signs (breathing issues, reduced activity etc), the majority of these murmurs are quiet, indefinite in location and the puppy is as active as any other and outwardly gives no cause for concern. Where the murmur is clearly abnormal or you are otherwise concerned, a consultation with myself (Mark Oakley at our Yateley surgery) is encouraged. Where the murmur is quiet and causes less concern, it may be found that the murmur is even quieter (or has become inaudible) at the second vaccination or at a later consultation such as the potential six months old, pre-neuteri ng check. If the murmur is still present at either of these check-ups (in particular at six months of age) further assessment initially via consultation with myself, is strongly encouraged. It is said that puppies may ‘grow-out’ of their murmurs, however I would feel this is an unreliable semi-truth on which to rely and a more specialist view should be sought at the beginning of a dog’s life, should any sort of murmur be present and persist. It may be concluded following further auscultation with a stethoscope with myself or via tests (should they be necessary) that these murmurs are pronounced ‘innocent’, but until that stage is reached, I could not presume their innocence.

Monitoring heart murmurs
At its simplest, monitoring may be in the form of regular or occasional assessment with a stethoscope during a booster vaccination for instance, whilst obtaining a history concerning breathing, exercise tolerance and coughing. Without having initially assessed the significance of a particular murmur with tests, the frequency of such monitoring in some cases might not be enough, leading to the development of CHF between visits. I recommend a more pro-
active monitoring in the form of a chest X-ray and relevant blood tests (kidneys and pro-BNP) at no greater than six monthly intervals, preferably having had a more complete cardiac assessment shortly after the heart murmur was first recognised. The purpose of a more pro-active monitoring is to pre-empt the development of CHF and provide your dog with timely treatment to keep him/her out of heart failure and continue to lead a normal life.

**Investigation**
The exact significance of a murmur at any one time, cannot be simply assessed by the use of a stethoscope unfortunately and even cardiologists require data from tests and investigations to be able to accurately state the present facts/implications and pass these on to the dog’s owner and the referring vet where applicable. Information from a clinical examination and taking of a history from the owner to provide details of exercise tolerance, presence/absence of a cough or breathing changes are all helpful in pointing a vet towards the significance of a murmur. Tests such as chest X-rays, heart scans, ECG (for electrical rhythm) and some blood tests are all available and can be undertaken by the primary vet or often referred-on to a cardiology-equipped vet, depending on what is deemed necessary and desired by both owner and vet. The results of these tests, fine-tune the understanding and enable an optimal treatment and monitoring package to be made available and provide you with the maximum reassurance and your dog with the best possible quality of life and longevity.

**Heart Screening**
For some breeds of dogs, especially where breeding from them is anticipated, heart screening is sometimes recommended by the respective health committees of their breed clubs. This may take the simple form of a check with a stethoscope and the provision of a certificate with the current status made clear. For these same breeds, owners may additionally request a heart scan (Doppler) to establish with confidence the more definitive status. Depending on the breed, arrangements need to be made with the Yateley Reception staff to enable this to happen smoothly. If any further information is required, please ring Mark R Oakley MRCVS, during working hours.

**What the tests may involve**
We recommend that owners are made aware, that specialist investigation is available to you within our group via myself (Mark R Oakley BSc, BVM&S, CertSAC, MRCVS) at our Yateley branch, should you wish. Understanding the cause of a murmur, providing you with reassurance as soon as possible and your dog with the treatment that may be needed, is my passion. These tests are usually carried-out on Mondays and Fridays at our Yateley branch assisted by my cardiology nurse, Tracy.

Any tests carried-out, are nearly always done so in a single day and don’t require an anaesthetic; you will be fully informed of the diagnosis and any treatment, that same day. In order for a heart scan (echocardiography) to happen, a small amount of fur is shaved from the skin either side of the heart in most dogs. These areas are gelled-up with ultrasonic gel to enable a good quality picture to be obtained, any remaining gel can be brushed out of the coat once dry. In order to acquire a chest X-ray, we invariably give our dogs a low dose sedative to enable them to cooperate and once the X-ray is taken, they can walk back to their kennel. All the other tests including the heart scan are nearly always done fully conscious. We recommend your dog allowed access to water, but is not fed on the morning of the tests to give us more flexibility and allow us to take uncompromised blood samples, should they be needed. Any medication required should be given as usual in the morning with unrestricted access to water, if needed with the smallest amount of food necessary. We will offer food at lunchtime after the tests have been carried-out, prior to collection time, usually taking the form of a half hour consultation in mid to late afternoon.

I will usually recommend a full cardiac work-up to be carried-out initially (Blood Pressure, an ECG, relevant blood tests, an echocardiogram (ultrasound scan) and then a chest X-ray). Thereafter at three to six monthly monitoring opportunities, a selected smaller group of tests (often a chest X-ray with relevant blood tests) is offered to maintain understanding of the progression of the condition and apply appropriate treatment changes or other advice; other heart tests are repeated, only where indicated.

Blood tests sometimes involves finding out about your dog’s overall health and includes haematology and various biochemistries of general organ function. At other times tests are restricted to the on-going performance of the kidneys which are responsible for clearing medications from the body and we need to keep an eye on this aspect of health. Various hormones are considered, including the thyroid sometimes and more often a cardiac hormone called pro-BNP. Finally, there are a smaller number of specialised blood tests relevant to the heart, where applicable.
Further thoughts about initial Investigations and ongoing Monitoring

My rationale for these, is two-fold.

Firstly, where your dog already has or may have clinical signs of congestive heart failure (CHF), *treatment to control this and return him/her to ‘normal’ quality of life is of first priority.* Thereafter, the aim is the same as for those dogs that come to the vet without signs of CHF and that is to maintain them in a state of, as near-normal cardio-respiratory physiology as possible and hopefully for them not to experience CHF in the future.

Secondly, dogs with a heart murmur but not yet in CHF, though possibly expected to be affected by CHF in the future, are monitored so that we can recommend when to start treatment *before they go into CHF*, ie to pre-empt CHF, rather than have them on treatment for years before they need it, or be unlucky and have to start treatment suddenly for CHF even though they have been previously monitored. To this end, *you can greatly assist us* by counting your pet’s resting respiratory rate and keeping us informed of your recordings. This definitely helps me in the fine-tuning of treatment requirement and *owners generally enjoy the ‘teamwork’.* We can provide you with an explanatory information sheet and when resting breathing rates are normal (twenty per minute) this is reassuring for both yourself and us. When they start to become consistently faster you can be assured of our support when you inform me and I can advise how medication may be adjusted or if necessary recommend you bring your dog in to see myself or your regular vet.

**Treatment**

Treatment is *intended to be indefinite* and usually takes the form of tablets given with or without food once or twice daily and some of these can be replaced by liquid forms of medication where necessary. Usually, treatment is started on a conservative basis (two to three different medications) and thereafter any adjustments to dose and scope of available drugs will be advised by myself and/or colleagues. For instance, later on, a more comprehensive range of medication may become necessary (typically four or five different medications in total). Later still, if CHF signs should return in spite of treatment (recalling that cardiac disease is *progressive and not ‘curable’* as such), the main two medication dosages may need to be doubled to regain lost ground and return your dog to as near normal quality of life once more. Further still, if signs begin to creep back, empirical increases in appropriate medications will be prescribed to maintain the advantage and keep your pet enjoying life, but at this stage our abilities start to become limited by a dog’s tolerance of the medication itself and being medicated by a large number of pills several times each day.

**Longevity**

Unfortunately longevity cannot be predicted with accuracy, even after tests, because of the variable ability of the patient to respond to their medication. However, affected dogs do generally live a great deal longer than they used to, due to the development of really helpful medication to control signs of CHF. Studies have shown (‘COVE’, ‘BENCH’ and ‘QUEST’) that dogs survival time is significantly improved and even doubled or more, where these medications (ACE Inhibitors and Vetmedin) are available. It is fair to say, that in the past (pre 1990’s), parting with a pet would often be quite soon after recognition of CHF, but nowadays due to the modern medicines available, their lives can be extended for many months or even several years in some cases. Where a heart murmur is not already accompanied by CHF, even longer longevity is expected. Eventually however, in spite of our best efforts and our best intentions guided by your expectations and wishes, we will have to anticipate your dog passing away either naturally, or it becoming clear to both yourself and us that he/she may need to be put to sleep. We will do our best to assist you with such decisions and also with support after your pet has passed away.

If insurance is of the annual policy type (our Receptionists can assist in this understanding) it is important to appreciate that the year’s cover will most likely begin from the first date the murmur/other heart abnormality was first recorded, even if no advice to investigate further was given at the time.

To make the most of the annual policy type, investigations can be done to ascertain the status of the condition after six and then eleven months, which will help our judgement of how to proceed in the following years, even if limited/no tests are consented to.

*If a client is unable to afford a full cardiac work-up, there is much to be gained by choosing selected tests only. This will maximise information enabling us to prescribe medication appropriately and optimise quality of life and longevity. We wouldn’t want the cost of the ideal full cardiac work-up to be a barrier to providing treatment where an informed choice was made from more limited information.*
Concluding thoughts

In conclusion, it is my intention to provide as much information and support as may be needed from the start and along the way to remove the ‘mystery’ of what should happen next and what the future may hold. My long-term ambition has always been to maintain the loving, mutual beneficial relationship between you and your dog for as long as possible. Often, having to medicate a dog for heart disease enhances life quality and relationship, making that period of pet ownership extra special.

I am contactable any weekday and if necessary messages can be left for me to ring you back. On Mondays and Fridays, my nurse Tracy is also available at the Yateley branch and can assist with any queries, as can the Receptionists at any time.

If reading this document leaves any obvious questions unanswered, or if any aspect of the text is unhelpful or misleading, please let me know so it can be adjusted in an appropriate way.

Mark R Oakley BSc, BVM&S, CertSAC, MRCVS (July 2010)