Incidentally detected heart murmurs in dogs and cats: executive summary, 2015


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An incidentally detected heart murmur is a heart murmur that is first detected in the course of an examination not initially aimed at the cardiovascular system (eg, routine annual examination, preanesthetic examination). A layperson's term would be "asymptomatic murmur".

The need to evaluate a patient with an incidentally detected heart murmur depends on the client (eg, cost, pre-existing notions of importance, and concern or anxiety), the patient (features of the murmur, concurrent diseases or signs, and lineage), and the veterinarian (confidence in the likely underlying cause on the basis of examination alone and perception of severity of the cause). The specific approach can change from case to case.

**Dogs**

**General**—Echocardiography is recommended in any dog of any age if the heart murmur is diastolic, continuous, accompanied by other heart sound abnormalities (eg, a gallop sound or arrhythmia other than sinus arrhythmia), associated with historical or physical signs of cardiovascular disease, radiating to the carotid region, louder over the right hemithorax, or louder over the left cardiac base and grade ≥ 3/6.

**Puppies with soft murmurs**—Puppies with grade 1/6 to 2/6 systolic murmurs loudest over the left cranial thoracic region may have one of two classes of underlying cause: functional or innocent murmurs that are of no consequence and most often resolve with growth, or minor congenital heart defects that are generally of no importance to the individual dog but may be of substantial importance in specific situations (eg, breeding stock). In these cases, 2-D and Doppler echocardiography should be discussed with the puppy's owner and recommended if justified based on the above-mentioned factors.

**Adult dogs**—Adult dogs with systolic, left apical murmurs commonly have mitral regurgitation. In small-breed dogs (< 20 kg), the most common cause is degenerative mitral valve disease (DMVD), and thoracic radiography can be used as an initial diagnostic test. Normal cardiac silhouette size and absence of clinical signs make clinically significant mitral regurgitation unlikely, and treatment is not indicated. Cardiomegaly warrants serial thoracic radiography, echocardiography, or both.

In larger dogs (≥ 20 kg), a specific diagnosis is much less certain from auscultation alone. Dilated cardiomyopathy, infective endocarditis, mitral valve dysplasia, and DMVD are well-recognized and not easily distinguished radiographically or on auscultation. Therefore, echocardiography is the first-line test in larger dogs with systolic, left apical murmurs.

**Cats**

Echocardiography is recommended in any cat if the heart murmur is of grade 4/6 or louder, diastolic, continuous, accompanied by an arrhythmia or gallop sound, or associated with possible clinical signs of heart disease. In cats with soft (grade 1/6 to 3/6) systolic murmurs, the underlying cause of the murmur and the clinical severity of the causative disorder cannot be predicted from murmur characteristics such as the point of maximal intensity, murmur grade, or variability of murmur intensity with heart rate. Such cats should be evaluated further when imminent cardiovascular stress (eg, general anesthesia), owner concerns, and availability and cost of tests justify doing so. This determination is different for every patient and client. Reasonable approaches can include the following: ancillary tests selected on the basis of risk (eg, measurement of arterial blood pressure and serum thyroxine concentration in geriatric adult cats); measurement of circulating NT-proBNP concentration, with a low value making

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clinically important cardiomyopathy very unlikely; thoracic radiography, with certain changes in the cardiac silhouette suggestive of heart disease but with limited sensitivity and specificity; and 2-D and Doppler echocardiography to definitively identify the murmur’s cause and establish risk of deleterious cardiac sequelae, if any.

**Frequently Asked Questions**

*A cat has an incidentally detected heart murmur and the owner can afford very little. Is it wiser to invest available funds in starting treatment (eg, an antiplatelet drug like clopidogrel or an antitachycardia drug such as a β-blocker) rather than diagnostic tests?*

No, treatment is not indicated in this context for at least 2 reasons. First, the cause of the murmur in many of these cats is benign and considered nonpathological (eg, dynamic right ventricular outflow tract obstruction); second, without a specific therapeutic target (eg, atrial enlargement that might warrant antiplatelet therapy), treatment is speculative, may not be necessary, and could possibly do more harm than good.

*A 12 year-old Miniature Poodle with a left apical systolic murmur that was grade 2/6 last year has been brought in today for annual examination, and the murmur intensity is now grade 4/6. What is the best way to proceed?*

The dog’s signalment and the murmur features suggest degenerative mitral valve disease (DMVD). The greater murmur intensity may be related to disease progression (ie, more mitral regurgitation) or may be unrelated (eg, sympathetic activation from excitement). The presence or absence of historical signs of heart failure, remaining physical examination findings, and the client’s concerns and wishes should be used to decide whether to proceed with diagnostic testing (thoracic radiography, echocardiography, or both).

*A small-breed, obese, elderly dog has a left apical systolic murmur detected during an examination for evaluation of otitis externa. There is an occasional cough. Thoracic radiographs show equivocal pulmonary abnormalities, and possibly, cardiomegaly. Should cardiac therapy be initiated?*

A presumptive diagnosis of DMVD can be made based on signalment and murmur characteristics. Whether to begin medications (angiotensin converting enzyme inhibitors) in DMVD prior to heart failure is controversial, especially when left atrial enlargement has not been confirmed. If cardiac medications are being considered and clinical and radiographic findings are ambiguous, echocardiography with a cardiologist is justified to avoid unnecessary treatment.

*A puppy has an abnormal-sounding heart but it is unclear whether the abnormality is a murmur or something else. How is this patient best managed?*

Three options exist: recheck auscultation in 3 to 4 weeks, second-opinion auscultation by a cardiologist, and diagnostic testing (radiography, echocardiography, or both). Particularly when a pup’s vocalization or movement makes auscultation incomplete, a second opinion is appropriate, with diagnostic testing if indicated.