Cats and Heart Murmurs

We are all faced with the dilemma of what to do with our feline patients when they present with a heart murmur. Is it a benign murmur or a disease associated murmur?

This article should help clarify the different types of murmurs heard in our feline patients and what diagnostic steps should be taken to achieve a diagnosis.

**Congenital murmurs** – These murmurs are usually constant and may get louder with time. They are usually louder (Grade III-IV/VI) and of longer duration than innocent murmurs. The most common congenital malformations in cats are AV valve dysplasia and atrial or ventricular septal defects. Innocent murmurs of kittens are usually soft systolic ejection –type murmurs (Grade I-II/VI) best heard at the left heart base that usually disappear by 6 months of age. The intensity of an innocent murmur varies in relation to heart rate and body position.

**Murmurs associated with acquired disease**- This type of murmur is usually constant or fixed but can also be dynamic. An example is the murmur of tricuspid insufficiency that develops due to arrhythmogenic right ventricular cardiomyopathy.

**Dynamic heart murmurs**- These are murmurs that change in intensity in relationship to sympathetic stimulation and myocardial contractility. They typically increase in intensity when the patient is excited and decrease in intensity when the patient is relaxed. They can be benign or pathologic. It is recognized that there are 3 causes for dynamic murmurs.

1. **Dynamic subaortic stenosis**- This is the most common murmur associated with Hypertrophic Cardiomyopathy. It is caused by obstruction of the left ventricular outflow tract by systolic anterior motion (SAM) of the mitral valve. SAM is most likely caused by papillary muscle hypertrophy.

2. **Dynamic right ventricular outflow tract obstruction (DRVOTO)** – The exact cause is unknown but it is usually associated with volume depletion (renal failure) or hyperdynamic states (hyperthyroidism, anemia). This murmur is often associated with either cardiac or non-cardiac disease.

3. **Positional or iatrogenic murmur**- Due to cat’s compliant thorax it is possible that pressing too hard while auscultating will induce DRVOTO. Auscultating cats in a standing or sitting position with gentle stethoscope pressure can eliminate this.

So now that we know what causes murmurs in our feline friends can we tell if the murmur is benign or disease associated by auscultation?

NO, we cannot. Murmurs in cats must be classified and differentiated by **ECHOCARDIOGRAPHY including Doppler and color Doppler studies**.

Our major concern as clinicians should be to rule out Cardiomyopathy as the cause for the murmur. Make sure you also remember to rule out **systemic hypertension** and **hyperthyroidism** in your patients for these two disease states can mimic Cardiomyopathy and cause murmurs. Remember **Echocardiography** is the most important diagnostic test for identifying myocardial disease in cats. Next month we discuss Feline Cardiomyopathy and what we know and don’t know.

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