FOCUS

The Heart of the Matter

WSAVA Global Veterinary Community In cats, valentine-shaped hearts—those with focal enlargement of the heart base—are commonly attributed to biatrial enlargement and/or hypertrophic cardiomyopathy (HCM). This study sought to establish an association between a valentine heart shape observed in a ventrodorsal thoracic radiograph with the presence of singular or combined cardiac chamber enlargement as well as presence and type of cardiomyopathy in cats. The records of 41 cats with either a valentine-shaped heart or biatrial enlargement described on radiographs were reviewed, with the confirmation of chamber enlargement or specific cardiac disease determined by echocardiogram within 7 days of thoracic radiography. A valentine-shaped heart was strongly associated with cardiac disease (38/41). Of cats with a valentine-shaped heart, 83% (34/41) had some type of cardiomyopathy. However, there was a low association with a specific cardiomyopathy such as hypertrophic (13/34), restrictive (7/34), or unclassified (14/34). The valentine heart shape was commonly seen in diseases causing left atrial enlargement or a combination of left atrial and left ventricular enlargement (20/41). The frequency of biatrial enlargement alone in cats with a valentine heart shape was low (2/41); however, the combination of biatrial enlargement with left and/or right ventricular enlargement occurred

in 34% of cats. A valentine heart shape may not be specific for HCM or biatrial enlargement but is a strong predictor for feline cardiomyopathy in general.

Global Commentary

Diagnosing heart disease in cats can be difficult without echocardiography, but perhaps a more important priority is to identify cats at increased risk for congestive heart failure or aortic thromboembolism. Both this study and an additional study[1] report a strong association between a valentine heart shape and a key predictor of cardiac death—left atrial enlargement suggesting that radiography could be used to identify high-risk cats.[2] A valentine-shaped heart was not specific for cardiomyopathy with left atrial enlargement, so additional tests (eg, measuring plasma biomarker NT-proBNP) should be considered in suspected high-risk cats.[3] Echocardiographic assessment of left atrial size remains the gold standard test for evaluating prognosis in cats with heart disease.—*Virginia Luis Fuentes, MA, VetMB, PhD, CertVR, DVC, MRCVS, DACVIM (Cardiology), DECVIM-CA (Cardiology)*

References

1. Oura TJ, Young AN, Keene BW, Robertson ID, Jennings DE, Thrall DE. A valentine-shaped cardiac silhouette in feline thoracic radiographs is primarily due to left atrial enlargement. *Vet Radiol Ultrasound.* 2015;56(3):245-250.
2. Payne JR, Borgeat K, Connolly DJ, et al. Prognostic indicators in cats with hypertrophic cardiomyopathy. *JVIM.* 2013;27(6):1427-1436.
3. Borgeat K, Sherwood K, Payne JR, Luis Fuentes V, Connolly DJ. Plasma cardiac troponini concentration and cardiac death in cats with hypertrophic cardiomyopathy. *JVIM.* 2014;28(6):1731-1737.

Source

Winter MD, Giglio RF, Berry CR, Reese DJ, Maisenbacher HW, Hernandez JA. Associations between 'valentine' heart shape, atrial enlargement and cardiomyopathy in cats. *J Feline Med Surg.* 2015;17(6):447-452.

See page 54 for product information summary.