



PATIENT

Pim Halbeisen

SPECIES

Feline

BREED

DMH

SEX

Neutered Male

AGE

1 Years 11 Months

WEIGHT

14.3 Pounds

INTERPRETED BY

James Wood, DVM,
DACVIM (Cardiology)

IMAGING PERFORMED BY

Graham Sager-Gellerman, DVM

HOSPITAL NAME

Back Bay VC

REFERRING VET

Graham Sager-Gellerman, DVM

INVOICE

35907

DATE

5/1/26

PRESENTING CLINICAL SIGNS

History: To evaluate the following condition: Grade IV/VI systolic murmur ~2yo MN DSH presented for wellness exam 4/15/26 where grade IV/VI systolic murmur auscultated, progressed from grade II/VI when first initially heard 1/21/26. On PE, P ~20% over conditioned and has mild gingivitis, otherwise PE unremarkable. FAS 3/5 - P very tense, crouched, and shy, but compliant for exam.

Abnormal PE/Chem/CBC/UA Results: 1/21/26: CBC: RBC 12.05, otherwise NSFChem: NSFproBNP:76UA: USG 1.055, UPC 0.3 (cysto), otherwise NSF 2/19/26 - fecal neg.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

FELINE CARDIAC PARAMETERS	BODY WEIGHT (lbs)	HR (BPM)	IVSd (cm)	LVIDd (cm)	LVWd (cm)	FS (%)	EF (%)
NORMAL PARAMETER	-----	150-240	0.3-0.6	1.0-2.1	0.25-0.6	35-67	80-100
PATIENT	14.3	220	0.6	0.96	0.52	52	87.3
FELINE CARDIAC PARAMETERS	LA/AO (M-mode)	LA/AO HEART BASE (Sisson)	LAD LA MAX 4 Chamber		LVOT VEL. (m/s)	RVOT VEL. (m/s)	IVRT (m/)
NORMAL PARAMETER	<1.5	1.6	0.7-1.7		<1.6	<1.3	40-60
PATIENT	1.36	1.27	1.29		1.8	1.8	NM
Adapted from June Boon, Veterinary Echocardiography, 1998 Sisson D et al. JVIM 1991; 5: 232, Jacobs et al. Am J Vet Res 1985; 46:1705							

Cardiac Presentation

There is mild systolic anterior motion of the mitral valve resulting in a mild dynamic LVOT obstruction that is not suspected to be hemodynamically significant, as well as mild eccentric mitral valve insufficiency. There is mild thickening of the interventricular septum. LV free wall is normal in thickness and LV systolic function is normal. Mild dynamic LVOT obstruction is noted, secondary to SAM. The left atrium and auricle are normal in size. No spontaneous echocontrast or intracardiac thrombi are appreciated. The right atrium is subjectively normal in size. Trivial tricuspid valve insufficiency is noted. RV systolic function is normal. There is aliasing color flow in the RVOT with a lead systolic peaking and continuous wave doppler signal, suggestive of a benign dynamic right ventricular outflow tract obstruction. No atrial or ventricular septal defects or PDA were identified. The pulmonary valve is normal in appearance and motion. Normal trans-pulmonary flow profile and velocity are noted. No cavitory effusions were seen.

ULTRASONOGRAPHIC FINDINGS



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- Hypertrophic obstructive cardiomyopathy, ACVIM stage B1
- Mild dynamic LVOT obstruction, secondary to SAM
- Dynamic right ventricular outflow tract obstruction

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The echocardiogram revealed mild thickening of the left ventricular walls. This is consistent with a hypertrophic cardiomyopathy phenotype, or HCM. In HCM, there is hypertrophy (thickening) of the muscle fibers that make up the walls of the heart. Many cases are a primary heart muscle disease (genetic in origin), however in some cases this can be a secondary process that may improve with treatment of the underlying condition (i.e. high blood pressure or hyperthyroidism among others). A blood pressure and total T4 are recommended in cats >6yr to rule these out as underlying causes (if not already performed).

Regardless of the cause, the thickening impacts the structure and function of the heart in several ways. The primary abnormality is an inability of the muscle of the heart to properly relax during the filling phase of the heartbeat. The thickening of the muscle may also contribute to obstruction of the outflow of the heart (the "obstructive" component of the disease), leading to turbulent blood flow out of the heart]. Over time, the diastolic dysfunction leads to progressive left atrial enlargement. Though some cats can live a normal lifespan without progression of this disease, there are several outcomes that can be related to HCM in cats.

First, a large number of these cats experience congestive heart failure, caused by the back-up of blood into the lungs ("fluid in the lungs") as the heart is unable to maintain appropriate forward flow. This causes increased breathing rate and effort.

Secondly, because of changes in blood flow and enlargement of the left atrium, cats with HCM are at increased risk for blood clot formation within the heart. Pieces of these clots may break off, being swept by the bloodstream to locations distant from the heart (thromboembolism). The most common site for thromboembolism in cats with HCM is to the back legs (saddle thrombus); this leads to acute weakness/paralysis and pain in these limbs.

The last outcome associated with HCM is irregular heart rhythms (arrhythmias) that can lead to collapse episodes and even sudden death in a small percentage of these cats.

Some cats with mild HCM may live a normal lifespan with no further progression of disease. However, it is also possible that his HCM will progress over time and further therapy may be required for congestive heart failure, blood clots, or arrhythmias.

Fortunately, this patient does not have evidence of significant left atrial enlargement, so the risk of adverse cardiovascular outcomes is considered low at this time. No cardiac medications are recommended at this stage of the disease, but a recheck echocardiogram is recommended in 9-12 months to determine if there is any progression.



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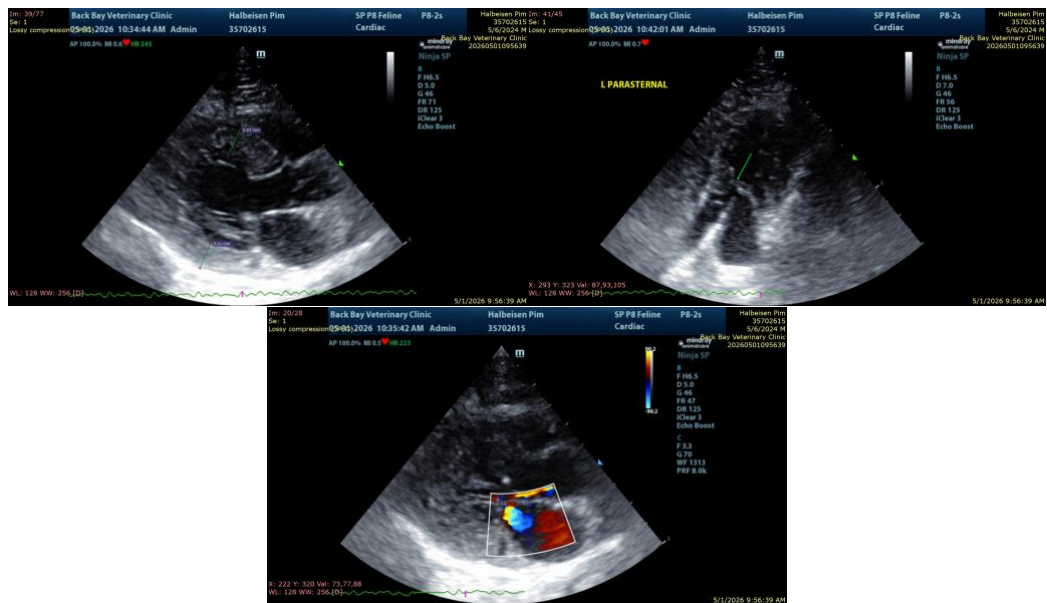
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MONITORING:

Long-term, we recommend closely monitoring your pet's resting breathing rate to monitor for the development of fluid in the lungs (heart failure). To do this, count the number of times the chest rises in 15 seconds and multiply this number by four to get the number of breaths in one minute. Normal is less than 35 breaths per minute in a sleeping cat. **If it is consistently greater than this, or there is a consistent trend upward from the baseline, please reach out via email at info@sonopath.com.**



The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

James Wood, DVM, DACVIM (Cardiology)

info@SonoPath.com