



PATIENT

Smokey Donaldson

SPECIES

Feline

BREED

Domestic Shorthair

SEX

Neutered male

AGE

16 years

WEIGHT

13.5 lbs

INTERPRETED BY

Bradley Harris, DVM,
 DACVECC, DACVIM
 (cardiology)

IMAGING PERFORMED BY

Meghan Morse, LVT,
 CVT

HOSPITAL NAME

Kingston AH

REFERRING VET

Dr. Enkler

INVOICE

71225

DATE

2/4/26

PRESENTING CLINICAL SIGNS

- Irregular heart rhythm
- Concern for possible saddle thrombus- decreased mobility to hind limbs
- Current meds: Miralax 1/4tsp SID

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The left atrium is mildly enlarged. There are no distinct left atrial thrombi/clots or spontaneous echo contrast appreciated. The left ventricle is normal in dimension, with mild concentric hypertrophy, and no evidence of restriction. Left ventricular systolic function is normal, based on fractional shortening and systolic left ventricular dimensions. The right atrium and ventricle are subjectively normal in dimension and systolic function. There is evidence of systolic anterior motion of the mitral valve with mild mitral regurgitation. The tricuspid valve leaflets presented normal linear structure, extension in systole, and union in diastole without regurgitation. The left ventricular outflow tract demonstrated turbulent flow and subjective structural valvular integrity. The visible aorta is unremarkable. Pulmonary outflow tract assessment revealed normal valve structure, laminar flow, and appropriate diameter and distensibility. There is no evidence of semilunar valve insufficiency or pulmonary hypertension documented. There is no visible pericardial, pleural, or free peritoneal fluid noted.

FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	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	6.14 kg	NM	0.62	2.06	0.6	57	89
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	1.75	1.6	1.9		0.9	1.0	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							

ECG:

The underlying rhythm is sinus in origin. The R-R intervals are regular, with a uniform P-R interval that is within normal limits. There are intermittent premature complexes with a wide QRS, consistent with a ventricular origin. There are no ventricular couplets or runs of tachycardia documented. There is no evidence of atrioventricular block or atrial ectopy documented.



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ULTRASONOGRAPHIC FINDINGS

These findings identify left ventricular hypertrophy in the setting of an outflow tract obstruction, consistent with hypertrophic obstructive cardiomyopathy (HOCM). As a consequence of the heart disease, the left atrium is also enlarged. A ventricular arrhythmia is noted. In cats, ventricular arrhythmias are usually secondary to underlying structural heart disease. Causes include cardiomyopathy (e.g., hypertrophic, restrictive, arrhythmogenic, dilated) or secondary myocardial disease (e.g., hyperthyroidism, hypertension). Rarely, ventricular arrhythmias develop secondary to extracardiac conditions (e.g., neurologic disease, metabolic disease, fever, anemia, trauma, GI disease, DIC and sepsis).

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There are multiple layers of uncertainty regarding this case. The presence of hypertrophy and an outflow tract obstruction and ventricular dysrhythmia make the use of a beta blocker worth considering. The challenge of treating these cats is the lack of any real data to support a meaningful benefit (most of the rationale for their use is theoretical), coupled with the potential for adverse effects (low BP, renal impairment, potential exacerbation of CHF). If atenolol is used, the atenolol dose would be 6.25mg once daily (with the potential of increasing to BID after the first week if well tolerated). Given the presence of significant left atrial dilation, beta-blockers are recommended at this time. However, beta blockers do have the potential to worsen hemodynamic function, which is more of a concern in the setting of left atrial dilation. In these cases, the concurrent use of an ACEi (enalapril/benazepril 2.5mg q24hr) is recommended as well. Additionally, Plavix/clopidogrel should be initiated as an anti-thrombotic (1/4 of a 75 mg tablet, or 18.75 mg PO q 24 h). Due to the bitter taste of this medication, it may be best to place it in an empty gelatin capsule or use products such as a Pill Pocket. A recheck heart rate, BP, and chemistry would be indicated 1-2 weeks after starting therapy; at that time the need for higher doses of atenolol can be assessed. A repeat echocardiogram, thoracic radiographs, blood pressure, and chemistry panel is warranted in another 6 months. Owners should monitor resting respiratory rate at home. Values above 30 breaths/minute or an increase in respiratory rate 10% above baseline should prompt veterinary re-evaluation.

Anesthesia considerations:

While there is no CHF present, there is likely an increased anesthetic risk which must be considered prior to any anesthetic procedure. If anesthesia is necessary, then alpha-2 agonists, ketamine, high dose acepromazine, and Telazol should be avoided. If an ACE inhibitor (enalapril, benazepril) or beta-blocker (atenolol) is being given, it should not be administered on the morning of general anesthesia. Other cardiac medications should be administered per the normal dosing schedule. Fluid therapy during anesthesia should be considered at a reduced rate (e.g., 2-3 ml/kg/hour) if possible (i.e., if not hypotensive). A shorter anesthetic duration will reduce the risk of complications. Pre-oxygenation is advised. Premedication with an opioid (i.e., butorphanol, hydromorphone, oxymorphone) with or without a benzodiazepine is generally the safest protocol. An induction agent such as Propofol, alfaxalone, or diazepam/etomidate can be used to effect. Maintenance of anesthesia with isoflurane or sevoflurane is reasonable.

Diet:

No special considerations are necessary. Any high-quality food from Hills, Royal Canin, Science Diet, Eukanuba, Iams, or Purina is reasonable.

Activity:

Avoid overly strenuous activity.



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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.

Bradley Harris, DVM, DACVECC, DACVIM (cardiology)

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