



## PATIENT

Romeo Maisano

## SPECIES

Feline

## BREED

DSH

## SEX

Male Neutered

## AGE

12 years

## WEIGHT

8.4lbs

## INTERPRETED BY

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

## IMAGING PERFORMED BY

Jennifer Todd, DVM

## HOSPITAL NAME

Lambs Gap Animal  
Hospital

## REFERRING VET

Dr. Knouse

## INVOICE

24569

## DATE

6/3/22

## PRESENTING CLINICAL SIGNS

History: Grade II/VI heart murmur noted in 2020, ProBNP normal at that time. Now grade III/VI systolic murmur and ProBNP mildly elevated at 132. P has lost weight and also has WBC elevations including eosinophils. Concern for parasites, including heartworm (o prefers to recheck eosinophils on CBC in future before deworming or jumping to other things). Also had mild otitis at wellness visit which is being treated.

-Blood pressure: 142/115, 144/84, 135/84mmHg.

## ELECTROCARDIOGRAPHIC FINDINGS \*Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.

A single lead ECG is available; 25mm/s, 10mm/mV. The average heart rate is 188bpm with a largely regular rhythm. The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. Two isolated VPCs are seen. No supraventricular premature beats, pauses or other dysrhythmias observed. ECG diagnosis: Normal sinus tachycardia with isolated VPCs.

## ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The left ventricular wall is largely normal in dimension. There is a diffusely hyperechoic endocardium consistent with fibrosis. The papillary muscles are mildly remodeled and hyperechoic. The left atrium is normal in size. The right atrium is normal in size. The right ventricle appears normal. The mitral valve is normal in structure and mobility. Mild TR. Blood flow through both the LVOT and RVOT is normal in velocity. No obvious cause for the murmur is identified. No pleural or pericardial effusion seen. No obvious cardiac tumors.

## CARDIAC CHART

FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm) <small>(Moise, Pipers)</small>	LVIDd (cm) <small>(Moise, Pipers)</small>	LWVd (cm) <small>(Moise, Pipers)</small>	FS (%)	EF (%)
NORMAL PARAMETER	-----	150-240	0.35-0.55	<2 (mean 1.5)	3.5-0.55	35-67	80-100
PATIENT	3.8	NM	0.53	1.1	0.51	50	92
FELINE CARDIAC PARAMETERS	LA/AO <small>(Boon)</small>	LA/AO HEART BASE (Swe) <small>(Abbott)</small>	LA 2D short axis Base view (cm) <small>(Abbott)</small>	LVOT VEL <small>(m/s)</small>	RVOT VEL <small>(m/s)</small>	E max <small>(m/s)</small>	
NORMAL	<1.5	<1.3	<1.2	<1.6	<1.3	<0.9	
PATIENT	NM	1.4	1.0	1.2	0.9	NM	
<p><i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i> Adapted from June Boon, Veterinary Echocardiography, 1998 Abbott J &amp; MacLean H JVIM 2006;20: 111-119, Moise et al. Am J Vet Res 47:1476, 1986. Pipers et al. Am J Vet Res 40:882, 1979.</p>							

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overtly normal geriatric cardiac structure and function. The LV wall thickness is normal and there is no evidence of elevated left atrial pressure. There is mild remodeling and fibrosis of the left ventricular wall, which is likely a normal variant in this geriatric cat. Serial echocardiography will be necessary to determine progression, particularly in light of BNP elevation. Finally, no cause



**PATIENT**

Romeo Maisano

for the murmur is identified in this study making it likely physiologic in origin (i.e., secondary to tachycardia, volume changes, etc.). Given these findings, no medications are indicated.

**SPECIES**

Feline

While no structural cause for BNP elevation is seen here, false positives are certainly possible. Ancillary causes such as renal disease should also be considered in this patient.

**BREED**

DSH

The ECG does show infrequent VPCs (2 seen). VPCs can develop secondary to significant cardiac disease or fibrosis, or be extra-cardiac in origin (i.e., due to stress, pain, inflammation, systemic issues, etc.). Given what is seen here, structural causes are unlikely and systemic evaluation may be warranted. Regardless, no therapy is typically warranted for arrhythmic cats with the exception of sustained tachyarrhythmias and simple follow up is recommended. Monitor for any signs of progressive arrhythmia, including significant lethargy or collapse/syncope.

**SEX**

Male Neutered

Anesthetic risk is considered mild, however judicious IV fluid rates are advised to avoid fluid overload. Additionally, drugs that stimulate heart rate should be avoided unless clinically necessary (glycopyrrolate, atropine). Avoid vasodilators as this may worsen the obstruction. A reasonable protocol includes opioid/benzodiazepine premedication, propofol induction, isoflurane maintenance. Additionally, steroids should be used with caution on older cats, as even a 'normal' geriatric heart can develop evidence of intolerance and fluid retention.

**AGE**

12 years

**WEIGHT**

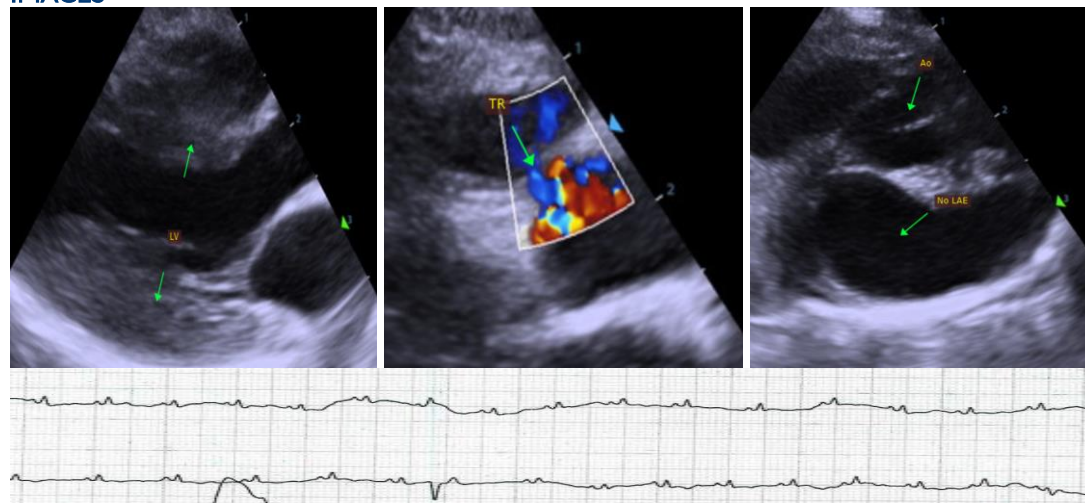
8.4lbs

Recommend recheck echocardiogram in 1 year to assess for progression.

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**IMAGES**



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Dr. Knouse

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

**INVOICE**

24569

Thank you for this referral. This report was generated using transcription software, and minor dictation errors may be present. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance, please contact me.

**DATE**

6/3/22

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