



**PATIENT**

Marge Giomi

**SPECIES**

Canine

**BREED**

Maltese Mix

**SEX**

Female Spayed

**AGE**

13 years

**WEIGHT**

11.6lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Dana Alterman,  
RDCS, LVT

**HOSPITAL NAME**

Eubank Animal Clinic

**REFERRING VET**

Dr. Jones

**INVOICE**

26309

**DATE**

9/12/22

**PRESENTING CLINICAL SIGNS**

History: Grade 1/6 right sided murmur. Coughing,  
-CXR: Mild cardiomegaly with PA and PV distension.  
-Current medications: Thyrotabs 0.2mg - 1/2 T PO q12h, Prednisone 5mg - 1/4 T PO qod, Vetmedin 2.5mg - 1/2 T PO BID.

**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; 50mm/s, 20mm/mV. The average heart rate is 110bpm (range 88-125bpm). 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 APCs are noted in a 1.25-minute recording. No ventricular premature beats, pauses or other dysrhythmias observed.

ECG diagnosis: Normal sinus rhythm with respiratory variation. Rare, isolated APCs.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with no prolapse into the left atrial lumen. No mitral regurgitation with normal left atrial dimension. Normal LV diameter with adequate myocardial function. The tricuspid valve appears mildly thickened with trivial tricuspid regurgitation. Mild right heart prominence suggests early pulmonary hypertension. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. Prominent aortic root. No obvious aortic or pulmonic insufficiency. No pericardial or pleural effusion noted. No obvious cardiac masses.

**CARDIAC CHART**

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	NA	NA	1.1	1.3	63	93	NM
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (kg)	LA 2D short axis Base view (cm)	LVIDd Avg; 2D and m-mode short axis (cm)	LVIDs Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
PATIENT	NM	0.97	1.0	5.3	1.5	2.0	0.8
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
<b>BODY WEIGHT DEPENDENT PARAMETERS</b>				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
<i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i>				10	1.50 (3.8)	3.27 (3.5)	2.06 (3.1)
				15	1.83 (2.0)	3.71 (2.4)	2.43 (2.1)
				20	2.02 (1.9)	4.14 (2.2)	2.80 (2.0)
				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
				40	2.62 (5.2)	5.48 (6.1)	3.96 (5.4)
				50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)

Adapted from June Boon, Veterinary Echocardiography, 1998  
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435  
Hansson et al, Vet Rad and Ultrasound 2002  
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995



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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The primary abnormality identified is evidence of early pulmonary hypertension. This is based upon right heart prominence in a coughing dog, as the TR is trivial and unable to be accurately measured. The left heart appears normal; however, the aortic root appears prominent, and a baseline BP is recommended. No additional issues are noted in this study.

Given these findings, the cough is certainly non-cardiac in origin and primary respiratory disease is considered more likely. In a dog with chronic respiratory signs, there is certainly risk for progressive pulmonary hypertension going forward, and continued screening for associated symptoms is advised. Signs of PAH include exertional dyspnea or collapse/syncope. Maximizing cough control is the best way to combat development of pulmonary hypertension in the long run, utilizing cough suppressants, intermittent antibiotics/steroid taper for acute flares, bronchodilators, etc. If refractory, advanced evaluation should be considered (TTW/BAL).

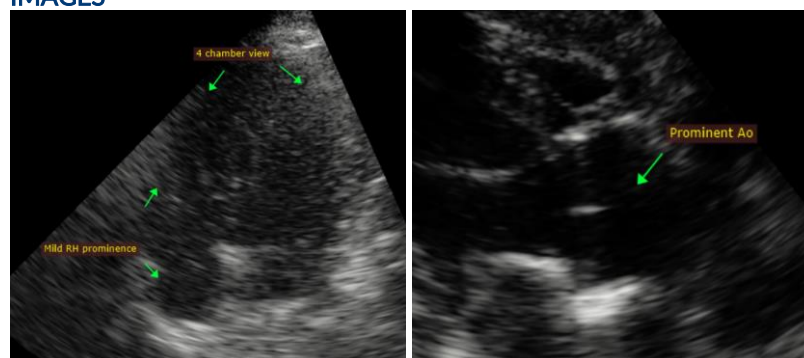
In a dog without significant left atrial enlargement, no cardiac medications are clearly indicated and Pimobendan can be safely discontinued. Assessment of progression in the future will help predict long term prognosis, which is highly variable at this stage. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

The ECG is largely normal with a respiratory sinus arrhythmia. Rare, isolated APCs are noted, which are likely due to stress in an otherwise asymptomatic patient. No treatment or follow-up is recommended at this time.

Anesthetic risk is considered mild if needed. Pre-oxygenate for 5-10 minutes prior to induction and recover in O2 due to potential for hypoxia.

Recommend conservative monitoring with a recheck echocardiogram in 6-12 months, sooner if any development of clinical signs.

**IMAGES**





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Marge Giomi

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.

**SPECIES**

Canine

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.

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Maltese Mix

**Maggie Machen Lamy, DVM**  
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)  
info@sonopath.com

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