



**PATIENT**

Milo Westbury

**SPECIES**

Canine

**BREED**

Border Collie Mix

**SEX**

Male neutered

**AGE**

9 years

**WEIGHT**

53.9lbs

**INTERPRETED BY**

Maggie Machen Lamy, DVM DACVIM (Cardiology)

**IMAGING PERFORMED BY**

Pamela Harrigan, RDCS

**HOSPITAL NAME**

Mass Veterinary Services

**REFERRING VET**

Dr. Masloski

**INVOICE**

30676

**DATE**

5/9/23

**PRESENTING CLINICAL SIGNS**

History: Recheck echo. History chronic valvular disease - Stage B1. Current presentation: Milo had a ProBNP level done in September that was 6.1 with the high end of normal being 6.0. He does tend to breathe a bit heavy at times. No exercise intolerance or C/S/V/D/PU/PD. On exam: NSR, grade III/VI murmur, PSS, lung fields clear, mm pink, moist, CRT<2. BP: 190 mmHg x 5. No medications currently. \*Sedated with propofol for study. -Pertinent previous echo findings (10/21/20 MML): LA 2.7 cm; LA:Ao 1.4; LV 3.36 cm, mild LAE, moderate MR, mild TR (2.3 m/s).

**ELECTROCARDIOGRAPHIC FINDINGS**

A six lead ECG is available at 25mm/s; 20mm/mV. The average heart rate is 140bpm with a largely regular rhythm. The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P wave morphology is positive with a normal dimension. Normal PR. The QRS morphology is positive with normal dimension. Isolated MEA is normal. Isolated VPCs throughout; singles only, monomorphic. No supraventricular premature beats, pauses or other dysrhythmias observed. ECG diagnosis: Normal sinus rhythm with isolated VPCs.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and Doppler imaging is available. **Left ventricle:** Significant LV dilation with hyperdynamic myocardial function. Decreased LV wall thickness. **Left atrium:** The left atrium is severely dilated. The pulmonary veins appear dilated as they enter the lumen. **Mitral valve:** Mild diffuse thickening of mitral valve leaflets with mild prolapse into the left atrial lumen. Severe eccentric mitral regurgitation. Normal velocity. **Aortic valve/Aorta:** The aortic valve is normal in morphology and mobility. Normal aortic outflow velocity; laminar flow. No aortic insufficiency. **Right ventricle:** Mild RV dilation. **Right atrium:** Mild right atrial dilation. **Tricuspid valve:** The tricuspid valve appears mildly thickened with mild tricuspid regurgitation. Elevated velocity consistent with mild pulmonary hypertension. **Pulmonic valve/Pulmonary artery:** The pulmonic valve is normal in morphology and mobility. The MPA appears mildly dilated. Normal pulmonic outflow velocities with laminar flow. No PI. **Pericardium/other:** Scant pericardial is seen in some views. No pleural effusion noted. No obvious cardiac masses.

**2-Dimensional Measurements**

Ao diam (cm)	1.8
LA diam (cm)	4.2
LA:Ao (Swe)	2.3
IVS thickness (cm)	0.8
LVID diastole (cm)	4.7
PW thickness (cm)	0.9
LVID systole (cm)	3.0
FS (%)	36

**Doppler Measurements**

PV Vmax (m/s)	0.7
AoV Vmax (m/s)	1.4
MR Vmax (m/s)	4.4
TR Vmax (m/s)	2.9
TR PG (mmHg)	34



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**INTERPRETATION OF THE FINDINGS**

Chronic degenerative valve disease persists with significant progression. Previously mild disease is now severe, with severe mitral and mild tricuspid regurgitation. Significant left atrial enlargement indicates the risk for spontaneous congestive heart failure is elevated. Moderate pulmonary hypertension is noted, which is likely secondary to a combination of chronic LA pressure elevation and suspicion for underlying airway disease. No additional issues are identified.

In light of the severity of findings, scant pericardial effusion and reported respiratory signs, there is concern for imminent congestive heart failure and institution of full cardiac supportive medications is recommended as below.

VPCs are noted on the ECG, which are no doubt due to structural disease. No treatment is warranted at this time; however, monitoring for syncope is recommended.

The average survival time of canine patients with active pulmonary edema is 8-9 months on medications, however they generally are able to maintain a good quality of life for that period. Patient will always be at risk for recurrent CHF, development of arrhythmias/LA tear, syncope and/or sudden death in the future.

The reported blood pressure is elevated and should be reassessed for persistence once medications are initiated. Ideally obtain serial measurements in a controlled, low stress environment and continue until 3 consecutive readings plateau within 5mmHg of variability. If persistently >160mmHg despite a relatively calm demeanor, recommend institution of amlodipine to effect. Additionally, if deemed accurate, screening for predisposing underlying causes of SHT is recommended (Cushing's, PLN, adrenal tumor, etc.), as primary disease is relatively uncommon and a rule out diagnosis.

**RECOMMENDATIONS**

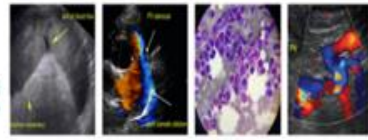
- Institute furosemide 1-2mg/kg PO q12h.
- Institute spironolactone 1-2mg/kg PO q12h.
- Institute Pimobendan 0.3mg/kg PO q12h.
- Institute ACE-I 0.5mg/kg PO q12h.
- Reassess BP in 1-2 weeks to determine if vasodilator therapy is warranted.
- Pending response, consider hydrocodone with homatropine 0.2-0.4mg/kg up to q4-6 hours PRN for any residual mechanical cough in the face of normal sleeping respiratory rates.
- Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.
- Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home.
- Elective anesthesia is not advised.
- Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.

**PLAN**

- Monitor renal values and BP in 1-2 weeks then every 3-4 months lifelong.
- Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.



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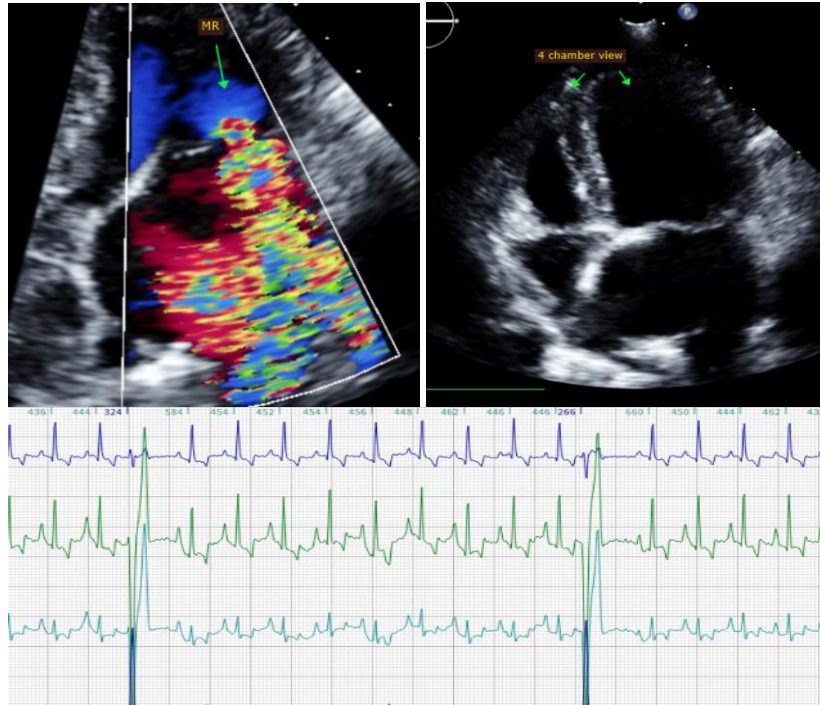
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**IMAGES**



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DACVIM (Cardiology)

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.

**IMAGING PERFORMED BY**

Pamela Harrigan, RDCS

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.

**HOSPITAL NAME**

Mass Veterinary Services

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

**REFERRING VET**

Dr. Masloski

**Echocardiogram performed by:** Pamela Harrigan, RDCS  
Pet Animal Ultrasound Service (4paus.com)

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