
**PATIENT**

Luca Miles

**SPECIES**

Canine

**BREED**

Goldendoodle

**SEX**

Male Neutered

**AGE**

11 years

**WEIGHT**

59.3lbs

**INTERPRETED BY**

 Maggie Machen Lamy,  
 DVM DACVIM  
 (Cardiology)

**IMAGING PERFORMED BY**

Crystal Hill, RVT

**HOSPITAL NAME**

 Oxford County Vet  
 Clinic

**REFERRING VET**

Dr. Halfon

**INVOICE**

20833

**DATE**

8/31/21

**PRESENTING CLINICAL SIGNS**

History: Weight loss of 2kg in the last month. History of cough since April 2021 - has improved with furosemide and reactine (antihistamine) on board but not gone entirely. History of cardiomegaly on prior radiographs. Lyme disease treated in 2020. Hypothyroid.

-Current medications: Furosemide 30mg PO q12h, Theophylline 200mg PO q12h, Levothyroxine 0.6mg BID, Nexguard PO q30days.

-Abnormal PE/Chem/CBC/UA Results: TT4 normal on levothyroxine. Mild hypokalemia. Mild basophilia.

-CXR report (7/12/21): Mild to moderate cardiomegaly. Mild pulmonary vascular pattern.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with minimal prolapse into the left atrial lumen. Lack of coaptation in systole. Moderate to severe eccentric mitral regurgitation with marked left atrial dilation. Severe LV dilation with depressed myocardial function. Increased LV sphericity. The tricuspid valve appears thickened with mild to moderate TR. Suspect early pulmonary hypertension. The right heart appear enlarged. The pulmonic and aortic valves are normal in morphology and mobility. Normal aortic and pulmonic outflow velocities with laminar flow. No AI/PI. 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)
<b>NORMAL PARAMETER</b>	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
<b>PATIENT</b>	NM	NM	2.2	2.1	29	54	0.45
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)
<b>NORMAL PARAMETER</b>	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
<b>PATIENT</b>	NM	2.2	1.3	26.9	4.5	6.4	4.5
*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)
*Note: All measurements based upon multi-modal images and methods. An average value is reported.				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**

Chronic degenerative valve disease causing mitral and tricuspid regurgitation. What is unusual is the degree of regurgitation does not necessarily match the degree of cardiac chamber enlargement (marked) and a primary myocardial issue may also be at play. The systolic function is mildly depressed and early pulmonary hypertension is suspected. Marked left atrial enlargement indicates the risk for spontaneous congestive heart failure is elevated. No additional issues are identified.

In light of the clinical signs, reported chest radiograph findings and severity of disease on echocardiogram, the diagnosis is congestive heart failure and continued medications are warranted lifelong as below. Consider a diet history in this patient given the breed and diet-related cardiomyopathy. Finally, the patient is also on Theophylline, which can be continued if this improves the patient's clinical status; however, ideally this would be discontinued as this is a cardiac stimulant. Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home. Cough suppression to improve QOL can also be considered (hydrocodone, 0.2-0.4mg/kg up to q4-6h PRN) for any residual mechanical cough in the face of normal sleeping respiratory rates. 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.

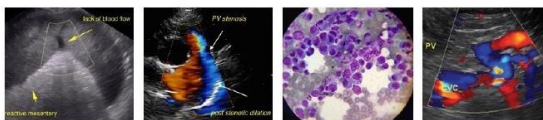
Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for acute progression of the cough, labored breathing, exercise intolerance or collapse episodes in the future.

**PLAN**

Institute Pimobendan 0.3mg/kg PO q12h. Institute Furosemide 1-2mg/kg PO q12h. Institute spironolactone 1-2mg/kg PO q12h. Consider diet history as discussed. Ideally discontinue Theophylline unless clinically beneficial.

Monitor SRRs at home. Monitor renal values and BP in 10-14 days, then every 3-4 months while on diuretics. If doing well and BP >130mmHg, institute ACEI 0.5mg/kg PO q12h. Consider hydrocodone if needed for QOL.

Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of associated clinical signs occurs in the interim.



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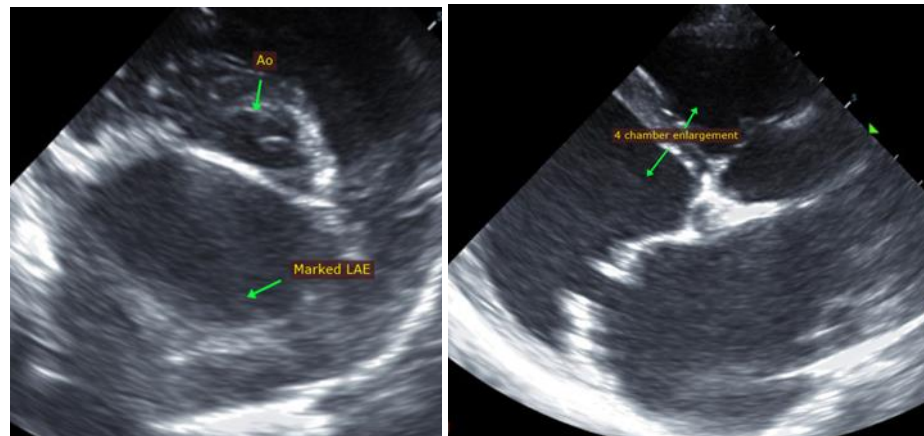
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**IMAGES**



**AGE**

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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.

**WEIGHT**

59.3lbs

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.

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM DACVIM  
(Cardiology)

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

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