


**PATIENT**

Luna Lauf

**SPECIES**

Canine

**BREED**

Havanese

**SEX**

Female Spayed

**AGE**

12.5 years

**WEIGHT**

13.7lbs

**INTERPRETED BY**

 Maggie Machen Lamy,  
 DVM, DACVIM  
 (Cardiology)

**IMAGING PERFORMED BY**

Emily Kalenius, DVM

**HOSPITAL NAME**

 Willamette Veterinary  
 Hospital

**REFERRING VET**

Dr. Carter

**INVOICE**

23696

**DATE**

4/15/22

**PRESENTING CLINICAL SIGNS**

History (images obtained 4/4/22): PE findings; heart murmur, crackles, tachypnea. thoracic radiographs: moderate cardiomegaly with perihilar edema & pulmonary venous congestion. Recheck thoracic radiographs after oxygen and furosemide: pulmonary edema has improved. Lungs sound better Placed in oxygen, treated with furosemide. Sent home on furosemide and pimobendan Written Rx Pimobendan 1.25 tabs: Give 1 tablet by mouth every 12 hours long-term. #60 + 2 refills Rx Furosemide 12 mg tabs: 1 tab PO BID #60 - start in AM.

-Abnormal PE/Chem/CBC/UA Results: Creatinine went from 0.8 to 2.0 after furosemide initial -BP: 239/122mmHg.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with significant prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with moderate left atrial dilation. Normal MR velocity. Mild LV dilation with hyperdynamic myocardial function. The tricuspid valve appears normal, with no TR. Normal right atrial and ventricular diameter and morphology. The pulmonic and aortic valves are normal in morphology and mobility. Normal aortic and pulmonic outflow velocities with laminar flow. Mild AI and no 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)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	5.5	NA	1.8	1.77	57	89	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	83	1.2	1.1	6.2	2.3	2.6	0.9
*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)

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The cause of the murmur is chronic degenerative valve disease causing moderate mitral regurgitation. Moderate left atrial enlargement indicates the risk for spontaneous congestive heart failure is elevated. Mild aortic insufficiency is noted, and the reported blood pressure is



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severely elevated; certainly further vasodilator therapy is warranted as below. No additional issues are identified.

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In light of the prior clinical signs and chest radiograph findings, the diagnosis of congestive heart failure is supported and continued medications are warranted lifelong as below. It is unusual to see the reported degree of infiltrate with only moderate disease; however, the improvement on diuretic therapy is reportedly significant and this is the presumed diagnosis. No obvious acute change such as a ruptured chord is visualized; however, ultrasound is insensitive for this finding and may be the cause. Regardless, the patient is doing well, and diuretics should be continued. My hope is we can lower the Lasix dose slightly with addition of Spironolactone for more balanced diuresis. Additionally, the dose of Pimobendan is low and can be increased as such.

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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.

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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.

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Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**PLAN**

Increase Pimobendan to 1.875mg PO q12h. Institute spironolactone 1-2mg/kg PO q12h. Dose decrease: administer Furosemide 12.5mg am 6.25mg pm. If BP deemed to be accurate and persistent, recommend vasodilator therapy with Amlodipine to effect. Screen for underlying causes of pathologic systemic hypertension (Cushings, etc).

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Emily Kalenius, DVM

Monitor SRRs at home. Monitor renal values and BP in 10-14 days, then every 3-4 months while on diuretics. An ACEI can be added if BP is persistently >130mmHg, PLN is diagnosed, etc. Consider hydrocodone if needed for QOL.

**HOSPITAL NAME**

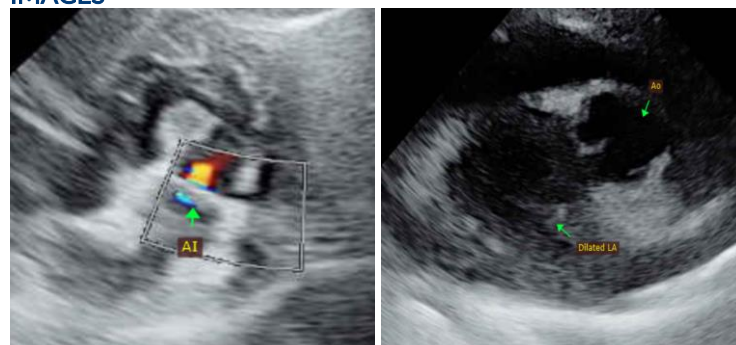
Willamette Veterinary  
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Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of associated clinical signs occurs in the interim.

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**IMAGES**



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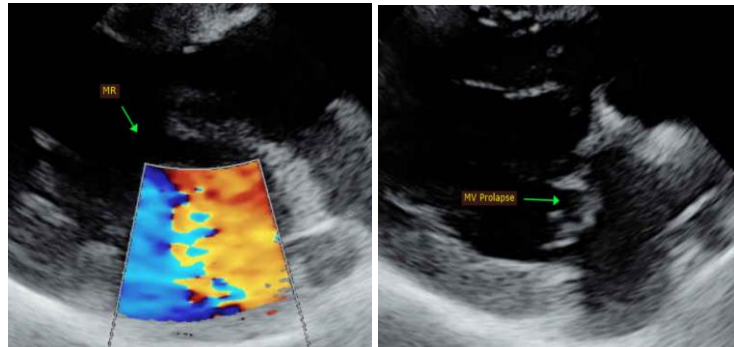
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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