



**PATIENT**

Brodie Poe

**SPECIES**

Canine

**BREED**

Miniature Wirehaired  
Dachshund

**SEX**

Male Neutered

**AGE**

10 years

**WEIGHT**

5.81lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Dana Alterman,  
RDCS, LVT

**HOSPITAL NAME**

Eubank Animal Clinic

**REFERRING VET**

Dr. Carrier

**INVOICE**

25522

**DATE**

7/25/22

**PRESENTING CLINICAL SIGNS**

History: Diagnosed with CHF in 12/2021. Presented to clinic in 7/16/2022 for worsening cough.  
-Current Medications: : Furosemide 12.5mg TID, Enalapril 2.5mg SID, Sildenafil 5mg BID, Pimobendan 1.25mg BID, Sucralfate + Clavamox. Has been on heart meds for 7-8 months.

**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 160bpm (range 150-176bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. No ectopic beats, pauses or other dysrhythmias observed. ECG diagnosis: Normal sinus tachycardia.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with prolapse into the left atrial lumen. Severe eccentric mitral regurgitation with marked left atrial dilation. LV dilation with hyperdynamic myocardial function. The tricuspid valve appears thickened with mild TR. Velocity consistent with mild to moderate pulmonary hypertension. Mild right atrial and ventricular dilation. 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)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	5.2	3.5	NM	2.5	46	90	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	1.1	0.9	2.6	3.0	3.7	2.0
*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**

Chronic degenerative valve disease causing severe mitral and mild tricuspid regurgitation. Severe left atrial and ventricular enlargement indicates there is an elevated risk for spontaneous congestive heart failure. Mild to moderate pulmonary hypertension is also suspected, which may be chronic or secondary to early/active CHF. Close monitoring is advised. No additional issues are identified. The ECG is unremarkable with a normal sinus tachycardia.

Given the severity of disease seen here, recurrent CHF is certainly a possible cause of the cough in this case. That being said, only a cough is noted in the history (i.e., no labored breathing), which may suggest a mechanical or primary respiratory component. That fact that the patient is already on **14+mg/kg per day of Lasix is highly concerning**. Lasix is a drug with a low ceiling and surpassing a certain dose range will not lead to any further benefit. Before we can make additional Lasix recommendations, repeat chest radiographs are strongly recommended. If CHF is truly recurrent despite this dose of Lasix we must treat as such with addition of an alternative diuretic. However, if CHF is NOT seen and primary airway issues are more likely I would highly recommend decreasing the Lasix with addition of respiratory therapy, such as a course of Baytril or similar antibiotic, aggressive hydrocodone (up to q4hours PRN), theophylline, etc. Additionally, a renal panel should be monitored every 3-4 months in this case due to high dose Lasix. The use of Sildenafil is also debatable in this case; however, if well tolerated it is reasonable to continue given a lack of sufficient history. See medication recommendations as below.

Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home and to help differentiate respiratory versus cardiac causes of coughing in the future. 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.

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**

Highly recommend repeat CXR to determine if CHF is present. If CHF is in fact present/recurrent, decrease Lasix dose to 12.5mg PO q12h and add hydrochlorothiazide (HCTZ) 6.25mg PO q24h (available commercially in 25mg tabs). If CHF is not currently present, decrease Lasix to 12.5mg BID and institute additional respiratory therapy. Consider Hydrocodone as needed for quality of life, wean to lowest effective frequency. Continue Pimobendan, Sildenafil and Enalapril as prescribed, pending BP assessment.

Monitor renal values/BP every 3-4 months lifelong.

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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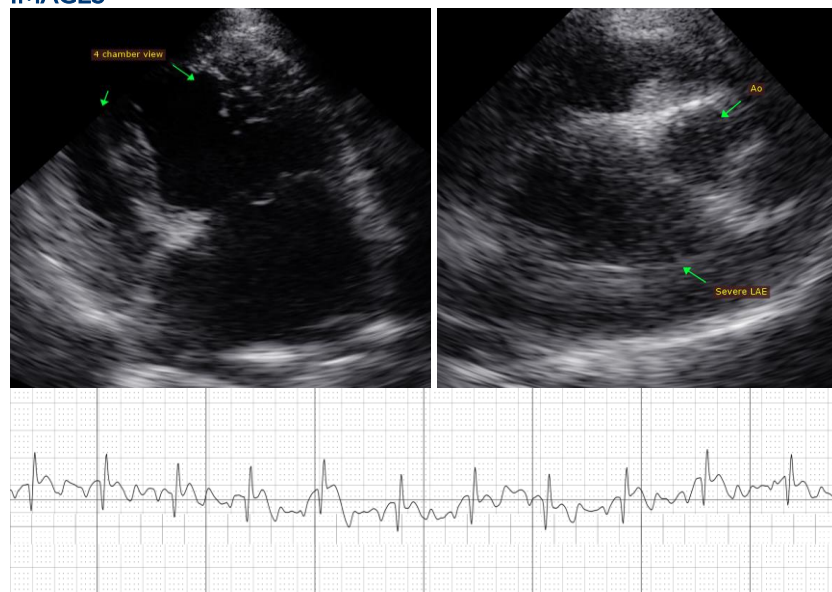
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**IMAGES**



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.

**Maggie Machen Lamy, DVM**  
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