



**PATIENT**

Jax Hyman

**SPECIES**

Canina

**BREED**

Terrier Mix

**SEX**

Male Neutered

**AGE**

1.19.12

**WEIGHT**

14lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**HOSPITAL NAME**

Perry Hall Animal  
Hospital

**REFERRING VET**

Dr. Miller

**INVOICE**

28576

**DATE**

1.26.23

**PRESENTING CLINICAL SIGNS**

History: Patient presents for evaluation of seizure episode. Patient has never been to a veterinarian before. Owner reports episode lasted about 30 seconds with a questionable pre-ictal phase. No post-ictal phase reported. On evaluation, patient has a grade 4/6 cardiac murmur, lung sounds clear x 4. On further conversation with owner, he does report some coughing and wheezing. Suspect syncopal episode as opposed to seizure but cannot rule out seizure. BP 120mmHg. No evidence of cardiac failure at this time.

-Pertinent abnormal PE/Chem/CBC/UA Results: Moderate cardiomegaly likely due to valvular endocardiosis. No evidence of heart failure. Dynamic tracheal mainstem bronchial collapse.

Constipation in an otherwise unremarkable abdomen. CBC/Chemistry/T4: WNL

-Current medications: None current.

-Sedation used: Not required to complete full diagnostic ultrasound.

-Pertinent previous ultrasound results: No previous.

-STAT: Requested by DVM

-Imaging performed by: Andi Parkinson, RDMS

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Diffuse nodular thickening of mitral valve leaflets with prolapse into the left atrial lumen. Flail leaflet seen. Severe eccentric mitral regurgitation with severe left atrial enlargement. MR velocity is normal. Moderate LV dilation with hyperdynamic myocardial function and evidence of volume overload. The tricuspid valve appears mildly thickened with mild tricuspid regurgitation. Velocity consistent with early pulmonary hypertension. Minimal right heart enlargement. The pulmonic and aortic valves appear normal in appearance and mobility. Normal pulmonic and aortic outflow velocities. No aortic or pulmonic insufficiency noted. No pericardial or pleural effusion seen.

**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	4.5	3.0	NM	2.8	45	77	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	92	0.8	0.6	6.4	3.3	3.8	2.1
*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

## 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 pulmonary hypertension is noted, which is likely secondary to chronic LA pressure elevation. No additional issues are identified.

A reported episode in this patient may be cardiogenic in origin; however, a seizure cannot be ruled out given a somewhat atypical description. Possible cardiogenic causes include poor forward blood flow leading to hypoxia, early CHF, pulmonary hypertension (mild identified), an arrhythmia (consider an ECG) and/or blood pressure swings (baseline blood pressure recommended). A vagal event, neurologic causes, or other systemic issues are also possible. Regardless, given this severity of disease seen here, life-long support is recommended including diuretic therapy. **It is certainly worth noting that the patient's resting heart rate is low for a stressed dog in crisis, and a baseline ECG is strongly recommended particularly given the history.**

Long term prognosis is guarded to poor, with risk for progression to CHF, development of malignant arrhythmias and/or sudden death in the future. Should syncope persist despite medications, a holter monitor and/or additional diagnostics may be warranted to rule out other contributing causes.

Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home. Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or worsening collapse episodes in the future. Elective anesthesia is not advised.

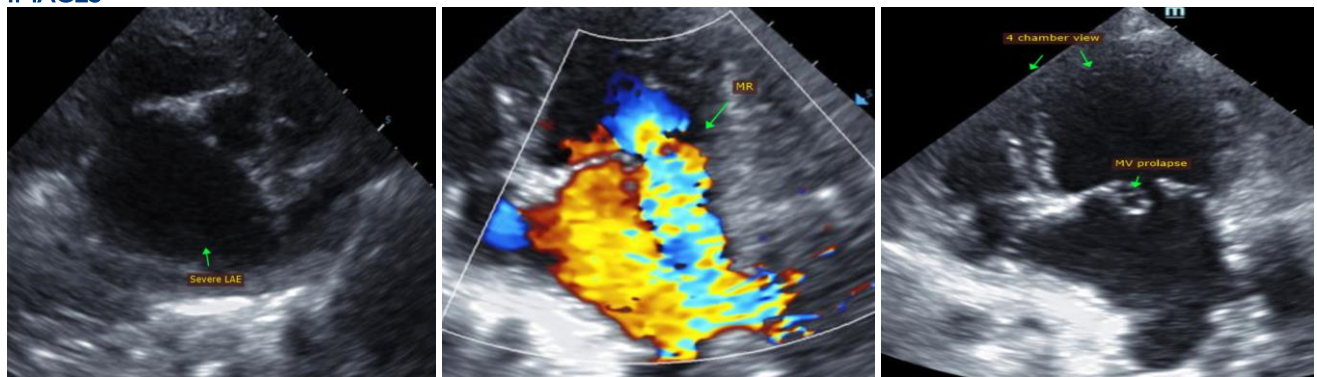
## PLAN

Baseline BP and ECG are strongly recommended. Administer Pimobendan 0.3mg/kg PO q12h. Institute spironolactone 1-2mg/kg PO q12h. Institute ACEI 0.5mg/kg PO q12h. Institute low-dose Lasix 1mg/kg PO q12h.

Monitor SRRs at home. Monitor renal values and BP in 10-14 days, then every 3-4 months while on diuretics. If syncope persists, a holter monitor and/or further evaluation is advised.

Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any clinical signs arise.

## 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.

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