



**PATIENT**

Jimi Sindelar

**PRESENTING CLINICAL SIGNS**

History: Grade 4/6 heart murmur. No current heart medications.

**SPECIES**

Canine

**RADIOGRAPHIC FINDINGS** \*NOTE: Images submitted for supplemental cardiac information only.

Cardiomegaly with LA enlargement. No obvious evidence of CHF.

**BREED**

Chihuahua

**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; 25mm/s, 10mm/mV. The average heart rate is 160bpm with a largely regular rhythm. 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.

**SEX**

Male Neutered

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Severe diffuse nodular thickening of mitral valve leaflets. Marked prolapse of the anterior leaflet into the left atrial lumen. Ruptured chordae tendinae is suspected (see below) with a flail leaflet. Moderate to severe mitral regurgitation with moderate left atrial enlargement. MR velocity is normal. Mild LV dilation with hyperdynamic myocardial function. The tricuspid valve appears mildly thickened with mild tricuspid regurgitation. Velocity consistent with early pulmonary hypertension. The pulmonic and aortic valves appear normal in appearance and mobility. Normal pulmonic and aortic outflow velocities. No aortic and trace pulmonic insufficiency noted. No pericardial or pleural effusion seen. No obvious cardiac tumors.

**AGE**

16 years

**WEIGHT**

5lbs

**INTERPRETED BY**

Maggie Machen  
Lamy, DVM, DACVIM  
(Cardiology)

**CARDIAC CHART**

**IMAGING PERFORMED BY**

Fred Gromalak, DVM

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	6.2	3.1	1.6	1.9	46	79	0.25
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	193	1.3	0.85	2.3	2.3	3.5	1.8
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
BODY WEIGHT DEPENDENT PARAMETERS				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

**HOSPITAL NAME**

SVS Imaging

**REFERRING VET**

Dr. Bloss

**INVOICE**

21061

**DATE**

9/16/21



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## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is chronic degenerative valve disease causing severe mitral and mild tricuspid regurgitation. Moderate left atrial and ventricular dilation indicate the risk for spontaneous congestive heart failure is elevated and this patient is likely at risk for decompensation in the future. The finding of a ruptured chord and flail leaflet is most likely a historical finding, as no symptoms (collapse, acute decompensation, etc.) are reported. Cardiac support is recommended regardless. Finally, there is evidence of early pulmonary hypertension which is likely due to chronic LA pressure elevation. Long term prognosis is guarded with an elevated risk for CHF at some point in the future. The ECG is unremarkable with a normal sinus tachycardia.

Based upon this risk, lifelong cardiac support is recommended as below independent of clinical signs (none reported). Monitoring of sleeping breathing rates is recommended as the best way to screen for CHF at home.

Once on the medication for 3-5 days, anesthetic risk is considered moderately elevated. Cardiac protective drug choices (opiod/benzodiazepine premedication, propofol or alfaxalone induction, iso/sevo gas) are recommended. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Judicious IV fluid rates are recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a worsening cough, labored breathing, exercise intolerance or collapse episodes. Mild activity restriction is advised.

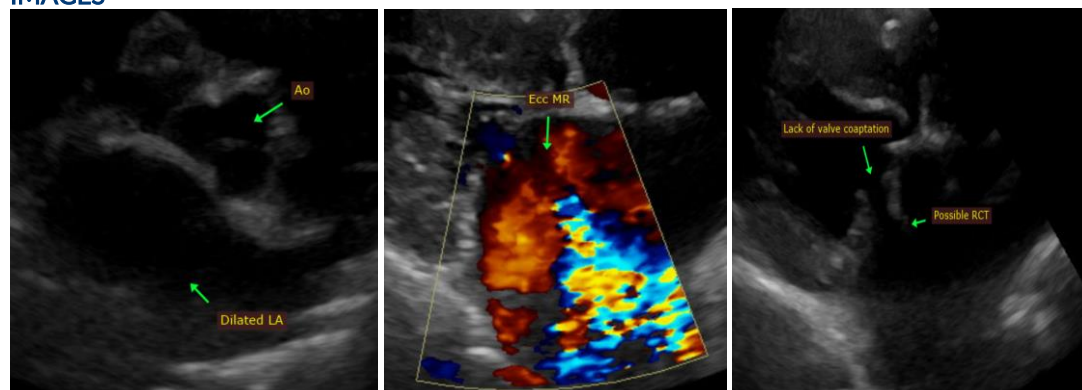
## PLAN

Screening BP is recommended. Institute Pimobendan 0.3mg/kg PO q12h. Institute Benazepril 0.5mg/kg PO q12h. Institute spironolactone 1-2mg/kg PO q12h.

A renal panel is recommended in 10-14 days following institution of medications, then every 4-6 months lifelong.

A recheck echocardiogram is recommended in 6 months to screen for progression, sooner if clinical signs arise.

## IMAGES





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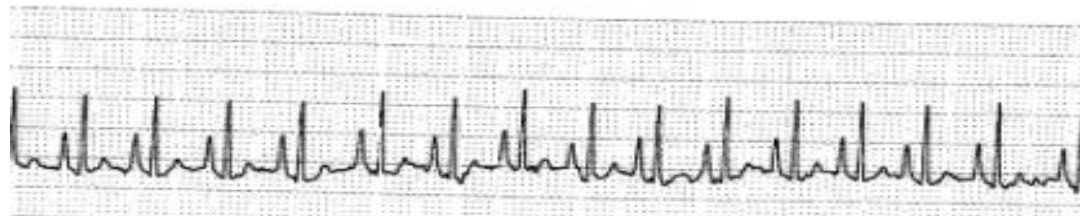
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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