



**PATIENT**

Chico Musto

**SPECIES**

Canine

**BREED**

Chihuahua

**SEX**

Male

**AGE**

13 years

**WEIGHT**

12.5lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Karen Ebersole, DVM,  
DABVP

**HOSPITAL NAME**

Scanvet

**REFERRING VET**

Dr. Reagor

**INVOICE**

47009

**DATE**

2/26/26

**PRESENTING CLINICAL SIGNS**

History: Presented to UC on 2/14 with swelling of the abdomen and marked edema of limbs, neck and head. No prior history of cardiac disease. Has improved on medications, though still has severe ascites.  
-Current medications: Lasix 12.5mg TID, Pimobendan 2.5mg BID (started on 2/14).  
-Abnormal PE/Chem/CBC/UA Results: PE: firmly rounded abdomen, some muscle wasting on spine.  
BW: BUN 29, TP 5.1. CXR: severe cardiomegaly, pulmonary edema and ascites.

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

Cardiomegaly. Large volume ascites.

**ELECTROCARDIOGRAPHIC FINDINGS**

A six lead ECG is available at 25mm/s; 10mm/mV. The average heart rate is 160bpm. The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P wave morphology is positive with a normal dimension. Normal PR. The QRS morphology is positive with normal dimension. MEA is normal. No ectopic beats, pauses or dysrhythmias observed.  
ECG diagnosis: Normal sinus rhythm.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. The mitral valve is diffusely thickened with minimal prolapse into the left atrial lumen. There is mild to moderate eccentric mitral regurgitation present. The MR velocity is normal. Moderate left atrial enlargement. Normal LV with adequate systolic function. There is normal systolic flow velocity across the aortic valve. The aortic valve appears trileaflet with normal mobility. The main pulmonary artery is mildly dilated. Severe right atrial and ventricular enlargement. Bowing of the intraatrial septum. No obvious defect observed. The tricuspid valve is thickened with severe prolapse and severe tricuspid regurgitation. Velocity consistent with moderate pulmonary hypertension. No pulmonic or aortic insufficiency. Scant pericardial and pleural effusion. No cardiac masses are seen. Large volume ascites seen on subcostal views.

**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>	5.4	4.0	1.5	1.8	45	90	0.14
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	1.3	1.3	5.7	1.8	2.2	1.3
*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)



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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	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**

Chronic degenerative valve disease causing mild to moderate mitral and severe tricuspid regurgitation is identified. Moderate left atrial dilation indicates the risk for spontaneous left-sided congestive heart failure is relatively low. More importantly, there is moderate pulmonary hypertension based upon the TR velocity and severe dilation of right heart. This puts the patient at risk for right-sided congestion, and/or syncope. Given these findings, the effusion is certainly due to CHF and warrants full lifelong cardiac supportive medications including diuretics as below. The ECG is unremarkable with a normal sinus rhythm.

The underlying genesis of PAH is poorly understood in cases other than heartworm infestation, though it occurs with increased frequency in a variety of forms of chronic lung disease and in patients with idiopathic pulmonary fibrosis. Underlying cause remains open without a chronic respiratory history.

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 worsening collapse episodes. Monitoring of sleeping breathing rates is recommended as the best way to screen for progression to CHF at home.

Unfortunately, there is high risk for spontaneous CHF, worsening cough and/or malignant arrhythmias and sudden death in the future. The prognosis with this degree of disease is poor, with most dogs able to maintain a good QOL on medications for an average of 8-12 months.

Elective anesthesia is not advised.

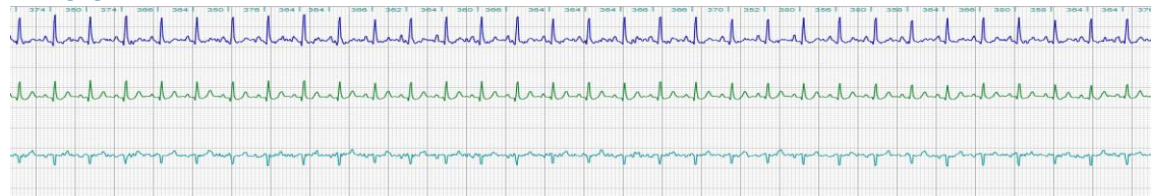
**PLAN**

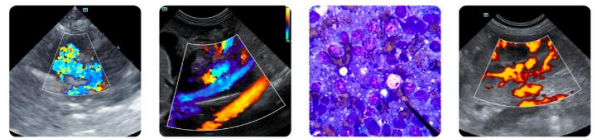
Institute Spironolactone 1-2mg/kg PO q12h. Institute Sildenafil 1-2mg/kg PO 8h. Continue Lasix 1-2mg/kg PO q8h. Continue Pimobendan 0.25-0.3mg/kg PO q12h. Abdominocentesis as needed for discomfort, inappetence or respiratory changes.

Recheck renal values and BP in 1-2 weeks then every 3-4 months on diuretic therapy. If BP is >130mmHg and patient is doing well at home, institute ACEI 0.5mg/kg PO q12h (if hypotensive do not utilize).

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

**IMAGES**





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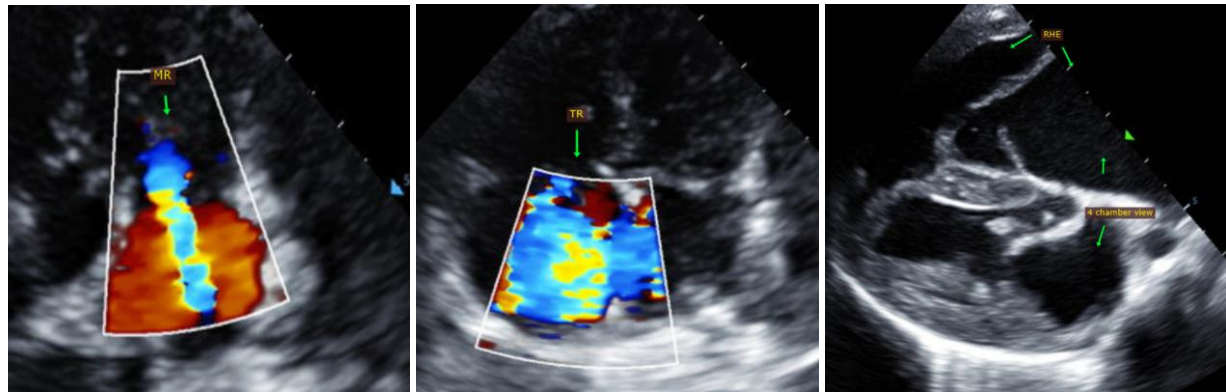
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)**

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