



**PATIENT**

Lala Rodriguez

**SPECIES**

Canine

**BREED**

Mix

**SEX**

FS

**AGE**

8y

**WEIGHT**

26lbs

**PRESENTING CLINICAL SIGNS**

History: Presented on 6-21-22 for evaluation due to difficulty breathing that started 2 days ago. Pt has a history of having a heart murmur. Pt presented with tachypnea and abdominal component breathing and had crackles in the lungs bilateral. An IV catheter was placed and gave furosemide 50mg (4mg/kg) was given IV and also was given Pimobendan 2.5mg PO. SPO2 was originally at 77% and after O2 and tx improved to 85%.

Abnormal PE/Chem/CBC/UA Results: W: 26.2# T: 100.1F P: 120, Resp: 120 bpm Abdominal component breathing Thoracic rads: pulmonary edema ( rads were included in the study) BW: CBC: neutrophils: 13 (2.9-11) Lymph: 0.7 ( 1-5.1) monocytes: 1.6 (.16-1.12) Eos: 0.04 (.06-1.23) Chem: BUN 5 (7-27) Sodium : 162(144-160) K 6.6 (3.5-5.8) ALT: 174 (10-125)

**RADIOGRAPHIC FINDINGS** \*NOTE: Images submitted for supplemental cardiac information only.  
 Cardiomegaly with evidence of left-sided CHF.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. The mitral valve is diffusely thickened with mild prolapse into the left atrial lumen. There is severe eccentric mitral regurgitation present. The MR velocity is normal. There is severe left atrial enlargement. There is mild left ventricular dilation. Left ventricular systolic function is hyperdynamic. No right atrial or ventricular dilation (subjective). Mild thickening of the tricuspid valve with no significant TR. There is normal systolic flow velocity across the aortic valve. The aortic valve appears trileaflet with normal mobility. The main pulmonary artery is normal in diameter. The pulmonic valve is normal in appearance. No pericardial/pleural effusion or cardiac masses are seen.

**INTERPRETED BY**

Maggie Machen  
 Lamy, DVM, DACVIM  
 (Cardiology)

**IMAGING PERFORMED BY**

Dr. G. Ferrer

**HOSPITAL NAME**

Paseos Veterinary  
 Center

**REFERRING VET**

Dr. Ferrer

**INVOICE**

24898

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**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	5.4	BA	NM	2.0	59	89	0.2
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	0.8	11.8	3.3	4.6	1.9
*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> <i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i>				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
				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

The cause of the murmur is chronic degenerative valve disease causing severe mitral regurgitation. Severe left atrial enlargement indicates the risk for spontaneous congestive heart failure is elevated. No additional issues are identified.

In light of the clinical signs, chest radiograph findings and severity of disease on echocardiogram, the diagnosis is congestive heart failure and medications are warranted lifelong as below. The patient appears unstable, and overnight hospitalization is recommended for injectable lasix and O<sub>2</sub> therapy. 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.

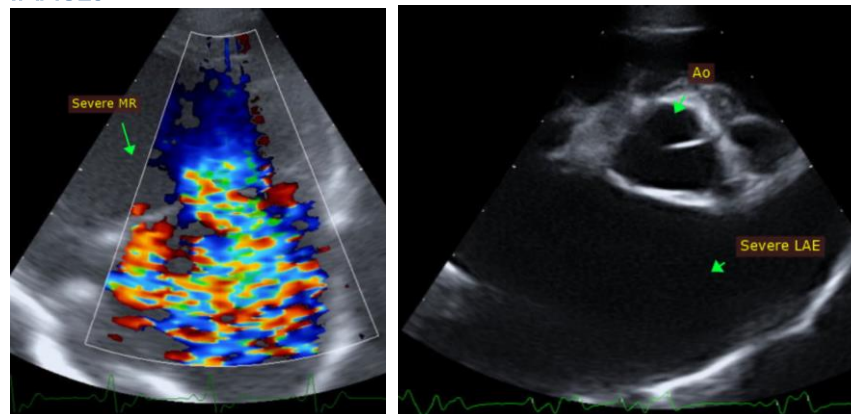
Omega fatty acid supplementation and mild salt restriction may also be of some long term benefit. Monitor for acute progression of the cough, labored breathing, exercise intolerance or collapse episodes in the future.

Plan: Consider overnight hospitalization. Discharge on the following: Institute Pimobendan 0.3mg/kg PO q12h. Institute Furosemide 1-2mg/kg PO q12h. Institute spironolactone 1-2mg/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 doing well and BP >130mmHg, institute ACEI 0.5mg/kg PO q12h. Consider hydrocodone if needed for QOL.

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

## 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



**PATIENT**

image/video clips provided.

Lala Rodriguez

Thank you for this referral. 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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Canine

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

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