



## PATIENT

Nanook Lentkowski

## SPECIES

Canine

## BREED

American Eskimo Mix

## SEX

Female Spayed

## AGE

12 years

## WEIGHT

33.8lbs

## INTERPRETED BY

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

## IMAGING PERFORMED BY

Dana Alterman,  
RDCS, LVT

## HOSPITAL NAME

Eubank Animal Clinic

## REFERRING VET

Dr. Hedberg

## INVOICE

26664

## DATE

10/3/22

## PRESENTING CLINICAL SIGNS

History: Recheck echo. Panting more. Severe cough.

-Current medications: Gabapentin 100mg PO BID, Heartguard and Benadryl PRN.

-Pertinent previous echo findings (2/2021 MML): Trivial MR, trace TR: 1.9m/s. LA: 2.5, LV: 4.2.

**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 135bpm (range 120-150bpm). 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 rhythm with respiratory variation.

## ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve is thickened with mild prolapse into the left atrial lumen. There is severe eccentric mitral regurgitation present. The MR velocity is normal. There is marked left atrial enlargement. There is mild left ventricular dilation and increased sphericity indicative of volume overload. Left ventricular systolic function is hyperdynamic. Septal bounce seen at end-systole. There is normal flow across the aortic valve. The aortic valve appears trileaflet with normal mobility. No AI. The main pulmonary artery is mildly dilated. Normal pulmonic outflow velocity with laminar profile. Trivial pulmonic insufficiency. Moderate right atrial and right ventricular dilation. The tricuspid valve is thickened and prolapsing with moderate tricuspid regurgitation. The TR velocity is suspected to be significantly elevated. Scant pericardial effusion. No obvious pleural effusion. No cardiac masses are 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	4.8	NM	2.2	2.5	47	88	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	1.4	NM	15.3	3.9	4.9	2.6
*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)
				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 moderate tricuspid regurgitation. Batrial and ventricular enlargement in addition to severe MR/TR and pulmonary hypertension indicates the risk for spontaneous congestive heart failure is high. Scant pericardial effusion is concerning for early right-sided congestion, and full cardiac support is recommended, including sildenafil therapy. If the patient appears unstable, highly recommend overnight hospitalization for supportive care at a 24-hour facility. Additionally cough suppression may be useful in the face of normal breathing rates in the future. Compared to the 2021 report, there is obviously significant progression with previously mild disease. The ECG is unremarkable with a normal sinus rhythm.

Unfortunately, with this degree of heart disease and congestion, the prognosis is guarded to poor with an average survival time of 6-12mo at this point. Most dogs are able to maintain a good quality of life for some time however with medications. Going forward, patient will remain at high risk for recurrent CHF (left or right sided), collapse episodes and/or development of malignant arrhythmias/sudden death in the future.

Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit once stabilized. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes. Monitoring of sleeping breathing rates is recommended as the best way to screen for improvement/recurrent CHF at home.

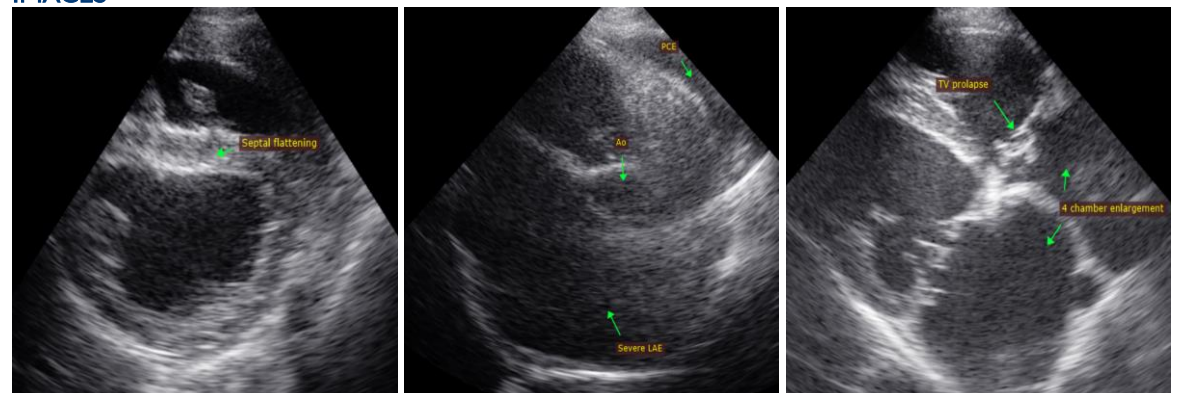
**PLAN**

Institute sildenafil 1-2mg/kg PO q8h. Institute spironolactone 1-2mg/kg PO q12h. Administer Pimobendan 0.3mg/kg PO q12h. Institute Furosemide 1-2mg/kg PO q12h. Hydrocodone as needed for cough suppression.

Recheck a kidney panel and BP in 10-14 days, then every 3-4 months. If BP is >130mmHg and patient doing well, institute ACE-I 0.5 mg/kg PO q12h.

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

**IMAGES**





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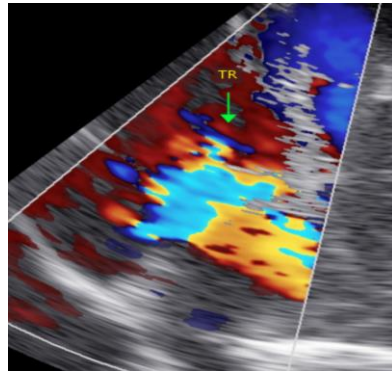
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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**  
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