



**PATIENT**

Duncan Radu

**SPECIES**

Canine

**BREED**

Lab Retriever Mix

**SEX**

Male Neutered

**AGE**

10 years

**WEIGHT**

69lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Dana Alterman,  
RDCS, LVT

**HOSPITAL NAME**

Eubank Animal Clinic

**REFERRING VET**

Dr. Garb

**INVOICE**

29121

**DATE**

2/20/23

**PRESENTING CLINICAL SIGNS**

History: Recheck echo. Assess prior to anesthesia.

-Current medications: Benazepril, Pimobendan and taurine 2000mg BID

-Pertinent previous echo findings (6/2021 MML): Moderate LAE, LVE with FS: 16%. LV: 6.3/5.3.

**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 150bpm with a largely regular rhythm. P waves are difficult to identify throughout; however, a sinus origin is suspected. P for every QRS complex and vice versa. The P morphology is positive. The QRS is inverted. No ectopic beats, pauses or other dysrhythmias observed.

ECG diagnosis: Suspect normal sinus rhythm.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. The mitral valve appears mildly thickened, with no prolapse into the left atrial lumen. Trace eccentric MR. Moderate left atrial dilation. LV dilation with increased sphericity and decline in myocardial function. Normal LV wall thickness. The tricuspid valve appears normal in form and function. No obvious TR. Mild right atrial and ventricular enlargement. No overt evidence of pulmonary arterial hypertension or right heart decompensation. The aortic valve is normal in morphology and mobility. No subvalvular ridge present; normal LVOT velocity with laminar flow. No pericardial or pleural effusion noted. No obvious cardiac tumors.

**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>   | NM            | N             | 1.5                 | 1.7                     | 19                              | 38                                       | 1.3                                      |
| 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            | 1.1           | 0.6                 | 31.3                    | 3.3                             | 5.9                                      | 4.8                                      |
| *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

Compared to the prior study, findings appear similar. The overall dimension and function remain abnormal; however, no obvious progression is seen. No additional issues are identified, and the ECG is unremarkable.

Given these findings, continue Pimobendan, Benazepril and Taurine as previously recommended. Prognosis remains guarded long-term. There may be risk for development of congestive heart failure, malignant arrhythmias (AF, VT), collapse and/or sudden death in the future.

Monitor for development of a murmur, cough, labored breathing, exercise intolerance or collapse episodes.

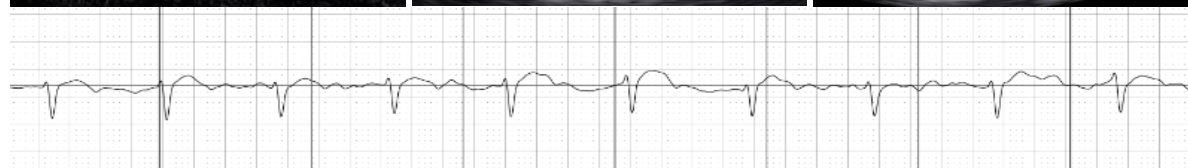
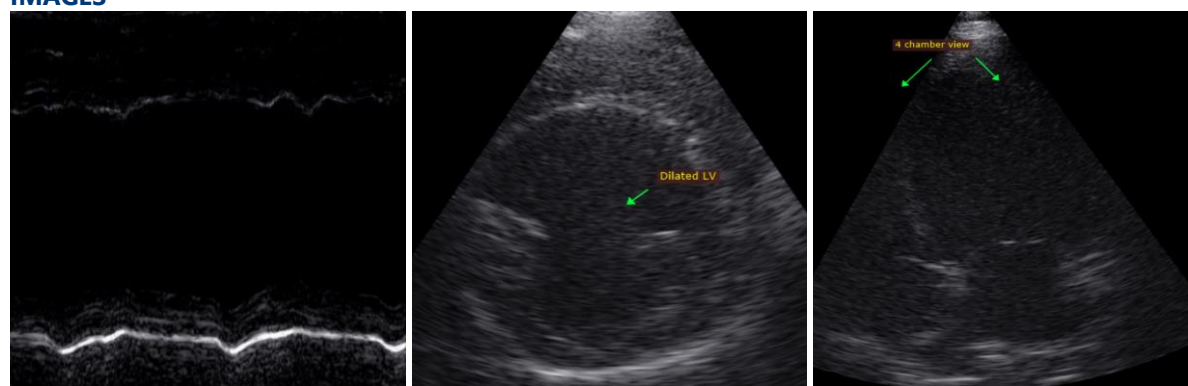
Even with stability seen here, the structural changes are significant and elective anesthesia is not advised, as there is high risk for complication. Risk:benefit ratio should be considered. Consider consultation with and/or referral to a facility with an anesthesiologist. Should you elect to proceed, cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, iso or sevoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction and recover in O2 cage. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Moderate IV fluid restriction is recommended to avoid fluid overload, while considering comorbidities, hydration status, BP, etc. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

## PLAN

Continue Pimobendan 0.3mg/kg PO q12h. Continue ACE-I 0.5mg/kg PO q12h. Continue taurine supplement 1000mg PO q12h.

A recheck echocardiogram is recommended in 6 months, sooner if a murmur develops or any signs of cardiac disease are noted.

## IMAGES





**PATIENT**

Duncan Radu

**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.**

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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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**Maggie Machen Lamy, DVM**

**Diplomate of the American College of Veterinary Internal Medicine (Cardiology)**

info@sonopath.com

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