



**PATIENT**

Canyon Lloyd

**PRESENTING CLINICAL SIGNS**

History: Cardiomegaly by on CXR. Lethargic.

**SPECIES**

Canine

**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 110bpm (range 90-136bpm). 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.

**BREED**

Golden Retriever

**SEX**

Male Neutered

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Small volume pericardial effusion without obvious tamponade. Hypoechoic lesion suspected adjacent to the right heart, although this finding is inconsistent. Trace mitral regurgitation. No TR. LV function is adequate. Left atrium is normal in diameter. LV appears normal in dimension. The right heart is normal in dimension. The pulmonic and aortic valves are normal in appearance. Dilated aortic root and ascending segment. Normal outflow velocities; laminar flow. No pleural effusion seen.

**AGE**

11 years

**CARDIAC CHART**

**WEIGHT**

87.1lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

| 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  | NA            | NA            | NM                  | 0.9                     | 28                              | 50                                       | 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            | 1.2           | 0.9                 | 39.5                    | 3.3                             | 3.9                                      | 2.8                                      |
| *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

**IMAGING PERFORMED BY**

Dana Alterman,  
RDCS, LVT

**HOSPITAL NAME**

Eubank Animal Clinic

**REFERRING VET**

Dr. Smith

**INVOICE**

25369

**DATE**

7/18/22



|  |  |
|--|--|
| <b>PATIENT</b>                                     | <b><u>INTERPRETATION OF THE FINDINGS &amp; FURTHER RECOMMENDATIONS</u></b>   |
| Canyon Lloyd                                       | The cause of the patient's lethargy is likely development of pericardial effusion. The cardiac structure and function are largely normal with a mild mitral leak. This is clinically insignificant comparatively. The patient is not clearly in active tamponade at this time; however, this could happen imminently. The aortic root and ascending segment are significantly dilated and a baseline BP is strongly recommended. No obvious additional issues are identified and the ECG is unremarkable.  |
| <b>SPECIES</b>                                     |  |
| Canine   |  |
| <b>BREED</b>                                       |  |
| Golden Retriever                                   | Assuming the effusion is confirmed to be hemorrhagic, the two most common causes of hemorrhagic pericardial effusion in older dogs include idiopathic and neoplastic. Less commonly, pericarditis (an inflammatory condition), a left atrial tear, or a bleeding disorder should also be considered. Idiopathic by definition means that a cause cannot be found. If diagnosed (a rule out diagnosis), the long-term prognosis with idiopathic effusion has the potential to be fair. In a senior lab, cancer is the most likely diagnosis until proven otherwise.   |
| <b>SEX</b>   |  |
| Male Neutered                                      |  |
| <b>AGE</b>   |  |
| 11 years   | Regarding neoplasia, the most common types of cardiac cancer-causing pericardial effusion include hemangiosarcoma (HSA), chemodectoma, or mesothelioma. The prognosis varies a great deal depending on the underlying type of cancer. A hemangiosarcoma is considered most likely; however, <b>no discrete tumors were seen today</b> . That being said, there is a suspicious lesion associated with the right heart which is highly concerning. Extra-cardiac lesions are easily missed, and advanced imaging may be warranted such as a thoracic CT scan. Additionally, full systemic evaluation (AUS) may be indicated to screen for additional abnormalities, such as a splenic mass. Consider a diagnostic sampling of the effusion for cytology as well, albeit this is typically of low yield and carries risk with this volume. Lethargy may or may not be related to small volume effusion and further systemic evaluation is advised. |
| <b>WEIGHT</b>                                      |  |
| 87.1lbs  |  |
| <b>INTERPRETED BY</b>                              |  |
| Maggie Machen Lamy,<br>DVM, DACVIM<br>(Cardiology) | Regardless of underlying cause, it is impossible to predict if and when pericardial effusion will increase and start to cause cardiac tamponade. Once removed, reeffusion rates are also highly unpredictable. Some patients with idiopathic effusion need to be tapped between 1 and 3 times then never again. Other patients may experience frequent recurrence with either HSA or idiopathic disease. If the effusion reoccurs frequently, a surgical procedure called a pericardiectomy can be discussed.  |
| <b>IMAGING PERFORMED BY</b>                        |  |
| Dana Alterman,<br>RDMS, LVT                        |  |
| <b>HOSPITAL NAME</b>                               |  |
| Eubank Animal Clinic                               | This patient will always be at risk for signs of recurrent pericardial effusion including pale gums, difficulty breathing, lethargy/collapse, cough, exercise intolerance, abdominal distention, vomiting, inappetence and/or sudden death. If you notice any of these symptoms, urgent evaluation should be sought.   |
| <b>REFERRING VET</b>                               | <b><u>PLAN</u></b>   |
| Dr. Smith  | Baseline BP. Consider full systemic evaluation and thoracic CT scan as discussed. No cardiac medications are clearly indicated at this time. Over the counter herbal supplement Yunnan Baiyao may help decrease risk of bleeding, however true benefit is speculative (1 capsule PO BID).  |
| <b>INVOICE</b>                                     |  |
| 25369  | A recheck of suspicious lesion and fluid accumulation in 1-2 months, sooner if recurrence of clinical signs.   |
| <b>DATE</b>  |  |
| 7/18/22  |  |



**PATIENT**

Canyon Lloyd

**SPECIES**

Canine

**BREED**

Golden Retriever

**SEX**

Male Neutered

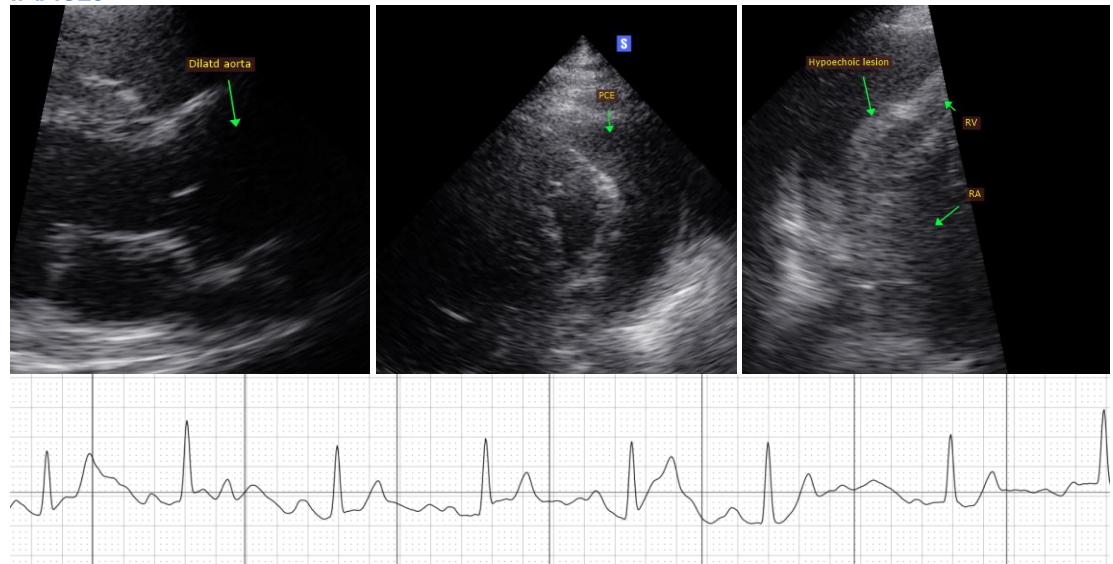
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11 years

**WEIGHT**

87.1lbs

**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 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.

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Dana Alterman,  
RDCS, LVT

**Maggie Machen Lamy, DVM**  
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