

**PATIENT**

Bailey Frizzell

**SPECIES**

Canine

**BREED**

Cocker Spaniel

**SEX**

Male Neutered

**AGE**

15 years

**WEIGHT**

46.5lbs

**INTERPRETED BY**

Maggie Machen  
Lamy, DVM, DACVIM  
(Cardiology)

**HOSPITAL NAME**

Chadwell Animal  
Hospital

**REFERRING VET**

Dr. Haskin

**INVOICE**

20451

**DATE**

8/10/21

**PRESENTING CLINICAL SIGNS**

History: Recheck echo. Owner discontinued heart medications during covid. Worsening cough, yellow nasal discharge and skin rash. Grade IV HM on auscultation with arrhythmia noted.  
-Current medications: Restarted Vetmedin, Enalapril, and Lasix initially. Stopped enalapril after Cardio pet EKG (rapid AF) and started Diltiazem and spironolactone. Continued Vetmedin and Lasix.  
-Sedation used: Sedation not required for scan.  
-Pertinent previous ultrasound results: (8-27-2019 MML): Severe MR, severe LAE, mild LVE, mild LV dysfunction, mild TR. FS: 25%, LA: 4.3, LV; 4.8, 3.68.  
-STAT: Not requested.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with mild prolapse into the left atrial lumen. Severe eccentric mitral regurgitation with severe left atrial dilation. Normal MR velocity. Mild LV dilation with moderate systolic dysfunction and increased sphericity. The tricuspid valve appears mildly thickened with mild TR. TR velocity is borderline. Mild right atrial and ventricular enlargement. The pulmonic and aortic valves are normal in morphology and mobility. Normal aortic outflow velocities with laminar flow. Trivial pericardial effusion. No pleural effusion noted. No obvious cardiac masses. Rapid irregular rhythm noted throughout.

**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>   | 4.6           | 2.7           | NM                  | 2.4                     | 16                              | 33                                       | 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) |
| <b>NORMAL PARAMETER</b>  | 50-100        | 0.7-1.7       | 0.7-1.6             | BELOW                   | BELOW                           | BELOW                                    | BELOW                                    |
| <b>PATIENT</b>   | 77            | 1.5           | 0.8                 | 21.1                    | 4.5                             | 5.2                                      | 4.3                                      |
| *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)                               |
|  |               |               |                     | 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

## **INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Chronic degenerative valve disease persists with evidence of progression. Severe mitral and moderate tricuspid regurgitation are similar to prior; however, the left heart is persistently more dilated. The systolic function has also worsened; however, this is likely due to a rapid tachycardia. The right heart has also increased in size likely due to atrial fibrillation. No additional issues are identified.

Given these findings, full lifelong cardiac support is certainly warranted as was previously recommended. Scant pericardial effusion is noted which is likely secondary to the rapid heart rate. It is important to note that right-sided congestion (effusions) develops secondary to the arrhythmia, while left-sided congestion (pulmonary edema) develops due to structural disease. Going forward, aggressive therapy is recommended as below. **The importance of rate control with rapid AF cannot be stressed enough. Without rate control it will be difficult to manage CHF appropriately. Treatment should be dictated by the ECG report.**

Unfortunately, dogs with CHF and arrhythmias are at high risk for complications such as recurrent congestive heart failure, malignant arrhythmias and sudden death. Medications and close monitoring will help give the best prognosis possible, however the average survival time with this condition is <6 months.

Goals of therapy include correcting water retention, improving myocardial contractility, and afterload reduction. Medical management is recommended as below with a guarded to poor prognosis. No clinical signs are mentioned; however, if the patient appears unstable hospitalization for rate control may be necessary. If declined, I have listed oral medications as below.

Monitor at home for cough, lethargy, inappetence, collapse/fainting episodes or increase in respiratory rate or effort. Monitoring of sleeping breathing rates is recommended to screen for recurrent CHF at home. Moderate activity restriction is advised. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.

## **PLAN**

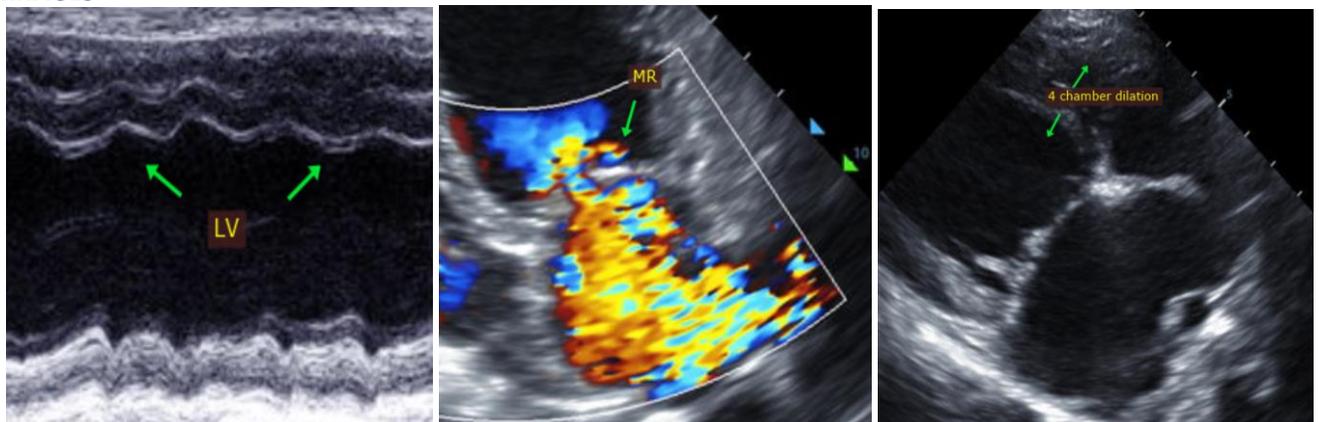
Continue rate control is recommended as dictated by the ECG report. Consider hospitalization for IV diuretic/rate control therapy.

Oral medications: Institute Spironolactone 1-2mg/kg PO q12h. Administer Furosemide 1-2mg/kg PO q8h for 3-5 days, once doing well at home decrease to q12h. Administer Pimobendan 0.2-0.3mg/kg PO q12h.

Recheck renal panel/BP in 10-14 days to ensure tolerance of medications. If BP >130mmHg, recommend ACE-I 25mg PO q12h. If <130mmHg discontinue and do not utilize until patient is normotensive and eating well at home.

Monitor renal values every 3-4 months lifelong. A recheck echocardiogram is recommended in 4-6 months to screen for progression.

## **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.

**Maggie Machen Lamy, DVM**  
**Diplomate of the American College of Veterinary Internal Medicine (Cardiology)**