



**PATIENT**

Sammy Bosworth

**SPECIES**

Canine

**BREED**

Yorkshire Terrier

**SEX**

Male

**AGE**

13 years

**WEIGHT**

18.3lbs

**INTERPRETED BY**

Maggie Machen  
Lamy, DVM  
DACVIM (Cardiology)

**IMAGING**

**PERFORMED BY**

Pamela Harrigan,  
RDCS

**HOSPITAL NAME**

Mass Veterinary  
Services

**REFERRING VET**

Dr. Masloski

**INVOICE**

24156

**DATE**

5/11/22

**PRESENTING CLINICAL SIGNS**

History: Recheck echo. History chronic valvular disease - Stage B2. Current presentation: Presented today with labored breathing. Was bolused 16 mg Lasix. Arrhythmia noted on auscultation as well as grade IV/VI systolic murmur. BP: 110-120 mmHg. -Pertinent previous echo findings (4/13/21 MML): LA 3.3 cm; LA:Ao 2.3; LV4.8; severe LAE; severe MR; mild TR (2.5 m/s; 25 mmHg).

**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; 25mm/s, 10mm/mV. The average heart rate is 220bpm with an irregularly irregular rhythm. No identifiable P waves. ECG diagnosis: Rapid atrial fibrillation.

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and Doppler imaging is available.

**Left ventricle:** The LV diameter is significantly increased with hyperdynamic function. LV wall thicknesses are normal. Increased sphericity.

**Left atrium:** The left atrium is markedly dilated.

**Mitral valve:** The mitral valve is diffusely thickened with mild prolapse into the left atrial lumen. Marked eccentric mitral regurgitation.

**Aortic valve/Aorta:** The aortic valve is normal in morphology and mobility. Normal aortic outflow velocity; laminar flow. No aortic insufficiency.

**Right ventricle:** Mild right ventricular dilation.

**Right atrium:** Mild RA dilation.

**Tricuspid valve:** The tricuspid valve appears mildly thickened with mild tricuspid regurgitation; velocity consistent with mild pulmonary hypertension.

**Pulmonary valve/Pulmonary artery:** The pulmonic valve is normal in morphology and mobility. Mild pulmonic insufficiency. Normal RVOT velocity; laminar flow.

**Pericardium/other:** No pericardial or pleural effusion noted. No obvious cardiac masses.

**2-Dimensional Measurements**

Ao diam (cm)	1.4
LA diam (cm)	4.8
LA:Ao (Swe)	3.4
IVS thickness (cm)	0.84
LVID diastole (cm)	4.4
PW thickness (cm)	0.84
LVID systole (cm)	2.8
FS (%)	36

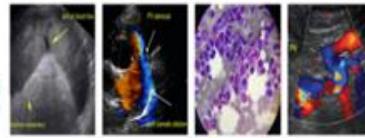
**Doppler Measurements**

PV Vmax (m/s)	0.66
AoV Vmax (m/s)	1.6
MR Vmax (m/s)	NM
TR Vmax (m/s)	2.8
TR PG (mmHg)	32

**INTERPRETATION OF THE FINDINGS**

Chronic degenerative valve disease persists with significant progression. Moderate disease is now marked, and marked left atrial and ventricular enlargement indicates there is an elevated risk for spontaneous congestive heart failure. Mild PAH is noted; however, no additional comorbidities are seen such as ruptured cord or systolic dysfunction are seen.

Severe CVD has progressed to severe left heart dilation and consequently rapid atrial fibrillation (AF) and likely early congestive heart failure. While the structural disease predisposes to left-sided congestion (edema), the rapid arrhythmia predisposes to right-sided congestion (pleural/abdominal effusion).



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AF is characterized by disorganized contractions of the atria leading to an irregular heart rhythm. The irregular heart rhythm rarely causes clinical signs in dogs; however, atrial fibrillation also usually causes an increase in the heart rate, and this leads to clinical signs and CHF. Development of AF requires lifelong diuretics and management of the structural disease in addition to the arrhythmia. Patient is at risk for biventricular failure, as rapid AF specifically predisposes to right-sided congestion (ascites, pleural/pericardial effusion), while structural disease predisposes to left-sided congestion (edema).

Unfortunately, dogs with CHF and AF 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, afterload reduction, and heart rate control. Full cardiac support is indicated lifelong due to the high risk for decompensation with rapid arrhythmias and severe disease. Medical management is recommended as below with a guarded to poor prognosis. **If the patient has any further decline, fainting or respiratory distress, emergency hospitalization for rate control is recommended.** The target heart rate is 140-160bpm in hospital.

Please monitor at home for cough, lethargy, inappetance, 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.

**RECOMMENDATIONS**

- Consider hospitalization if patient appears unstable.
- Administer Lasix/furosemide 1-2mg/kg PO q8h for 3-5 days; if doing well decrease to q12h.
- Administer Pimobendan 0.3mg/kg PO q12h.
- Institute Spironolactone 1-2mg/kg PO q12h (available in 25 and 50mg tablets).
- Institute Diltiazem for rate control, 1-2mg/kg PO q8h. Target HR 140-160bpm average stressed (in hospital).
- Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.
- Mild activity/stress limitation advised while maintaining QOL.
- Elective anesthesia is not advised.
- Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes. Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home.

**PLAN**

- Monitor renal values/BP/HR in 1-2 weeks. If doing well and BP >130mmHg, institute ACEI 0.5mg/kg PO q12h. Monitor renal values/BP every 3-4 months lifelong.
- Recommend conservative monitoring with a recheck echocardiogram and ECG in 4-6 months, sooner if any development of clinical signs.



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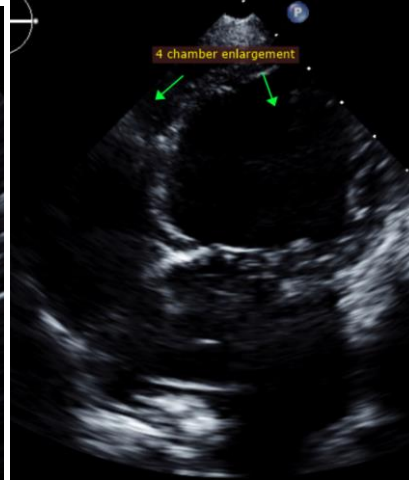
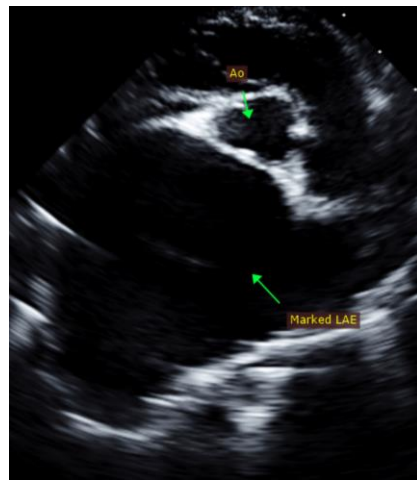
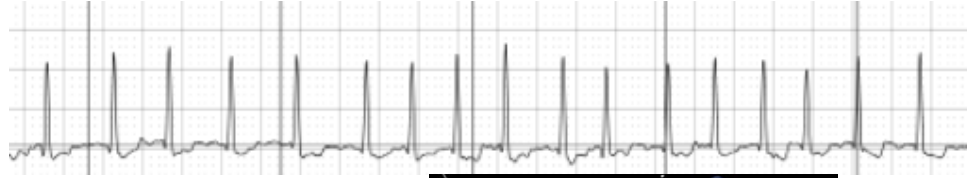
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**IMAGES**



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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.

**IMAGING PERFORMED BY**

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

**HOSPITAL NAME**

Mass Veterinary  
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Echocardiogram performed by: Pamela Harrigan, RDCS  
Pet Animal Ultrasound Service (4paus.com)

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