



**PATIENT**

Bella Scotland

**SPECIES**

Canine

**BREED**

Chihuahua

**SEX**

FS

**AGE**

13years

**WEIGHT**

5 lbs

**INTERPRETED BY**

Maggie Machen  
Lamy, DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Amy Mayhew, LVT

**HOSPITAL NAME**

SVS Imaging Michigan

**REFERRING VET**

Dr. Hendricks

**INVOICE**

29907

**DATE**

3/24/23

**PRESENTING CLINICAL SIGNS**

History: Recheck echo.

Current medications include: Pimobendan 1.25mg 1/2 tab BID, Enalapril 2.5mg 1/2 tab BID, Spironolactone 25mg 1/4 tab BID.

Abnormal PE/Chem/CBC/UA Results: Lungs sound dry. RR in clinic was 28 BPM. 4/6 HM noted Pertinent previous echo findings (MML/SVS 6/2022): severe MR, severe LAE, mild LVE, mild TR, mild PAH 3m/s, LA 2.2, LV 2.6

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Severe diffuse nodular thickening of mitral valve leaflets with minimal prolapse into the left atrial lumen. Severe eccentric mitral regurgitation with severe left atrial enlargement. MR velocity is elevated. Mild LV dilation with hyperdynamic myocardial function and evidence of volume overload. The tricuspid valve appears mildly thickened with mild tricuspid regurgitation. Normal velocity. No significant right heart dilation (subjective). The pulmonic and aortic valves appear normal in appearance and mobility. Normal pulmonic and aortic outflow velocities. No aortic or pulmonic insufficiency noted. No pericardial or pleural effusion 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   | 5.7           | 2.6           | NM                  | 2.0                     | 62                              | 94                                       | 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   | 183           | 1.0           | 0.71                | 2.3                     | 2.2                             | 2.6                                      | 0.84                                     |
| *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)                               |
| <i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i> |               |               |                     | 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 stable disease. Severe mitral and mild tricuspid regurgitation are unchanged, with stable left heart dimensions. Even with stability, severe left atrial and ventricular enlargement indicates there is an elevated risk for spontaneous congestive heart failure. No comorbidities are noted such as systolic dysfunction.



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No clinical signs are mentioned suggesting no additional medications are clearly warranted. Close monitoring for signs of imminent CHF is recommended, such as a persistent progressive elevation in sleeping breathing rates. Long term prognosis remains guarded to poor, with risk for progression to CHF, development of malignant arrhythmias and/or sudden death in the future.

**SPECIES**

Canine

Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home. Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or worsening collapse episodes in the future.

**BREED**

Chihuahua

Elective anesthesia is not advised.

**SEX**

FS

**PLAN**

Baseline BP recommended every 4-6 months. Continue triple therapy as prescribed.

**AGE**

13years

Monitor SRRs at home. Monitor renal values and BP every 3-4 months.

Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of associated clinical signs occurs in the interim.

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**IMAGES**

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Amy Mayhew, LVT

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.

**HOSPITAL NAME**

SVS Imaging Michigan

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance, please contact me.

**REFERRING VET**

Dr. Hendricks

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

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