


**PATIENT**

Onyx Ligoari

**PRESENTING CLINICAL SIGNS**

Patient presents for echo due to grade 1/6 systolic heart murmur. No current meds.

**SPECIES**

Canine

**BREED**

Chihuahua

**SEX**

Neutered Male

**AGE**

15 Years

**WEIGHT**

13.1 Pounds

**INTERPRETED BY**

 Lisa Carioto, DVM,  
 DVSc, Diplomate  
 ACVIM

**IMAGING PERFORMED BY**

Kelly Vazquez

**HOSPITAL NAME**

Vet Wellness Center

**REFERRING VET**

Dr. Sepulveda

**INVOICE**

40219

**DATE**

8/4/22

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART**

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swedish)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	5.33	0.80	1.13	1.48	54	NM	0.31
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT kg	LA 2D long 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				
PATIENT	99	1.31	1.04	5.95	2.62	2.73	1.26

Adapted from June Boon, Veterinary Echocardiography, 1998  
 Sisson D et al. JVIM 1991; 5: 232, and Jacobs et al. Am J Vet Res 1985; 46:1705

**Echocardiographic findings**
**Mitral valve**

- Moderate thickening and irregularity of both leaflets; consistent with myxomatous degeneration
- Mild prolapse of both leaflets.
- Marked mitral regurgitation.
- Mild left auricular enlargement.
- Rounding of the interventricular septum, i.e. left ventricular enlargement is present
- LA: Ao ratio: within normal limits (WNL)
- LA normalized for BW (LAN = 1.3); mild enlargement
- LVIDd normalized for BW (LVIDND = 1.6); WNL, although high normal
- LVIDs normalized for BW (LVIDNS = 0.72); low end of normal reference range

**Aortic valve**

- No abnormalities
- No aortic insufficiency



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*Tricuspid valve*

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- Mild thickening and irregularity of the septal leaflet; consistent with myxomatous degeneration
- Very mild prolapse of posterior leaflet.
- Moderate tricuspid regurgitation.
- No right ventricular or atrial enlargement.

*Pulmonic valve*

- No abnormalities
- Trivial pulmonary insufficiency.
- Main pulmonary artery within normal limits.
- Pulmonary artery - bifurcation, no abnormalities.
- Pulmonary artery: aortic ratio within normal limits.

*Other*

- No signs of pericardial or pleural effusion
- No evidence of pulmonary edema.
- No obvious signs of a mass.

**ULTRASONOGRAPHIC FINDINGS**

- Myxomatous degeneration of the mitral (moderate) and tricuspid (mild) valves, ACVIM stage B2, with mild left atrial enlargement. The left ventricle is at the high end of the normal reference range in diastole and at the low end of normal in systole when normalized for Onyx's weight. Exuberant contractility (increased fractional shortening) is present as a means of compensation.
- The results of the echocardiogram do not meet the criteria of the EPIC study, however, the administration of pimobendan (Vetmedin) may be considered if Onyx is showing clinical signs of heart disease (see below).
- However, if general anesthesia is required (e.g. dentistry), one should consider treatment with pimobendan to decrease the associated risks.

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Suggestions/recommendations include:

- Evaluation of arterial blood pressure
- Monitoring of the resting (sleeping) respiratory rate (RRR) is highly recommended once a day. The RRR should NOT EXCEED 30 breaths per minute (bpm). If the respiratory rate is greater



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than 30 bpm, or if there is a gradual increase (over a day or two) toward 30 bpm, the patient should be evaluated immediately for congestive heart failure and the appropriate treatment initiated.

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Canine

- Other clinical signs clients should monitor for include coughing (particularly at night), fatigue, lethargy, decreased exercise tolerance (i.e., not being able to walk for as long before becoming tired, or “running out of breath” while playing, or going up and down stairs, as well as syncope (collapsing or fainting spells). Restlessness, or agitation during the night, or being unable to find a comfortable position to sleep are also very common clinical signs.

**BREED**

Chihuahua

- Mild salt restriction is suggested (less than 0.9 grams/1000 kcal of food). Monitor salt content in treats.

**SEX**

Neutered Male

- Monitoring for progression of heart disease with a re-evaluation of an echocardiogram every 6 to 8 months, or sooner if clinical signs develop, is recommended.

**AGE**

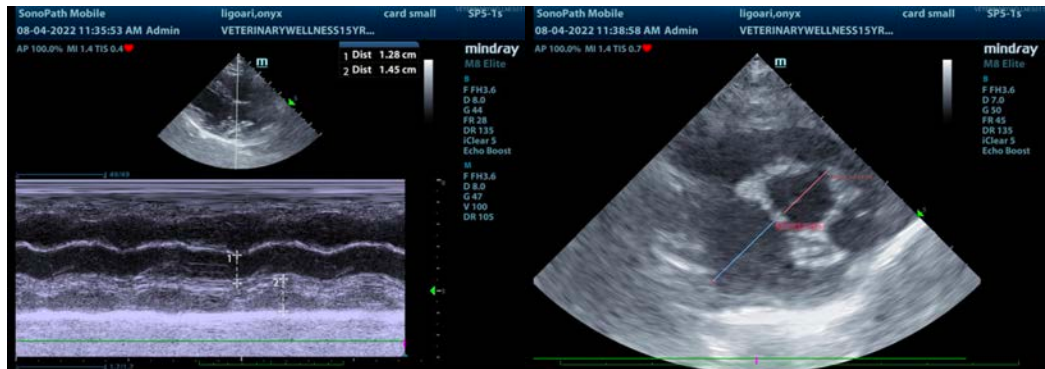
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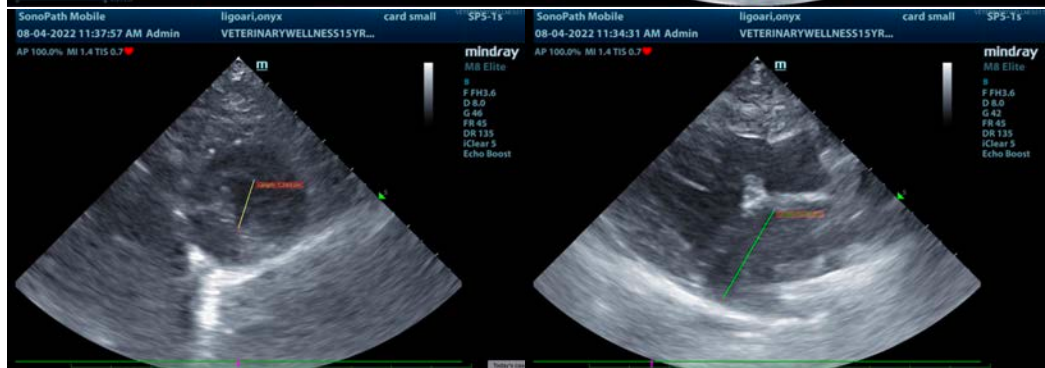
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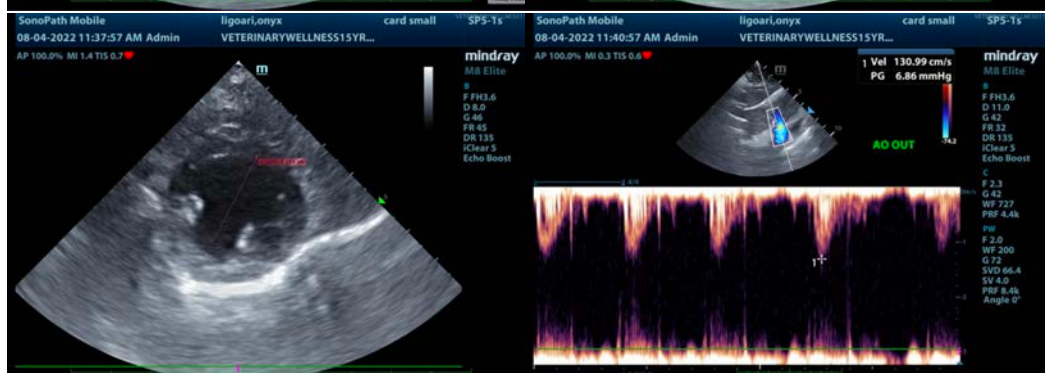
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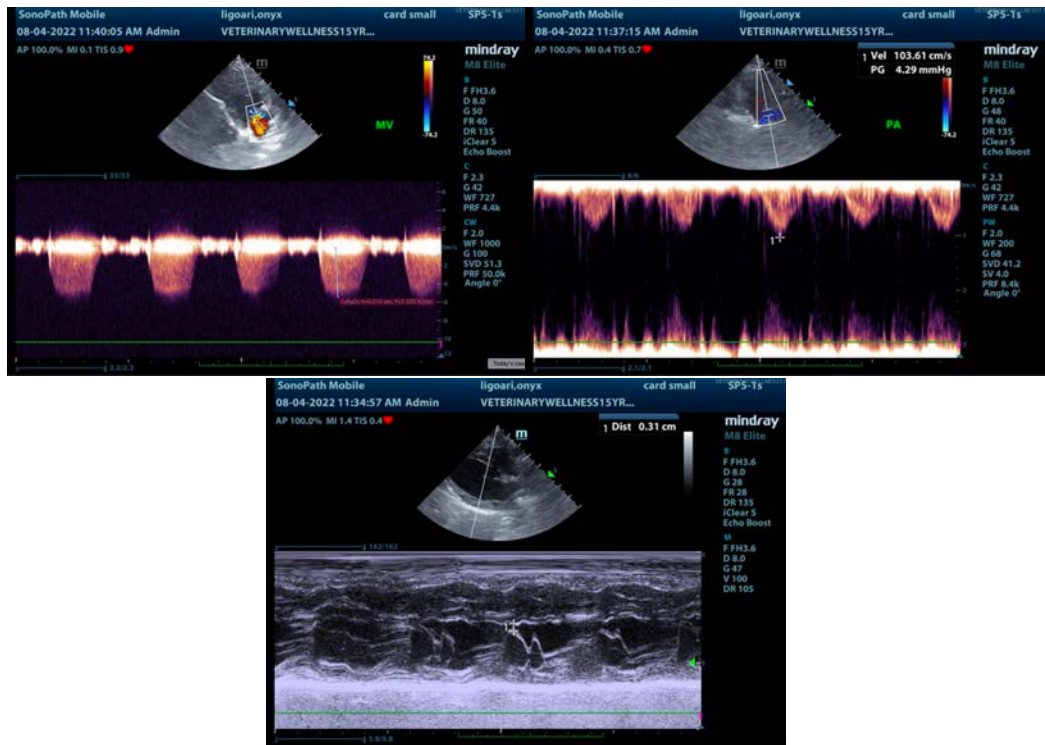
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

**Lisa Carioto, DVM, DVSc, Diplomate ACVIM**

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