



**PATIENT**

Dakota Depuydt

**PRESENTING CLINICAL SIGNS**

History: Persistent coughing for 4 - 6 weeks. Mainly when excited or coming in from cold. Grade 3/6 Heart murmur detected on exam. VHS 12. Elevated ProBNP: 1732.  
-Radiographs: Showed cardiomegaly.

**SPECIES**

Canine

**RADIOGRAPHIC FINDINGS** \*NOTE: Images submitted for supplemental cardiac information only. Significant cardiomegaly. No obvious evidence of CHF.

**BREED**

Shih Tzu Mix

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets (anterior>posterior) with prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with moderate left atrial dilation. Normal MR velocity. Moderate LV dilation with depressed myocardial function. The tricuspid valve appears subjectively normal, with trivial tricuspid regurgitation. Normal right atrial and ventricular diameter. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities. Mild to moderate aortic and no pulmonic insufficiency. No pericardial or pleural effusion noted. No cardiac tumors observed.

**AGE**

9.9 years

**CARDIAC CHART**

**WEIGHT**

21.1lbs

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	6.3		NM	1.75	25	50	0.8
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	170	1.1	0.8	5.5	2.6	3.6	2.7
*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)

**INTERPRETED BY**

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

**IMAGING PERFORMED BY**

Kim Liedberg

**HOSPITAL NAME**

SVS Imaging WI

**REFERRING VET**

Mukwonago AH

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Chronic degenerative valve disease causing moderate mitral and trivial tricuspid regurgitation. Moderate left atrial enlargement indicates there is relatively low risk for imminent complication, however risk for progression to spontaneous congestive heart failure in the future is elevated. The LV is more significantly dilated than suspected with a spherical appearance and mild LV dysfunction. This is unusual for this signalment, and recommend consider possible contributing

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29566

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**SEX**

Male Neutered

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issues such as an atypical diet or hypothyroidism. Finally, a significant aortic insufficiency is appreciated and baseline a BP is strongly recommended. No additional issues are identified.

Given the risk for progression and results of the EPIC trial, Pimobendan is indicated in this patient as below. Pending BP assessment, if >130mmHg, consider an ACE-I as well in this patient. Assessment of progression in the future will help predict long term outcome, however prognosis is guarded at this stage (B2).

While mainstem bronchi compression may certainly be contributing to a chronic increase in coughing, other primary airway contributions should also be considered (tracheal collapse, COPD/chronic bronchitis, etc.). No CHF is seen on the films, and this is unlikely given the situational component. Consider hydrocodone for any mechanical component due to cardiomegaly.

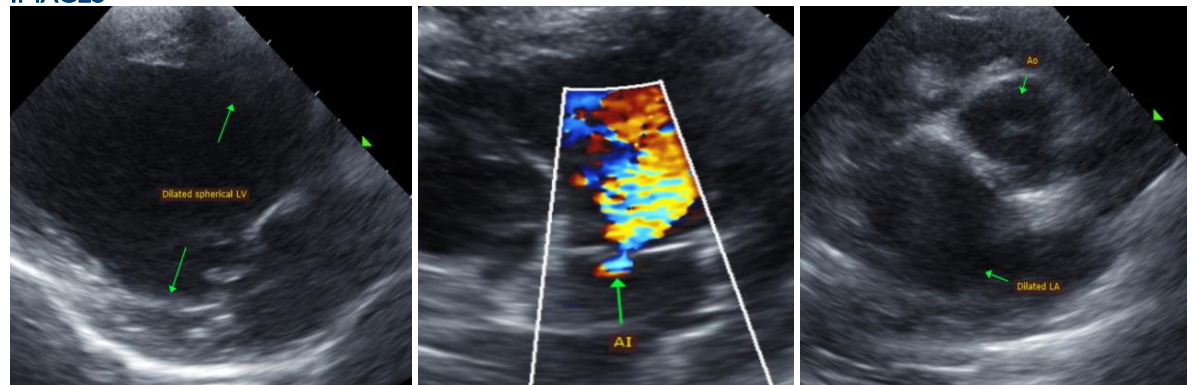
Omega fatty acid supplementation and mild salt restriction may also be of some long term benefit. Monitor for development of a progressive cough, labored breathing, exercise intolerance or collapse episodes.

Once on the medication for 3-5 days, anesthetic risk is considered mildly elevated. Cardiac protective drug choices (opioid/benzodiazepine premedication, Propofol or alfaxalone induction, iso or sevo gas) are recommended. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Judicious IV fluid rates are recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

**PLAN**

Institute heart muscle support Pimobendan 0.3mg/kg PO q12h. Baseline BP is recommended, if >130mmHg, institute ACE- 0.5mg/kg PO q12h. Consider hydrocodone as discussed. Consider diet/thyroid status.

Recommend monitor for progression with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

**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.

**SPECIES**

Canine

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.

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Shih Tzu Mix

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