



**PATIENT**

Benny Antonio

**SPECIES**

Canine

**BREED**

Havanese Mix

**SEX**

Male Neutered

**AGE**

11.10 years

**WEIGHT**

22.3lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Mariusz Chmielinski, DVM

**HOSPITAL NAME**

Apex Veterinary Services Ltd.

**REFERRING VET**

Alpine 24/7 / ER Doctor

**INVOICE**

45950

**DATE**

12/1/25

**PRESENTING CLINICAL SIGNS**

History: Acute onset of intermittent tachypnea and shallow breathing that began the previous evening. Grade 3/6 heart murmur. BP: 168mmHg.

**ECHOCARDIOGRAM FINDINGS**

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

**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	5.0	2.7	2.0	2.0	59	90	0.03
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	NM	1.2	0.7	10.1	2.8	4.4	1.8
*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)
Adapted from June Boon, Veterinary Echocardiography, 1998				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Hansson et al, Vet Rad and Ultrasound 2002				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995				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)

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Chronic degenerative valve disease causing severe mitral and mild tricuspid regurgitation. Moderate to severe 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. No additional issues are identified.

**This patient has reported breathing changes and CXR should be obtained to determine if congestion is present.**

Given the risk for progression and results of the EPIC trial, Pimobendan is indicated in this patient as below. Additionally, an ACEI is reasonable pending BP assessment, although the benefit is



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theoretical. Assessment of progression in the future will help predict long term outcome; however, prognosis is guarded at this stage (B2). Fifty percent of stage B2 patients typically develop CHF within 2-2.5 years of diagnosis. The median time to development of CHF in B2 cases treated with pimobendan is 3.5 years.

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.

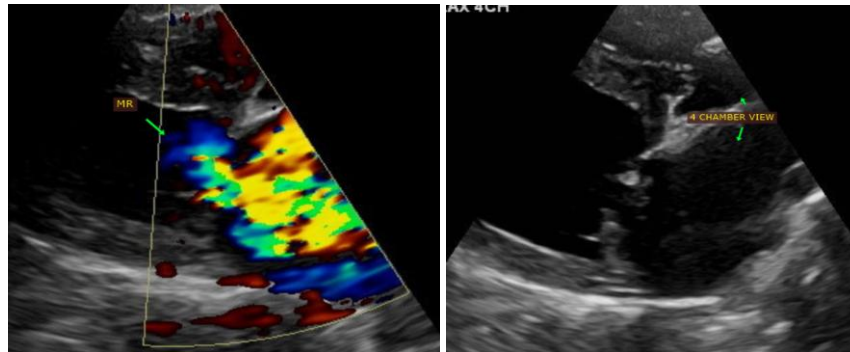
Once on the medications for 3-5 days, anesthetic risk is considered moderately elevated. Cardiac protective drug choices (opioid/benzodiazepine premedication, Propofol or alfaxalone induction, iso or sevo gas) are recommended. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively 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. Avoid alpha 2 agonists such as Dexdomitor.

## PLAN

Institute heart muscle support Pimobendan 0.25-0.3mg/kg PO q12h. Institute ACEI 0.5mg/kg PO q12h. CXR should be obtained to determine if Lasix is necessary.

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

## 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.

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