



PATIENT

Benji MacVicar

SPECIES

Canine

BREED

Havenese Mix

SEX

Male Neutered

AGE

11.3 years

WEIGHT

14.6lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Jacque Pankatz,
DVM

HOSPITAL NAME

Mountain Vista
Veterinary Hospital

REFERRING VET

Dr. Pankatz

INVOICE

25458

DATE

7/20/22

PRESENTING CLINICAL SIGNS

History: Diagnosed with stage C MMVD in March 2022. Clinical signs are getting worse, labored breathing with coughing episodes whenever he is excited or at night. SRR 48 Weight loss.
-Current medications: Fortekor 2.5mg BID, Furosemide 40mg - 1-tab TID, Spironolactone 12.5mg SID, Vetmedin 1.25mg BID, Hydrocodone 3-6mg TID (only as needed when coughing).

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with prolapse into the left atrial lumen. Lack of coaptation in systole. Severe eccentric mitral regurgitation with marked left atrial dilation. Normal MR velocity. Severe LV dilation with hyperdynamic myocardial function. The tricuspid valve appears thickened with mild to moderate tricuspid regurgitation. Velocity consistent with severe pulmonary hypertension. Mild right heart enlargement. No MPA enlargement. The pulmonic and aortic valves are normal in morphology and mobility. No AI or PI. No pericardial or pleural effusion noted. No obvious cardiac masses.

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	NM	4.3	2.5	2.7	48	80	0.1
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	NM	NM	6.6	3.3	3.7	1.9
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
BODY WEIGHT DEPENDENT PARAMETERS				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 causing severe mitral and mild to moderate tricuspid regurgitation. Severe left atrial enlargement suggest high risk for complication going forward. There is also severe pulmonary hypertension present with right heart and MPA enlargement. This may also contribute to primary respiratory issues in the future. No additional issues are noted.

Given these findings, certainly continued full cardiac support is recommended. Persistent clinical signs are noted at home, particularly with exertion. Unless these are sustained and independent of activity, recurrent CHF is considered unlikely as the cause. On the contrary, pulmonary



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hypertension and/or respiratory disease is suspected to be contributing and Sildenafil should be utilized as below.

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One note of concern is the patients current Lasix dose is certainly within the toxic range (18mg/kg per day) and must be decreased going forward. Lasix has a relatively low ceiling; meaning you can give more and more of the medication and will get little further benefit past this ceiling. If decreasing the dose and adding Sildenafil results in worsening respiratory signs, addition of an ancillary diuretic (HCTZ) is recommended as below. As an alternative can attempt to switch to Torsemide; however, this certainly has risk for renal compromise. Careful monitoring of this patient's renal values is strongly recommended, as azotemia with poor control of symptoms will result in a situation for humane euthanasia.

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It is also important to note in this case that we are dealing with end-stage disease and our goal is improve quality of life for the short-term. This patient is at exceedingly high risk for complication, renal or heart failure, and/or sudden death going forward.

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PLAN

Dose decrease: administer Lasix 20mg PO q12h (9.5mg/kg per day). Continue Pimobendan 0.3mg/kg PO q12h. Continue Spironolactone 1-2mg/kg PO **q12h**. Continue Enalapril 0.5mg/kg PO q12h. Institute Sildenafil 1-2mg/kg PO q8h.

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If respiratory persist or worsen, addition of Hydrochlorothiazide is recommended 6.25mg PO q24h (available in 25mg tablets commercially). Consider a switch to Torsemide as discussed.

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(Cardiology)

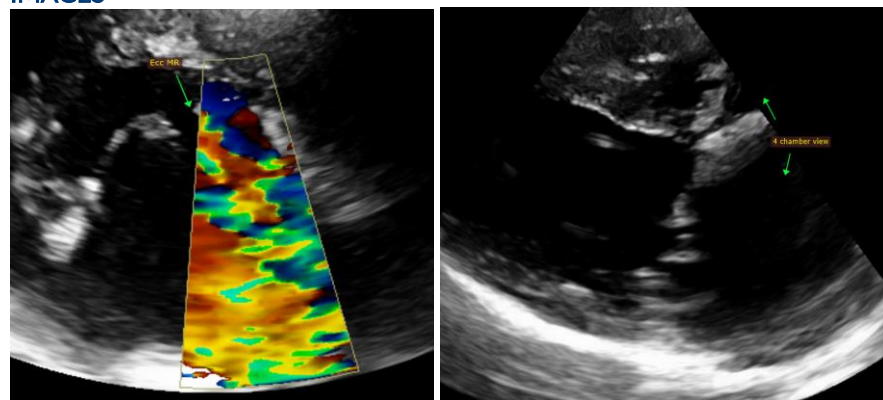
A renal panel in 5-7 days following the above changes, then every 3-4 months lifelong.

A recheck echocardiogram is recommended in 6 months to screen for progression, sooner if clinical signs arise/persist.

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IMAGES



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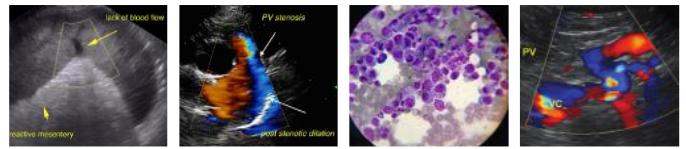
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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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