



## PATIENT

Sushi2 Bender

## SPECIES

Canine

## BREED

Pomeranian

## SEX

Male Neutered

## AGE

13 years

## WEIGHT

22.5lbs

## INTERPRETED BY

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

## IMAGING PERFORMED BY

Jessica Miller

## HOSPITAL NAME

Basking Ridge Animal  
Hospital

## REFERRING VET

Dr. Hollo

## INVOICE

28427

## DATE

1/18/23

## PRESENTING CLINICAL SIGNS

History: Anorexia. Diarrhea. Fever. Painful abdomen. Had splenectomy 3 years ago (nodular hyperplasia of spleen). Grade IV/VI heart murmur.  
-Abnormal PE/Chem/CBC/UA Results: CPL 421, ALP 230.

## ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets (anterior>posterior) with minimal prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with moderate left atrial dilation. Normal MR velocity. Borderline LV diameter with hyperdynamic myocardial function. The tricuspid valve appears thickened with moderate tricuspid regurgitation. Velocity consistent with moderate PAH. Mild to moderate right heart enlargement. 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	5.6	3.7	1.8	1.8	50	83	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	115	1.6	0.8	10.2	2.6	3.5	1.3
*Normal chamber parameters expressed as a mean value (SD)							
<b>BODY WEIGHT DEPENDENT PARAMETERS</b>							
<i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i>							
Adapted from June Boon, Veterinary Echocardiography, 1998				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
Hansson et al, Vet Rad and Ultrasound 2002				10	1.50 (3.8)	3.27 (3.5)	2.06 (3.1)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995				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)

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing moderate mitral and 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. Moderate PAH is noted, which is of unknown clinical significance in an asymptomatic dog. That being said the right heart is enlarged, and there may be risk for associated symptoms (syncope) in the future. No additional issues are identified.

Given the risk for progression and results of the EPIC trial, Pimobendan is indicated in this patient as below. Sildenafil is not clearly warranted with respiratory disease or exertional



**PATIENT**

Sushi2 Bender

dyspnea/collapse; however this should be instituted in the future if noted. Assessment of progression in the future will help predict long term outcome; however, prognosis is guarded at this stage (B2).

**SPECIES**

Canine

Even with these findings, this is unlikely to be related to current clinical issues.

**BREED**

Pomeranian

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.

**SEX**

Male Neutered

Once on the medication for 3-5 days, anesthetic risk is considered mildly elevated. Pre-oxygenate for 5-10 minutes prior to induction. 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.

**AGE**

13 years

Plan: Baseline BP recommended. Institute heart muscle support Pimobendan 0.25-0.3mg/kg PO q12h.

**WEIGHT**

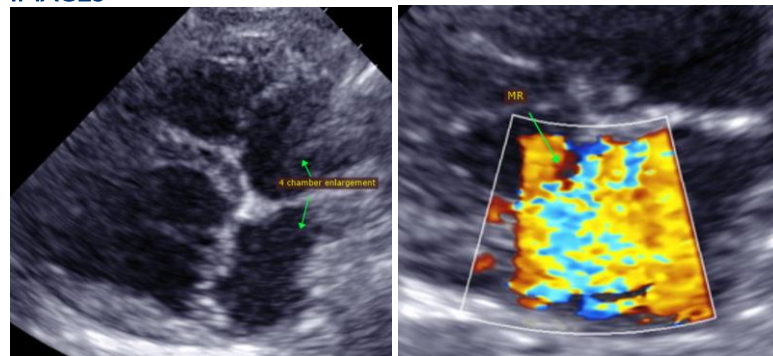
22.5lbs

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

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Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGES**



**IMAGING PERFORMED BY**

Jessica Miller

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**

Basking Ridge Animal  
Hospital

**REFERRING VET**

Dr. Hollo

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.

**INVOICE**

28427

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**DATE**

1/18/23