

## PATIENT

Natashia Langemann

## SPECIES

Canine

## BREED

Siberian Husky

## SEX

Female Spayed

## AGE

11 years

## WEIGHT

77.2lbs

## INTERPRETED BY

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

## IMAGING PERFORMED BY

C. Belan, DVM

## HOSPITAL NAME

Westmount Animal  
Clinic

## REFERRING VET

Dr. Green

## INVOICE

20464

## DATE

8/10/21

## PRESENTING CLINICAL SIGNS

History: Recheck echo. Nonclinical and not on any cardiac medications. Also has chronic elevation of liver enzymes.

-Pertinent previous echo findings (12/2019): AV: 2.9, mild AI, remainder NSF. Consistent with mild SAS.

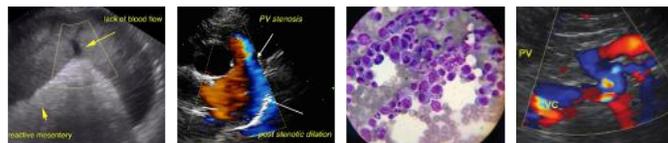
## ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve leaflets are thickened with mild prolapse and moderate central mitral regurgitation. Moderate left atrial dilation. Normal LV internal diameter with normal adequate myocardial function. The left ventricular walls are moderately hypertrophied (1.5cm) consistent with pressure overload. Hypertrophied papillary muscles. Sub-aortic narrowing is visualized (see below). The aortic valve appears overtly normal in form and function. Moderate sub-aortic stenosis is present, with an elevated LVOT velocity of nearly 4m/s. Mild aortic insufficiency. The tricuspid valve appears subjectively normal with mild tricuspid regurgitation. Velocity consistent with early pulmonary hypertension. Normal right atrial and ventricular diameter and morphology. The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. Mildly increased PA outflow velocity; laminar. No pericardial or pleural effusion noted. No cardiac tumors identified.

## 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)
<b>NORMAL PARAMETER</b>	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
<b>PATIENT</b>	6.9	2.6	>2.0	1.7	48	90	0.22
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)
<b>NORMAL PARAMETER</b>	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
<b>PATIENT</b>	84	3.9	3.0	35.0	3.7	4.2	2.2
*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)
*Note: All measurements based upon multi-modal images and methods. An average value is reported.				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



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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Sub-aortic stenosis (SAS) persists with evidence of mild progression. Previously mild stenosis appears moderate with development of LV hypertrophy. This is unexpected as most senior cases with congenital disease do not progress significantly, particularly when in the mild category. Additionally, there appears to be concurrent mitral valve disease with thickening of the mitral valve and moderate left atrial enlargement. Finally, mild pulmonary hypertension is noted which should be monitored going forward. No additional issues are identified.

Given these findings, there is no clear way to proceed at this point. In an asymptomatic senior dog, doing nothing is certainly a viable option. Use of Pimobendan would be reasonable from a valve disease perspective; however, theoretically this can worsen the outflow tract obstruction. Atenolol can be argued from an SAS perspective; however, this has not been shown to have favorable results with mitral valve disease. Given the totality of the findings, I would not recommend therapy at this time with simple monitoring advised. Finally, given the highly unusual nature of this case I would consider referral to a local Cardiologist for lifelong management going forward.

Omega fatty acid supplementation may be of some long-term benefit.

Prognosis is guarded in this case given the complexity of the issues. Monitor for development of labored breathing, exercise intolerance or collapse episodes, as SAS patients are more predisposed to development of arrhythmias than to CHF. Mild exercise restriction is advised lifelong.

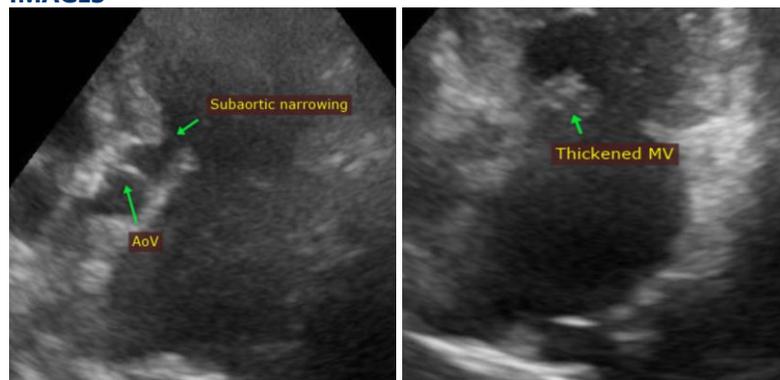
Elective anesthesia is not advised in this patient.

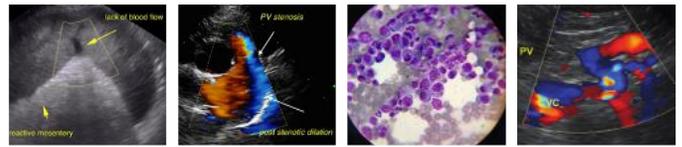
**PLAN**

No clear indication for medical management at this time. Consider referral for management by an Attending Cardiologist as the gold standard option.

Recommend recheck echocardiogram in 6 months to screen for progression.

**IMAGES**





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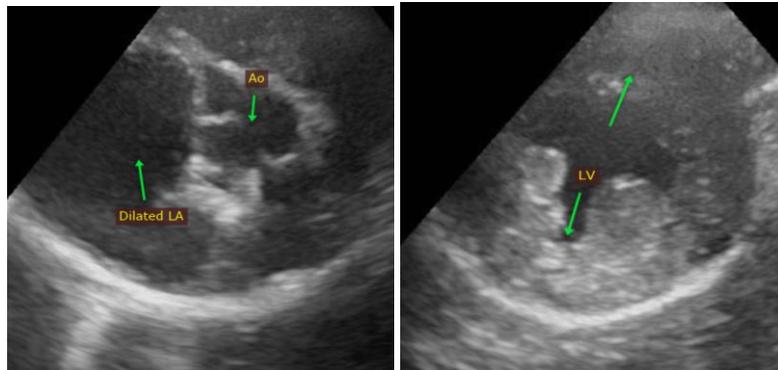
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**The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

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.

**Maggie Machen Lamy, DVM**  
**Diplomate of the American College of Veterinary Internal Medicine (Cardiology)**  
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