



## PATIENT

Foxy Lost Boys Hope

## SPECIES

Canine

## BREED

Husky Mix

## SEX

Male

## AGE

2 months

## WEIGHT

10.7lbs

## 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

31896

## DATE

7/18/23

## PRESENTING CLINICAL SIGNS

History: Presented for initial puppy vaccines. Grade 3/6 left sided heart murmur heard on thoracic auscultation. No clinical signs noted by foster. Otherwise, normal physical exam. Doing well no other concerns.

## ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Normal mitral valve with no obvious prolapse into the left atrial lumen. No mitral regurgitation with normal left atrial dimension. Normal LV diameter with adequate myocardial function. Normal LV wall thickness. The tricuspid valve appears normal in form and function. No TR. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension. The pulmonic and aortic valves are normal in morphology and mobility. No aortic and mild pulmonic insufficiency. A perimembranous VSD is visualized; L-R just below the aortic valve. The flow is high velocity (5m/s). Normal aortic and mildly elevated pulmonic outflow velocity. No pericardial or pleural effusion noted. No obvious cardiac tumors.

## 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	NA	NA	1.3	1.2	41	73	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	1.2	1.7	4.8	1.7	2.6	1.6
*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)

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

The cause of the murmur is a perimembranous ventricular septal defect (VSD). The shunt is allowing left to right high velocity flow, with no evidence of significant volume overload of the left heart at this time. The size of the defect is relatively small, and typically small shunts do not significantly impact patient QOL or lifespan. Monitoring is advised for any progressive cardiac dilation or dysfunction lifelong. Flow through the pulmonic valve is mildly increased in velocity, likely due to a relative stenosis secondary to increased volume. No concurrent issues such as systolic dysfunction or pulmonary hypertension are noted in this study. The LA and LV both



**PATIENT**

Foxy Lost Boys Hope

measure normal for this body size, indicating low current risk for complication. No additional congenital defects are observed.

**SPECIES**

Canine

No cardiac medications are clearly indicated. Assessment for progressive LA or LV dilation in the future will help predict long term prognosis, which is fair at this time. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

**BREED**

Husky Mix

Anesthetic risk is considered mild if needed. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Mild IV fluid restriction is recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

**SEX**

Male

**AGE**

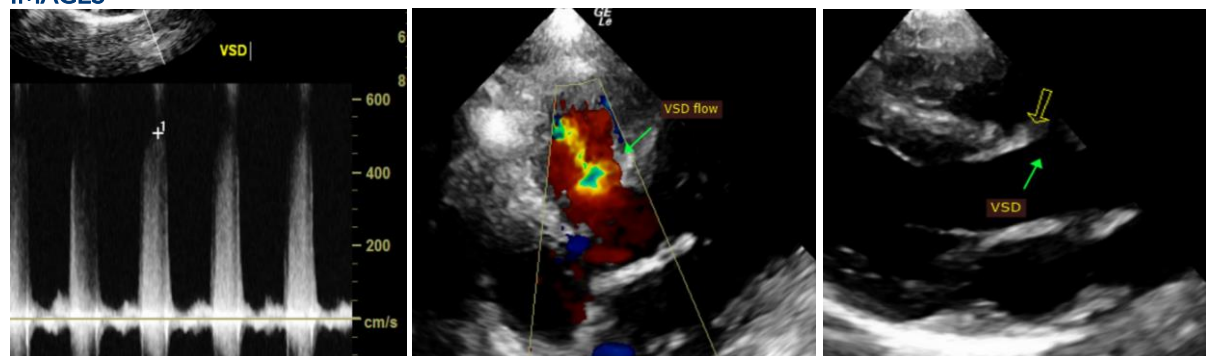
2 months

Recommend conservative monitoring with a recheck echocardiogram in 12 months to assess for progression. sooner if any development of clinical signs.

**WEIGHT**

10.7lbs

**IMAGES**



**INTERPRETED BY**

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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.

**HOSPITAL NAME**

Mountain Vista  
Veterinary Hospital

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.

**REFERRING VET**

Dr. Pankatz

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