



**PATIENT**

Libby Coulter

**SPECIES**

Canine

**BREED**

Golden Retriever

**SEX**

Female Spayed

**AGE**

1.5 years

**WEIGHT**

57.3lbs

**INTERPRETED BY**

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

**IMAGING PERFORMED BY**

Iacovides, DVM

**HOSPITAL NAME**

Tuxedo Animal  
Hospital

**REFERRING VET**

Dr. Fredette

**INVOICE**

47107

**DATE**

3/5/26

**PRESENTING CLINICAL SIGNS**

History: Intermittent grade 1-2/6 heart murmur, first ausculted as a puppy. Not present at time of spay with no signs of arrhythmia ~4-5 months ago, Presented for vaccines and grade 4/6 heart murmur was seen. Also been 1-2 episodes of gasping during sleep, no coughing

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. The mitral valve leaflets appears normal with no mitral regurgitation. No obvious prolapse into the left atrial lumen. Slight left atrial dilation. Normal LV internal diameter with normal myocardial function. The left ventricular walls are mildly hypertrophied. Mildly hypertrophied papillary muscles. Mild sub-aortic narrowing is visualized. The aortic valve is mildly thickened. Moderate sub-aortic stenosis is present, with an elevated LVOT velocity. Trace aortic insufficiency. The tricuspid valve appears subjectively normal with no tricuspid regurgitation. Normal right atrial and ventricular diameter and morphology. The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. Normal PA outflow velocity. 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)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT			NM	1.4	33	60	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		4.0	1.1	26.0	3.3	4.8	3.2
*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)
<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)

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The cause of the murmur is moderate sub-aortic stenosis (SAS) causing elevated blood flow velocity through the LVOT and aortic valve. The velocity is indicative of a moderate pressure gradient (64mmHg), with minimal LVH. Trace aortic insufficiency is noted, and lifelong BP monitoring advised. No additional congenital issues are identified in this study (shunts, etc.).



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Surgery for SAS has not been proven to alter long term outcome, however select Universities will attempt a cutting balloon valvuloplasty. Medical management through heart rate control is recommended as below, in hopes of decreasing the obstruction long term. Omega fatty acid supplementation may be of some long-term benefit.

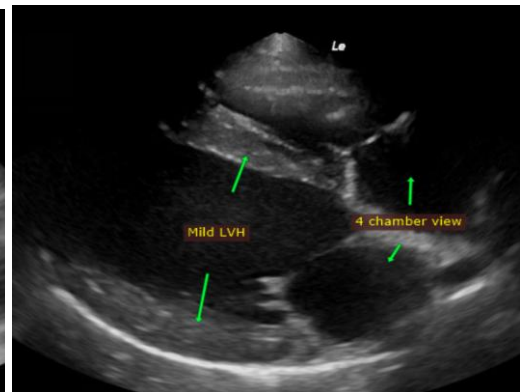
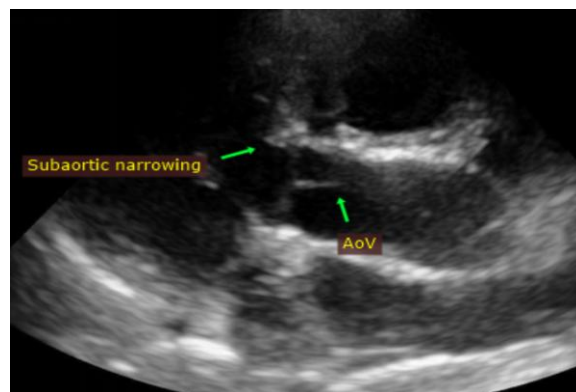
Prognosis is guarded yet highly variable, with many dogs in the severe category succumbing to malignant arrhythmias by mid-life and others maintaining asymptomatic status for some time. Serial echocardiography is recommended lifelong to assess for progression and risk for complication as the patient matures. 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.

Once Atenolol is initiated, anesthetic risk is mild. Avoid heart rate stimulating drugs such as atropine or glycopyrrolate unless clinically indicated. Avoid ketamine and acepromazine due to systemic vascular effects. Mild IV fluid restriction is advised. Recommend prophylactic antibiotics for any orthopedic or dental procedure in the future given predisposition to endocarditis.

Plan: Institute atenolol to effect: 0.5-1.5mg/kg SID-BID (up-titrate to desired effect). Goal is to suppress heart rate <130bpm even with stress/activity.

Recommend recheck echocardiogram in 12 months to screen for progression.

## 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.

**Maggie Machen Lamy, DVM**  
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