


**PATIENT**

Thor Wright

**PRESENTING CLINICAL SIGNS**

History: Grade 5/6 murmur, normal blood work.

**SPECIES**

Canine

**RADIOGRAPHIC FINDINGS** \*NOTE: Images submitted for supplemental cardiac information only. Cardiac silhouette appears normal with a bulge in the region of the aortic root. No obvious evidence of CHF.

**BREED**

Golden Retriever

**ELECTROCARDIOGRAPHIC FINDINGS** \*Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.

A single lead ECG is available; 50mm/s, 20mm/mV. The average heart rate is 120bpm (range 100-150bpm). P waves are difficult to identify throughout; however, a sinus origin is suspected. The QRS morphology is positive. No ectopic beats, pauses or other dysrhythmias observed.

**SEX**

Male Intact

ECG diagnosis: Normal sinus rhythm with respiratory variation.

**AGE**

3 years

**ECHOCARDIOGRAM FINDINGS**

2D, m-mode, color flow and doppler imaging is available. The mitral valve leaflets are thickened with no prolapse into the left atrial lumen. Mild anterior-directed mitral regurgitation noted with mild left atrial dimension. Normal LV internal diameter with normal myocardial function. The left ventricular walls are mildly hypertrophied globally (1.4cm). Prominent papillary muscles. Sub-aortic narrowing is suspected, although the outflow tract/aortic valve are not well visualized in this study. Severe stenosis is present through the region with a pressure gradient &gt;140mmHg. Mild aortic insufficiency. The tricuspid valve appears thickened as well with mild tricuspid regurgitation. Normal velocity. Normal right atrial and ventricular diameter and morphology. The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. No pericardial or pleural effusion noted. No cardiac tumors identified.

**WEIGHT**

60.4lbs

**INTERPRETED BY**

 Maggie Machen Lamy,  
 DVM DACVIM  
 (Cardiology)

**CARDIAC CHART**
**IMAGING PERFORMED BY**

Kelly Reschny, RVT

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	2.2	1.6	1.6	31	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	130	6.5	1.7	27.4	3.1	4.4	3.0
*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

**INVOICE**

23378

**DATE**

3/31/22

**HOSPITAL NAME**

 Beattie Pet Hospital  
 Ancaster

**REFERRING VET**

Dr. Pandya



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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The cause of the murmur is severe sub-aortic stenosis (SAS) causing significantly elevated blood flow velocity through the LVOT and aortic valve. The LV walls are only mildly hypertrophied; however, this may worsen over time. The actual level of the stenosis (valvular versus sub-valvular) cannot be determined; however, treatment and follow up is the same. A small aortic leak is noted which appears hemodynamically insignificant. Additionally, mild mitral and tricuspid valve dysplasia are suspected with leaks in both AV valves. The ECG is unremarkable with a normal sinus rhythm.

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 degree of obstruction and pressure overload long term. Omega fatty acid supplementation and mild salt restriction 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 Duke 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.

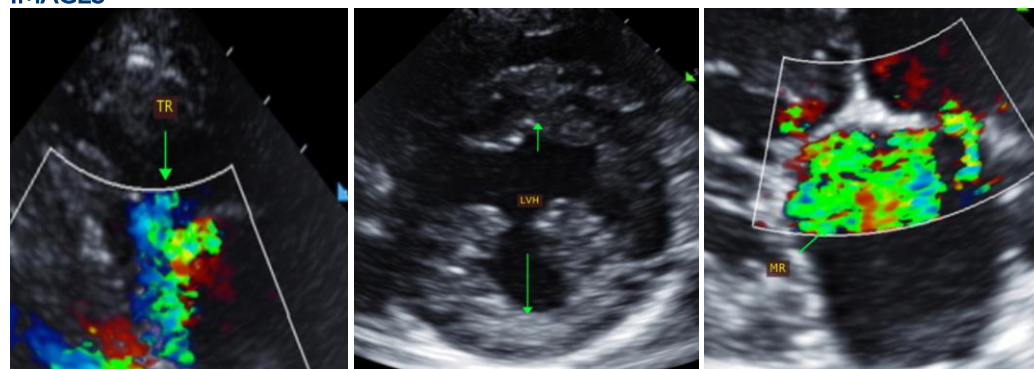
Once Atenolol is initiated, anesthetic risk is mild. Avoid heart rate stimulating drugs such as atropine or glycopyrrolate unless clinically indicated. Avoid ketamine and acepromazine due to systemic vascular effects. Mild IV fluid restriction is advised. Recommend prophylactic antibiotics for any orthopedic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

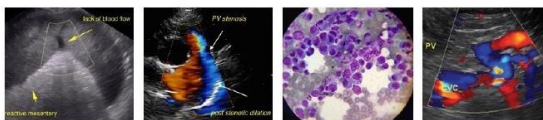
**PLAN**

Institute atenolol to effect: 0.5-1.5mg/kg SID-BID (up-titrate to desired effect). Goal is to suppress heart rate <120-130bpm even with stress/activity with no outward signs of lethargy, intolerance, etc.

Recommend recheck echocardiogram in 6-12 months to screen for progression.

**IMAGES**





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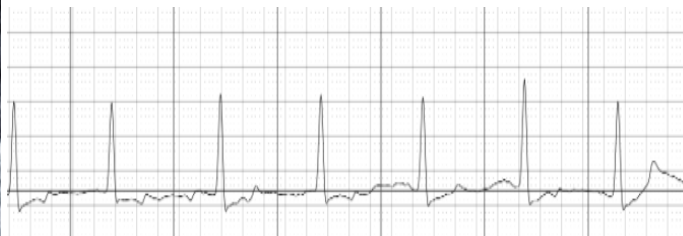
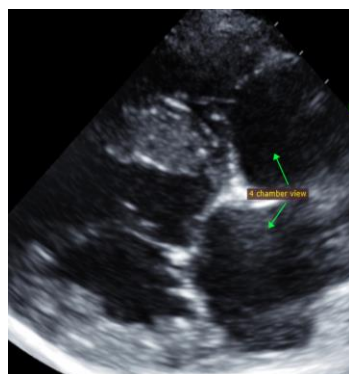
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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  
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