


PATIENT

Heidi Empey

PRESENTING CLINICAL SIGNS

History: Grade 4 heart murmur out of 6, was a grade 2 last year. Has been on a grain-free diet for the last year. Asymptomatic. HR: 90.

SPECIES

Canine

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve leaflets appear mildly thickened with no prolapse into the left atrial lumen. Mild anterior-directed mitral regurgitation noted with a normal left atrial dimension. Normal LV internal diameter with normal myocardial function. The left ventricular walls are mild to moderately hypertrophied consistent with pressure overload (1.4cm globally). Prominent/hypertrophied papillary muscles. Sub-aortic narrowing is visualized (see below). The aortic valve is difficult to visualize; however, some degree of valvular stenosis is suspected. Severe sub-aortic stenosis is present, with an elevated LVOT velocity. Moderate aortic insufficiency. Prominent coronary arteries can be seen. The tricuspid valve appears subjectively normal, no tricuspid regurgitation. 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.

BREED

Rottweiler

SEX

Female Spayed

AGE

3 years

CARDIAC CHART
WEIGHT

83.8lbs

INTERPRETED BY

 Maggie Machen Lamy,
 DVM DACVIM
 (Cardiology)

IMAGING PERFORMED BY

Kelly Reschny, RVT

HOSPITAL NAME

 Oxford County
 Veterinary Center

REFERRING VET

Dr. Halfon

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	NA	1.0	1.2	43	75	0.32
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	100	5.1	1.1	38.0	2.8	4.4	2.0
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
BODY WEIGHT DEPENDENT PARAMETERS				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)
Adapted from June Boon, Veterinary Echocardiography, 1998				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Hansson et al, Vet Rad and Ultrasound 2002				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995				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)

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21277

DATE

9/29/21

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 hypertrophied secondary to the stenosis and there is moderate AI; however, the remainder of the cardiac structure and function appears adequate. There is also a small mitral leak, which may reflect early degeneration or dysplasia. Complex congenital issues cannot be rule out



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without advanced diagnostics such as a bubble study, angiogram, CT/MR, etc.; however, suspicion is low in this case. No additional issues are identified.

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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 degree of obstruction and pressure overload long term. It is worth noting the patient's heart rate during the echo is only 100bpm. If this is a consistent finding on exam, Atenolol may not be necessary as the target heart rate is <120bpm stressed. Follow up is advised. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.

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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. 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.

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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.

WEIGHT

83.8lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM DACVIM
(Cardiology)

PLAN

If resting heart rate is >120bpm, 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.

IMAGING PERFORMED BY

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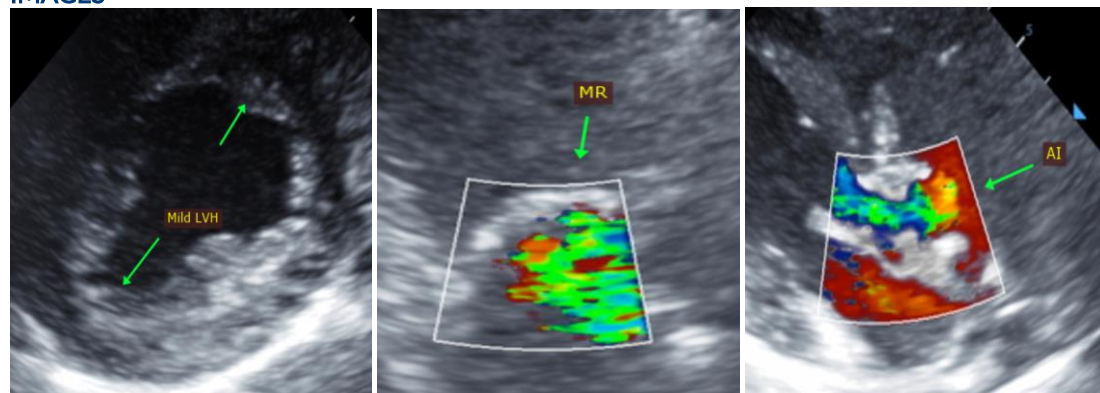
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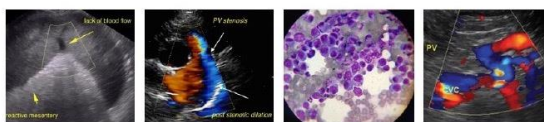
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IMAGES





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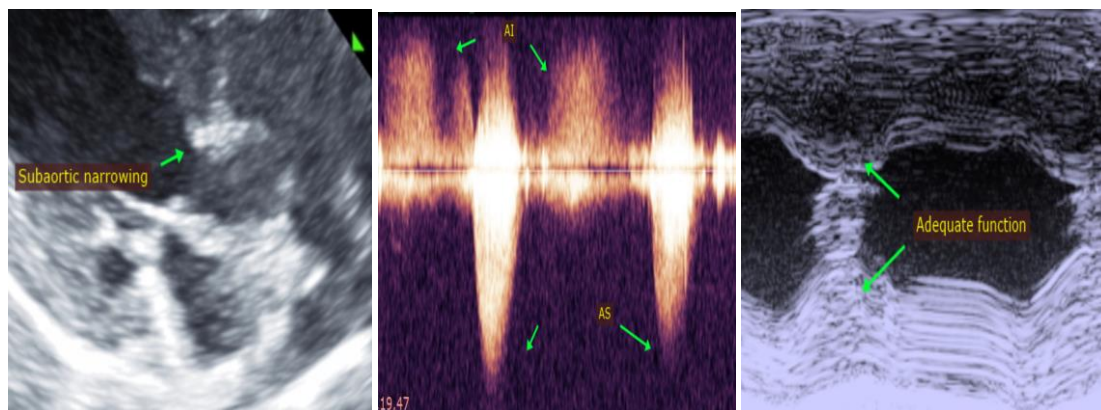
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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