



PATIENT

Cooper MacDonald

PRESENTING CLINICAL SIGNS

History: Grade 4 heart murmur. Has not been himself since vaccine appointment in July. Lethargic. Yelping. Having trouble jumping. Labs: NSF. Sedation: Gabapentin

SPECIES

Canine

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve leaflets appears mildly thickened with no mitral regurgitation. No obvious prolapse into the left atrial lumen. Mild MR. Mild left atrial dilation. Normal LV internal diameter with normal myocardial function. The left ventricular walls are normal. Mildly hypertrophied papillary muscles. Sub-aortic narrowing is visualized (see below). The aortic valve appears trileaflet yet mildly thickened, although is difficult to visualize clearly. The aortic outflow velocity is consistent with a moderate to severe stenosis. No significant aortic insufficiency. The tricuspid valve appears normal with trace tricuspid regurgitation. Normal velocity. Normal right atrial and ventricular diameter and morphology. The pulmonic valve is unable to be visualized. No pulmonic insufficiency. Mildly elevated pulmonic outflow velocity; region is poorly visualized. No pericardial or pleural effusion noted. No cardiac tumors identified.

BREED

Boxer

SEX

Male Neutered

AGE

2 years

CARDIAC CHART

WEIGHT

51.4lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM DACVIM
(Cardiology)

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	>5	2.4	1.3	1.4	25	62	0.4
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	160	>4	2.2	23.3	2.4	4.3	2.8
*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)
				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)

HOSPITAL NAME

Beatties Pet Hospital
East Hamilton

REFERRING VET

Dr. Nannayakara

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is sub-aortic stenosis (SAS) causing elevated blood flow velocity through the LVOT and aortic valve. The velocity is indicative of a moderate to severe stenosis; however, the LV is minimally hypertrophied and the outflow tract poorly visualized. LV hypertrophy may develop over the lifespan of the patient; however, it is encouraging that minimal abnormalities are noted thus far. There is also mild MR and an

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elevated pulmonic outflow velocity (mild), which are of unknown hemodynamic significance. It is important to note that small abnormalities are easily missed on congenital screenings; any congenital case should consider referral for advanced imaging and lifelong management particularly in a large dog without ideal visualization.

SPECIES

Canine

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.

BREED

Boxer

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. There is risk for progression up to 1 year of age and may limit prognosis going forward. 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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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. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Mild IV fluid restriction is advised. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Recommend prophylactic antibiotics for any orthopedic or dental procedure in the future given predisposition to endocarditis.

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(Cardiology)

PLAN

Recommend referral for advanced echocardiography. If declined, 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.

IMAGING PERFORMED BY

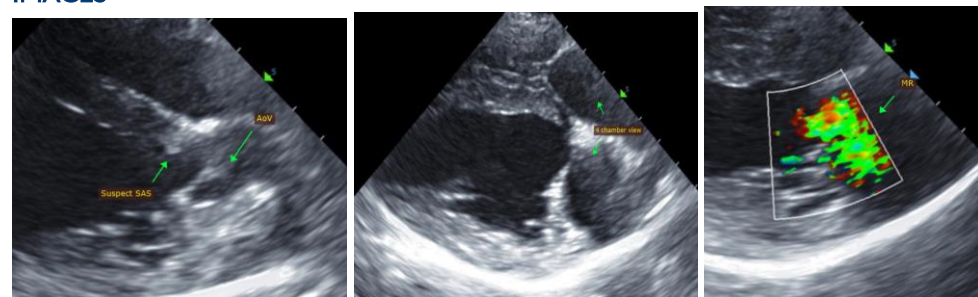
Crystal Hill, RVT

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

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IMAGES



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Dr. Nannayakara

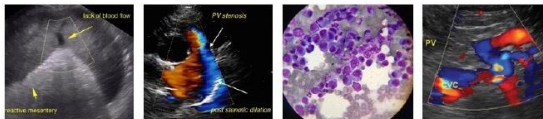
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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.

SPECIES

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