



PATIENT

Oliver Bradley

SPECIES

Canine

BREED

Maltese

SEX

Male Neutered

AGE

13 years

WEIGHT

8.7lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Samuel Gabriel,
DVM

HOSPITAL NAME

Central Jersey Animal
Hospital

REFERRING VET

Dr. Gabriel

INVOICE

21552

DATE

10/15/21

PRESENTING CLINICAL SIGNS

History: Grade 5 heart murmur. Coughing a lot and recently fainted once. History of collapsing trachea.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets (anterior>>posterior) with mild prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with moderate left atrial dilation. Normal MR velocity. Mild LV dilation with hyperdynamic myocardial function. The tricuspid valve appears mildly thickened with moderate tricuspid regurgitation. Velocity consistent with borderline moderate pulmonary hypertension (PG 50mmHg). Mild right atrial and ventricular prominence. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic outflow velocities. Normal aortic outflow velocities. No pulmonic or aortic insufficiency. No pericardial or pleural effusion noted. No cardiac tumors observed.

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	4.6	3.5	NM	1.8	58	92	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	NM	1.0	0.7	3.9	1.8	2.4	1.0
*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)
				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

Chronic degenerative valve disease causing moderate mitral and tricuspid regurgitation. Moderate left atrial enlargement indicates low risk for spontaneous congestive heart failure in the near future, however concern for progression is high. Given the combination of valve disease and moderate pulmonary arterial hypertension, recommend Pimobendan at this time in this patient as below for both vasodilatory and inotropic benefits.

Given these findings, the cough is likely primary respiratory in origin particularly given the breed predisposition to both upper and lower airway disease. Mainstem bronchi compression may also



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be contributing, and baseline chest radiographs are strongly recommended. Pulmonary antibiotics, more frequent hydrocodone, etc. may be useful for acute onset of a primary airway cough. While pulmonary hypertension is noted here, it is important to understand that the cough is not CAUSED BY PAH, rather the cough LEADS TO PAH. Hopefully a combination of Pimobendan and adequate cough suppression/therapy will keep pulmonary hypertension from progressing significantly, however this risk will remain lifelong. Patients with severe progressive PAH can eventually develop right-sided congestive heart failure (ascites), debilitating cyanosis and labored breathing and exertional syncope if poorly controlled.

A syncopal episode is noted in the history. If this is strictly cough related then cough control is the only necessary additional therapy. If this is exertion or stress induced, Sildenafil may be warranted. Further historical information, response to medications, etc. is necessary.

Once on the medication for 3-5 days, anesthetic risk is considered mildly elevated. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol induction, etc.) are recommended. Pre-oxygenate for 5 minutes prior to induction and recover in O₂ if possible. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Judicious IV fluid rates are recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

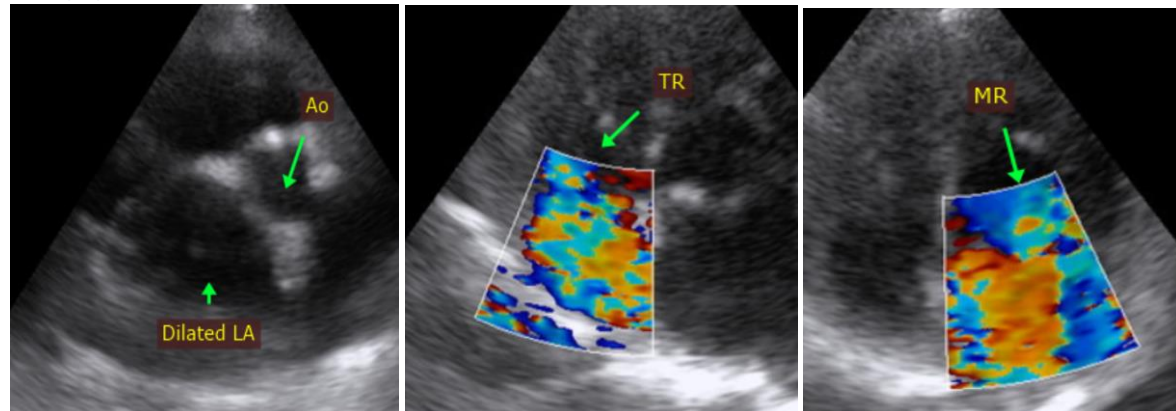
Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a progressive cough, labored breathing, exercise intolerance or collapse episodes.

PLAN

Institute heart muscle support Pimobendan, 0.3mg/kg PO BID. Consider cough suppression/therapy as mentioned above depending on severity of symptom. Baseline BP is recommended. If syncope persists dependent of the cough, Sildenafil should be instituted 1-2mg/kg PO q12h.

Recommend monitor for progression with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

IMAGES





PATIENT

Oliver Bradley

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.

SPECIES

Canine

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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Maggie Machen Lamy, DVM
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com

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