



PATIENT

Missy Glasco

SPECIES

Canine

BREED

Yorkshire Terrier

SEX

Not provided

AGE

13 years

WEIGHT

4.5lbs

INTERPRETED BY

Maggie Machen
 Lamy, DVM, DACVIM
 (Cardiology)

IMAGING PERFORMED BY

Jenna Walsh, CVT

HOSPITAL NAME

Faithful Friends
 Animal Clinic

REFERRING VET

Dr. Rideout

INVOICE

21422

DATE

10/7/21

PRESENTING CLINICAL SIGNS

History: Presented for routine vaccine exam. Murmur noted on exam. No clinical signs of CHF. Murmur not present on last year's exam. Blood Pressure: 130/89, 141/108, 123/94mmHg.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.
 Right-sided cardiomegaly. No obvious evidence of CHF.

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; 25mm/s, 20mm/mV. The average heart rate is 110bpm (range 100-125bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. No ectopic beats, pauses or dysrhythmias observed.
 ECG diagnosis: Normal sinus rhythm with respiratory variation.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild thickening of mitral valve leaflets with no prolapse into the left atrial lumen. Trace mitral regurgitation with no left atrial dilation. Normal LV diameter with adequate myocardial function. The tricuspid valve appears mildly thickened with moderate tricuspid regurgitation. Marked RA/RV enlargement with RV hypertrophy. Systolic flattening of the IVS. The pulmonic and aortic valves are normal in morphology and mobility. Marked main PA and branch dilation. No pulmonic or aortic insufficiency. Normal pulmonic and aortic outflow velocities. Significant dilation of the caudal vena cava and hepatic vasculature. 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	NM	3.3	1.1	1.2	59	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	95	0.4	0.55	2.0	1.2	1.4	0.6
*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)
				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)

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



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Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	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)

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The murmur is due to moderate tricuspid regurgitation. The right heart and MPA are markedly enlarged, although the TR velocity is only mildly elevated. Possible explanations include an inaccurate measurement and the patient truly has severe PAH, versus a compressive/obstructive lesion peripherally that is leading to enlargement. The liver is significantly congested as well, putting the patient at high risk for right-sided CHF. The ECG is unremarkable with a normal sinus rhythm.

Going forward, consider advanced imaging in this patient to screen for ancillary issues such as a compressive tumor. This includes AUS, advanced echo and/or advanced imaging such as CT scan. In an asymptomatic dog, monitoring is an option although a definitive diagnosis would be ideal to guide therapy. If declined, consider institute vasodilators Pimobendan and Sildenafil, in addition to spironolactone in hopes of relieving hepatic congestion. Should symptoms arise despite therapy however, referral becomes strongly advised.

Going forward, patient will always be at risk for right-sided congestive heart failure (ascites), debilitating cyanosis, labored breathing and exertional syncope. Monitor closely at home for development of any associated clinical signs, including cough, exertional dyspnea/syncope or significant lethargy. Unfortunately, the prognosis overall is guarded given the severity of disease.

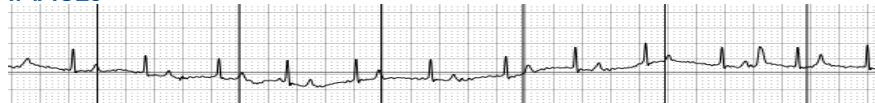
Omega fatty acid supplementation (anti-inflammatory) may be of some long-term benefit. Monitor for worsening of labored breathing, exercise intolerance or collapse episodes.

PLAN:

Recommend referral as discussed. If declined, administer Sildenafil (for PAH) 1-2mg/kg PO q8h. Administer Pimobendan (for PAH) 0.25-0.3mg/kg PO q12h. Administer Spironolactone 1-2mg/kg PO q12h.

Recommend recheck echocardiogram in 6 months to reassess pulmonary pressures, sooner if any development of clinical signs.

IMAGES





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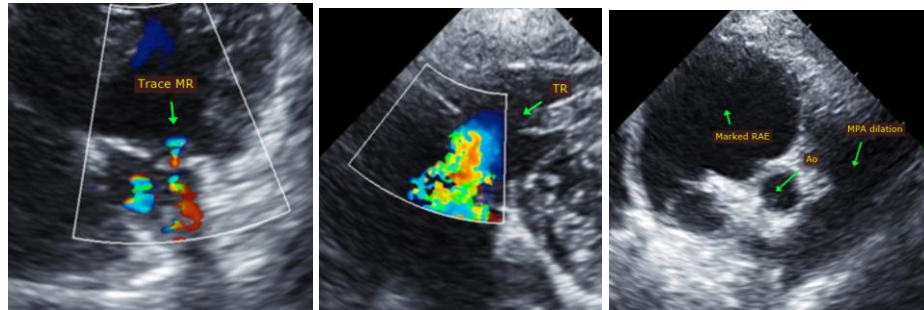
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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