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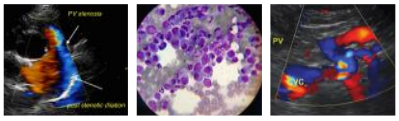

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PATIENT
Betty Wood

SPECIES
Canine

BREED
Labrador

SEX
Female Spayed

AGE
11.15.10

WEIGHT
90lbs

INTERPRETED BY
Maggie Machen Lamy, DVM, DACVIM (Cardiology)

HOSPITAL NAME
Fork Veterinary Hospital

REFERRING VET
Dr. Doherty

INVOICE
23413

DATE
4.4.22

PRESENTING CLINICAL SIGNS

History: Chronic cough with a previous diagnosis of chronic bronchial disease. However, the dog's cough has become progressively worse, and the dog is becoming somewhat weaker and more fatigued. No cardiac murmur was noted, normal HR.
-Radiographs: Show evidence of chronic bronchial changes but also a significant enlargement of the right side of the heart.
-Pertinent abnormal PE/Chem/CBC/UA Results: Heartworm negative.
-Current medications: Prednisone 5mg BID, Doxycycline 200mg BID, Hydrocodone 7.5-10mg BID
-Sedation used: Not required to complete full diagnostic ultrasound.
-Pertinent previous ultrasound results: No previous.
-STAT: Requested by DVM.
-Imaging performed by: Stephanie Pearce RDCS, RVT.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Minimal left ventricular dilation in diastole with a mildly increased systolic dimension (LVIDdN: 1.7, LVIDsN: 1.3). Normal LV wall thickness and mildly increased sphericity. Mild left atrial enlargement. The mitral valve appears mildly thickened with no obvious prolapse into the left atrial lumen. Trace/mild mitral regurgitation. Normal velocity. The tricuspid valve appears normal in form and function. Mild double-jet of TR. Normal velocity. Mild right atrial and ventricular dilation. The aortic and pulmonic valves appear normal in morphology and mobility. Normal LVOT/RVOT velocity. No aortic or pulmonic insufficiency. No pericardial or pleural effusion noted. No obvious cardiac tumors.

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	5.1	2.2	NM	1.3	20	36	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	81	1.6		40.8	3.5	5.1	4.1
*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)
**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

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Unfortunately, this patient has changes most consistent with occult Dilated Cardiomyopathy (DCM). There is a decline in systolic function, accompanied by 4 chamber dilation and increased sphericity. Mild MR and TR are noted, which may represent concurrent mild chronic degenerative valve disease or may simply be secondary to dilation. The LA is only mildly increased in size, indicating relatively low risk for complication at this time; however, risk for progression is high.

Systolic failure can be primary in nature (DCM) or secondary to taurine deficiency, certain drugs such as Doxorubicin, myocarditis, hypothyroidism, tachycardia-induced cardiomyopathy, or infiltrative disease such as lymphoma. In a large breed dog, primary disease is certainly possible. A cTnI level can be submitted to further investigate possible infiltrative/inflammatory damage (myocarditis; not suspected). Finally, a taurine level may be helpful (to screen for concurrent malabsorption issue). Regardless of result, I would institute a taurine supplement to cover all bases. A thorough diet history is recommended, assessing for grain free, boutique brands and/or exotic ingredient options with a diet change if indicated. Regardless of cause, prognosis is guarded long term with risk for complications going forward.

Recommend Pimobendan in this case based upon these findings. This is slightly conservative given only LA enlargement; however, concurrent systolic dysfunction is concerning. Close monitoring and medication will help give the best prognosis possible, which remains guarded long-term. The patient will always be at risk for development of congestive heart failure, malignant arrhythmias (AF, VT), collapse and/or sudden death.

Even with disease identified here, this is **unlikely to be related to a chronic cough** prior to significant LA enlargement. Primary respiratory disease is suspected based upon the radiograph interpretation and further lab work/treatment may be warranted (a course of Baytril, more aggressive Hydrocodone, etc.) A chronic cough can certainly lead to pulmonary hypertension over time; however, none is seen in this exam.

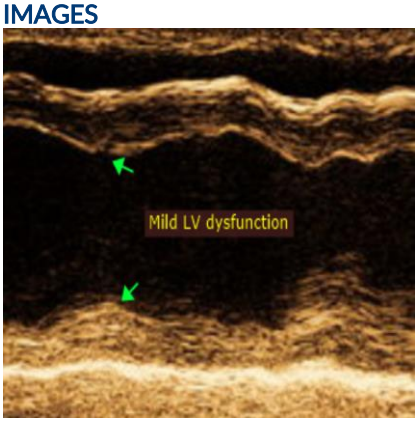
Monitor for development of a progressive cough, labored breathing, exercise intolerance or collapse episodes in the future. Monitoring of sleeping breathing rates at home is recommended to screen for progression in the future. Mild activity restriction is advised. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.

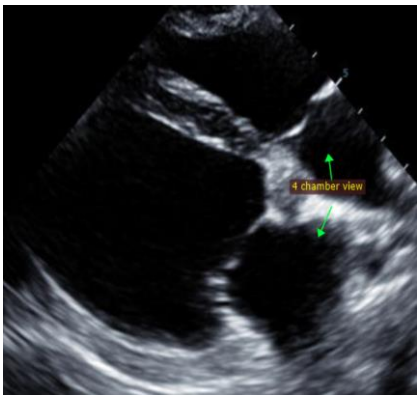
PLAN

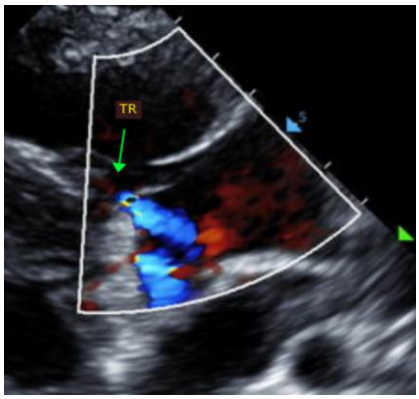
Institute Pimobendan 0.25-0.3mg/kg PO q12h. A screening BP is recommended. Institute taurine supplement 1000mg PO q12h. Further cough work up/treatment as discussed.

A recheck echocardiogram is recommended in 6 months to assess for progression, sooner if clinical signs arise.

IMAGES







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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