

PATIENT

Cooper Beck

SPECIES

Canine

BREED

Labrador Retriever

SEX

Male Intact

AGE

5 years

WEIGHT

100.8lbs

INTERPRETED BY

Maggie Machen
Lamy, DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Jenna Walsh, CVT

HOSPITAL NAME

Will Vet of Salem

REFERRING VET

Dr. Sleyer/Menzen

INVOICE

23809

DATE

4/21/22

PRESENTING CLINICAL SIGNS

History: RDVM to ER-Presented for respiratory distress and possible aspiration. Choked on Triflexis 4/15, coughing afterward. Progressively panting harder, did not eat Sunday and unsteady/weak. RECOMMENDATIONS: If there is suspicion for acute pneumonia, appropriate management should be considered. Follow-up radiographs in 24-48 hours could be considered. ER presentation-On presentation here on 4/20 he was dyspneic, cyanotic, with crackles, dull ventral lung sounds, and a quiet murmur w/HR 130, peripheral edema in right forelimb and left hindlimb. Palpable fluid wave and abdominal pain. Pulse 104 Tachypnea with increased effort SPO2 90% Medications-He was given Lasix 4 mg/kg IV total over the past 12 hours. No further IV fluids. He received 1mg/kg spironolactone this morning and 0.2mg/kg pimobendan. He is on a total of 4L/min oxygen supplementation divided amongst two nasal cannulas. He has been continued on broad spectrum antibiotics and Cerenia IV(Rx Clavamox 375 mg - give 2 tablets PO BID x 10 d Rx Cerenia 160 mg - 1/2 T PO SID #2 tablets) His SpO2 has improved to 95% off of oxygen and 98% on oxygen. Urinating well and eating overnight. Very anxious in hospital and has received trazodone and gabapentin PO.
-Abnormal PE/Chem/CBC/UA Results: Diagnostics included abdominal tap - TS 3.8, pink tinged clear fluid, sent out for cytology - pending Chem 17 - Glu 148*, creat 1, BUN 16, Phos 6.9*, Ca 9.2, Na 155, K 4.4, Cl 117, TP 5.3, ALB 2.3, Glob 3, ALT 213*, ALP 158, GGT 2, Bili 0.1, Chol 134 2.
-CXR report: Mild cardiomegaly. Concern for possible 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; 50mm/s, 5mm/mV. The average heart rate is 176bpm with a largely regular rhythm. P waves cannot be identified throughout; however, a sinus origin is suspected. The P and QRS morphologies are positive. No ectopic beats, pauses or dysrhythmias observed. ECG diagnosis: Normal sinus tachycardia.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Severe left ventricular dilation with diminished systolic function. Decreased LV wall thickness with increased sphericity. Moderate to severe left atrial enlargement. The mitral valve appears thickened with no obvious prolapse into the left atrial lumen. Moderate central mitral and mild tricuspid regurgitation secondary to annular stretch. Moderate right atrial and ventricular dilation. TR velocity consistent with early pulmonary hypertension. The aortic valve is normal in morphology and mobility. No subvalvular ridge present; normal LVOT velocity. No aortic insufficiency. Normal pulmonic valve with no pulmonic insufficiency seen. No pericardial or pleural effusion noted. No obvious cardiac tumors.



PATIENT CARDIAC CHART

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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	4.5	3.2	1.6	1.8	14	20	1.8
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	220	1.3	0.8		4.5	7.0	6.0
*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)
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				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)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Unfortunately, this patient has severe biventricular myocardial failure. This is causing dilation and overload of all four chambers resulting in insufficiency of the mitral and tricuspid valve. The degree of dilation and pump failure resulting in historical congestive heart failure. Early pulmonary hypertension is noted, which is likely due to active congestion. No additional issues are identified.

Systolic failure can be primary in nature (DCM) or secondary to taurine deficiency, myocarditis, hypothyroidism, tachycardia-induced cardiomyopathy, or infiltrative disease such as lymphoma. In a relatively young dog with a history of a grain-free diet, diet-related issues are considered most likely. A taurine level can be submitted; however, regardless of results a taurine supplement is recommended with a diet change if not already doing. Finally, a thorough medical history to assess for prior issues is recommended (such as parvovirus, hypothyroid disease, etc.). A cardiac troponin and thyroid level can be submitted to assess for ongoing damage to the myocardium as well.

While full cardiac support is certainly recommended, there may also be a respiratory component to the clinical signs, give the atypical history. Continued coverage with broad-spectrum antibiotics is recommended. The ECG is unremarkable with a normal sinus tachycardia. That being said, this patient is at high risk for atrial fibrillation and ventricular arrhythmias. Continued



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monitoring is advised.

Prognosis is poor at this stage in the disease process, with an average survival time of 8-9mo for canine patients with active pulmonary edema on medications, however they generally are able to maintain a good quality of life for that period. Even with diet-related dysfunction, improvement will likely be minimal at this end-stage phase of disease.

Cases of systolic failure are at high risk for malignant tachyarrhythmias (such as AF or VT), and activity restriction is advised. Patient will always be at risk for recurrent CHF, development of arrhythmias/LA tear, syncope and/or sudden death in the future.

Monitor for development of a cough, worsening labored breathing, exercise intolerance or collapse episodes in the future. Monitoring of sleeping breathing rates at home is recommended to assess response to medications and recurrence of CHF in the future.

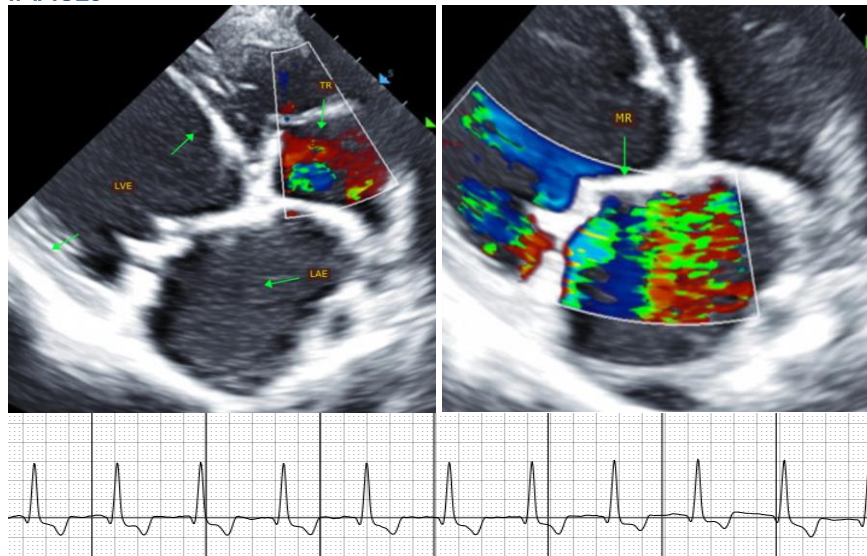
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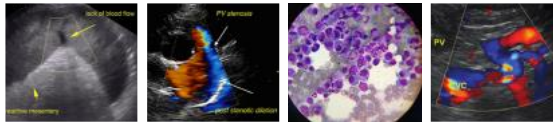
Continue hospitalization for IV diuretic, oxygen support and supportive care until stable. Discharge on the following" administer Lasix 1-2mg/kg PO q12. Administer Pimobendan 0.3mg/kg Po q12. Administer Spironolactone 1-2mg/kg PO q12h. Institute Taurine 1000mg PO q12h. Diet change ASAP.

Monitor renal panel, heart rate, and BP every 3-4 months lifelong. Once patient is deemed normotensive (blood pressure >130mmHg), institute ACE-I 0.5mg/kg PO q12h.

Recheck echocardiogram and in 6 months to reassess cardiac function sooner if issues arise.

IMAGES





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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.

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Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com

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