SonoPath
Clinical Sonography & Telecytology
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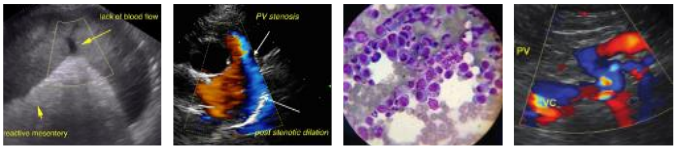


SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Murphy Rossborough

SPECIES
Canine

BREED
Retriever Mix

SEX
Male Neutered

AGE
11 years

WEIGHT
75lbs; 34.0kgs

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

IMAGING PERFORMED BY
Melissa Weisman, DVM

HOSPITAL NAME
Minnesota Veterinary Ultrasound

REFERRING VET
Dr. Weisman

INVOICE
22038

DATE
11/15/21

PRESENTING CLINICAL SIGNS

History: Coughing for 1 week with a terminal retch. Lethargic. Grain-free diet. Weight loss. Ascites.
-Abnormal PE/Chem/CBC/UA Results: No murmur ausculted, mild ALP elevation, 3+ proteinuria.
-Radiographs: Show the VHS 13.1 with LAE and right sided enlargement. Suspect DCM. No CHF.
-Current Medications: No cardiac medications. Carprofen 75mg - Give 1 tablet PO q24 PRN, Cytopoint, Apoquel 16mg 1 tab SID.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Significant left ventricular dilation with a hypokinetic free wall. Increased EPSS and increased sphericity. Decreased LV wall thickness. Severe left atrial enlargement. The mitral valve appears mildly thickened, with no obvious prolapse into the left atrial lumen. Mild central mitral regurgitation; normal velocity. The tricuspid valve appears mildly thickened. Moderate right atrial and ventricular dilation. Mild to moderate tricuspid regurgitation. TR velocity consistent with early pulmonary hypertension. Mild MPA dilation. The aortic and pulmonic outflow velocities are decreased. No AI. No PI. No pericardial or pleural effusion noted. No obvious cardiac tumors.

CARDIAC CHART

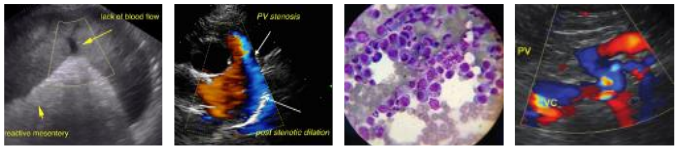
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	4.2	3.1	NM	2.0	15	28	0.8
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (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	144	0.5	0.5	34.0	5.0	5.9	5.0
*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)
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 significant cardiomyopathy and LV dysfunction. The dysfunction is asymmetric and may suggest a prior infarct. Regardless, there is dilation and volume overload of both the left and right heart and severe biatrial dilation. Mild MR and mild to moderate TR are identified with mild pulmonary hypertension. No additional issues are seen.

Systolic failure can be primary in nature (DCM) or secondary to taurine deficiency, hypothyroidism, myocarditis, tachycardia-induced cardiomyopathy, or infiltrative disease such as lymphoma. In a geriatric large breed, DCM is certainly a reasonable diagnosis; however, the



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history of a grain-free diet is highly concerning for an ancillary issue. An immediate diet change is recommended to a traditional option (see WSAVA guidelines) with supplementation of a taurine supplement as well. A baseline taurine level can be obtained; however, the recommendation is independent of reported level. Thyroid status can also be assessed, a cTnI submitted, etc., however prognosis at this stage is unchanged.

Given the severity of disease seen here, the ascites is certainly cardiogenic in origin and immediate treatment is recommended as below. No dyspnea is reported; however, should the patient become unstable, highly recommend hospitalization for oxygen support and IV therapy. Even if the response to medications is good, this patient will always be at high risk for recurrent CHF, development of syncope, malignant arrhythmias and/or sudden death going forward. The prognosis is poor at this stage in the disease process, with an average survival time of <6 months.

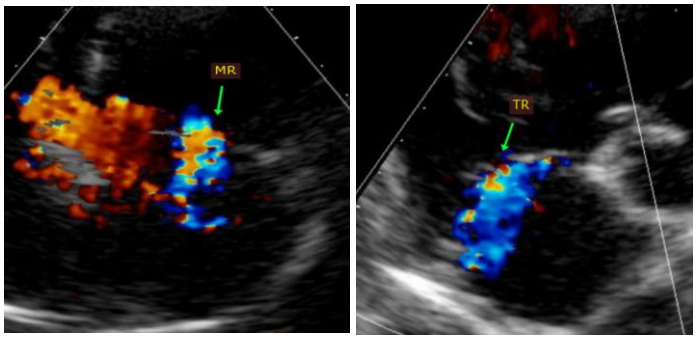
Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Moderate activity restriction is advised. Monitor for development of a cough, worsening labored breathing, abdominal distention, exercise intolerance or collapse episodes in the future. Monitoring of sleeping breathing rates at home is recommended to assess response to medications and recurrence of CHF in the future.

PLAN:
If patient appears unstable or tachypneic, consider referral for 24-hour supportive care. A baseline BP is recommended. Recommend the following oral medications: Institute aldosterone antagonist Spironolactone 1-2mg/kg PO q12h. Institute diuretic furosemide 1-2mg/kg PO q12h. Institute Pimobendan 0.3mg/kg PO q12h. Institute taurine supplement 1000mg PO q12h. Immediate diet change.

Recommend recheck renal panel and blood pressure in 1-2 weeks to ensure tolerance to medications. If BP >130mmHg and doing well at home, institute ACEI 0.5mg/kg PO q12h at that time.

Recheck echocardiogram in 6 months, sooner if problems arise in the interim.

IMAGES



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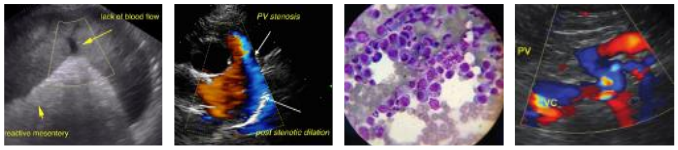

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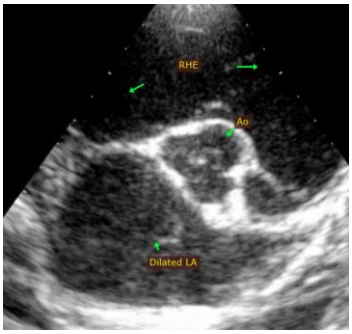

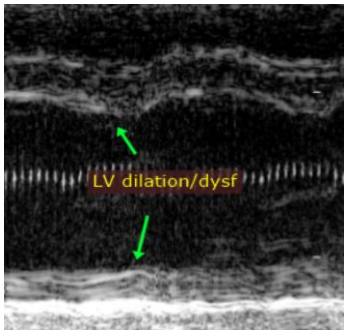

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
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