SonoPath
Clinical Sonography & Telecytology
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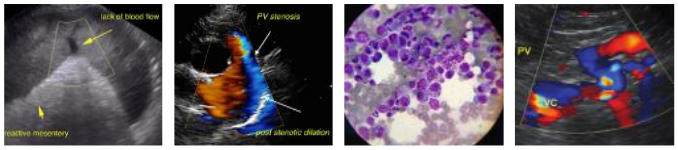

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Jackson Campbell

SPECIES
Canine

BREED
Coon Hound

SEX
Male

AGE
10 years

WEIGHT
33.9

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

IMAGING PERFORMED BY
Alastair Westcott, DVM

HOSPITAL NAME
Dr. Alastair Westcott

REFERRING VET
Dr. Westcott

INVOICE
23578

DATE
4.11/22

PRESENTING CLINICAL SIGNS

History: One week history of coughing. This cough his of a stertorous nature and sounds a little like a collapsing trachea cough (honking). He was seen 24 hours previously and placed on an antitussive and NSAID. Today he seemed very low energy. Has still been eating but reluctant to drink water.
-Radiographs: A single lateral film – Suggested LAE with potential mainstem bronchi compression/irritation. A suggestion of potential perihilar lymphadenopathy was mentioned.
-Sedation: Butorphanol/midazolam to allow the echo.
-Current medications: This patient was placed on 10mg pimobendan Q12 and 40mg furosemide Q12 with instructions to keep very quiet and inactive.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Significant left ventricular dilation with decreased systolic function. Decreased LV wall thickness. Increased LV sphericity. Moderate left atrial enlargement. A small hyperechoic lesion is noted near the junction with the pulmonary vein; this is not confirmed in ancillary views. The mitral valve appears mildly thickened, with no obvious prolapse into the left atrial lumen. Moderate to severe eccentric mitral regurgitation. Normal velocity. The tricuspid valve appears mildly thickened and mild TR is noted. Mild right atrial and ventricular dilation. TR velocity is consistent with early pulmonary hypertension. The aortic valve is normal in morphology and mobility. No AI, normal LVOT velocity. Normal pulmonic valve with no pulmonic insufficiency seen. Normal RVOT velocity. 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	4.3	2.0	NM	1.9	9	20	1.2
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT**	**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		0.9	0.5	33.9	4.9	5.8	5.2
*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

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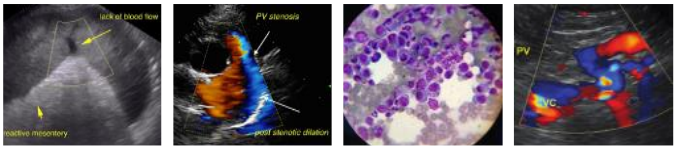

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Unfortunately, this patient has significant 4-chamber dilation and LV dysfunction. The academic diagnosis of chronic degenerative valve disease leading to systolic dysfunction versus true primary cardiomyopathy (DCM) could be argued in this case. The severity of MR may support the latter; however, it is rare for secondary dysfunction to be this severe with simple valve disease. Regardless, the differentiation is purely academic with moderate LA dilation indicating risk for complication. An atypical hyperechoic lesion is seen within the left atrium near the junction of the pulmonary vein. This is of unknown significance and may simply be artifactual. Follow up is advised, particularly given the chest radiograph abnormalities.

Systolic dysfunction can develop as a primary problem or be secondary to diet, hypothyroidism, infiltrative disease, etc. A thorough diet history is recommended, screening for boutique exotic ingredient or grain-free/vegan diets. A taurine level can be submitted; however, regardless of result, recommend a taurine supplement in this case. A thyroid level can also be assessed.

Regardless, there is concern for progression to congestive heart failure based upon the severity of disease seen here. The CXR do not reportedly show active congestive heart failure; however, continuing low-dose Lasix is advised. A primary respiratory component is actually suspected given possible lymph node enlargement and description of the cough. Broad-spectrum antibiotics may be beneficial depending on severity of signs, response to Lasix, etc. If the respiratory signs persist, repeat chest films with a Radiologist review is strongly recommended.

Long term prognosis is poor with this degree of disease; however, most dogs are able to maintain a good QOL on medications for an average of 8-12 months if able to be stabilized. Referral for 24-hour care should be considered if patient appears unstable as oxygen support, IV diuretics and further monitoring may be necessary. Long term prognosis is guarded to poor, as most dogs once in CHF are able to maintain a good QOL on medications for an average of 8-12 months. Patient will always be at high risk for recurrent CHF, development of malignant arrhythmias/LA tear, and/or sudden death in the future.

Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home. Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or worsening collapse episodes in the future.

PLAN

Consider hospitalization if the patient is or becomes unstable. Consider a baseline ECG and BP. Recommend the following oral medications: Administer Lasix 1mg/kg PO q12h. Administer Pimobendan 0.3mg/kg PO q12h. Administer spironolactone 1-2mg/kg PO q12h. Diet history/thyroid level; submit taurine level and/or supplement taurine to the diet; 1000mg PO q12h.

Monitor SRRs at home. Monitor renal values and BP in 10-14 days, then every 3-4 months while on diuretics. If doing well/eating normally at home and BP >130mmHg, reinstitute ACE-inhibitor Enalapril or Benazepril 5mg PO q12h. If the patient's respiratory signs persist despite therapy, repeat CXR and/or course or Baytril may be reasonable. Hydrocodone can be utilized for QOL.

Recheck: Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of associated clinical signs occurs in the interim.

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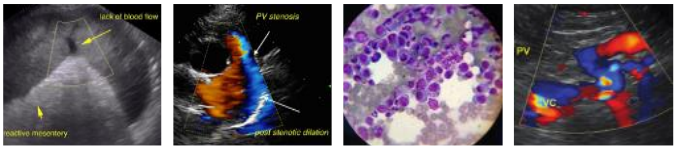

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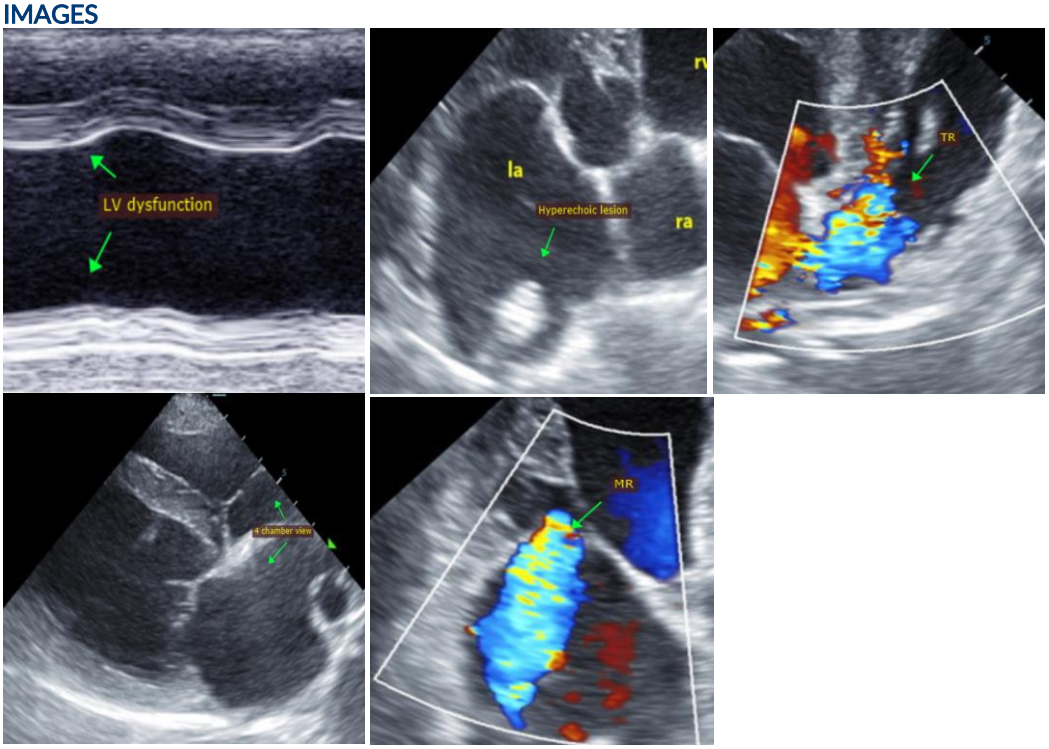
IMAGES



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.

Maggie Machen Lamy, DVM
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
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