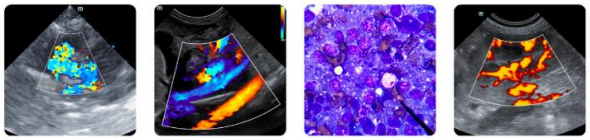

PATIENT
Heidi Newbold

SPECIES
Canine

BREED
Yorkshire Terrier

SEX
Female Spayed

AGE
13 years

WEIGHT
9.5lbs

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

IMAGING PERFORMED BY
Lauren Kuzimski, DVM

HOSPITAL NAME
Animal Emergency Hospital Deland

REFERRING VET
Dr. Kuzimski

INVOICE
45924

DATE
11/30/25

PRESENTING CLINICAL SIGNS

History: History of collapsing trachea. Lethargic last night and not wanting to eat. No vomiting but seemed confused today. No heart murmur or arrhythmias. Chronic consistent bilateral crackles.
CXR report: mild cardiomegaly, mild PV distention, possible CHF
BP: 135mmHg
Abnormal PE/Chem/CBC/UA Results: CBC. NSF Chemistry. ALP 238, glucose 141, calcium 8.9, phosphorus 7.5, BUN 48 EPOC. sodium 139, BUN 33, glucose 128.

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 150bpm. 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 other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm.

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. No mitral regurgitation with no left atrial dilation. Decreased LV diameter with adequate myocardial function and increased wall thickness. Septal flattening at end-systole. The tricuspid valve appears mildly thickened with mild to moderate tricuspid regurgitation. Moderate RA/RV enlargement. Mild RV hypertrophy. MPA/branch dilation. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic outflow velocities with laminar flow. No pericardial or pleural effusion noted. No obvious cardiac masses.

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	NA	NM	NM	1.3	53	90	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	NM	NM	0.9	4.3	1.6	1.7	0.8
*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)
Adapted from June Boon, Veterinary Echocardiography, 1998				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Hansson et al, Vet Rad and Ultrasound 2002				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995				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 primary abnormality identified is suspicion for moderate pulmonary hypertension. The right heart is enlarged with MPA dilation, which supports the diagnosis of PAH (TR velocity is not accurately assessed). This is likely developing secondary to cough/airway disease in this predisposed breed with chronic crackles. The left heart appears volume underloaded, which **rules out left-sided CHF in this case.** No concurrent issues such as systolic dysfunction are noted in this study and the ECG is normal.

Given these findings, **congestive heart failure is ruled out despite the CXR report**. Along this same vein, it is unclear as to the cause of lethargy and confusion in this case as these are non-specific. Full systemic work up should be performed including lab work. If the patient appears clinically dehydrated, consider fluid therapy given the appearance of the LV. Sildenafil is recommended to help lower pulmonary pressures due to the right heat enlargement. If chronic respiratory signs are poorly controlled/progresses long term, this can lead to worsening of PAH. It is important to note that any **cough/dyspnea are not caused by PAH**; rather **PAH develops secondary** to the respiratory disease. Clinical signs of significant PAH include exertional dyspnea/collapse.

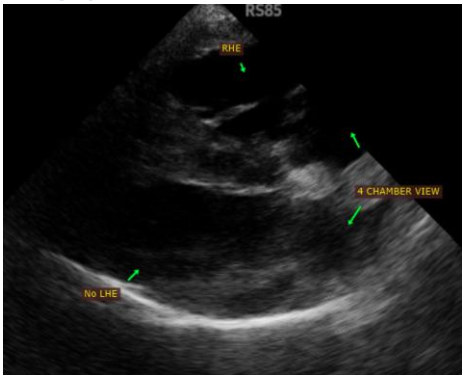
Prognosis is guarded long-term. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

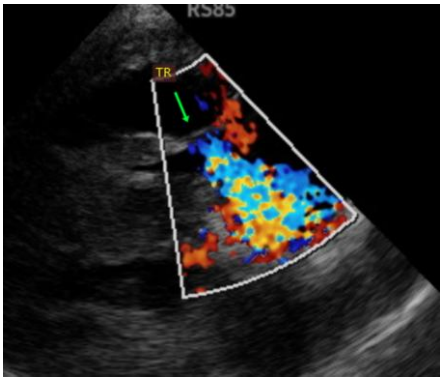
PLAN

Consider fluid therapy if clinically dehydrated, full systemic work up. Institute Sildenafil 1-2mg/kg PO q12h. Chronic treatment of respiratory signs may or may not be necessary (theophylline, hydrocodone, etc.).

Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

IMAGES





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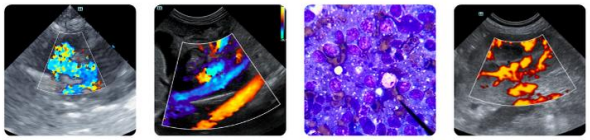

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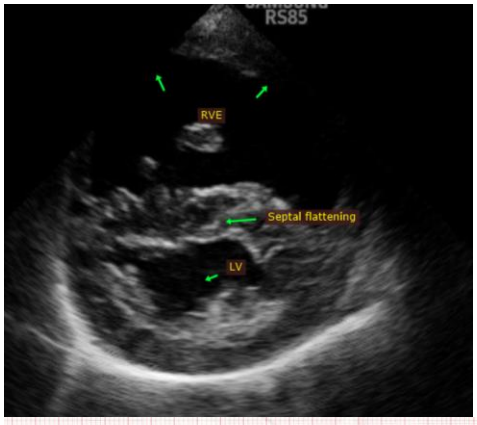

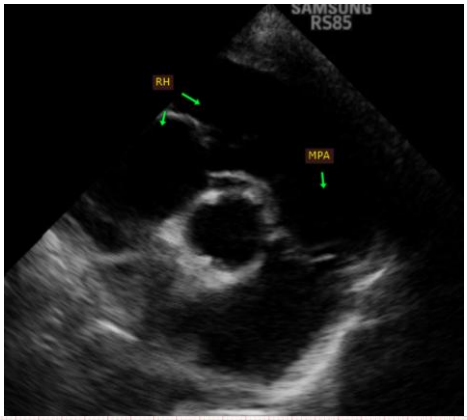

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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