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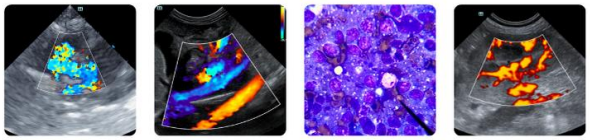
FOSTERING THE ART OF VETERINARY MEDICINE™



Clinical Sonography & Telecytology
Educational Teleconsultation Services™

SonoPath.com info@sonopath.com 1.800.838.4268

PATIENT
Dixie Heffner

SPECIES
Canine

BREED
Mix

SEX
Female Spayed

AGE
13 years

WEIGHT
15.7lbs

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

IMAGING PERFORMED BY
Renee Trionfetti, VMD

HOSPITAL NAME
Blue Pearl Wyomissing ER

REFERRING VET
Blue Pearl Wyomissing

INVOICE
46653

DATE
2/2/26

PRESENTING CLINICAL SIGNS

History: Presented for coughing and anorexia. Currently in the ER. Wednesday stopped eating. Thursday took some treats but nothing else. Friday breathing off- huffing sound when breathing, felt warm. Drinking ok, normal stool. Saturday went to Urgent Care dx with a fever (103.0) and inflamed trachea. O declined workup. Prescribed Hydrocodone and doxycycline. Doing better. Sunday not doing better, breathing appears worse, O gave Hydrocodone and Pt began shaking badly. Very lethargic, not wanting to follow O around like normal. Will only eat peanut butter, has not eaten anything else since Friday. Collapsed trachea dx multiple years ago, historical heart murmur (grade 3). ~5% dehydration. Harsh lung sounds. BP: 145mmHg. Sedated with Torb.
-Abnormal PE/Chem/CBC/UA Results: CXR: Mod generalized bronchial pattern. VHS 10. Con: Mild gen cardiomegaly. No venous congestion. Thin pleural fissure lines likely thickening over scant effusion. Aortic redundancy likely (age-related) over mass or lymphadenopathy. Redundant tracheal membrane w/o lower airway collapse. BI to alveolar change in lungs could support edema from HF despite lack of venous cong, although w/pyrexia & response to meds, infec/inflam thought more likely. CBC: HCT 53.1%, MCHC 32.4 L, plt 617 Chem: Alb 2.8, ALP 458 H, ALT 92, Cr0.5, Glob 4.5 H, BUN 19.9

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with minimal prolapse into the left atrial lumen. Trace/mild mitral regurgitation with no left atrial dilation (LA:Ao <1.6). Normal LV diameter with adequate myocardial function. The tricuspid valve appears mildly thickened with trace tricuspid regurgitation. TR velocity indicative of early pulmonary arterial hypertension. Prominent right heart. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic and trace pulmonic insufficiency. 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	5.8	3.0	1.5	1.3	36	68	0.2
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	120	1.8	1.3	32.3	1.5	2.1	1.3
*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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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing trace/mild mitral and tricuspid regurgitation. Lack of significant left atrial enlargement indicates the current risk for complication is low. Mild pulmonary hypertension is noted, which is likely developing secondary to the cough/respiratory disease. No concurrent issues such as systolic dysfunction are noted in this study.

Given these findings, **the current respiratory issue is certainly inconsistent with CHF and there is no indication for diuretic therapy in this case**. Respiratory disease is likely, and repeat CXR may be helpful. If the cough/respiratory disease is poorly controlled/progresses long term, this can certainly lead to worsening of PAH. Clinical signs of significant PAH include exertional dyspnea/collapse. It is important to note that PAH does not cause the cough; rather, the cough leads to PAH. Cough control is recommended lifelong (hydrocodone, intermittent anti-inflammatory prednisone, fluoroquinolone for acute flare up, etc.). Mild pulmonary hypertension does not warrant Sildenafil therapy; however, monitoring for progressive pressure elevation and/or associated clinical signs is advised.

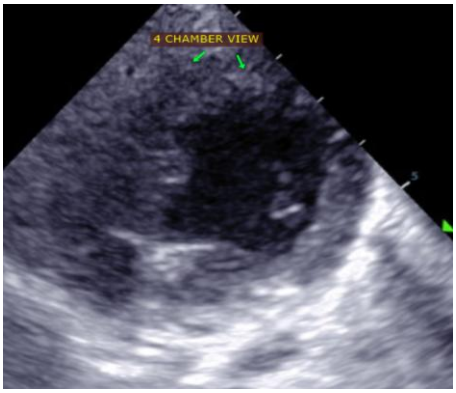
In a dog without significant chamber enlargement, no cardiac medications are clearly indicated. Assessment of progression in the future will help predict long term prognosis, which is highly variable with stage B1 disease. Many B1 dogs will remain asymptomatic with slow progression for years to come. Concurrent airway disease must be approached separately, with symptom management as discussed.

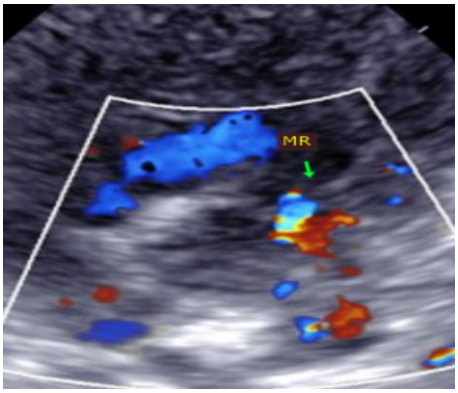
Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

Anesthetic risk is considered mild if needed. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. **Pre-oxygenate for 5-10 minutes prior to induction.** Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Mild IV fluid restriction is recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

Recommend conservative monitoring with a recheck echocardiogram in 6 months to assess rate of progression, sooner if additional clinical signs develop in the interim.

IMAGES





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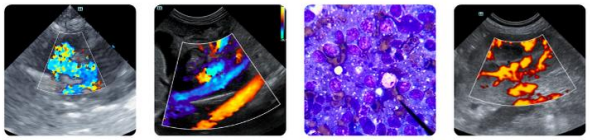

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)
info@sonopath.com