



PATIENT

Mitch Graham

SPECIES

Canine

BREED

Mix

SEX

Male Neutered

AGE

10.29.12

WEIGHT

80.6lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

HOSPITAL NAME

Everhart Veterinary
Hospital

REFERRING VET

Dr. Notarangelo

INVOICE

29412

DATE

3/6/23

PRESENTING CLINICAL SIGNS

History: Pet recently presented for acute onset of lethargy, hyporexia and weakness: no obvious cause. Lab work showed moderate globulin increase and low-grade anemia. Pet has a history of chronic low-grade anemia, mild ALKP elevation and intermittent globulin elevation with similar episodes of general malaise in years past. Has previously been treated with amoxicillin and showed improvement. Pet is currently improving with supportive GI treatment (Cerenia) and amoxicillin. Planned ultrasound to evaluate low grade anemia and screen for geriatric issues. History of hypertension and osteoarthritis, on carprofen, gabapentin and enalapril long-term. Heart murmur.

-Pertinent abnormal PE/Chem/CBC/UA Results: 2/28/23: PCV 33, glob 5.1, ALKP 227
10/25/22: HCT 36, glob 3.9, ALKP 202, chol 375. 6/2/22: HCT36, ALKP 201, glob 4.4, chol 346.
-Current medications: CERENIA INJECTION- PER ML 2/28/2023, Flexadin Advanced 60ct
10/25/2022 ENALAPRIL 20 MG. 10/5/2022, CARPROFEN 100 MG. 10/4/2022, Bravecto 44-88 lbs
#4 7/28/2022. Heartgard Plus.

-Blood pressure: 148mmHg.
-Sedation used: Not required to complete full diagnostic ultrasound.
-Pertinent previous ultrasound results: No previous.
-STAT: Declined at this time.

-Imaging performed by: Stephanie Warga RDCS, RVT.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Normal mitral valve leaflets with no prolapse into the left atrial lumen. Trace mitral regurgitation with no left atrial dilation. Normal LV diameter with adequate myocardial function. The tricuspid valve appears normal with no tricuspid regurgitation. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension. No obvious tumors associated with the right heart, aortic root or external cardiac surface. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic or pulmonic insufficiency. Scant pericardial effusion. No pleural effusion noted.

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	NM	2.2	NM	1.4	28	55	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	100	1.1	1.1	36.6	2.9	3.3	2.4
*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)
<i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i>				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

The primary abnormality is scant pericardial effusion of unknown origin. The cardiac dimensions and function are largely normal, ruling out CHF as the cause. No obvious cardiac or extra-cardiac tumors are identified; however, it must be considered that small masses are easily missed on 2D ultrasound. A thoracic CT scan or MRI would be necessary to fully evaluate the surface of the heart and lungs and to screen for mediastinal abnormalities. No additional issues are identified.

Given these findings, no clear cause of the effusion is identified nor have we identified a cause for the patient's malaise. It is important to note that while pericardial effusion is noted, this amount is not the cause of clinical signs; rather this is likely a secondary development.

Ideally the next step in this case would be a diagnostic pericardiocentesis to determine the type of effusion present. A hemorrhagic effusion would suggest a small tumor or bleeding disorder, versus a transudate may support an infectious or inflammatory etiology, etc. Submitting the fluid for cytology and potentially a culture may also be useful as there is no clear answer at this time. The amount of effusion is limiting however, as this amount is unlikely to be obtained safely. As an alternative, full systemic evaluation should also be considered to screen for additional abnormalities including clotting times, AUS, etc. Given the highly unusual nature of this case, referral to a multi-specialty center should be considered.

No cardiac medications are recommended.

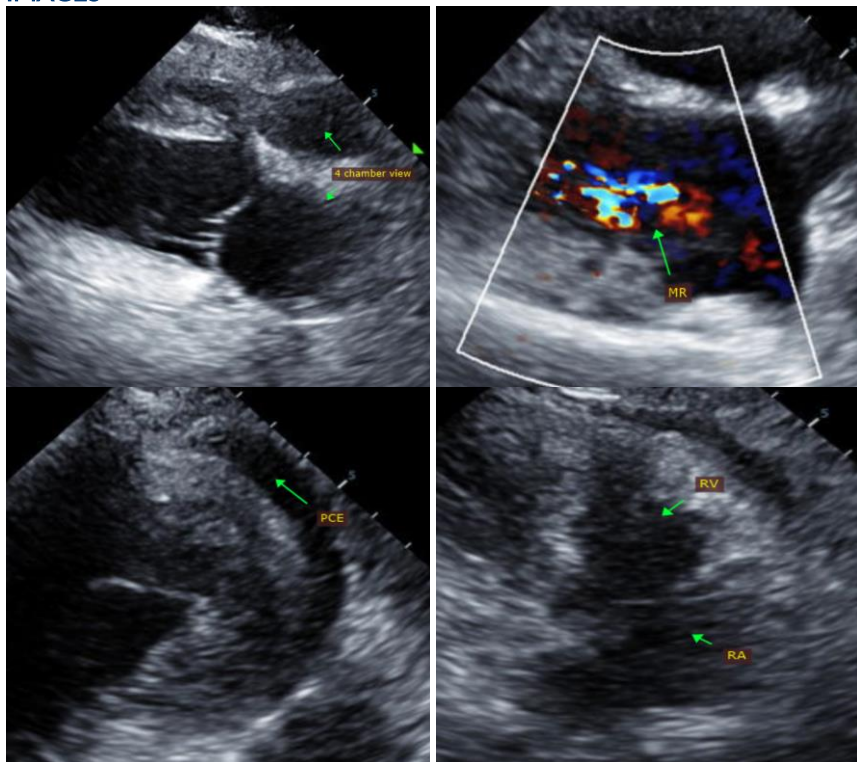
Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

PLAN

Consider referral as discussed; next steps including a potentially a diagnostic pericardiocentesis if the volume increases, repeat lab work, thoracic CT/MRI, AUS, etc.

Follow up as dictated by results of additional diagnostics/therapy.

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.

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