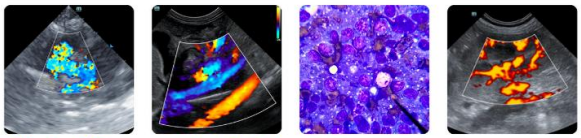


DATE

11.18.25

PATIENT

Peaches Gray

SPECIES

Canine

BREED

Chihuahua

SEX

FS

AGE

4.1.16

WEIGHT

11lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

HOSPITAL NAME

Greenbrier VC

REFERRING VET

Dr. Boccanfuso

INVOICE

45756

PRESENTING CLINICAL SIGNS

History: New murmur noted on physical exam Nov 3rd. Presented for coughing, sudden onset. Murmur grade 3-4/6 systolic loudest on left side. Owners had recently gotten a puppy so suspected infectious cough, but heart did look enlarged on rads.
-CXR (2 view chest): heart appears enlarged/tall, taking up 4 intercostal spaces, VHS 11.2, mild bronchointerstitial lung pattern, trachea clear, VD heart looks enlarged on R side but suspect some of that is positional as pet is rotated.
-Current medications: Doxycycline 50mg SID for 10 days, Hydrocodone 1.25mg q8-12h both started 11/3.
-Sedation used: Not required to complete full diagnostic ultrasound.
-Pertinent previous ultrasound results: No previous.
-STAT: Approved.
-Imaging performed by: Stephanie Warga RDCS, RVT.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental information only.

Cardiomegaly. No obvious evidence of CHF.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve appears thickened with mild prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with moderate left atrial enlargement. Mild LV dilation with adequate myocardial function. The tricuspid valve appears thickened with mild tricuspid regurgitation. TR velocity consistent with severe pulmonary hypertension. Mild right heart enlargement. MPA and branch appear normal. The pulmonic and aortic valves are normal in morphology and mobility. No pulmonic insufficiency. Normal pulmonic and aortic outflow velocities. Scant pericardial and no pleural effusion. No cardiac tumors observed.

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	6.5	4.5	NM	1.9	47	80	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	220	1.4	1.1	5.0	1.9	2.8	1.5
*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

Severe pulmonary hypertension (PAH) present, as evidenced by an elevated TR velocity and mild right heart compensatory changes. The estimated systolic pulmonary arterial pressure is nearly >80mmHg, with normal being <25mmHg. What is unusual is that the right heart is only mildly enlarged, which may suggest some acute change (PTE, infectious or inflammatory insult). Given the significance of the findings, pericardial effusion is suspected to reflect right-sided CHF. There is also left-sided heart disease with moderate MR and moderate left atrial enlargement, which should be monitored going forward. No additional issues are identified.

Clinical signs of weakness, heavy breathing, cyanosis, ascites and syncope are attributed to severe PAH. The underlying genesis of PAH is poorly understood in cases other than heartworm infestation, though it occurs with increased frequency in a variety of forms of chronic lung disease and in patients with idiopathic pulmonary fibrosis. With a reported cough, this is the likely underlying issue. A heartworm test should be performed if not recently evaluated.

Patients with this degree of PAH can develop right-sided congestive heart failure (ascites, pleural, and/or pericardial effusion) as is seen in this case, debilitating cyanosis/labored breathing and exertional syncope if poorly controlled. The prognosis is poor with an MST of < 1 year after the onset of CHF, however a reasonable quality of life is expected once controlled.

Medical management of PAH and CHF is indicated as below and initial therapeutic dosages are indicated. If there is any question on response to diuretics, consider coverage with broad spectrum antibiotic such as Baytril.

Omega fatty acid supplementation may be of some long-term benefit.

Elective anesthesia is not advised.

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

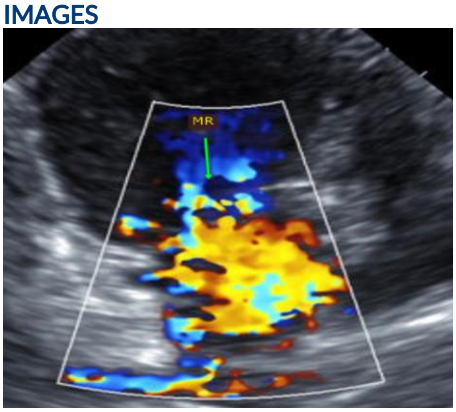
PLAN:

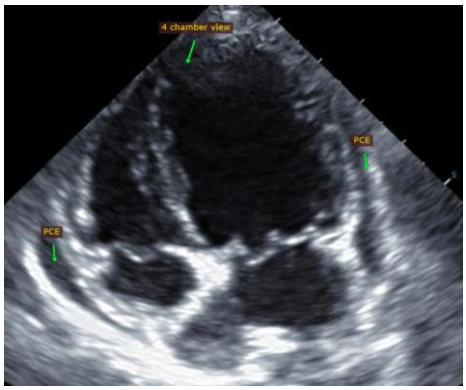
Screening BP recommended. Institute Sildenafil 1-2mg/kg PO q8h. Institute Pimobendan 0.3mg/kg PO q8h. Institute Lasix 1-2mg/kg PO q12h. Institute Spironolactone 1-2mg/kg PO q12h. If BP is >130mmHg, institute ACE-I (benazepril or enalapril) 0.5mg/kg PO q12h.

Recommend renal panel and BP in 10-14 days, then every 3-4 months lifelong. If respiratory signs persist, repeat CXR are recommended for comparison. Broad-spectrum antibiotic therapy, Hydrocodone, etc. should be utilized as needed.

Recommend recheck echocardiogram in 6 months to screen for progression, sooner if clinical signs develop in the interim.

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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