



PATIENT

Snickers Burchman

SPECIES

Canine

BREED

Poodle Mix

SEX

Female Spayed

AGE

13 years

WEIGHT

8.8lbs

INTERPRETED BY

Maggie Machen
 Lamy, DVM, DACVIM
 (Cardiology)

IMAGING PERFORMED BY

Sara Hansen

HOSPITAL NAME

The Veterinary
 Hospital

REFERRING VET

Dr. Johnson

INVOICE

23184

DATE

3/18/22

PRESENTING CLINICAL SIGNS

History: Systolic murmur with abdominal effusion. We have done belly taps twice to remove about 500 ml serous fluid each time. QOL is otherwise good, cough is well managed with current medications. BP: 90, 100, 94mmHg.

Abnormal PE/Chem/CBC/UA Results: WNL

-Current Medications: Vetmedin 1.25mg BID, Lasix 6.25mg BID, Benazepril 1.25mg SID.

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; 50mm/s, 10mm/mV. The average heart rate is 175bpm (range 166-188bpm). 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 dysrhythmias observed.

ECG diagnosis: Normal sinus rhythm with respiratory variation.

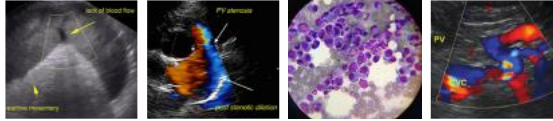
ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with no obvious prolapse into the left atrial lumen. Mild eccentric mitral regurgitation with a mild left atrial dilation. Normal velocity. Normal LV diameter with adequate myocardial function. The tricuspid valve appears thickened with septal prolapse, and there is moderate to severe tricuspid regurgitation. Moderate right atrial enlargement; moderate right ventricular dilation and hypertrophy consistent with severe pulmonary arterial hypertension. TR velocity supports only mild PAH; however, this is sought to be an underestimation. The pulmonic and aortic valves are normal in morphology and mobility. Trace pulmonic insufficiency. MPA and branch dilation. Normal pulmonic and aortic outflow velocities. No pericardial or pleural effusion noted. 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	4.6	3.3	1.4	1.4	57	90	0.15
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	164	0.8	0.7	4.0	1.7	2.1	0.9
*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)
				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
 Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435



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Hansson et al, Vet Rad and Ultrasound 2002 Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	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)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Severe pulmonary hypertension (PAH) is present, as evidenced by significant TR, an elevated TR velocity and right heart changes. The estimated systolic pulmonary arterial pressure is >90mmHg, with normal being <25mmHg. This is causing severe hypertrophy and dilation of the right ventricle (indicating severe right-heart pressure overload). There is also mild MR noted; however, the left heart is only mildly affected. Finally, the ECG is unremarkable with a normal sinus rhythm.

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. If not performed, a heartworm antigen test is highly recommended. If any historical cough or respiratory issues, further workup/therapy may also be useful including bronchodilators, pulmonary antibiotics, etc.

Patients with this degree of PAH can develop right-sided congestive heart failure (ascites, pleural effusion) as is seen in this case, debilitating cyanosis/labored breathing and exertional syncope if poorly controlled. The prognosis is guarded to poor with an MST of <1 year after the onset of CHF, and respiratory disease may limit QOL if significant.

Medical management of PAH and CHF is indicated as below and initial therapeutic dosages are indicated. A therapeutic abdominocentesis is recommended if or when the patient is inappetent or uncomfortable going forward.

Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.

Monitor for development of a labored breathing, exercise intolerance or collapse episodes. Anesthesia, fluid or steroid therapy should be avoided in this patient.

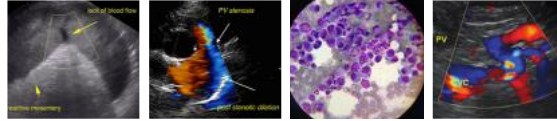
PLAN

Screening HW Ag test. Institute sildenafil 1-2mg/kg PO TID. Institute spironolactone 1-2mg/kg PO BID. Institute furosemide 1-2mg/kg PO q12h. Institute pimobendan 0.3mg/kg PO BID. Discontinue ACE-I due to hypotension.

Recommend renal panel and BP in 10-14 days, then every 3-4 months lifelong on diuretics.

Going forward, abdominocentesis is recommended PRN to maintain comfort and appetite.

Once stabilized, recommend recheck echocardiogram in 6 months to reassess structure and function, sooner if any development of clinical signs.



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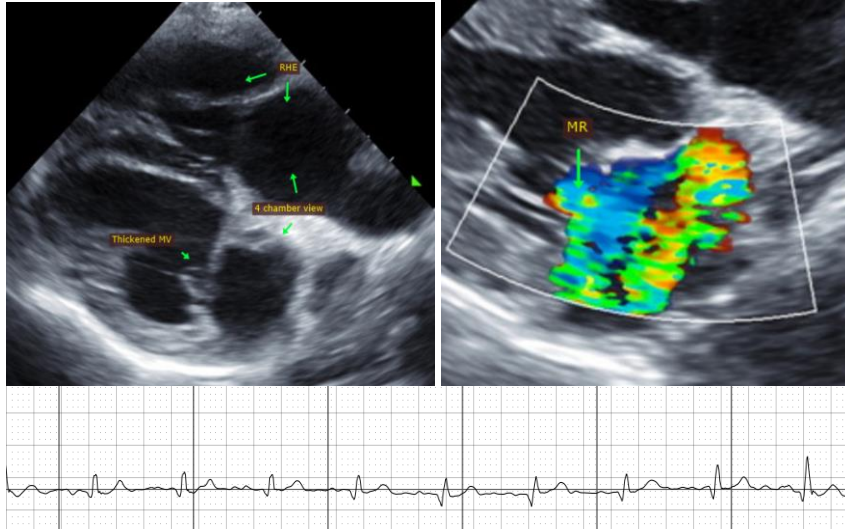
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IMAGES



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
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info@sonopath.com