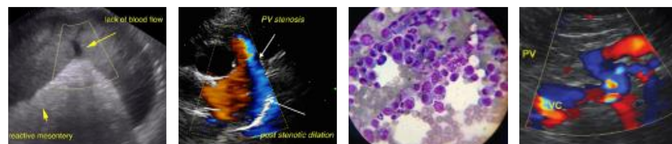
SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™



SonoPath.com™
1-800-838-4268 info@sonopath.com

PATIENT
Polly McDermott

SPECIES
Canine

BREED
Chihuahua

SEX
FS

AGE
13 years

WEIGHT
5.4lbs

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

IMAGING PERFORMED BY
Amanda Lacey-Crook

HOSPITAL NAME
River's Ege PMC

REFERRING VET
Dr. Wilkinson

INVOICE
22171

DATE
2/21/22

PRESENTING CLINICAL SIGNS

History: P presents for overall worsening condition - O reports multiple fainting episodes in the last 2 weeks; prior to that doing well.
PE - muffled heart sounds bilaterally, difficult to discern but suspect 5-6/6 left sided heart murmur.
Previous 2 Echos 6/2021 after hospitalization for CHF.
Abnormal PE/Chem/CBC/UA Results: CBC/Chem17/Lytes wnl today
ECG report (IDEXX): Sinus tachycardia
CXR: enlarged cardiac sil with mild to mod pulm changes
Pertinent previous echo findings (MD 6/2021): respiratory distress at the time; TR 4.7m/s with RHE, MR without LAE; 10 days later improved via echo; mod PAH.

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

Right-sided cardiomegaly. No obvious evidence of CHF.

ECHOCARDIOGRAM FINDINGS *Brief pulmonary pressure check performed*

2D, m-mode, color flow and doppler imaging is available. Mild thickening of mitral valve leaflets with no obvious prolapse into the left atrial lumen. Normal left atrial dimension. Normal LV diameter with adequate myocardial function. The tricuspid valve appears mildly thickened with septal prolapse and moderate tricuspid regurgitation. Velocity consistent with severe pulmonary hypertension. Moderate right atrial enlargement; significant right ventricular dilation and hypertrophy consistent with pulmonary arterial hypertension. Moderate MPA and branch dilation. 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		4.8	NM	1.1	50	92	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				2.5		1.2	0.6
*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)
Adapted from June Boon, Veterinary Echocardiography, 1998				20	2.02 (1.9)	4.14 (2.2)	2.80 (2.0)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Hansson et al, Vet Rad and Ultrasound 2002				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995				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)

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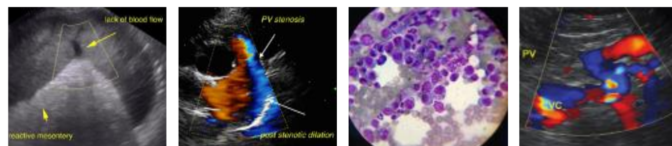

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There is severe progressive pulmonary hypertension (PAH) present, as evidenced by an elevated TR velocity and significant right heart compensatory changes. The estimated systolic pulmonary arterial pressure is >80mmHg, with normal being <25mmHg. This is similar to the initial study performed in 2021 (prior to therapy). The degree of hypertrophy and dilation of the right ventricle and MPA is indicative of severe right-heart pressure overload. Clinical signs of weakness, heavy breathing, cyanosis, 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. This signalment is predisposed to chronic lower airway disease and if present the cough/breathing issues should also be addressed. Patients with this degree of PAH can develop right-sided congestive heart failure (ascites), debilitating cyanosis, labored breathing and exertional syncope if poorly controlled.

Given reported recurrent syncope, medical management with Pimobendan and Sildenafil is certainly indicated as below. As there was acute worsening of symptoms, Baytril or similar antibiotic may also be useful. As mentioned previously, adequate cough control is also key to managing these cases if present.

Once stable, use of theophylline and/or taper course of anti-inflammatory steroids can also be beneficial in these cases, to treat exertional dyspnea or acute flare ups and decrease the inflammatory component as much as possible. PRN use of cough_suppressants may also be beneficial. Unfortunately, the prognosis overall is poor, however I am hopeful we can provide some improved medical relief going forward.

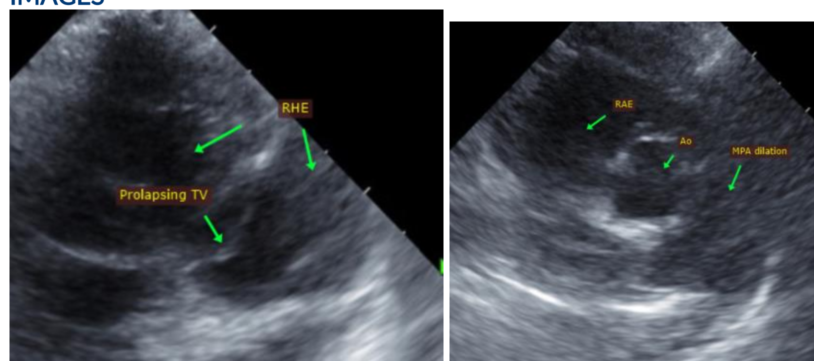
Omega fatty acid supplementation (anti-inflammatory) may be of some long-term benefit. Monitor for worsening of labored breathing, exercise intolerance or collapse episodes.

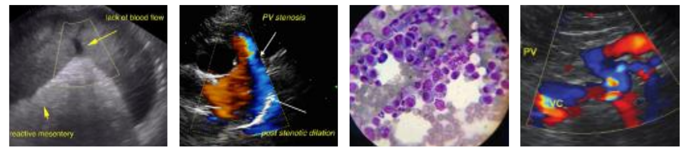
PLAN:

Increase sildenafil to 1-2mg/kg PO q8h. Institute Pimobendan at 0.3mg/kg PO q12h. Institute fluoroquinolone if indicated. Consider hydrocodone as needed up to every 4-6hours PRN for cough if indicated.

Recommend recheck echocardiogram in 6 months to reassess pulmonary pressures, sooner if any development of clinical signs.

IMAGES





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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