

PATIENT

Jenny Runne

SPECIES

Canine

BREED

Chihuahua Mix

SEX

Female Spayed

AGE

16 years

WEIGHT

8.7bs

INTERPRETED BY

Maggie Machen
Lamy, DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Rebekah Jakum, CVT
ARDMS/RVT

HOSPITAL NAME

Pocono Peak VC

REFERRING VET

Dr. Coyle

INVOICE

28946

DATE

2/23/19

PRESENTING CLINICAL SIGNS

History: Recheck echo – pervious echo performed in 12/2020 with no LA enlargement and no medications indicated (report not included). Persistent grade 2/6 murmur. Cough and decreased appetite.

-Current medications: Benadryl, Lasix 6.25mg BID.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only. A single lateral film is included. Mild cardiomegaly. No obvious evidence of CHF.

ECHOCARDIOGRAM FINDINGS

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. Mild mitral regurgitation with a mild left atrial enlargement. Normal LV diameter with adequate myocardial function. The tricuspid valve appears mildly thickened, and there is moderate tricuspid regurgitation. Moderate right atrial enlargement; moderate right ventricular hypertrophy with mild dilation consistent with pulmonary arterial hypertension. TR velocity is elevated. The pulmonic and aortic valves are normal in morphology and mobility. Mild main PA and branch dilation. No obvious pulmonic insufficiency. 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	NM	4.3	NM	1.5	32	63	0.1
CANINE CARDIAC PARAMETERS	HR (BP M)	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	111	1.7	NM	3.9	1.8	2.3	1.5
*Normal chamber parameters expressed as a mean value				3	1.27	2.46	1.36
BODY WEIGHT DEPENDENT PARAMETERS				5	1.40	2.74	1.60
*Note: All measurements based upon multi-modal images and methods. An average value is reported.				10	1.50	3.27	2.06
				15	1.83	3.71	2.43
				20	2.02	4.14	2.80
				25	2.18	4.48	3.10
				30	2.33	4.83	3.39
				35	2.48	5.17	3.69
				40	2.62	5.48	3.96
				50	2.88	6.07	4.46
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

Pulmonary hypertension (PAH) is present, as evidenced by a hypertrophied right heart, dilated MPA and elevated TR velocity. The estimated systolic pulmonary arterial pressure is 60-80mmHg, with normal being <25mmHg. This is causing pressure overload of the right ventricle. Mild MR is noted; however, the left heart is only mildly enlarged, indicating low risk for complication such as left-sided CHF. No additional issues are identified.

PATIENT

Jenny Runne

SPECIES

Canine

BREED

Chihuahua Mix

SEX

Female Spayed

AGE

16 years

WEIGHT

8.7bs

INTERPRETED BY

Maggie Machen
Lamy, DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Rebekah Jakum, CVT
ARDMS/RVT

HOSPITAL NAME

Pocono Peak VC

REFERRING VET

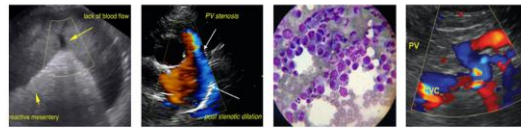
Dr. Coyle

INVOICE

28946

DATE

2/23/19



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. If not performed, a heartworm antigen test is recommended. Given the chronicity of the disease seen here in addition to a history of a chronic cough, COPD/chronic bronchitis and/or primary PF as an underlying cause with an acute secondary exacerbating insult (infectious or inflammatory) is suspected. Patients with this degree of PAH and pulmonary disease can develop right-sided congestive heart failure (ascites), debilitating cyanosis, labored breathing and exertional syncope if poorly controlled.

Given the recent history of a progressive cough, the most common cause is an infectious or inflammatory insult causing a decline in already poor oxygenation status. A PTE cannot be ruled out. Coverage with broad spectrum pulmonary antibiotic (fluoroquinolone) is recommended, in addition to vasodilation using Pimobendan and Sildenafil. Recommend discontinue Lasix as diuretics can actually further reduce preload in cases of debilitating PAH and worsen clinical signs.

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 medical relief going forward.

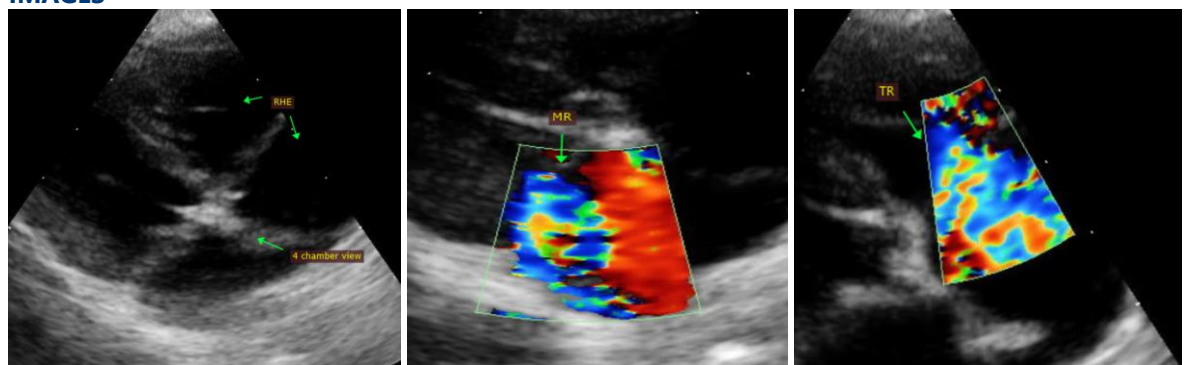
Omega fatty acid supplementation (anti-inflammatory) may be of some long-term benefit. Monitor for worsening of labored breathing, exercise intolerance or collapse episodes.

PLAN

Discontinue diuretic. Institute a course of pulmonary antibiotics (Enrofloxacin or similar). Institute sildenafil (Viagra) 1-2mg/kg PO q8h. Institute Pimobendan 0.2-0.3mg/kg PO q12h. Can also use hydrocodone, taper course of steroids, and/or theophylline depending on chronic clinical signs of cough/exertional dyspnea.

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

IMAGES



HOSPITAL NAME

Pocono Peak VC

REFERRING VET

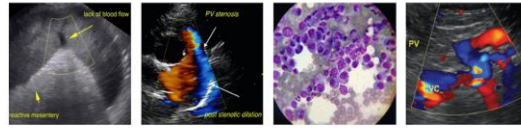
Dr. Coyle

INVOICE

28946

DATE

2/23/19



PATIENT

Jenny Runne

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.

SPECIES

Canine

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

BREED

Chihuahua Mix

Maggie Machen Lamy, DVM
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com

SEX

Female Spayed

AGE

16 years

WEIGHT

8.7bs

INTERPRETED BY

Maggie Machen
Lamy, DVM, DACVIM
(Cardiology)

**IMAGING
PERFORMED BY**

Rebekah Jakum, CVT
ARDMS/RVT

HOSPITAL NAME

Pocono Peak VC

REFERRING VET

Dr. Coyle

INVOICE

28946

DATE

2/23/19