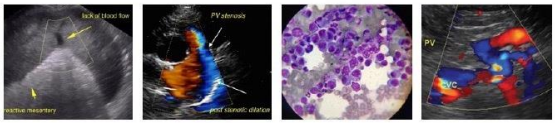
SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com



THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

PATIENT
Lilly Sawicki

SPECIES
Canine

BREED
Boston Terrier Mix

SEX
Female Spayed

AGE
10years

WEIGHT
20.7lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Kelly Reschny, RVT

HOSPITAL NAME
Main Street Animal Hospital

REFERRING VET
Dr. Brochu

INVOICE
27259

DATE
11/3/22

PRESENTING CLINICAL SIGNS

History: Examined October 31/2 for coughing fits and episodes of being "unaware", progressively worsening. MM pale pink to cyanotic, M3 calculus/ gingivitis and recession, 2-3x enlarged left submandibular LN as compared to right. Auscultation of lungs revealed crackles on inspiration, no murmur or arrhythmia. Abdominal palpation revealed no organomegaly palpable but breathing worsens on during cranial palpation.
-Current medications: Gabapentin, Doxycycline, Furosemide.

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

Right-sided cardiomegaly. No obvious evidence of CHF.

ECHOCARDIOGRAM FINDINGS

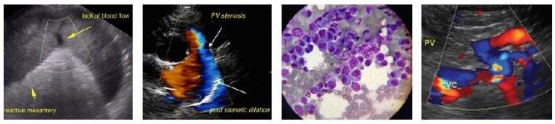
2D, m-mode, color flow and doppler imaging is available. Normal mitral valve with no obvious prolapse into the left atrial lumen. Trace mitral regurgitation with a normal left atrial dimension. Decreased left ventricular with adequate function. Subtle septal flattening in systole. LV wall dimension is normal. The tricuspid valve appears mildly thickened with moderate tricuspid regurgitation. Moderate to severe right atrial enlargement; moderate to severe right ventricular hypertrophy consistent with pulmonary arterial hypertension. TR velocity consistent with elevated pulmonary hypertension; however, suspected to be an underestimation. The pulmonic and aortic valves are normal in morphology and mobility. Mild main PA and branch dilation. Trace 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	4.0	1.2	1.3	55	90	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	NM	1.1	0.6	9.4	1.7	2.2	1.0
*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

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com



THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

PATIENT
Lilly Sawicki

SPECIES
Canine

BREED
Boston Terrier Mix

SEX
Female Spayed

AGE
10years

WEIGHT
20.7lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Kelly Reschny, RVT

HOSPITAL NAME
Main Street Animal Hospital

REFERRING VET
Dr. Brochu

INVOICE
27259

DATE
11/3/22

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 >80mmHg, with normal being <25mmHg. This is causing pressure overload of the right ventricle. The left heart is essentially normal, with a small mitral leak and evidence of volume depletion/dehydration. No additional issues are identified.

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 degree of disease seen here, appearance of the chest radiographs and chronic symptom, there is concern with COPD/chronic bronchitis and/or primary PF as an underlying cause with an acute secondary exacerbating insult (infectious or inflammatory) suspected. A Radiologist review of the films is strongly recommended. 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 recent worsening of symptoms, 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. Lasix is contraindicated, as diuretics can actually further reduce preload in cases of debilitating PAH and worsen clinical signs. Depending on patient stability, hospitalization for oxygen support, IV antibiotics and supportive care may be necessary.

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.

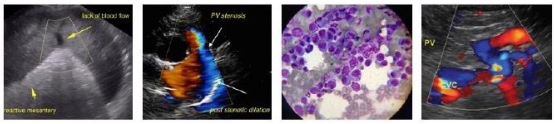
Omega fatty acid supplementation (anti-inflammatory) may be of some long-term benefit. Monitor for worsening of labored breathing, exercise intolerance or collapse episodes.

PLAN:

Consider Radiologist review of the films. Institute course of pulmonary antibiotics (Enrofloxacin or similar) IV or PO depending on patient stability. 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. Discontinue Lasix and consider fluid therapy.

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

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com



THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

PATIENT
Lilly Sawicki

SPECIES
Canine

BREED
Boston Terrier Mix

SEX
Female Spayed

AGE
10years

WEIGHT
20.7lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Kelly Reschny, RVT

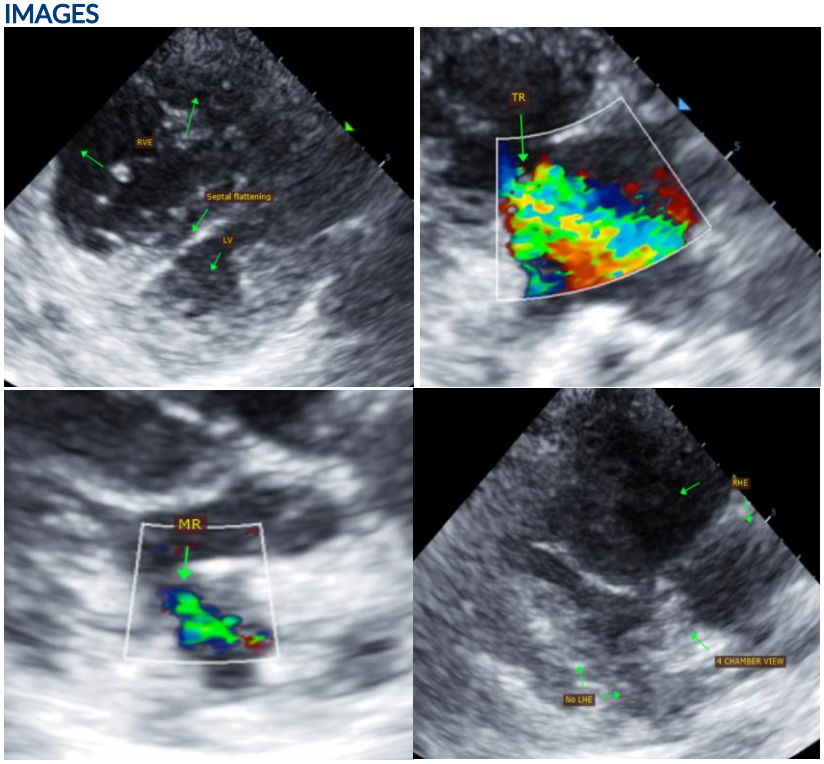
HOSPITAL NAME
Main Street Animal Hospital

REFERRING VET
Dr. Brochu

INVOICE
27259

DATE
11/3/22

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
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com