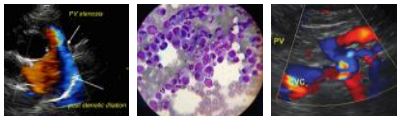
IMAGING PERFORMED BY

IntraPet.com



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

PATIENT
Bentley Corckett

SPECIES
Canine

BREED
Shih Tzu

SEX
Male Neutered

AGE
9.6.10

WEIGHT
10.8lbs

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

HOSPITAL NAME
Pet Wellness Center

REFERRING VET
Dr. Twardus

INVOICE
30122

DATE
4.7.23

PRESENTING CLINICAL SIGNS

History: Recheck echo. Assess prior to anesthesia.
-Pertinent abnormal PE/Chem/CBC/UA Results: BUN: 76, Creat: 1.7, remainder NSF.
-Current medications: Lasix 12.5mg ½ BID, Vetmedin 1.25mg BID.
-Sedation used: Not required to complete full diagnostic ultrasound.
-Pertinent previous ultrasound results (11/2020 MML): Moderate PAH, TR: 3.6 m/s, prominent RA, RV and MPA, mild TR. recommend Pimobendan and Sildenafil.
-STAT: Not requested
-Imaging performed by: Stephanie Warga RDCS, RVT.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with no prolapse into the left atrial lumen. Trace mitral regurgitation with no left atrial dilation. Normal MR velocity. Normal LV diameter with adequate myocardial function. The tricuspid valve appears mildly thickened with mild to moderate tricuspid regurgitation. Velocity consistent with moderate pulmonary hypertension (PG: 58mmHg). Mild RA/RV/MPA dilation. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic or pulmonic insufficiency. No pericardial or pleural effusion noted. No obvious cardiac masses.

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	5.3	3.8	NM	1.1	46	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	92	0.7	0.72	4.9	1.6	2.0	1.1
*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

Compared to the prior study there is evidence of mild progression, which is not surprising given the timeframe. The TR is increased comparatively with stable to slightly progressed pulmonary hypertension. The right heart is mildly enlarged and a small mitral leak is developed. No additional issues are identified.

Given these findings in an asymptomatic patient, the use of Sildenafil could be debated. This was recommended in 2020 based upon syncopal events and pulmonary hypertension; however, no symptoms are noted at this time. If the patient is doing well at home, this is likely unnecessary; however, can be added if any associated clinical signs arise. Additionally lasix is being administered without explanation. The patient's risk for CHF is low and there is no obvious need for this medication. Pimobendan does have some benefit for pulmonary hypertension and can be continued.

Monitor for any respiratory signs, such as a cough or dyspnea and treat as indicated. The primary symptom or progressive PAH is exertional syncope. Prognosis is guarded given the combination of issues, and patient will always be at risk for progression to right or left-sided CHF, development of arrhythmias, collapse, etc. going forward.

Anesthetic risk is considered mildly elevated. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, iso or sevoflurane gas) are recommended. Pre-oxygenate 5-10 minutes prior to induction. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Judicious IV fluid rates are recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated

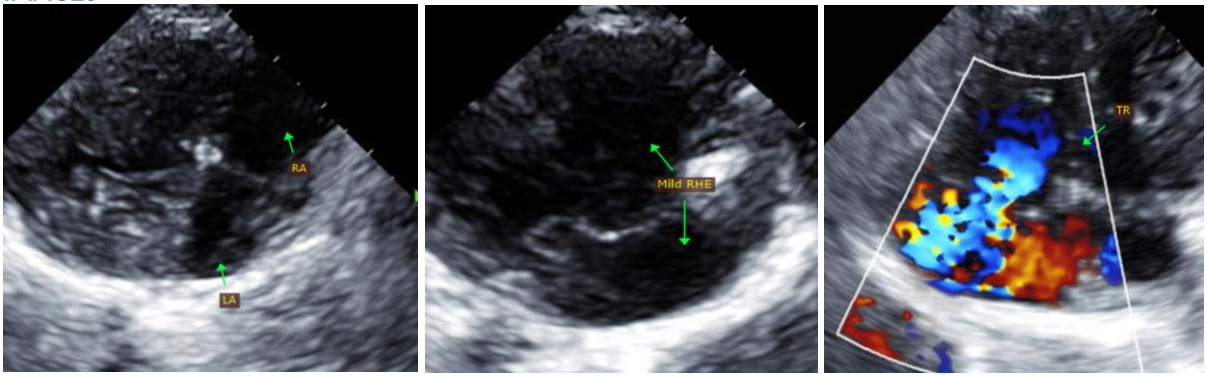
Omega fatty acid supplementation and mild salt restriction may also be of some long-term benefit. Monitor for development of a progressive cough, labored breathing, exercise intolerance or collapse episodes.

PLAN

No known reason to continue Lasix at this time. Continue Pimobendan as prescribed. If any exertional syncope or dyspnea develops, institute Sildenafil 1-2mg/kg PO q8-12h.

Recommend monitor for progression with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

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