



PATIENT

Teddy Penwell

SPECIES

Canine

BREED

Yorkshire/Pomeranian

SEX

Male Neutered

AGE

13 years

WEIGHT

13.2lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Potomac Mobile
Veterinary Ultrasound

HOSPITAL NAME

Banfield PetHospital
Winchester

REFERRING VET

Dr. Jarrett

INVOICE

27756

DATE

12/1/22

PRESENTING CLINICAL SIGNS

History: Heart murmur- tachycardic with grade III/VI left sided systolic murmur and grade II/VI right sided murmur. Having syncopal/seizure-like episodes where he briefly loses consciousness and there does not appear to be a pre-ictal or post ictal phase. No urination or defecation during episodes. CXR 2 weeks ago revealed left side cardiomegaly.

*During the study, the patient was cyanotic in lateral recumbency. Lasix and O2 were administered. Discharged with oral Lasix as well.

-Current medications: Vetmedin 1.25mg Q12h and Enalapril 2.5mg Q24h.

-Abnormal PE/Chem/CBC/UA Results (11/16/2022): CHEM: ALT 168.

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; 25mm/s, 20mm/mV. The underlying rhythm is low voltage and P waves cannot be identified. A sinus origin is suspected with a heart rate of 188bpm. P for every QRS complex and vice versa. The P and QRS morphologies are positive. Frequent isolated VPCs are seen throughout; singles only and monomorphic. No obvious APCs., pauses or other dysrhythmias observed.

ECG diagnosis: Sinus tachycardia with isolated VPCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with mild prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with moderate left atrial dilation. No LV dilation (LVIDdN 1.59) with adequate myocardial function. The tricuspid valve appears mildly thickened with mild tricuspid regurgitation. Velocity consistent with early pulmonary hypertension. Minimal right heart enlargement. 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	6.5	3.0	1.6	1.88	56	88	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	160	1.0	NM	6.0	2.4	2.7	1.2
*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)

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


PATIENT

	50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)
--	----	------------	------------	------------

Teddy Penwell

SPECIES

Canine

BREED

Yorkshire/Pomeranian

SEX

Male Neutered

AGE

13 years

WEIGHT

13.2lbs

INTERPRETED BY

 Maggie Machen Lamy,
 DVM, DACVIM
 (Cardiology)

IMAGING PERFORMED BY

 Potomac Mobile
 Veterinary Ultrasound

HOSPITAL NAME

 Banfield PetHospital
 Winchester

REFERRING VET

Dr. Jarrett

INVOICE

27756

DATE

12/1/22

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing moderate mitral and mild tricuspid regurgitation. Moderate left atrial enlargement indicates current relative stability with risk for progression to spontaneous congestive heart failure in the future. Early pulmonary hypertension is appreciated, which should be monitored going forward. No additional issues are noted at this time.

Frequent yet isolated VPCs are noted on the included ECG tracing. These are likely secondary to a combination of structural disease and stress, and single beats do not clearly warrant therapy. That being said, this patient is reportedly syncopal, although sustained VT is unlikely in this signalment. A holter monitor should be considered as the next step.

No definitive cardiac cause for syncope is seen in this study (i.e., no significant PAH, no obvious rupture or tears, reasonable cardiac output, etc.) and other causes should be considered. These possible causes include vasovagal events, intermittent arrhythmias, neurologic/systemic issues, etc. Further systemic evaluation may also be considered, such as AUS, blood pressure, holter, etc. particularly if the episodes persist.

The history is concerning, as significant cyanosis/tachypnea was noted during the study. It is unclear if this reflects CHF or primary respiratory disease at this time. CHF is a radiographic and clinical diagnosis that can only be supported by echo findings, and moderate disease is inconclusive. B lines are seen in the images; however, these are non-specific and may suggest respiratory disease as well. This breed is highly predisposed to respiratory disease and this must also be considered. Consider prior respiratory signs, response to Lasix therapy, etc. Additionally highly recommend repeat films as the patient is now symptomatic with a Radiologist review. IF the patient is improved on Lasix, reasonable to continue with the addition of Spironolactone. If the response was minimal, further respiratory evaluation is recommended and the medication is likely unnecessary.

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.

Anesthesia is not advised prior to further evaluation.

PLAN

Baseline BP is recommended. If BP is >130mmHg, continue Enalapril at standard dosing (0.5mg/kg PO q24-12h). Continue Pimobendan 0.3mg/kg PO q12h. Consider further evaluation of syncope as discussed. Consider response to Lasix, repeat films with a Radiologist review, etc. If the patient responded to Lasix, reasonable to continue (1-2mg/kg PO q12h) with addition of Spironolactone for long term benefit (1-2mg/kg PO q12h). If the patient continues to have respiratory issues, consider further respiratory evaluation. A holter monitor is recommended.

Recheck renal values, BP, ECG in 1-2 weeks then every 3-4 months lifelong.

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



PATIENT

Teddy Penwell

SPECIES

Canine

BREED

Yorkshire/Pomeranian

SEX

Male Neutered

AGE

13 years

WEIGHT

13.2lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Potomac Mobile
Veterinary Ultrasound

HOSPITAL NAME

Banfield PetHospital
Winchester

REFERRING VET

Dr. Jarrett

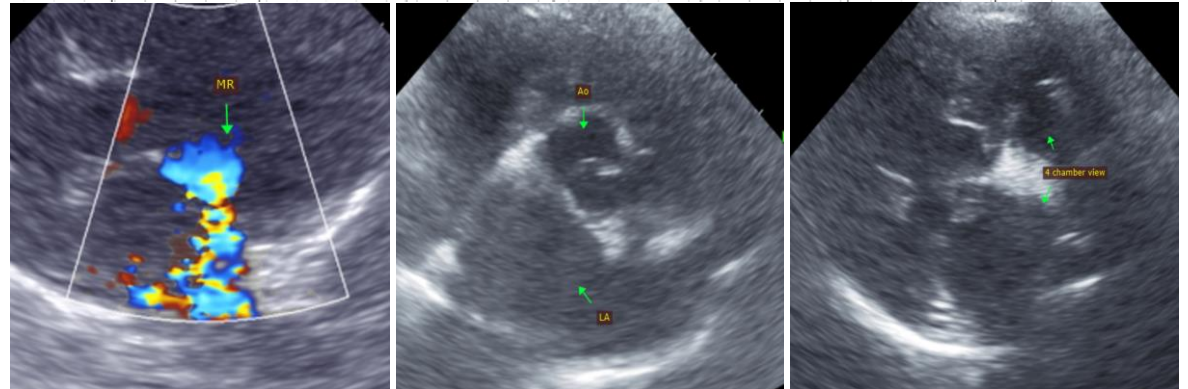
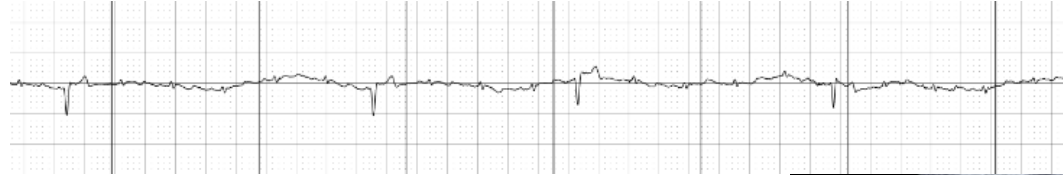
INVOICE

27756

DATE

12/1/22

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