



PATIENT

Banyan Peterson

SPECIES

Canine

BREED

Alaskan Malamute Mix

SEX

Male Neutered

AGE

2 years

WEIGHT

~80lbs

INTERPRETED BY

Maggie Machen Lamy,
DVM, DACVIM
(Cardiology)

IMAGING PERFORMED BY

Amanda Crook, SDEP

HOSPITAL NAME

Rivers Edge Pet
Medical Center

REFERRING VET

Dr. Lugo

INVOICE

31993

DATE

7/28/23

PRESENTING CLINICAL SIGNS

History: Heartworm positive dog with no clinical signs; unknown history due to recent adoption.
-Abnormal PE/Chem/CBC/UA Results: Lab work was WNL, HW+ on 4DX and confirmed on microfilaria testing.
-CXR report: Interstitial lung pattern and mild right heart enlargement.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.
Normal cardiac silhouette. No obvious evidence of CHF.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 25mm/s; 5mm/mV. The average heart rate is 100bpm (range 83-115bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P wave morphology is positive with a normal dimension. Normal PR. The QRS morphology is positive with normal dimension. MEA is normal. No ectopic beats, pauses or dysrhythmias observed.

ECG diagnosis: Normal sinus rhythm with respiratory variation.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild mitral valve thickening with no obvious prolapse into the left atrial lumen. No mitral regurgitation. Normal left atrial dimension. Normal LV diameter with adequate myocardial function. Normal LV wall thickness. The tricuspid valve appears normal in form and function. No TR. Mild prominence of right atrium and ventricle; however, no significant enlargement appreciated. The pulmonic and aortic valves are normal in morphology and mobility. Normal LVOT and RVOT velocity. No aortic or pulmonic insufficiency. MPA and branches appear normal. No obvious adult worms seen. That being said, the distal PA and branches are not extensively visualized. No pericardial or pleural effusion noted. No obvious cardiac tumors seen.

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	NA	NA	1.1	1.2	35	65	0.45
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	1.3	1.1	~36.3	2.5	3.9	2.5
*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)
<i>*Note: All measurements based upon multi-modal images and methods. An average value is reported.</i>				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



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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overtly normal cardiac structure and function documented in this study with no obvious significant PAH. There is no significant valvular regurgitation or chamber enlargement noted. The MPA and branches appear normal, and there are no obvious adult worms seen. It is important to understand that the distal pulmonary branches are difficult to visualize, and adult worms may have been easily missed. Even with the best visualization, ultrasound is not 100% sensitive for finding adult worms, although in an 8-month-old dog this is considered unlikely. The ECG is unremarkable with a respiratory sinus arrhythmia.

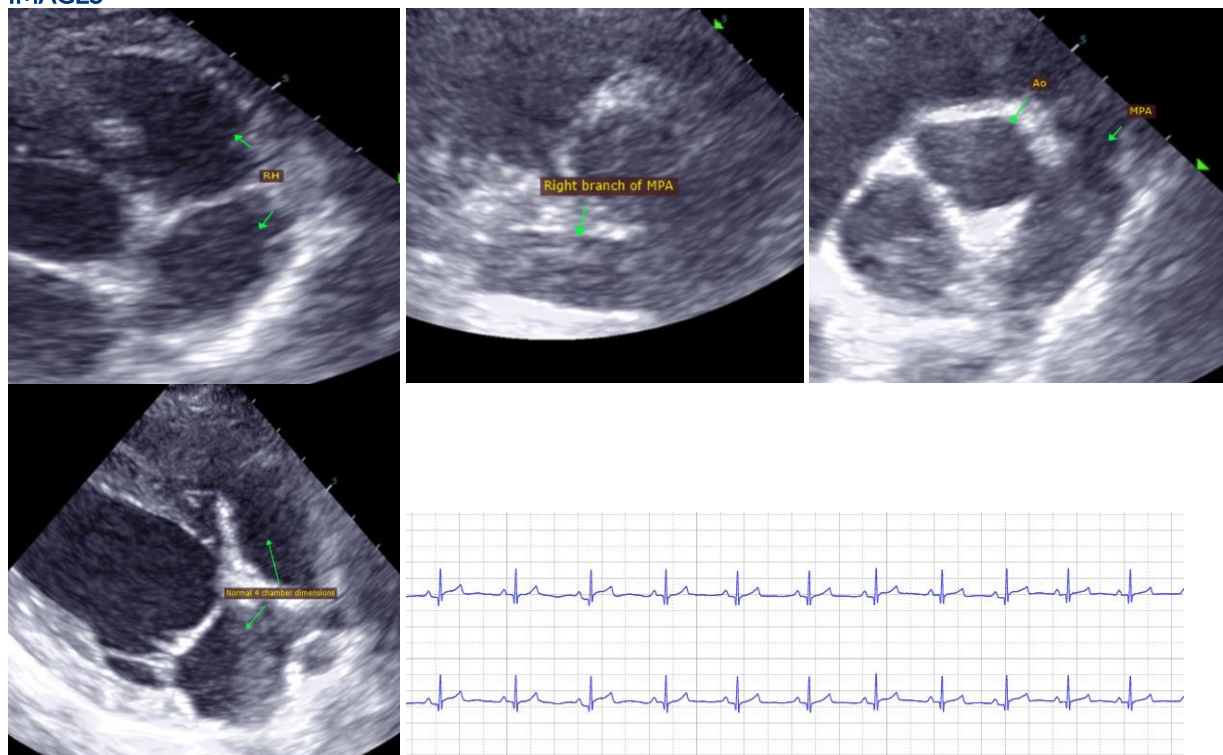
There is no obvious contraindication for Immiticide therapy with a presumably low adult worm burden based upon what is seen here. Confirming the diagnosis followed by the split immiticide protocol is recommended as dictated by the American Heartworm Society (www.heartwormsociety.org), including 30 days of doxycycline and monthly Ivermectin. Strict cage rest required at least until 4-6 weeks following the final treatment.

Any future cough should be treated symptomatically utilizing anti-inflammatory steroids, hydrocodone, etc.

If treatment is successful, good chance for no long-term issues associated with HW disease (cough, pulmonary hypertension, pulmonary damage, etc.) given a normal cardiac structure and lack of clinical signs.

Follow up echocardiography is only necessary if clinical signs of cardiac disease develop (murmur,

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.

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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.

BREED

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

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