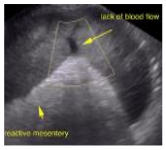
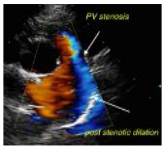
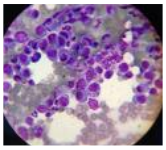
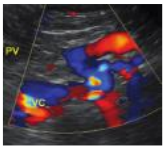
SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Piper Davis

SPECIES
Canine

BREED
Boston Terrier

SEX
Female Spayed

AGE
8 years

WEIGHT
17.8lbs

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

IMAGING PERFORMED BY
Dana Alterman, RDCS, LVT

HOSPITAL NAME
Eubank Animal Clinic

REFERRING VET
Dr. Smith/Hedberg

INVOICE
21337

DATE
10/4/21

PRESENTING CLINICAL SIGNS
History: Heartworm disease - assess for adult worms. Right heart enlargement on CXR.

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 average heart rate is 120bpm (range 68-150bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. No ectopic beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with respiratory variation.

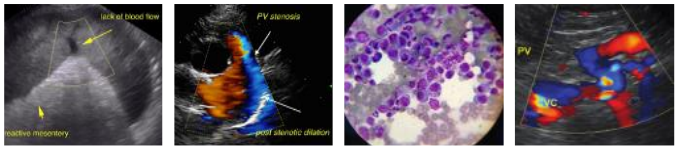
ECHOCARDIOGRAM FINDINGS
2D, m-mode, color flow and doppler imaging is available. Mild mitral valve thickening with no obvious prolapse into the left atrial lumen. No mitral regurgitation; normal left atrial dimension. Normal LV diameter with adequate myocardial function. Normal LV wall thickness. The tricuspid valve appears normal in form and function. The right atrium and ventricle appear normal. No overt evidence of pulmonary arterial hypertension. The pulmonic and aortic valves are normal in morphology and mobility. Normal LVOT and RVOT velocity. No aortic or pulmonic insufficiency. Normal MPA and PA branches; no obvious adult worms seen. 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	NM	1.3	50	83	0.59
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	1.2	1.1	8.1	1.9	2.8	1.4
*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
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; however, the diastole branches are not well visualized. It is important to note that ultrasound is not 100%



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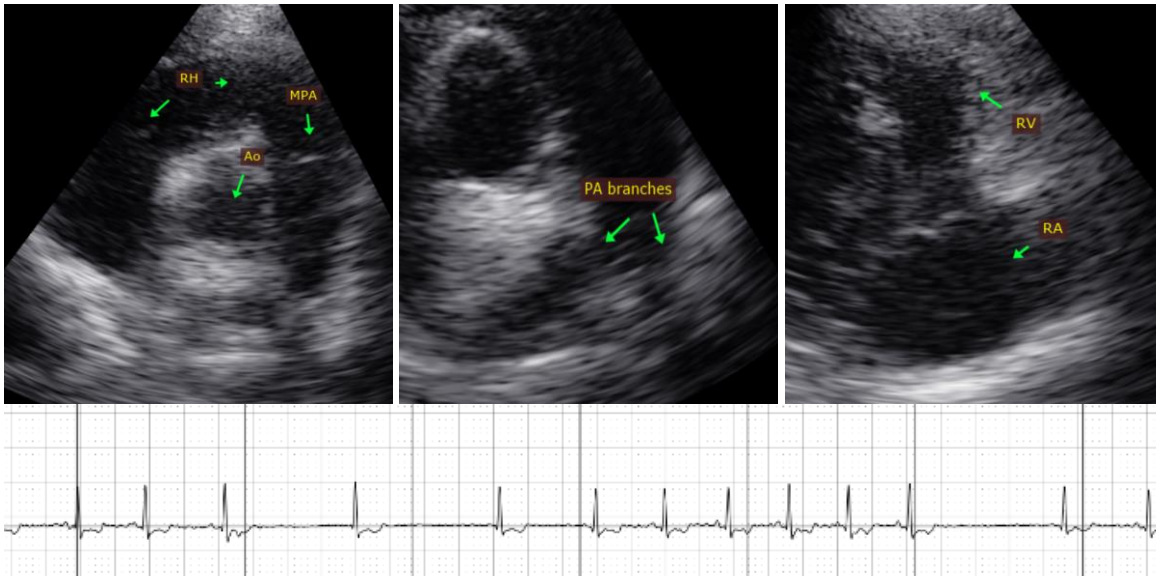
sensitive for finding adult worms however, although suspicion is low in a dog without associated clinical signs (cough, exertional syncope). The ECG is unremarkable with a profound respiratory sinus arrythmia.

There is no obvious contraindication for Immiticide therapy with a presumably low adult worm burden. 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. Given possible systemic illness, consider further workup and therapy for current clinical signs before proceeding with aggressive HW therapy. No obvious association between an occult HW positive status and current GI upset is suspected.

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, cough, fainting, etc.).

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)
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