IMAGING PERFORMED BY

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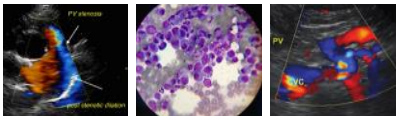

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PATIENT
Phil Brager

SPECIES
Canine

BREED
Boxer

SEX
Male Neutered

AGE
6.16.11

WEIGHT
70.4lbs

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

HOSPITAL NAME
Everhart Veterinary Hospital

REFERRING VET
Dr. Hotarangelo

INVOICE
30240

DATE
4.13.23

PRESENTING CLINICAL SIGNS

History: Presented for routine LDDST after abdominal ultrasound showed prominent adrenal glands. Incidental 2/6 systolic, PMI L apex, intermittent gallop and arrhythmia present. Stat ECG suggested possible ventricular enlargement with R wave increased amplitude and ventricular arrhythmia with left bundle branch block, concern for arrhythmogenic right ventricular cardiomyopathy.
Pertinent abnormal PE/Chem/CBC/UA Results: Single VPCs; RV origin
Current medications: Flexadin, Carprofen, Trazodone PRN.
Sedation used: Not required to complete full diagnostic ultrasound.
Pertinent previous ultrasound results: No previous.
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. No mitral regurgitation with no left atrial dilation. Decreased LV diameter with adequate myocardial function. Mild LV hypertrophy. The tricuspid valve appears normal with trace tricuspid regurgitation. Normal velocity. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension. 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		2.1	NM	1.2	41	73	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	107	1.5	0.9	31.9	2.7	3.4	2.0
*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

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cardiac structure and function are essentially normal in this patient. The left heart dimensions are decreased with mildly increased wall thickness, which is most consistent with volume depletion. Baseline lab work and BP are recommended. The systolic function is adequate, and the right heart is normal. No valvular insufficiencies were noted, and no structural issues identified.

VPCs are a very non-specific finding. They can be primary in origin (such as ARVC), be secondary to significant cardiac disease (not present in this study) or be extra-cardiac in origin, i.e., due to pain, stress, inflammation, cancer, GI disease, DIC/sepsis, etc. In any Boxer, there is certainly concern for ARVC, although most common age of onset is 6-8yo. Other extra-cardiac causes should be ruled out. ARVC can occur with or without systolic dysfunction and structural issues, however even normal structure/function should be monitored going forward for any progressive issues. Unfortunately, there is always an elevated risk for collapse and sudden death in any arrhythmic patient, and even on medications this risk unfortunately still persists.

This study does not address the need for treatment/further evaluation of the arrhythmia, and the ECG report should be referenced (sotalol v mexiletine v no therapy v holter).

Fish oil supplementation is recommended for dogs with arrhythmias (1000mg of omega 3 and 6 once to twice daily as tolerated).

Anesthetic recommendations should be referenced from the ECG report. No structural contraindication.

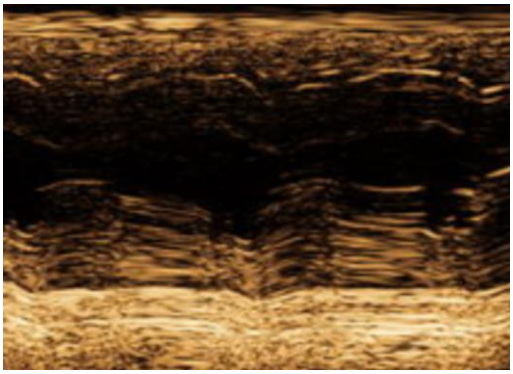
Monitor at home for collapse, exercise intolerance, and/or lethargy.

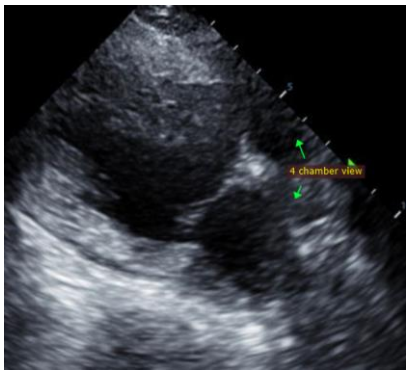
PLAN

Address ECG findings as dictated by the ECG report. Consider baseline lab work and BP.

Recheck echocardiogram is recommended in 12 months to assess for development of disease, sooner if any development of associated 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.

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