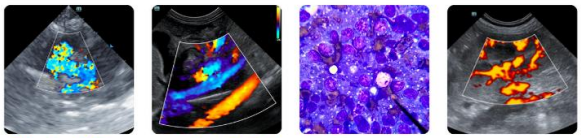


DATE

3.24.26

PATIENT

Gunner Wiedeck

SPECIES

Canine

BREED

Chesapeake Bay Retriever

SEX

MN

AGE

2.20.13

WEIGHT

97lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

HOSPITAL NAME

Chadwell AH

REFERRING VET

Dr. Gold

INVOICE

47283

CLINICAL BACKGROUND & STUDY DETAILS

History: Arrhythmia. Grade 3/6 heart murmur. Osteoarthritis.
Pertinent abnormal PE/Chem/CBC/UA Results: lab work pending.
Current medications: Librela, Gabapentin 300mg three times a day, Hydrocodone 5mg 2 tabs twice a day Cerenia 160mg 1/2 tab once every other day, Prednisone 20mg every other day
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.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at both 25 and 50mm/s; 1mm/mV. The average heart rate is 75bpm. 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. Isolated VPCs throughout; singles only, monomorphic. No APCs, pauses or dysrhythmias observed.
ECG diagnosis: Sinus bradycardia with respiratory variation. Isolated VPCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild left ventricular dilation in both systole and diastole (LVIDdN: 1.71, LVIDsN: 1.28) with mild to moderate systolic dysfunction. Normal LV wall thickness and mildly increased sphericity. Mild left atrial enlargement. The mitral valve appears mildly thickened with no obvious prolapse into the left atrial lumen. Mild central mitral regurgitation. The tricuspid valve appears normal in form and function with trace TR. Normal velocity. Mild right atrial and ventricular dilation. The aortic and pulmonic valves appear normal in morphology and mobility. Normal LVOT/RVOT velocity. No pericardial or pleural effusion noted. No obvious cardiac tumors.

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	NM	2.7	NM	1.5	20	36	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	88	1.5	1.1	44.0	3.6	5.2	4.2
*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 *Note: All measurements based upon multi-modal images and methods. An average value is reported.				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
				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)

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	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)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Unfortunately, this patient has changes most consistent with occult Dilated Cardiomyopathy (DCM). There is a decline in systolic function, accompanied by mild LV dilation and increased sphericity. The LA is mildly increased, indicating relatively low risk for complication at this time; however, risk for progression is elevated. In the future the risk will persist for development of congestive heart failure, malignant arrhythmias (AF, VT), collapse and/or sudden death.

Systolic failure can be primary in nature (DCM) or secondary to taurine deficiency, certain drugs such as Doxorubicin, myocarditis, hypothyroidism, tachycardia-induced cardiomyopathy, or infiltrative disease such as lymphoma. In a senior large breed dog, primary disease is certainly possible. That being said, consider testing for primary causes that may be treatable such as a full thyroid panel. A thorough diet history is recommended, assessing for grain free, boutique brands and/or exotic ingredient options with a diet change if indicated. Regardless of cause, prognosis is guarded long term with risk for complications going forward.

Recommend Pimobendan in this case based upon these findings. Close monitoring and medication will help give the best prognosis possible, which remains guarded long-term. In the absence of clinical signs, no additional medications are clearly indicated at this time.

The ECG does confirm there are also single VPCs present. VPCs are ectopic beats generated from abnormal conductive or fibrotic tissue in the ventricles of the heart muscle, and even frequent single VPCs will often cause no clinical signs in dogs. When sustained however, ventricular tachycardia can lead to symptoms such as lethargy and collapse. Monitoring for progression is advised, assessing for acute lethargy or collapse.

VPCs are a very non-specific finding and this dog with structural disease this may be related. They can be primary in origin such as ARVC, be secondary to significant cardiac disease, or be extra-cardiac in origin, i.e., due to pain, stress, inflammation, cancer, GI disease, DIC/sepsis, etc. In this dog with structural disease, these may certainly be related; however exacerbating issues should be considered. An abdominal ultrasound to monitor for any underlying abnormalities, in addition to full lab work, tick titers, cardiac troponin level, etc. can be considered. 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.

Based strictly on the amount of arrhythmia present, low markers of malignancy (such as polyporphism), and a lack of associated clinical signs at home, no anti-arrhythmic treatment is clearly indicated. That being said, the only way to understand the true extent of the arrhythmia in the absence of stress and for an extended period of time is to apply a 24-hour holter monitor and this can be considered as a next step if desired. An alternative approach would be to utilize a holter monitor should the patient begin to experience clinical signs such as lethargy or collapse; however, this is a less conservative approach. Discussion with the owner is advised.

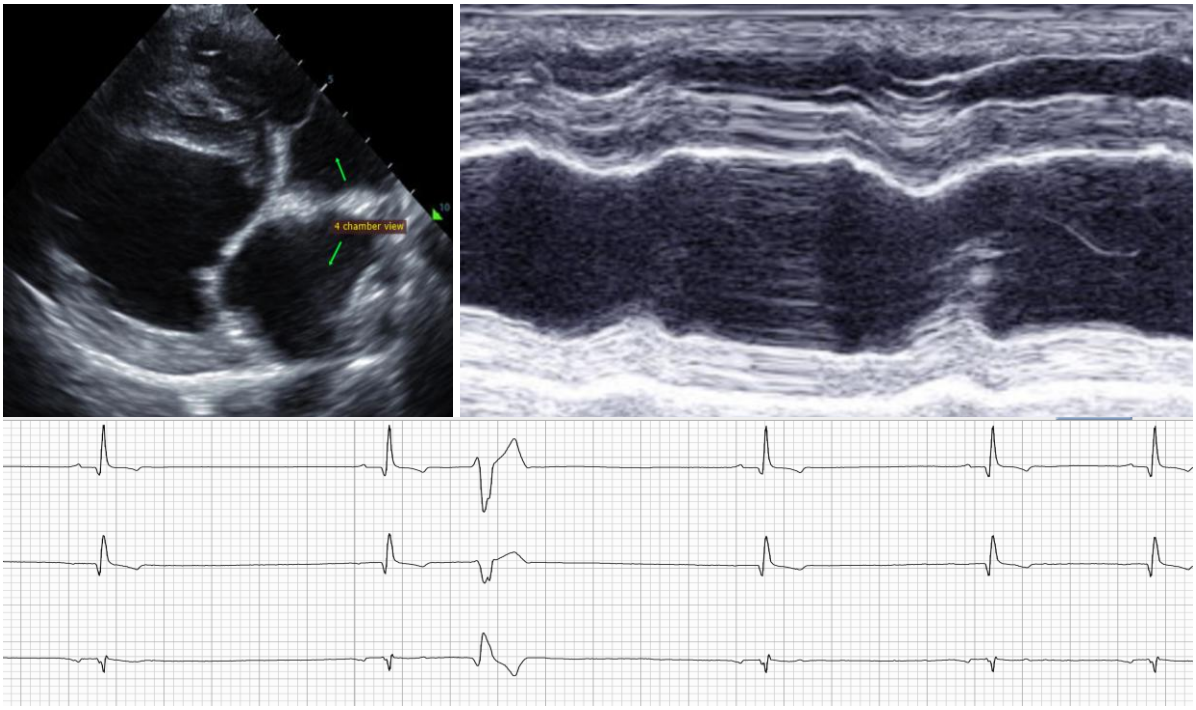
Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes in the future. Monitoring of sleeping breathing rates at home is recommended to screen for progression in the future. Mild activity restriction is advised. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.

PLAN

Continue Pimobendan 0.25-0.3mg/kg PO q12h. Institute Taurine supplement 1000mg PO q12h. Consider thyroid panel and diet history. A holter monitor is recommended to fully understand the extent of the arrythmia.

A recheck echocardiogram is recommended in 6 months to assess for progression, sooner if clinical signs arise.

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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