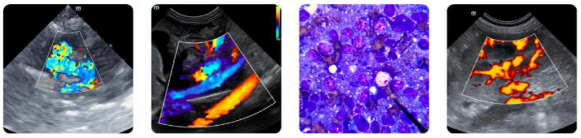

PATIENT
Pickles Kelly

SPECIES
Canine

BREED
Mix

SEX
Male Neutered

AGE
11.7 years

WEIGHT
67lbs

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

IMAGING PERFORMED BY
Vincent Ravancho, CVT / Shari Reffi, CVT

HOSPITAL NAME
Bergen County Verterinary Center

REFERRING VET
Dr. Santo

INVOICE
46000

DATE
12/4/25

PRESENTING CLINICAL SIGNS
History: Arrythmia noted.

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

ELECTROCARDIOGRAPHIC FINDINGS
Multiple photographs of a six lead ECG is available at 50mm/s; 5mm/mV. The average heart rate is 130bpm. 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. Frequent VPCs are seen throughout; monomorphic with an LV origin. The vast majority are single beats with rare couplets observed. Brief period of bigeminy. One triplet is noted. No APCs, pauses or other dysrhythmias observed. ECG diagnosis: Normal sinus rhythm with respiratory variation. Malignant ventricular arrythmias.

ECHOCARDIOGRAM FINDINGS
2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with minimal prolapse into the left atrial lumen. Mild eccentric mitral regurgitation with no left atrial dilation. Normal MR velocity. Normal LV diameter with adequate myocardial function. The tricuspid valve appears normal with no tricuspid regurgitation. 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	5.0	NA	NM	1.3	29	57	0.2
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	1.4	30.4	2.7	3.5	2.4
*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

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing mild mitral regurgitation. Lack of significant left atrial enlargement indicates the current risk for complication is low. No concurrent issues such as systolic dysfunction or pulmonary hypertension are noted in this study.

The ECG does confirm frequent VPCs are present as the cause of the arrhythmia. VPC's are 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.

VPCs are a very non-specific finding. They can be primary in origin such as ARVC, due to significant cardiac disease (mild present in this study) or be extra-cardiac in origin, i.e., due to pain, stress, inflammation, cancer, GI disease, DIC/sepsis, etc. In this senior dog, primary disease is certainly possible; however, all differentials should be ruled out. An abdominal ultrasound to monitor for any underlying abnormalities, in addition to tick titers and cardiac troponin level 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 upon the frequency of VPC's and markers of malignancy, Sotalol is recommended as below. This is based upon high risk for sudden death going forward. A holter monitor can and should also be considered to know the full extent of the arrhythmia outside of a stressful environment. Further work-up should be completed prior to going forward with general anesthesia.

In a dog with no significant left atrial enlargement, no cardiac specific medications are clearly indicated. Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

Anesthesia is not advised prior to adequate rhythm control. Once deemed controlled, anesthetic risk is moderately elevated, cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Avoid alpha-2 agonists, ketamine and telazol. Close monitoring for arrhythmias is advised with use of lidocaine CRI if sustained malignant arrhythmias develop. Mild IV fluid restriction is recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

PLAN

Institute Sotalol 1-2mg/kg PO q12h. Full systemic screening as discussed. Recheck ECG and/or or holter monitor in 1-2 weeks to understand control.

Recommend conservative monitoring with a recheck echocardiogram and ECG in 6months, sooner if any development of clinical signs.

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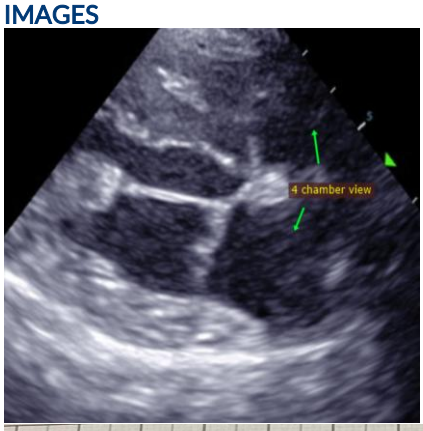
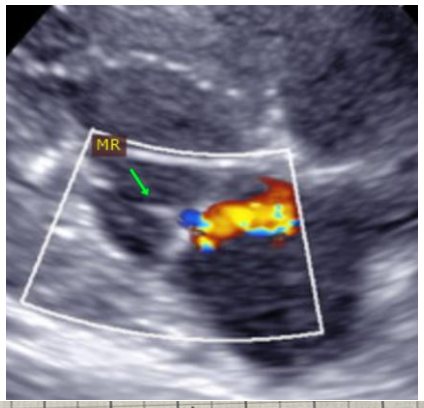
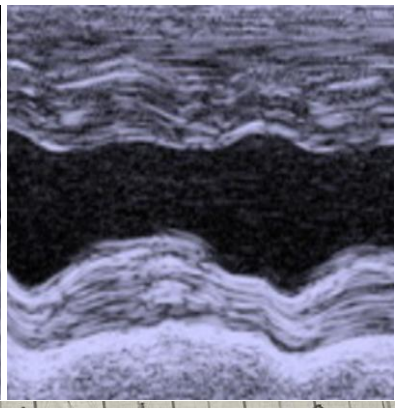
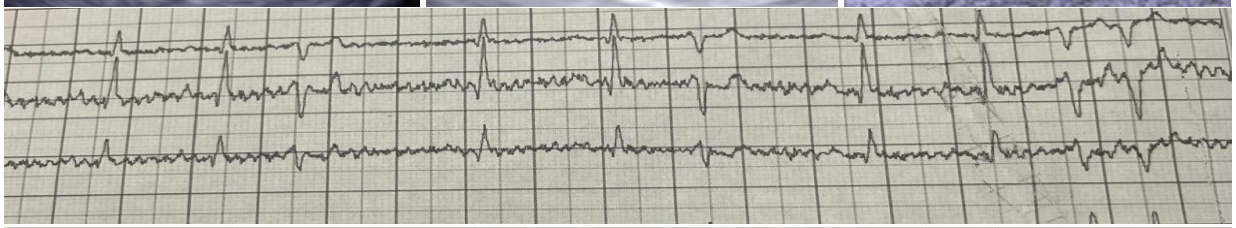
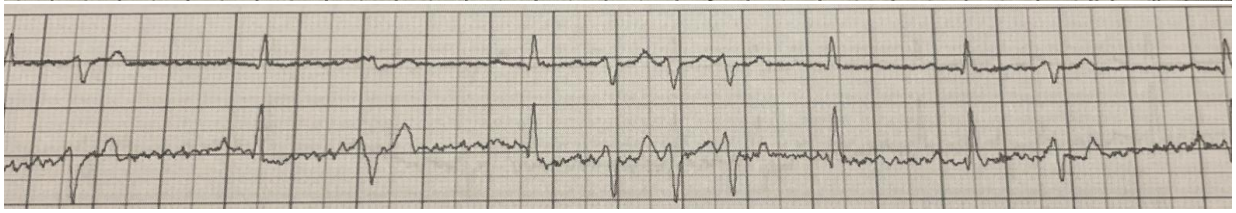
IMAGES







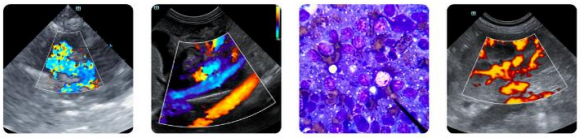




The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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



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