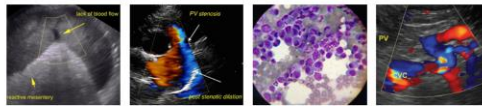


PATIENT
Brody Stanton

SPECIES
Canine

BREED
German SH Pointer

SEX
Male Neutered

AGE
11 years

WEIGHT
51.4lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Norfolk County Veterinary Services

REFERRING VET
Dr. McCabe

INVOICE
31482

DATE
6/22/23

PRESENTING CLINICAL SIGNS

History: Progressive heart murmur now grade IV/VI. No clinical concerns. Good appetite, no exercise intolerance. BP: 148mmHg.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 25mm/s; 5mm/mV. The average heart rate is 120bpm (range 94-150bpm). 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 are seen throughout; singles only, polymorphism noted. No couplets, triplets or VT appreciated. ECG diagnosis: Normal sinus rhythm with isolated polymorphic VPCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: The LV is mildly dilated with adequate myocardial function. LV wall thicknesses are normal.
Left atrium: The left atrium is mildly dilated.
Mitral valve: The mitral valve is mildly thickened with minimal prolapse into the left atrial lumen. Moderate to severe eccentric mitral regurgitation. Normal velocity.
Aortic valve/Aorta: The aortic valve is normal in morphology and mobility. Normal aortic outflow velocity; laminar flow. Trace aortic insufficiency.
Right ventricle: No RV dilation.
Right atrium: No RA dilation.
Tricuspid valve: The tricuspid valve is normal with trace tricuspid regurgitation; normal velocity.
Pulmonary valve/Pulmonary artery: The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. Normal RVOT velocity; laminar flow.
Pericardium/other: No pericardial or pleural effusion noted. No obvious cardiac masses.

2-Dimensional Measurements

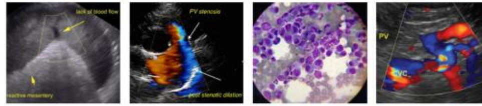
Ao diam (cm)	2.7
LA diam (cm)	4.0
LA:Ao (Swe)	1.5
IVS thickness (cm)	0.9
LVID diastole (cm)	5.2
PW thickness (cm)	0.9
LVID systole (cm)	3.4
FS (%)	35

Doppler Measurements

PV Vmax (m/s)	0.6
AoV Vmax (m/s)	1.3
MR Vmax (m/s)	5.6
TR Vmax (m/s)	2.5
TR PG (mmHg)	25

INTERPRETATION OF THE FINDINGS

The cause of the murmur is chronic degenerative valve disease causing moderate to severe mitral and trace tricuspid regurgitation. Mild left atrial enlargement indicates the current risk for complication is currently low; however, there is high risk for progression going forward. A small aortic insufficiency is noted; however, the reported BP is reasonable. No concurrent issues such as systolic dysfunction are noted in this study.



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Given concurrent arrythmic disease, Pimobendan is recommended as below for additional cardiac support. Assessment of progression in the future will help predict long term prognosis, which is guarded at this stage (B1/B2).

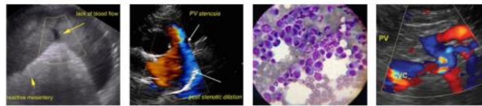
Isolated VPCs are noted on the ECG as well. VPCs are ectopic beats generated from abnormal conductive or fibrotic tissue in the ventricles of the heart muscle, and even frequent single VPCs will often cause no clinical signs in dogs. When sustained however, ventricular tachycardia can lead to symptoms such as lethargy and collapse.

VPCs are a very non-specific finding. They can be primary in origin (arrhythmic disease; a rule out diagnosis), develop 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 senior dog with mild to moderate structural cardiac disease, they are likely due to stress and atrial dilation; however, ruling out systemic issues is reasonable (senior labs, AUS, etc.). 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.

In addressing arrhythmias in dogs, we must not only consider why they are happening as above, but also whether or not treatment is warranted. Although only single beats are appreciated, there is some concern give polymorphism. This would indicate that more than one focus is firing inappropriately. Given this finding, highly recommend application of a holter monitor for further evaluation. This will tell us the frequency and complexity of the rhythm over 24 hours of normal activity. An alternative approach would be to simply monitor at home for symptoms and utilize a holter monitor should the patient begin to experience clinical signs such as lethargy or collapse, which is also reasonable. No obvious indication for anti-arrhythmic therapy based upon what is seen here. Discussion with the owner is advised.

RECOMMENDATIONS

- Institute Pimobendan 0.25-0.3mg/kg PO q12h.
- Consider holter monitor v monitor at home.
- Consider systemic screening as discussed.
- Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit
- Anesthetic risk is considered moderately elevated. Avoid ketamine, telazol, Dexdomitor (or other alpha-2 agonists) and acepromazine. Recommend having lidocaine CRI available for use in the event of worsening ventricular arrhythmias under anesthesia (CRI 50—75mcg/kg/min). Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, iso or sevoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction and recover in O2 cage. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Moderate IV fluid restriction is recommended to avoid fluid overload, while considering comorbidities, hydration status, BP, etc.
- Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.



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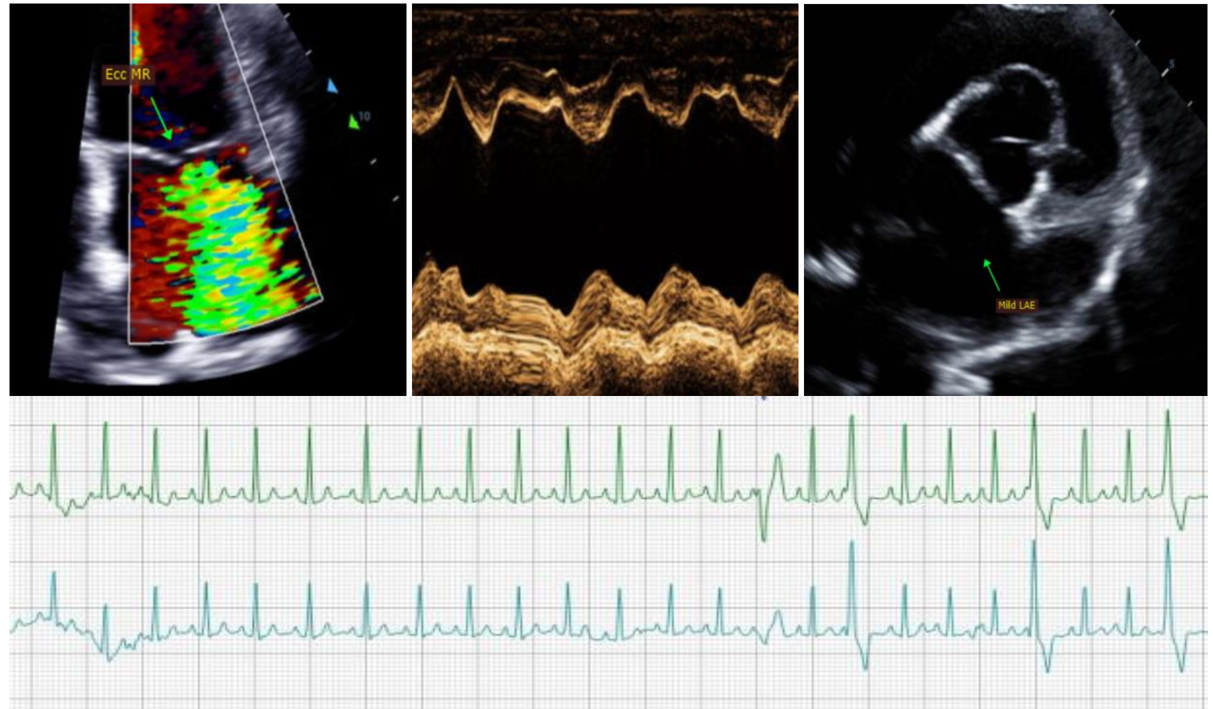
PLAN

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

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

Echocardiogram performed by: Eduardo Rodriguez III, RDS
Pet Animal Ultrasound Service (4paus.com)