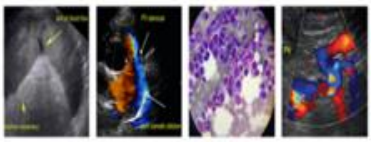
Mass Veterinary Services



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT
Marcel Werme

SPECIES
Canine

BREED
Mix

SEX
Male Neutered

AGE
11 years

WEIGHT
78.9lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Services

REFERRING VET
Dr. Masloski

INVOICE
27327

DATE
11/8/22

PRESENTING CLINICAL SIGNS

History: Marcel was first noted to have a heart murmur in December 2015. A ProBNP level done in August was elevated at 2390. Previously on a grain free diet until one month ago. Presently eating well with normal activity. No C/S/V/D/PU/PD. Needs mass removal. On exam: NSR, grade II/VI murmur with PMI left apical area, PSS, lung fields clear, mm pink moist, CRT<2. BP: 160mmHg. Current medications: 1) Apoquel 16mg 1 tab daily 2) Pimobendan/vetmedin *No sedation for study *Holter monitor was attached after echocardiogram.

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, 10mm/mV, 3 minutes in length. The underlying rhythm is sinus in origin with an average heart rate of 100bpm (range 75-110bpm). P for every QRS complex and vice versa. P and QRS morphologies are positive. Isolated VPCs are seen throughout; singles only with a brief period of bigeminy. No couplets, triplets or runs of VT are appreciated. No APCs, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with respiratory variation. Isolated VPCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: The LV diameter is normal 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 no prolapse into the left atrial lumen. Mild eccentric mitral regurgitation with a normal velocity.
Aortic valve/aorta: The aortic valve is normal in morphology and mobility. Normal aortic outflow velocity; laminar flow. No aortic insufficiency.
Right ventricle: Normal right ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension.
Right atrium: Normal RA dimension.
Tricuspid valve: The tricuspid valve appears normal with no tricuspid regurgitation.
Pulmonic 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)	2.5
LA diam (cm)	3.6
LA:Ao (Swe)	1.44
IVS thickness (cm)	1.1
LVID diastole (cm)	4.6
PW thickness (cm)	1.1
LVID systole (cm)	2.9
FS (%)	37

Doppler Measurements

PV Vmax (m/s)	0.96
AoV Vmax (m/s)	1.4
MR Vmax (m/s)	5.6
TR Vmax (m/s)	NA
TR PG (mmHg)	NA

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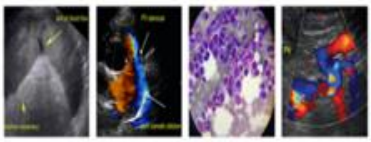

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INTERPRETATION OF THE FINDINGS

Chronic degenerative valve disease causing mild mitral regurgitation is identified. 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. Prognosis is highly variable at this stage (B1).

The ECG does confirm isolated ventricular premature contractions (VPCs). 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 such as ARVC, be secondary to significant cardiac disease (mild in this study), or be extra-cardiac in origin; i.e., due to pain, stress, inflammation, cancer, GI disease, DIC/sepsis, etc. In a senior dog with only mild structural disease, all additional causes can be considered. An abdominal ultrasound to monitor for any underlying abnormalities, in addition to full lab work, 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 seen in hospital and a lack of associated clinical signs at home, no anti-arrhythmic treatment is clearly indicated. A holter was placed, which is the recommended next step.

RECOMMENDATIONS

- No cardiac medications are clearly indicated.
- Follow up for the arrhythmia pending holter monitor results.
- Fish oil supplementation is recommended for dogs with arrhythmias (1000mg of omega 3 and 6 once to twice daily).
- Consider a holter, systemic screening as discussed.
- Monitor at home for collapse, exercise intolerance, and/or lethargy.
- Anesthetic risk is considered mild if needed. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Mild IV fluid restriction is recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

PLAN

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

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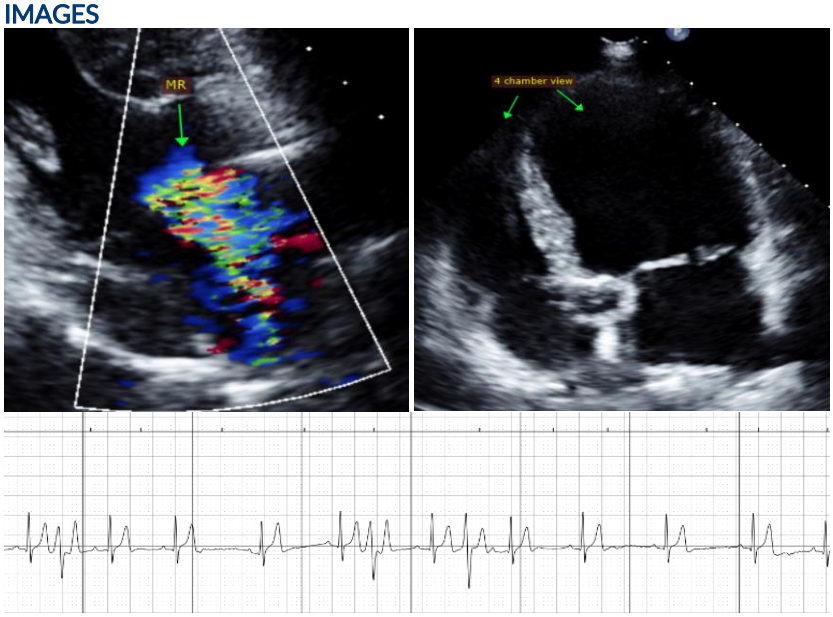

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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: Pamela Harrigan, RDCS
Pet Animal Ultrasound Service (4paus.com)