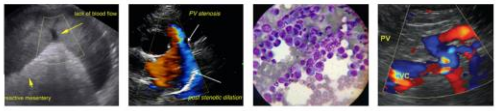
Mass Veterinary Specialty Services
1-413-734-1292



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

PATIENT
Bostie Benard

SPECIES
Canine

BREED
Redbone Coonhound

SEX
Female Spayed

AGE
9 years

WEIGHT
77.8lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Specialty Services

REFERRING VET
Dr. Masloski

INVOICE
20714

DATE
8/24/21

PRESENTING CLINICAL SIGNS

History: Recheck echo. History normal cardiac structure and function on prior echocardiogram 1/20/21 done to evaluate an arrhythmia (NSR with isolated VPCs). No coughing or dyspnea. Good appetite and energy. CV/RESP: intermittent arrhythmia, no murmur noted, PSS, lung fields clear. BP: 180 mmHg x 3; 200mmHg x 2. *No sedation

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. The average heart rate is 120bpm. The underlying rhythm is sinus in origin, with a p for every QRS complex and vice versa. P and QRS morphologies are positive. Isolated VPCs throughout; 9 in a two-minute tracing. The VPCs are monomorphic with varying prematurity. No couplets or runs of VT appreciated. No supraventricular premature beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with 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 normal.
Mitral valve: The mitral valve is normal with trace central MR.
Aortic valve/Aorta: The aortic valve is normal with normal 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)	2.1
LA diam (cm)	2.9
LA:Ao (Swe)	1.3
IVS thickness (cm)	1.1
LVID diastole (cm)	3.7
PW thickness (cm)	1.1
LVID systole (cm)	2.1
FS (%)	43

Doppler Measurements

PV Vmax (m/s)	0.8
AoV Vmax (m/s)	1.5
MR Vmax (m/s)	NA
TR Vmax (m/s)	NA
TR PG (mmHg)	NA

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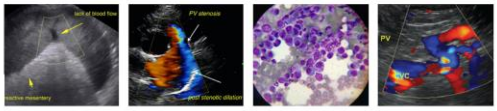

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INTERPRETATION OF THE FINDINGS

Overtly normal cardiac structure and function. No structural issues or cardiac tumors are identified. That being said, small extra-cardiac masses are easily missed, and this is not entirely ruled out on 2D ultrasound. Suspicion is low.

Isolated VPCs are confirmed on the ECG. 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 (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 this 9-year-old dog without structural cardiac disease, ruling out all differentials can be considered including AUS. 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. Given the mild nature of the arrhythmia, consider application of a holter monitor if interested in 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. Discussion with the owner is advised.

RECOMMENDATIONS

- No cardiac medications are clearly indicated at this time.
- Consider holter monitor as discussed.
- Consider full systemic evaluation as discussed.
- Fish oil supplementation is recommended for dogs with arrhythmias (1000-2000mg of omega 3 and 6 once to twice daily).
- If further evaluation is not performed, 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).
- Monitor at home for collapse, exercise intolerance, and/or lethargy.

PLAN

If a holter monitor is elected, this will dictate whether additional therapy is needed and follow up protocol. If a holter is declined, recommend recheck ECG in 4-6 months.

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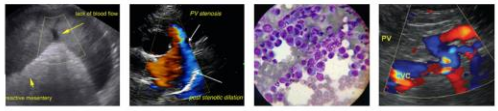

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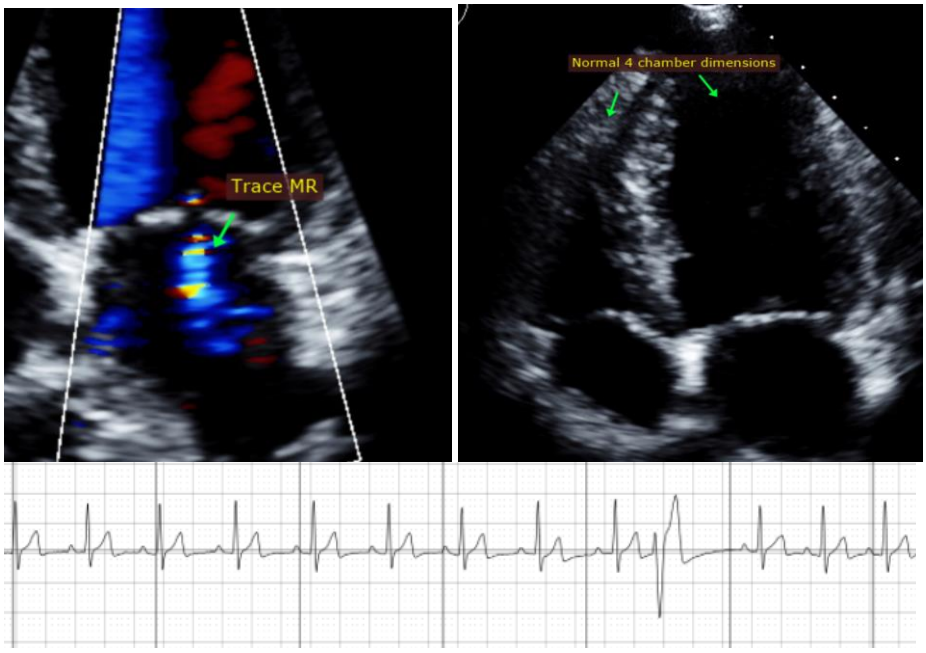
IMAGES



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

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