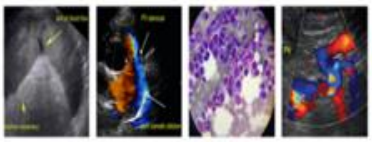
Mass Veterinary Services



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

PATIENT
Gambit Cyr

SPECIES
Canine

BREED
Boxer

SEX
Male Intact

AGE
8 years

WEIGHT
87.3lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Services

REFERRING VET
Dr. Masloski

INVOICE
30666

DATE
5/9/23

PRESENTING CLINICAL SIGNS

History: Gambit was noted to have an arrhythmia earlier this month. He continues to be active and playful with no exercise intolerance, collapse or dyspnea. Good appetite. History of low grade MCT completely excised in 2019. On exam: pronounced arrhythmia, no murmurs noted, PSS, lung fields clear, mm pink, moist, CRT<2. BP: 170mmHg. *Sedated with propofol for study.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 25mm/s; 20mm/mV. The underlying rhythm is sinus in origin with an average heart rate of 150bpm. 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 noted throughout; primarily are RBB morphologies (indicative of an LV origin); however, polymorphism is noted. The VPCs are primarily singles with periods of bigeminy. Frequent tight couplets and triplets are observed. No supraventricular premature beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with malignant ventricular arrythmias.

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 in dimension.
Mitral valve: The mitral valve is mildly thickened with no prolapse into the left atrial lumen. No mitral regurgitation.
Aortic valve/aorta: The aortic valve is normal in morphology and mobility. Normal aortic outflow velocity; laminar flow. No aortic insufficiency.
Right ventricle: Prominent right ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension.
Right atrium: No RA dilation.
Tricuspid valve: The tricuspid valve appears normal with trace 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)	2.2
LA diam (cm)	2.8
LA:Ao (Swe)	1.3
IVS thickness (cm)	1.3
LVID diastole (cm)	4.1
PW thickness (cm)	1.2
LVID systole (cm)	3.0
FS (%)	27

Doppler Measurements

PV Vmax (m/s)	0.7
AoV Vmax (m/s)	1.0
MR Vmax (m/s)	NA
TR Vmax (m/s)	NM
TR PG (mmHg)	NA

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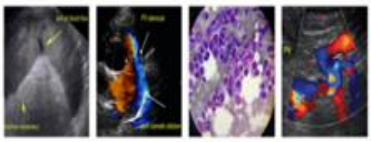

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INTERPRETATION OF THE FINDINGS

The cardiac structure and function are essentially normal in this patient. No significant right heart enlargement is appreciated, and systolic function is adequate for this body size, particularly given heavy sedation. No valvular insufficiencies were noted, and no structural issues identified. No other intra or extra-cardiac tumors are appreciated.

Frequent ventricular premature contractions were confirmed as the cause of the noted arrhythmia. Singles, couplets and triplets appreciated. VPCs 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), be 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 an 8yo Boxer, there is high suspicion for ARVC (most common age of onset 6-8yo, often asymptomatic). ARVC can occur with or without systolic dysfunction and structural issues, however this should be monitored going forward for any progressive change to function. It is always reasonable to rule out other differentials for VPCs (AUS, tick titers, troponin, etc.) however suspicion is low given the signalment of the patient. 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. ARVC carries a HIGHLY variable prognosis, with some dogs able to remain asymptomatic for extended periods of time, and others developing exercise intolerance, syncopal episode, and refractory arrhythmias/sudden death imminently.

Based strictly upon the amount of arrhythmia present on the available ECG, anti-arrhythmic therapy is indicated as salvos of ventricular tachycardia are appreciated. Once Sotalol is on board, an extended time ECG and/or **holter monitor** is the gold standard next step to allow monitoring of the rhythm throughout 24 hours of a normal day to ensure good rhythm control.

Monitor at home for collapse, exercise intolerance, and/or lethargy. Anesthesia is not recommended until good arrhythmic control is achieved. Lifelong mild to moderate activity restriction is advised.

RECOMMENDATIONS

- Institute sotalol 80mg tablets, give ½ tab PO q12h.
- Fish oil supplementation is recommended for dogs with arrhythmias (1000mg of omega 3 and 6 once to twice daily as tolerated).
- Lifelong mild to moderate activity restriction.
- Anesthesia is not recommended until good arrhythmic control is achieved. Lifelong mild to moderate activity restriction is advised.

PLAN

- Recheck ECG in 1-2 weeks to assess response (goal is significant reduction in ectopy without a significant change in underlying sinus rate)
- Consider holter at this time if desired.
- Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

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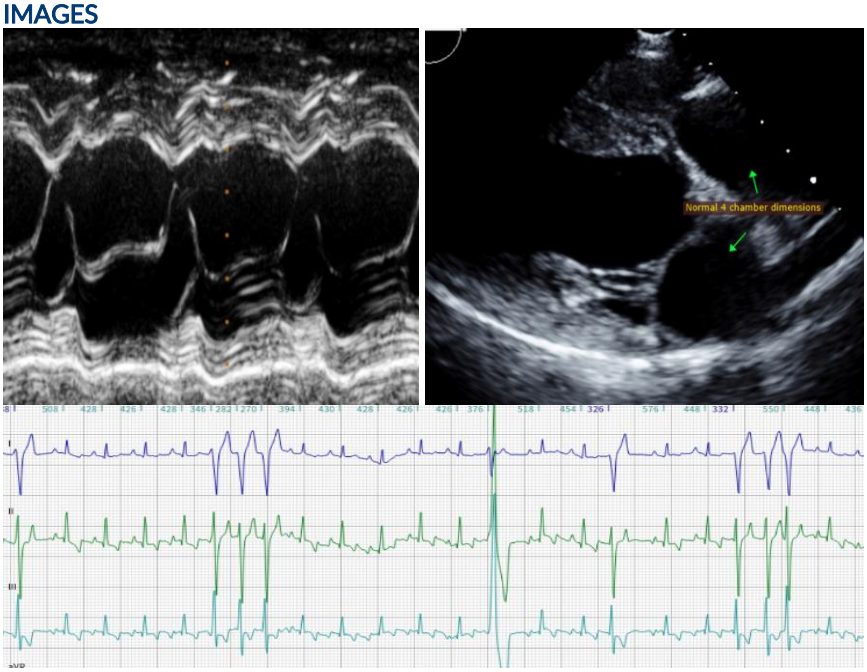
IMAGES



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

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