PAUS
Pet Animal Ultrasound Service
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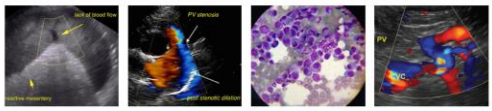


SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT
Finn Abbatamatteo

SPECIES
Canine

BREED
Brittany Spaniel

SEX
Male Neutered

AGE
11 years

WEIGHT
41lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
VCA Hanson

REFERRING VET
Dr. Graziano

INVOICE
32498

DATE
8/23/23

PRESENTING CLINICAL SIGNS

History: New grade III/VI left systolic murmur. No clinical signs, no exercise intolerance, cough, or respiratory issues. BP: 180, 182mmHg (stressed).

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 25mm/s; 10mm/mV. The average heart rate is 110bpm (range 79-125bpm). 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. Rare isolated VPCs are identified. A brief salvo of SVT is suspected with a heart rate of 214bpm. No additional dysrhythmias are observed.
ECG diagnosis: Normal sinus rhythm with respiratory variation. Brief salvo of SVT and rare 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 mildly thickened with no prolapse into the left atrial lumen. Mild eccentric mitral regurgitation**.** 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 mild tricuspid regurgitation; normal velocity.
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

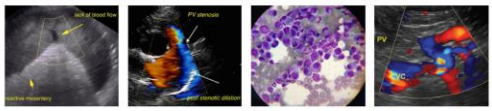
Ao diam (cm)	2.1
LA diam (cm)	2.5
LA:Ao (Swe)	1.2
IVS thickness (cm)	0.9
LVID diastole (cm)	3.4
PW thickness (cm)	0.9
LVID systole (cm)	2.3
FS (%)	32

Doppler Measurements

PV Vmax (m/s)	0.8
AoV Vmax (m/s)	1.0
MR Vmax (m/s)	5.0
TR Vmax (m/s)	2.0
TR PG (mmHg)	16

INTERPRETATION OF THE FINDINGS

The cause of the murmur is chronic degenerative valve disease causing mild mitral and tricuspid 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. Assessment of progression in the future will help predict long term prognosis, which is highly variable at this stage (B1).



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The ECG does show rare VPCs and potentially a brief salvo of SVT. The diagnosis is suspect as onset is difficult to visualize due to motion artifact; however, suspicion is high. These findings are both generated from abnormal conductive or fibrotic tissue in the heart muscle, and even frequent premature beats will often cause no clinical signs in dogs. When sustained however, supraventricular or ventricular tachycardia can lead to symptoms such as lethargy and collapse.

In total, these are considered a non-specific finding. They can be primary in origin such as an arrhythmic disorder, 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 possible 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 upon the arrhythmia seen in hospital and a lack of associated clinical signs at home, no anti-arrhythmic treatment is clearly indicated. A holter monitor is recommended as a next step, particularly should any acute syncope or lethargy develop. What is seen here may simply be stress related, which is what holter results would tell us.

RECOMMENDATIONS

- No cardiac medications are clearly indicated.
- 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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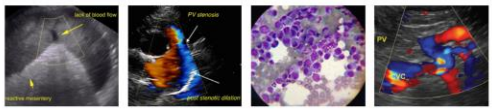

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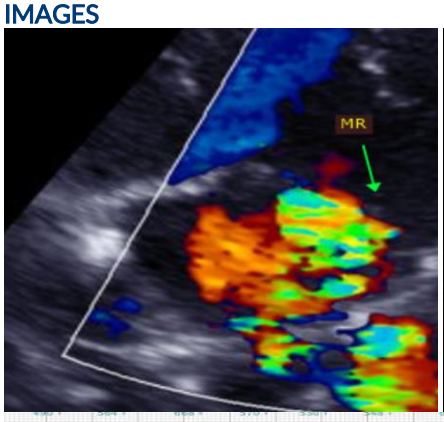
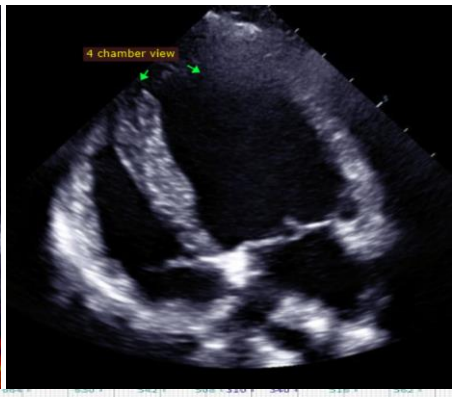
IMAGES





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)