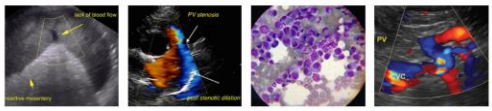
PAUS
Pet Animal Ultrasound Service
4paus.com 781-635-5677



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

PATIENT
Trixie Spaanenburg

SPECIES
Canine

BREED
Boston Terrier

SEX
Female Spayed

AGE
9 years

WEIGHT
18lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Eduardo Rodriguez III, RDCS

HOSPITAL NAME
Littleton Animal Hospital

REFERRING VET
Dr. Brooks

INVOICE
27022

DATE
10/20/22

PRESENTING CLINICAL SIGNS
History: New grade III/VI murmur detected at recent wellness exam. No clinical signs.
BP: 179, 187, 201mmHg (stressed).

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, 20mm/mV. The underlying rhythm is sinus in origin with an average heart rate of 160bpm. P for every QRS complex and vice versa. P and QRS morphologies are positive. Frequent isolated VPCs are seen throughout; primarily singles with three tight interval R on T couplets. 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 mildly increased with adequate myocardial function. LV wall thicknesses are normal.
Left atrium: The left atrium is severely dilated.
Mitral valve: The mitral valve is mildly thickened with mild prolapse into the left atrial lumen. Moderate to severe eccentric mitral regurgitation with a normal velocity.
Aortic valve/Aorta: The aortic valve is normal in morphology and mobility. Variable aortic outflow velocity depending on diastolic interval; laminar flow. No aortic insufficiency.
Right ventricle: No RV dilation. No obvious RVH.
Right atrium: No RA dilation.
Tricuspid valve: The tricuspid valve is normal with mild 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.

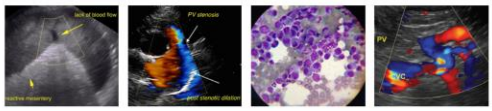
2-Dimensional Measurements

Ao diam (cm)	1.3
LA diam (cm)	3.1
LA:Ao (Swe)	2.4
IVS thickness (cm)	0.6
LVID diastole (cm)	3.4
PW thickness (cm)	0.6
LVID systole (cm)	1.4
FS (%)	57

Doppler Measurements

PV Vmax (m/s)	0.4
AoV Vmax (m/s)	1.1
MR Vmax (m/s)	5.2
TR Vmax (m/s)	1.9
TR PG (mmHg)	15

INTERPRETATION OF THE FINDINGS
The cause of the murmur is chronic degenerative valve disease causing moderate to severe mitral and mild tricuspid regurgitation. Severe left atrial enlargement indicates the current risk for complication is elevated going forward. No concurrent issues such as systolic dysfunction are noted in this study. Assessment of progression in the future will help predict long term prognosis, which is guarded at this stage (B2). Based upon these structural findings, Pimobendan and an ACE-I are recommended as below.



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Of great concern, frequent 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 moderate structural cardiac disease, consider full systemic evaluation to rule out additional issues. 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 frequent R on T couplets, **immediate initiation of Sotalol is recommended**. This is considered a relatively unstable rhythm.

RECOMMENDATIONS

- Institute Pimobendan 0.25-0.3mg/kg PO q12h.
- Institute ACE-I 0.5mg/kg PO q12h.
- Institute Sotalol 1-2mg/kg PO q12h (compounding is likely necessary).
- Consider systemic evaluation as discussed.
- Recheck ECG or ideally a holter monitor in 2-4 weeks to assess response.
- 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.

PLAN

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

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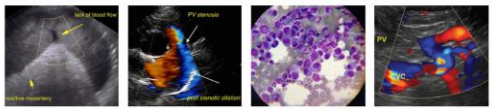

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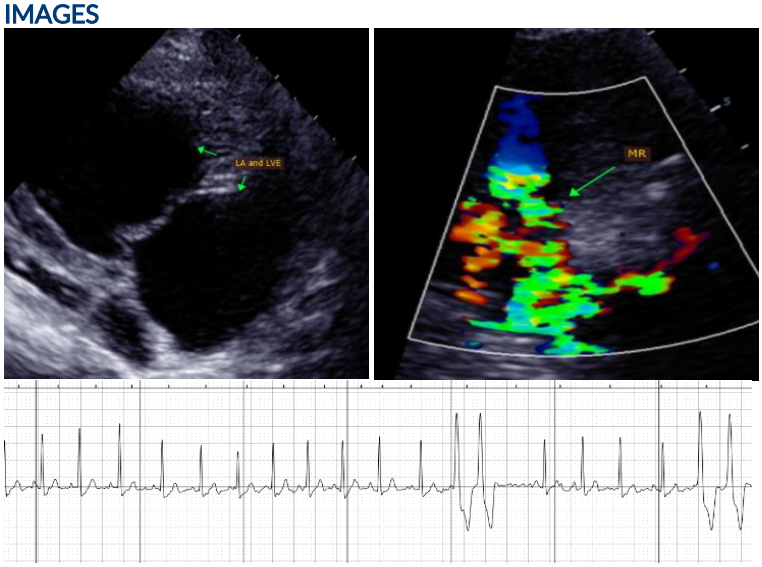
IMAGES



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