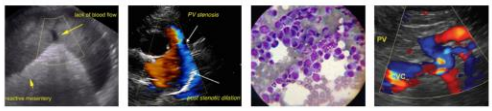
PAUS
Pet Animal Ultrasound Service
4paus.com 781-635-5677



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

PATIENT
Spike Burato

SPECIES
Canine

BREED
Shih Tzu

SEX
Male Neutered

AGE
12 years

WEIGHT
25.4lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Wignall Animal Hospital

REFERRING VET
Dr. Thomas

INVOICE
27250

DATE
11/3/22

PRESENTING CLINICAL SIGNS
History: Grade V/VI heart murmur; no clinical signs. Echo prior to anesthesia for dental prophy.

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 (range 54-166bpm). The rhythm is sinus in origin, with a p for every QRS complex. P and QRS morphologies are positive. A single blocked P wave is appreciated. Occasional sinus pauses.
ECG diagnosis: Suspect profound respiratory sinus arrythmia with high vagal tone causing occasional AV block; early sinus node dysfunction cannot be ruled out.

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 normal.
Mitral valve: The mitral valve is mildly thickened with mild prolapse into the left atrial lumen. Mild to moderate anterior-directed 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: 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 trace 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.

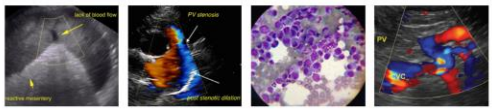
2-Dimensional Measurements

Ao diam (cm)	1.7
LA diam (cm)	2.1
LA:Ao (Swe)	1.2
IVS thickness (cm)	0.8
LVID diastole (cm)	3.0
PW thickness (cm)	0.8
LVID systole (cm)	3.1
FS (%)	56

Doppler Measurements

PV Vmax (m/s)	0.77
AoV Vmax (m/s)	1.8
MR Vmax (m/s)	5.4
TR Vmax (m/s)	2.0
TR PG (mmHg)	16

INTERPRETATION OF THE FINDINGS
Chronic degenerative valve disease causing mild to moderate mitral and trace 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).
The ECG does show an arrhythmia, with a highly variable sinus rate and brief low grade 2nd degree AV block. This implies that there is a non-conducted P wave; however, never



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more than one in a row. Type I versus type II cannot be definitively determined on a single-lead tracing; however, there is not significant prolongation of the PR interval.

Further evaluation is advised through an atropine challenge (administer 0.04mg/kg atropine IV or IM and assess response); pending a normal response (heart rate doubles and maintains for 10-15 minutes) high vagal tone is diagnosed which is a benign cause. High vagal tone can be a normal variant or be secondary to a variety of systemic issues such as neurologic or respiratory disease. If the atropine challenge is normal, consider further evaluation for causes of high vagal tone. An abnormal response would indicate electrical dysfunction, and a holter monitor and/or referral should be considered.

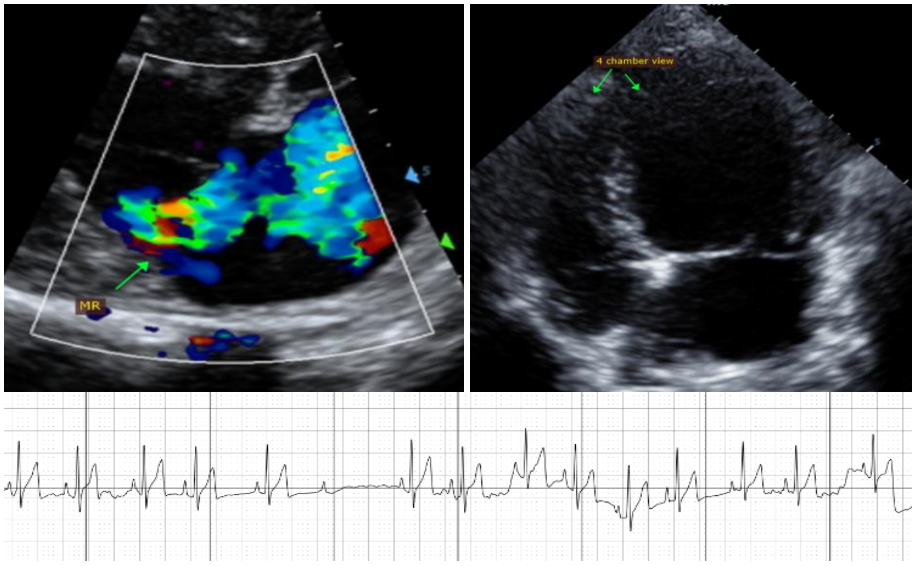
RECOMMENDATIONS

- Atropine challenge and follow up as discussed.
- No cardiac medications are clearly indicated.
- Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.
- **Pending a normal atropine challenge**, anesthetic risk is low; however, premedicating with atropine is clearing recommended. An atypical atropine response would confer a high risk for anesthesia and is not recommended.
- Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

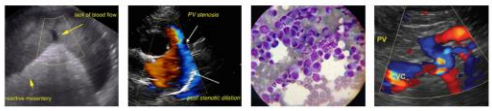
PLAN

- Recommend conservative monitoring with a recheck echocardiogram in 6-12 months, sooner if any development of clinical signs.

IMAGES



The information and recommendations provided are based on the images presented by the



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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