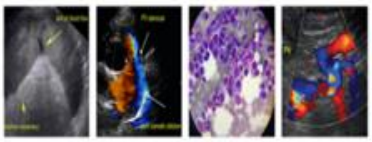
Mass Veterinary Services



SonoPath Clinical Sonography & Telecytology
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1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT
Fox Morris

SPECIES
Canine

BREED
Shiba Inu

SEX
Male Neutered

AGE
13 years

WEIGHT
19.3lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Services

REFERRING VET
Dr. Masloski

INVOICE
25063

DATE
6/29/22

PRESENTING CLINICAL SIGNS

History: Fox is referred to evaluate a murmur and an arrhythmia noted in March. Coughs 5-10 times a day, more often when he is on his back. He pants when nervous (noises - washing machine, someone sneezing/coughing). His appetite is normal, and he maintains a normal activity level. On exam: NSR, grade II/VI murmur with PMI left apical area, PSS, lung fields clear. BP: 150mmHg. *Sedated with propofol for study.

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 average heart rate is 100bpm (range 88-115bpm). The underlying rhythm is sinus in origin, with a p for every QRS complex. P and QRS morphologies are positive. Frequent 2nd degree AV block is noted throughout; low grade , 2:1. A slight prolongation in in the PR interval is suspected, although this finding is inconsistent. This would support type I block, No escape beats, premature beats or other dysrhythmias observed.
ECG diagnosis: Respiratory sinus arrythmia with frequent low grade 2nd degree AV block.

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 no prolapse into the left atrial lumen. Trace/mild central mitral regurgitation. Diastolic MR seen with P wave contraction.
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. Diastolic TR seen with P wave contraction.
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)	1.5
LA diam (cm)	1.8
LA:Ao (Swe)	1.2
IVS thickness (cm)	0.66
LVID diastole (cm)	2.5
PW thickness (cm)	0.65
LVID systole (cm)	1.7
FS (%)	32

Doppler Measurements

PV Vmax (m/s)	0.8
AoV Vmax (m/s)	1.1
MR Vmax (m/s)	NM
TR Vmax (m/s)	NM
TR PG (mmHg)	NA

INTERPRETATION OF THE FINDINGS

Chronic degenerative valve disease causing trace/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 an arrhythmia, which is consistent with low grade 2nd degree AV block. This implies that there are frequent non-conducted P waves, however never more than one in a row. Type I block is suspected on this tracing, which implies the PR interval elongates prior to the block. That being said the finding is inconsistent, and type II is not entirely ruled out. Type I is typically due to high vagal tone and is often physiologic/benign. This is in comparison with type II block, which develops secondary to AV nodal disease. What is seen here is unlikely to cause clinical signs and may be exacerbated by sedation.

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.

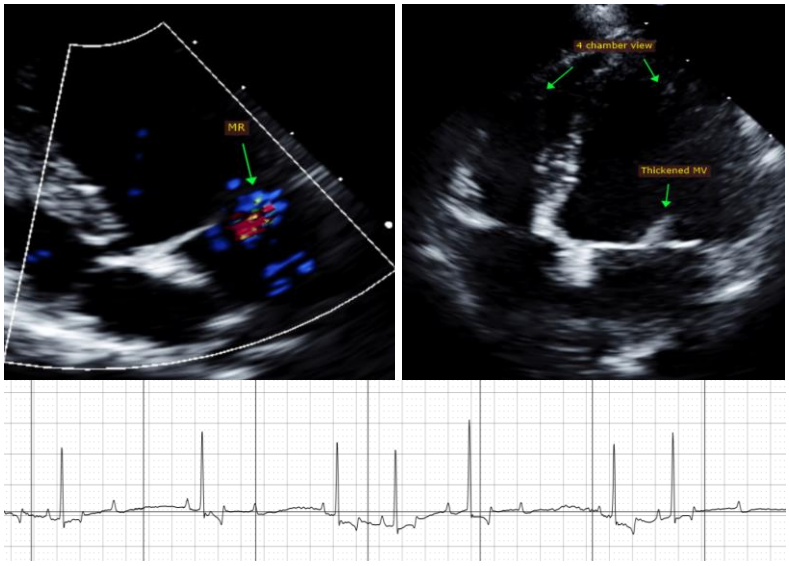
RECOMMENDATIONS

- 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



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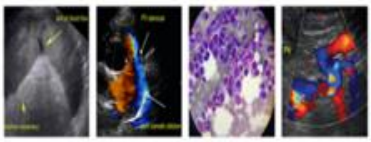

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)