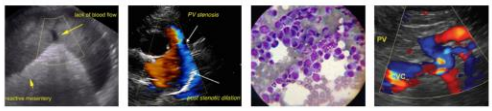
PAUS
Pet Animal Ultrasound Service
4paus.com 781-635-5677



SonoPath
Clinical Sonography & Telecytology
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PATIENT
Lord Nelson Holstein

SPECIES
Feline

BREED
DSH

SEX
Male Neutered

AGE
18 years

WEIGHT
8.4lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Wood River Animal Hospital

REFERRING VET
Dr. Fischer

INVOICE
22935

DATE
3/4/22

PRESENTING CLINICAL SIGNS

History: Echocardiogram for weakness and collapsing episodes. First collapse was ~ 10 years ago - started on Atenolol by rDVM and has had no further issues or need for dosage change. Currently, seems to get exhausted and collapse or fall over. Was diagnosed with hyperthyroidism in the past and has been controlled on Methimazole. On exam, grade II/VI heart murmur, HR 160 bpm. Severe dental tartar, muscle wasted over spine and hips, small kidneys on palpation. Radiographs: pleural effusion. BW: elevated renal values. Medications: Atenolol 6.25 mg BID; Methimazole 25 mg BID. BP: 100mmHg x 3.

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 heart rate is 108bpm with a regular rhythm. No P waves are seen throughout. The QRS is positive with a normal dimension.
ECG diagnosis: Significant bradycardia with no identifiable P waves consistent with an extra-nodal bradycardia/escape rhythm.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: The LV diameter is decreased with adequate myocardial function. The LV wall thicknesses are mildly increased globally. The endocardium appears remodeled. The papillary muscles are hypertrophied and remodeled.
Left atrium: The left atrium and auricle are mild to moderately dilated. Subtle spontaneous contrast is suspected.
Mitral valve: The mitral valve is normal in structure and mobility. No systolic anterior motion is seen. Trace mitral regurgitation. No identifiable A waves on mitral inflows.
Aortic valve/Aorta: Aortic valve is normal. Decreased outflow velocity, laminar flow. No AI.
Right ventricle: Right ventricle is severely enlarged without significant hypertrophy.
Right atrium: Marked right atrial enlargement with bowing of the IAS. Subtle spontaneous contrast.
Tricuspid valve: Tricuspid valve appears normal with moderate tricuspid regurgitation.
Pulmonic valve/Pulmonary artery: The pulmonic valve appears normal in morphology and mobility. Decreased pulmonic outflow velocities with laminar flow. No PI.
Pericardium/other: Scant pericardial effusion. Pockets of pleural effusion visualized. No obvious cardiac tumors.

2-Dimensional Measurements

Ao diam (cm)	1.0
LA diam (cm)	1.4
LA:Ao (Swe)	1.4
IVS thickness (cm)	0.66
LVID diastole (cm)	1.0
PW thickness (cm)	0.65
LVID systole (cm)	0.6
FS (%)	47

Doppler Measurements

PV Vmax (m/s)	0.43
AoV Vmax (m/s)	0.6
MR Vmax (m/s)	NA
TR Vmax (m/s)	NM
TR PG (mmHg)	NA

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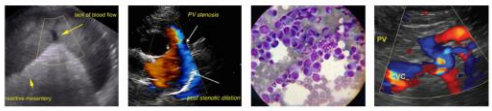

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INTERPRETATION OF THE FINDINGS

The categorical diagnosis could be argued in this case. The LV is mildly hypertrophied, and use of chronic Atenolol may suggest primary hypertrophic disease. In this instance this is considered end-stage, affecting the right heart more than the left with burnout physiology. Alternatively, an unclassified or RV cardiomyopathy may also be present. Without serial exams this is difficult to differentiate; however, at this point the categorical diagnosis is somewhat irrelevant. The degree of disease at this point is marked with marked right atrial enlargement and development of congestive heart failure.

The ECG shows a regular bradycardia without identifiable P waves. This is likely an extra-nodal escape rhythm. Single-lead ECG tracings are quite insensitive in cats (ie low sensitivity can impede p wave visualization) and **a full six-lead ECG should certainly be considered.** Regardless, the resting heart rate is extremely slow and certainly Atenolol should be weaned and discontinued. While this is not the suspected primary cause of the arrythmia, it may be worsening the bradycardia. Bradycardia and hypotension are suspected to be the cause of collapse episodes, as cats with active effusion more frequently present with respiratory signs.

Given the totality of the findings, this patient is considered end-stage with a grave prognosis. Our goal is to stabilize the situation and attempt to improve quality of life for the short-term. Given the age of the patient and severity of disease seen here, humane euthanasia should be considered as an alternative.

Even if we are able to stabilize the situation, the mean survival time for cats at this stage of disease is <6 months. Patient is at high risk for recurrent episodes of CHF, development of blood clots, malignant arrhythmias and/or sudden death in the future.

RECOMMENDATIONS

- Decrease Atenolol to 6.25mg once daily for 5 days then discontinue.
- Immediate thoracocentesis may be beneficial.
- Consider hospitalization if patient is or becomes unstable.
- Recommend referral for a six-lead tracing and extended evaluation of the arrythmia if elected.
- Institute Furosemide 1-2mg/kg PO q12h.
- Institute Plavix 75mg tabs; Give ¼ tab by mouth every 24 hours (NOTE: bitter along cut edge, may cause foaming at the mouth; coat in entirety).
- Institute Pimobendan 1.25mg PO q12h.
- Monitoring of sleeping breathing rates at home is recommended as the best way to screen for recurrent CHF at home.
- Avoid anesthesia, steroids and/or fluid therapy unless absolutely necessary in the future.

PLAN

- Monitor renal values, BP and ECG in 1-2 weeks, then every 3-4 months lifelong.
- If QOL is suffering at this visit, euthanasia should be elected.
- A recheck echocardiogram is recommended in 6 months to assess for progression, sooner if issues arise in the interim.

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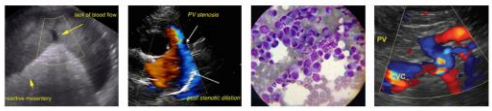

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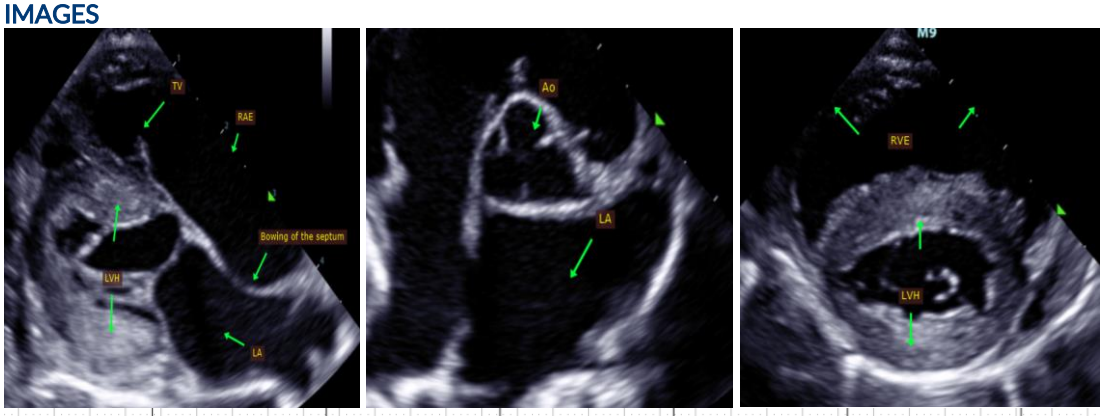
IMAGES



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