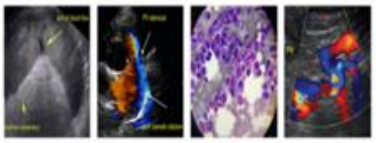
Mass Veterinary Services



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

**PATIENT**
Toegi North

**SPECIES**
Feline

**BREED**
DSH

**SEX**
Male Neutered

**AGE**
14 years

**WEIGHT**
10.88lbs

**INTERPRETED BY**
Maggie Machen Lamy, DVM DACVIM (Cardiology)

**IMAGING PERFORMED BY**
Pamela Harrigan, RDCS

**HOSPITAL NAME**
Mass Veterinary Services

**REFERRING VET**
Dr. Masloski

**INVOICE**
32347

**DATE**
8/14/23

## PRESENTING CLINICAL SIGNS

History: Toegi was noted to have a heart murmur in April 2019, which has increased in intensity. A thyroid level done earlier this month was normal. Approximately 1.5-2 weeks ago he had an increased respiratory rate; however, he does have asthma. He is eating relatively well with normal activity for him. On exam: NSR, grade II/VI parasternal murmur, PSS, lung fields clear, compressible thorax, mm pink, moist, CRT<2. BP: 140 mmHg x 5. Current medications: 1) Solencia monthly 2) Mirtazapine transdermal 3) Cerenia prn 4) MiraLAX 1/4 tsp twice a day 5) Dasaquin 6) Gabapentin prn 7) Elura ---not started 8) Fluticasone 110microgram inhaler---not started *No sedation for study.

## ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 25mm/s; 10mm/mV. The average heart rate is 188bpm with a largely regular rhythm. 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 is inverted. The MEA is shifted left. Rare isolated VPCs are noted; singles only, monomorphic. No APCs, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with rare isolated VPCs. Left axis deviation.

## ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
**Left ventricle:** The LV diameter is normal with decreased myocardial function. The LV wall thicknesses are normal. There is a mildly hyperechoic endocardium consistent with fibrosis. The papillary muscles are remodeled and hyperechoic. The endocardium appears remodeled.
**Left atrium:** The left atrium is moderate to severely dilated with no obvious smoke. The auricle is also significantly dilated.
**Mitral valve:** The mitral valve is normal in structure and mobility. No obvious systolic anterior motion is seen. Mild central MR due to annular stretch.
**Aortic valve/Aorta:** The aortic valve is normal in morphology and mobility. Normal aortic outflow velocity; laminar flow. No aortic insufficiency.
**Right ventricle:** Mild right ventricular dilation.
**Right atrium:** The right atrium is moderately dilated.
**Tricuspid valve:** The tricuspid valve appears normal with no tricuspid regurgitation.
**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) | 0.9 |
| LA diam (cm) | 2.0 |
| LA:Ao (Swe) | 2.2 |
| IVS thickness (cm) | 0.36 |
| LVID diastole (cm) | 1.8 |
| PW thickness (cm) | 0.33 |
| LVID systole (cm) | 1.3 |
| FS (%) | 30 |

**Doppler Measurements**

| | |
|---|---|
| PV Vmax (m/s) | 0.65 |
| AoV Vmax (m/s) | 1.0 |
| MR Vmax (m/s) | NA |
| TR Vmax (m/s) | NA |
| TR PG (mmHg) | NA |

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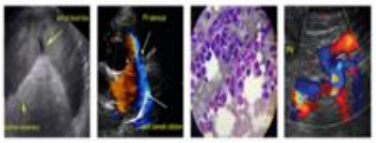

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## INTERPRETATION OF THE FINDINGS

The finding of biatrial enlargement in the face of normal LV wall thickness and mild systolic dysfunction is most consistent with unclassified Cardiomyopathy (UCM); however, burn-out or end-stage HCM can also have this appearance. Severe left atrial dilation is present, which indicates high risk for decompensation. The right heart is also affected to a slightly lesser extent. Finally, the ECG does show isolated VPC's.

Regardless of categorical classification, this degree of atrial dilation and arrhythmic disease confers high risk for spontaneous congestive heart failure in the near future and lifelong medications are warranted as below. Concurrent asthma is noted, which will always make interpretation of the symptoms difficult. Baseline CXR are recommended if there is any question. Reasonable to continue Fluticasone; however, avoiding oral steroids is certainly recommended.

The long-term prognosis is guarded to poor even with medications; however, most cats are able to maintain a good quality of life for some time. There will always remain risk for progression to CHF and development of blood clots in the future. The development of occasional VPC's is concerning, and sudden death is certainly possible in the future. That being said only infrequent VPC's are noted, and I'm hopeful there will be some improvement simple through medical management of the structural and systemic disease. No anti-arrhythmic therapy is recommended at this time. Monitoring is certainly advised; particularly should any collapse or significant lethargy be noted in the future.

## RECOMMENDATIONS

- Institute low dose Lasix/furosemide 1mg/kg PO q12h.
- Institute blood thinner Clopidogrel (Plavix) 75mg tablets; give ¼ tab orally once daily (NOTE: this medication is very bitter on the cut edges).
- Institute Pimobendan (off label use) 1.25mg PO q12h.
- If patient develops lethargy or collapse, immediate recheck ECG is recommended to screen for malignant arrhythmias. Sotalol can be utilized if needed (0.2mg/kg PO q12h), however this should not be done unless clear evidence of sustained arrhythmias is seen.
- Elective anesthesia is not advised.
- Monitor for any clinical evidence of cardiac compromise, including respiratory changes and/or signs of a blood clot event (paralysis, neurologic changes, etc.).

## PLAN

- Recheck renal panel, BP and ECG in 1-2 weeks to determine response to medication, then every 4-6 months lifelong.
- Recheck echocardiogram in 4-6 months, sooner if clinical signs arise

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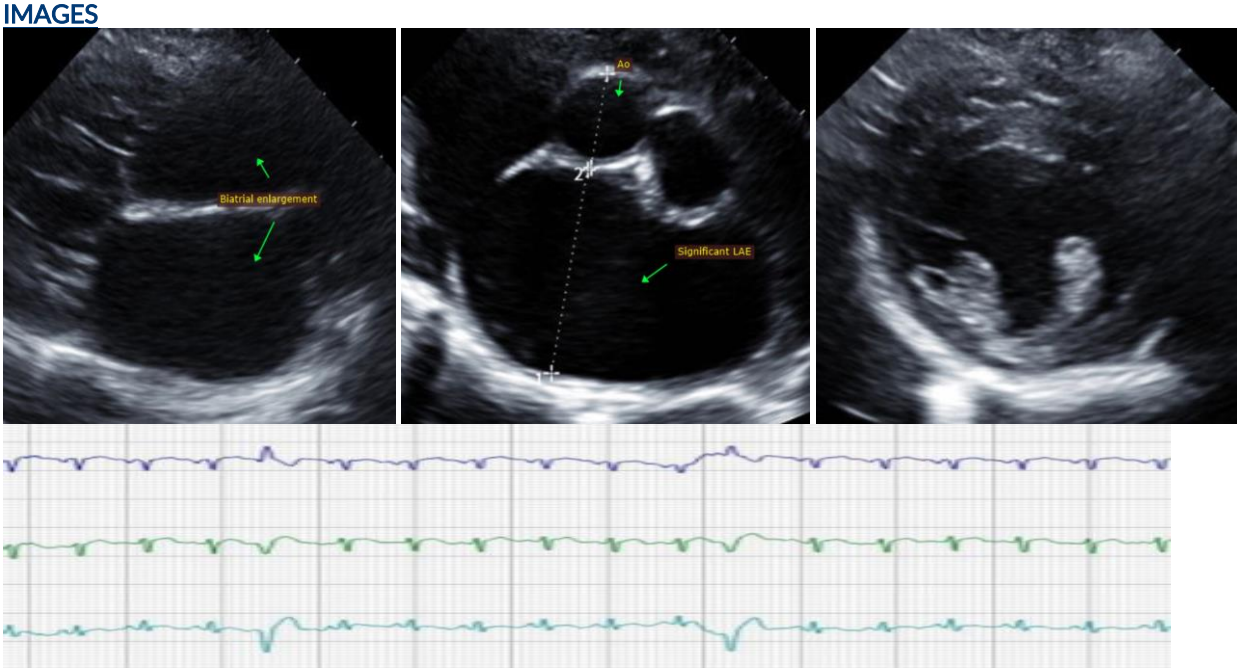
## IMAGES




**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)