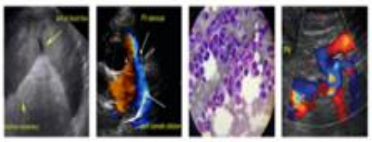
Mass Veterinary Services



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

PATIENT
Alana Duppere

SPECIES
Canine

BREED
Chihuahua Mix

SEX
Female Spayed

AGE
9 years

WEIGHT
10.38lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Services

REFERRING VET
Dr. Masloski

INVOICE
24772

DATE
6/14/22

PRESENTING CLINICAL SIGNS

History: Alana presents with a history of an intermittent heart murmur. She needs dental prophy. Good appetite and normal activity level. On exam: Variable heart rate; grade I/VI murmur noted when heart rate increases, not noted when heart rate slower, PSS, lung fields clear. BP: 170mmHg x 4. No medications. *No sedation 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, 10mm/mV. The average heart rate is 175bpm (range 136-214bpm). The rhythm is sinus in origin with periods of tachycardia. P for every QRS complex and vice versa. P and QRS morphologies are positive. No ectopic beats, pauses or dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with frequent sinus tachycardia.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: The LV is normal in dimension with moderately increased wall thicknesses. Adequate myocardial function.
Left atrium: The left atrium is normal.
Mitral valve: The mitral valve is mildly thickened with a mildly elongated anterior leaflet. No obvious prolapse seen. The quantity of MR varies with heart rate with an increase in eccentric pattern associated with tachycardia. The tip of the anterior leaflet can be seen obstructing flow through the LVOT and systole. Severe systolic anterior motion is seen on multimodal imaging, which appears highly heart rate dependent. Near complete resolution at lower heart rates.
Aortic valve/aorta: The aortic valve is normal in morphology and mobility. A severe LVOTO develops with a dynamic profile at elevated heart rates with dramatic improvement when the heart rate slows. No aortic insufficiency.
Right ventricle: The right ventricular appears normal.
Right atrium: Normal RA dimension.
Tricuspid valve: The tricuspid valve is normal with no tricuspid regurgitation.
Pulmonic valve/pulmonary artery: The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. Normal pulmonic outflow velocities.
Pericardium/other: No pericardial or pleural effusion noted. No obvious cardiac masses.

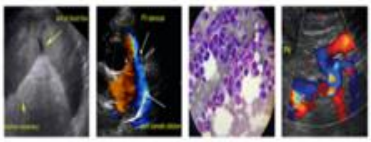
2-Dimensional Measurements

Ao diam (cm)	1.4
LA diam (cm)	1.47
LA:Ao (Swe)	1.0
IVS thickness (cm)	0.9
LVID diastole (cm)	1.86
PW thickness (cm)	0.9
LVID systole (cm)	0.6
FS (%)	67

Doppler Measurements

PV Vmax (m/s)	0.81
AoV Vmax (m/s)	6.6
MR Vmax (m/s)	NM
TR Vmax (m/s)	2.2
TR PG (mmHg)	20

Mass Veterinary Services



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

PATIENT
Alana Duppere

SPECIES
Canine

BREED
Chihuahua Mix

SEX
Female Spayed

AGE
9 years

WEIGHT
10.38lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Services

REFERRING VET
Dr. Masloski

INVOICE
24772

DATE
6/14/22

INTERPRETATION OF THE FINDINGS

Unusual case. The cause of the murmur is a highly heart rate dependent LVOT obstruction. At faster heart rates, the obstruction is severe with a velocity >6.0m/s through the region. At slower heart rates, this is almost entirely resolved. The quantity of MR also follows this patten with an increase secondary to the abnormal motion at elevated heart rates. The academic diagnosis in this case could be argued depending on patient history in a senior dog. If the murmur has been present since birth, this is likely a form of mitral valve dysplasia (suspected). If the murmur is relatively new, an atypical form of valve degeneration or HOCM (similar to a cat), is possible. Regardless, there is moderate LV hypertrophy that has developed, indicating this is a hemodynamically significant issue. The LA is normal, low risk at this time. No additional issues are identified.

The ECG is essentially normal, although there is frequent sinus tachycardia noted. Given these findings in addition to the highly heart rate dependent nature of the obstruction and development of LV hypertrophy, recommend Atenolol in this case as below. No additional medications are warranted at this time.

Although risk for complications is low, pending rate of progression in the future there may be risk for progression going forward. Development of chronic degenerative valve disease may worsen these findings as this dog ages.

Lifelong mild activity restriction is advised.

RECOMMENDATIONS

- Institute Atenolol 25mg tablets; Give ¼ tab once daily. Recheck heart rate in 1-2 weeks with target stressed rate of <150bpm 12-24 hours post-administration and titrate to effect.
- Close monitoring for development of associated clinical signs, such as a cough, labored breathing, exercise intolerance or collapse episodes.
- Anesthetic risk is considered mild if needed. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively and intervene as necessary. Mild IV fluid restriction is recommended to avoid fluid overload. Avoid heart rate stimulating drugs such as atropine unless clinically indicated.

PLAN

- A recheck echocardiogram is recommended in 6 months to screen for progression, sooner if clinical signs arise

Mass Veterinary Services

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

PATIENT

Alana Duppere

SPECIES

Canine

BREED

Chihuahua Mix

SEX

Female Spayed

AGE

9 years

WEIGHT

10.38lbs

INTERPRETED BY

Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY

Pamela Harrigan, RDCS

HOSPITAL NAME

Mass Veterinary Services

REFERRING VET

Dr. Masloski

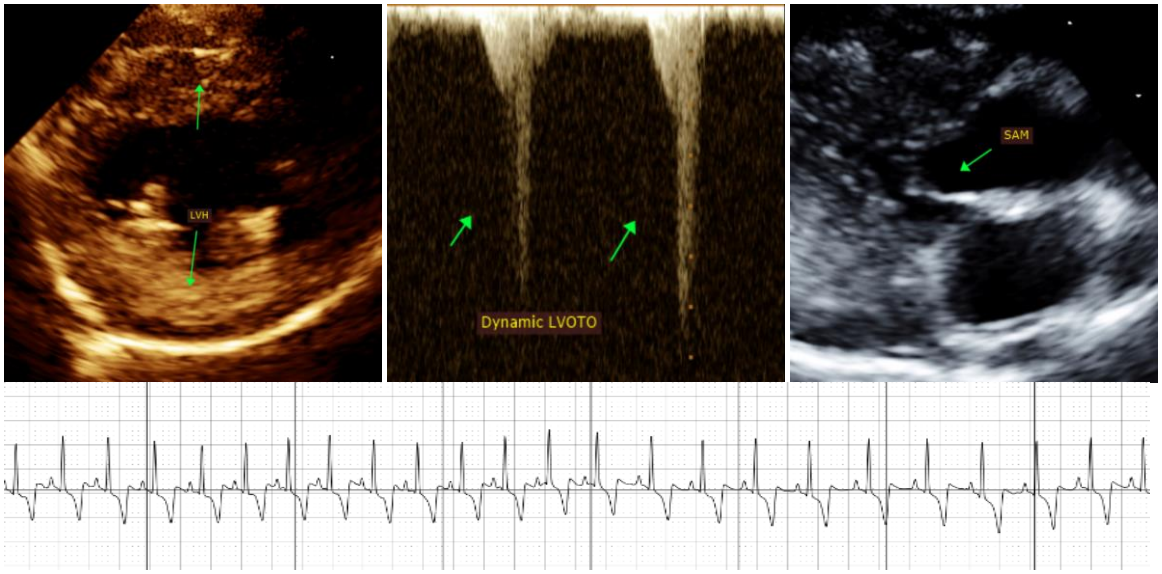
INVOICE

24772

DATE

6/14/22

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)