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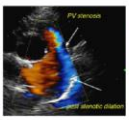
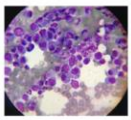
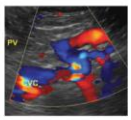

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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PATIENT
Mia Lemley

SPECIES
Canine

BREED
Terrier Mix

SEX
Female Spayed

AGE
15.6 years

WEIGHT
13.7lbs

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

IMAGING PERFORMED BY
Tom McNeill

HOSPITAL NAME
SVS Imaging CT

REFERRING VET
Dr. Klein

INVOICE
24703

DATE
6/9/22

PRESENTING CLINICAL SIGNS
History: Presented to an ER hospital on 5/31/22 for tachypnea. She has a history of coughing on and off for last 2 months, progressively more frequent and increase in severity. Mostly at night. Patient has had a heart murmur noted for two years but was previously not on any medications. Based on exam and radiographs, Mia started treatment for congestive heart failure (vetmedin 1.25 mg PO BID, furosemide 12.5mg PO BID). Since starting treatment Mia has clinically improved. Grade 5-6/6 systolic murmur.

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.
Mild cardiomegaly. No obvious evidence of CHF.

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 130bpm (range 155-166bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. Motion and baseline artifact impeded consistent evaluation; however, occasional isolated APCs are suspected. No ventricular ectopic beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with respiratory variation. Suspect isolated APCs.

ECHOCARDIOGRAM FINDINGS
2D, m-mode, color flow and doppler imaging is available. Diffuse thickening of mitral valve leaflets with mild prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with mild to moderate left atrial dilation. Normal MR velocity. No LV dilation with adequate myocardial function. The tricuspid valve appears normal with no TR. Normal right atrial and ventricular diameter and morphology. The pulmonic and aortic valves are normal in morphology and mobility. No AI or PI. Normal aortic outflow velocities with laminar flow. No pericardial or pleural effusion noted. No obvious cardiac masses.

CARDIAC CHART

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	4.9	NA	1.6	1.5	52	85	0.36
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**LA** 2D short axis Base view (cm)	**LVIDd** Avg; 2D and m-mode short axis (cm)	**LVIDs** Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
PATIENT	130	0.96	0.8	6.2	2.4	2.7	1.3
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
BODY WEIGHT DEPENDENT PARAMETERS				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
**Note: All measurements based upon multi-modal images and methods. An average value is reported.*				10	1.50 (3.8)	3.27 (3.5)	2.06 (3.1)
				15	1.83 (2.0)	3.71 (2.4)	2.43 (2.1)
				20	2.02 (1.9)	4.14 (2.2)	2.80 (2.0)
Adapted from June Boon, Veterinary Echocardiography, 1998				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Hansson et al, Vet Rad and Ultrasound 2002				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)

Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	40	2.62 (5.2)	5.48 (6.1)	3.96 (5.4)
	50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Chronic degenerative valve disease causing moderate mitral regurgitation is identified. Mild to moderate left atrial enlargement indicates the risk for spontaneous congestive heart failure may be elevated going forward. No additional issues such as systolic dysfunction is noted.

The ECG shows a normal sinus rhythm, with suspicion for isolated APCs. This cannot be confirmed without a more sensitive tracing; however, isolated APCs are of little clinical concern. No treatment is warranted based upon what is seen here.

The respiratory signs in this patient are unlikely to reflect CHF, given only mild chamber enlargement and the appearance of the CXR. Mild improvement with diuretics can be seen in respiratory cases, likely due to decreased respiratory secretions. No indication for continued Lasix at this time. Reasonable to continue Pimobendan if well tolerated. Further respiratory evaluation/ treatment may be warranted such as Radiologist evaluation of the films, hydrocodone, course of Baytril, etc.

Prognosis is guarded long term given the age of the patient.

Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes. Patient may be at risk for progression to CHF, development of arrhythmias/LA tear, syncope, etc in the future. Serial monitoring of SRRs is recommended as the best way to screen for progression to CHF at home.

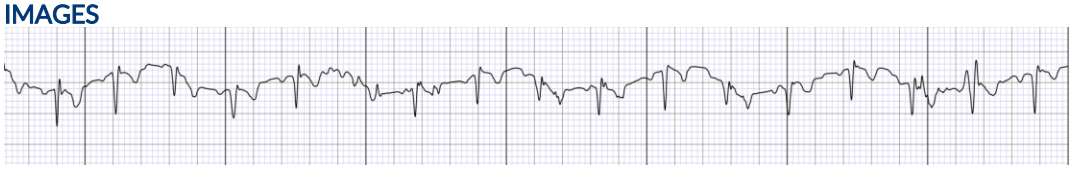
Anesthetic risk is considered mild if needed. Cardiac protective drug choices (opioid/benzodiazepine premedication, propofol or alfaxalone induction, isoflurane gas) are recommended. Pre-oxygenate for 5-10 minutes prior to induction. Monitor for arrhythmias, hypotension, and hypoxia both intra and post-operatively 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

Discontinue Lasix. Continue Pimobendan 0.3mg/kg PO q12h. Consider further respiratory work up/treatment (rad review, hydrocodone, etc).

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

IMAGES



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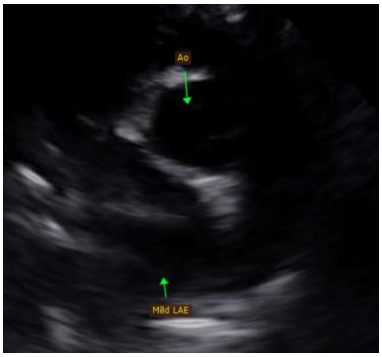

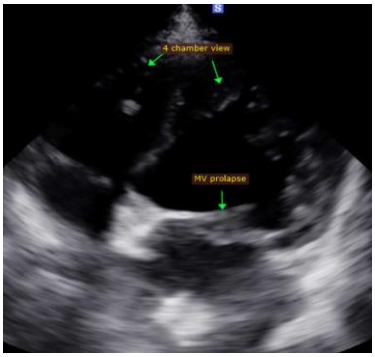

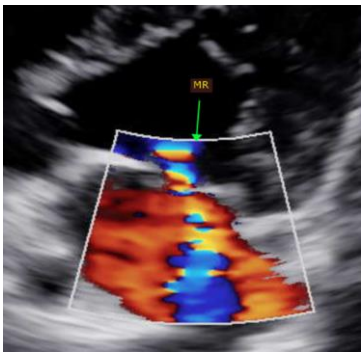

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. 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