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Pet Animal Ultrasound Service
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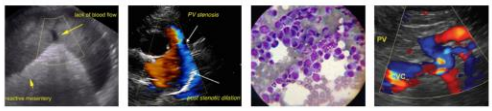

SonoPath
Clinical Sonography & Telecytology
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PATIENT
Rusty Miranda

SPECIES
Canine

BREED
Chihuahua

SEX
Male

AGE
12 years

WEIGHT
6lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Wood River Animal Hospital

REFERRING VET
Dr. Schuelke

INVOICE
28444

DATE
1/20/23

PRESENTING CLINICAL SIGNS

History: Presented on 1/18 in CHF. Owner reports was coughing more frequently and seemed to be ataxic. On presentation SPO2 was 75%, hr 200 bpm, RR 60/coughing. Asculted lungs - crackles and wheezes bilaterally, heart murmur grade 5/6 left holosystolic . Has history of collapsing trachea. Gave Torb IV and Acepromazine. Radiographs - pulmonary edema, left atrial enlargement, cardiomegaly. Admitted for hospitalization and oxygen therapy. Improved clinically over 24 hours. Current medications: 1) Furosemide 10mg q12h, Torb 10 mg/ml-0.05 ml q6-8h as needed. 2) Hycodan 5mg/ml - 0. 5 po q8h. 3) Pimobendan 1.25 - 1/2-tab q12h. 4) Enalapril 5mg - 1/4-tab q24h. 5) Cerenia 8mg q24 hours. Abnormal PE/Chem/CBC/UA Results: BUN 54.

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 100-150bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. P morphologies are positive. The QRS is inverted. Isolated APCs are seen throughout; singles only. No ventricular premature beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with isolated APCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: Mild LV dilation with hyperdynamic myocardial function.
Left atrium: The left atrium is severely dilated.
Mitral valve: Diffuse thickening of mitral valve leaflets with prolapse into the left atrial lumen. Evidence of a primary ruptured chordae tendineae and flail anterior leaflet (see below). Severe eccentric mitral regurgitation with a decreased velocity.
Aortic valve/Aorta: The aortic valve is normal in morphology and mobility. Normal aortic outflow velocity; laminar flow. No aortic insufficiency.
Right ventricle: Mild RV dilation.
Right atrium: Mild right atrial dilation.
Tricuspid valve: The tricuspid valve appears mildly thickened, with mild tricuspid regurgitation. Mildly elevated velocity consistent with mild pulmonary hypertension.
Pulmonic valve/Pulmonary artery: The pulmonic valve is normal in morphology and mobility. The MPA is normal. Normal pulmonic outflow velocities with laminar flow. No PI.
Pericardium/other: No pericardial or pleural effusion noted. No obvious cardiac masses.

2-Dimensional Measurements

Ao diam (cm)	1.2
LA diam (cm)	2.5
LA:Ao (Swe)	2.1
IVS thickness (cm)	0.5
LVID diastole (cm)	2.6
PW thickness (cm)	0.6
LVID systole (cm)	1.1
FS (%)	57

Doppler Measurements

PV Vmax (m/s)	0.5
AoV Vmax (m/s)	0.9
MR Vmax (m/s)	4.3
TR Vmax (m/s)	2.8
TR PG (mmHg)	32

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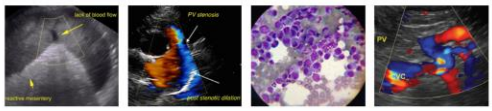

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INTERPRETATION OF THE FINDINGS

Chronic degenerative valve disease causing severe mitral and mild tricuspid regurgitation is identified. Severe left atrial enlargement suggests the risk for complication is elevated. **The finding of a primary ruptured chordae tendineae and flail leaflet is highly concerning and is likely what led to acute decompensation**. Mild pulmonary hypertension is noted, which is likely secondary to chronic LA pressure elevation. No additional issues are identified.

In light of the recent clinical signs and finding of a ruptured chord, the diagnosis of congestive heart failure is supported and continued lifelong cardiac medications are recommended as below.

The average survival time of canine patients with active pulmonary edema is 8-9 months on medications, however they generally are able to maintain a good quality of life for that period. If able to be stabilized, a ruptured chord does not necessarily limit this prognosis. Patient will always be at risk for recurrent CHF, development of arrhythmias/LA tear, syncope and/or sudden death in the future.

The ECG shows isolated APCs, albeit with concerning frequency. What is seen here does not warrant therapy and is certainly secondary to significant atrial dilation. That being said, the patient is a high risk for development of atrial fibrillation and close monitoring at home is advised. This typically presents as acute collapse or lethargy.

RECOMMENDATIONS

- Continue Lasix as prescribed.
- Institute Spironolactone 1-2 mg/kg PO q 12h.
- Increase Pimobendan 1.25mg PO q12h.
- Continue Enalapril as prescribed.
- Monitor for development to atrial fibrillation as discussed.
- Cough suppression to improve QOL can also be considered (hydrocodone, 0.2-0.4mg/kg up to q4-6h PRN) for any residual mechanical cough in the face of normal sleeping respiratory rates.
- Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.
- Monitoring of sleeping respiratory rates will be paramount to screen for congestive heart failure at home.
- Elective anesthesia is not advised.
- Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.

PLAN

- Monitor renal values and BP every 3-4 months lifelong.
- Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

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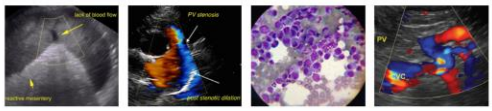

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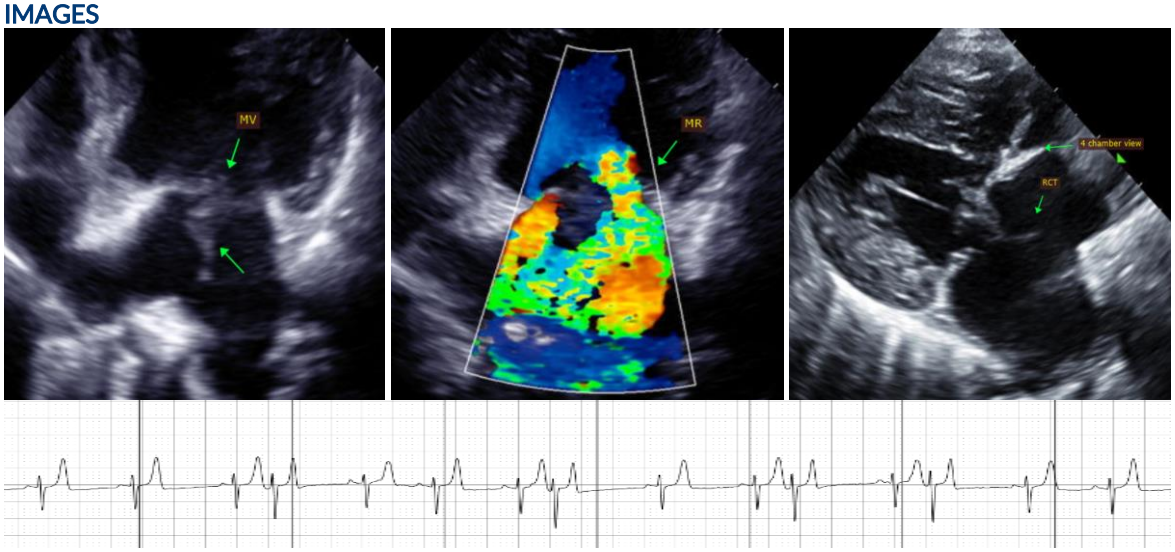

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)