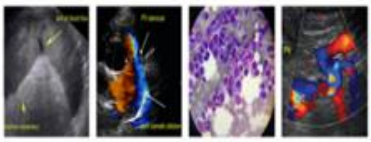
Mass Veterinary Services



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

PATIENT
Sheldon Evans

SPECIES
Canine

BREED
Goldendoodle

SEX
Male Neutered

AGE
10 years

WEIGHT
48.3lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Services

REFERRING VET
Dr. Masloski

INVOICE
31642

DATE
7/3/23

PRESENTING CLINICAL SIGNS

History: Sheldon was seen in September for a cough and again in December with an episode of dyspnea. Chest films taken in December revealed cardiomegaly. He was started on pimobendan, Plavix, enalapril, Lasix and spironolactone. Sheldon is doing well but is a bit lethargic, which is normal for him this time of year. Occasional cough. History OA. Good appetite. On exam: NSR, grade II/VI murmur with PMI left apical area, PSS, lung fields clear, mm pink, moist, CRT<2. BP: 100mmHg x 4. Radiographs today: cardiomegaly; compression of main stem bronchus; LAE; mild to moderate broncho-alveolar pattern in perihilar area Current medications: 1) Pimobendan/vetmedin 5mg 1 tab twice a day 2) Lasix/furosemide 20mg 1 tab twice a day 3) Enalapril 20mg 1 tab daily 4) Spironolactone 25mg 1/2 tab daily 5) Ursodiol/actigal 250mg 1 tab with food daily 6) Plavix/clopidogrel 75 mg 1/2 tab daily 7) Dasaquin daily *No sedation for study.

ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 25mm/s; 10mm/mV. The average heart rate is 166bpm 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 morphology is positive with normal dimension. MEA is normal. Isolated VPCs throughout; singles only, monomorphic. No APCs, pauses or other dysrhythmias observed. ECG diagnosis: Normal sinus rhythm with frequent isolated VPCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: The LV diameter is increased with severe systolic dysfunction. LV wall thicknesses are decreased with increased sphericity.
Left atrium: The left atrium is moderately dilated.
Mitral valve: The mitral valve is minimally thickened with no prolapse into the left atrial lumen. Mild central mitral regurgitation. Normal velocity.
Aortic valve/Aorta: The aortic valve is normal in morphology and mobility. Normal aortic outflow velocity; laminar flow. Mild aortic insufficiency.
Right ventricle: Normal right ventricular diameter and morphology.
Right atrium: Normal RA dimension.
Tricuspid valve: The tricuspid valve appears normal with no tricuspid regurgitation.
Pulmonary valve/Pulmonary artery: The pulmonic valve appears normal; however, a subvalvular narrowing is suspected. No pulmonic insufficiency. Mildly elevated pulmonic outflow velocity.
Pericardium/other: No pericardial effusion noted. Scant pleural and peritoneal effusion. No obvious cardiac masses.

2-Dimensional Measurements

Ao diam (cm)	2.3
LA diam (cm)	3.9
LA:Ao (Swe)	1.7
IVS thickness (cm)	0.9
LVID diastole (cm)	5.0
PW thickness (cm)	0.9
LVID systole (cm)	4.4
FS (%)	12

Doppler Measurements

PV Vmax (m/s)	2.4
AoV Vmax (m/s)	1.0
MR Vmax (m/s)	4.6
TR Vmax (m/s)	NA
TR PG (mmHg)	NA

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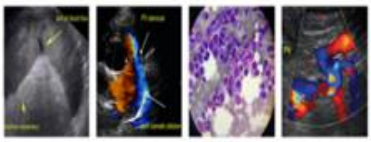

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INTERPRETATION OF THE FINDINGS

Severe LV dilation and systolic dysfunction are identified. Mild MR is secondary to dilation, although a primary valve issue is not entirely ruled out. The LA is moderately enlarged as well, indicating risk for congestive heart failure going failure. Unexpectedly, the pulmonic outflow is mildly elevated with narrowing of the subvalvular region. This is likely hemodynamically insignificant in a senior dog; however, may contribute to murmur intensity. No additional issues are identified.

Systolic failure can be primary in nature (DCM) or secondary to taurine deficiency, myocarditis, tachycardia-induced cardiomyopathy, or infiltrative disease such as lymphoma. In a senior Goldendoodle, DCM is possible; however, screening for ancillary issues is recommended. This includes a diet history and thyroid panel. Regardless, prognosis is poor at this stage as CHF has been diagnosed, with an average survival time of <6 months. Patient will always be at risk for recurrent CHF, development of malignant arrhythmias and/or sudden death in the future.

As a complicating factor, the patient has also developed isolated VPCs, which should be monitored going forward. The VPCs are unform in appearance with low markers of malignance; however, close monitoring is recommended.

Given that the patient has no current syncope or other associated clinical signs, no treatment for the VPCs is warranted at this time. It is important to note that this patient is at high risk for sustained VT/VF and sudden death going forward and anti-arrhythmic medications may be warranted in the future. A holter monitor would be ideal to ensure no sustained arrythmias are appreciated. Close monitoring going forward is advised.

Monitoring of sleeping respiratory rates will be paramount to screen for recurrent congestive heart failure at home in the future. Cough suppression to improve QOL can also be considered once diuretics are on board for any residual mechanical cough in the face of normal sleeping respiratory rates.

Prognosis is poor at this stage, with risk for recurrent congestive heart failure, malignant arrhythmias (AF, VT), collapse and/or sudden death in the future.

RECOMMENDATIONS

- Continue Lasix to 1-2mg/kg PO q12h.
- Continue Spironolactone 1-2mg/kg PO q12h.
- Continue Pimobendan 0.3mg/kg PO q12h.
- Continue ACE-I at a lower dose; administer 10mg PO q24h due to hypotension.
- From a cardiac standpoint, there is no indication for Plavix in canine patients.
- Consider hydrocodone with homatropine, 0.2 – 0.4 mg/kg PO up to q4-6 hours PRN for cough (available in 5/1.5mg tablets or 5mg/5ml solution).
- Consider a holter monitor as discussed, particularly should any collapse be noted in the future.
- Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.
- Elective anesthesia is not advised.

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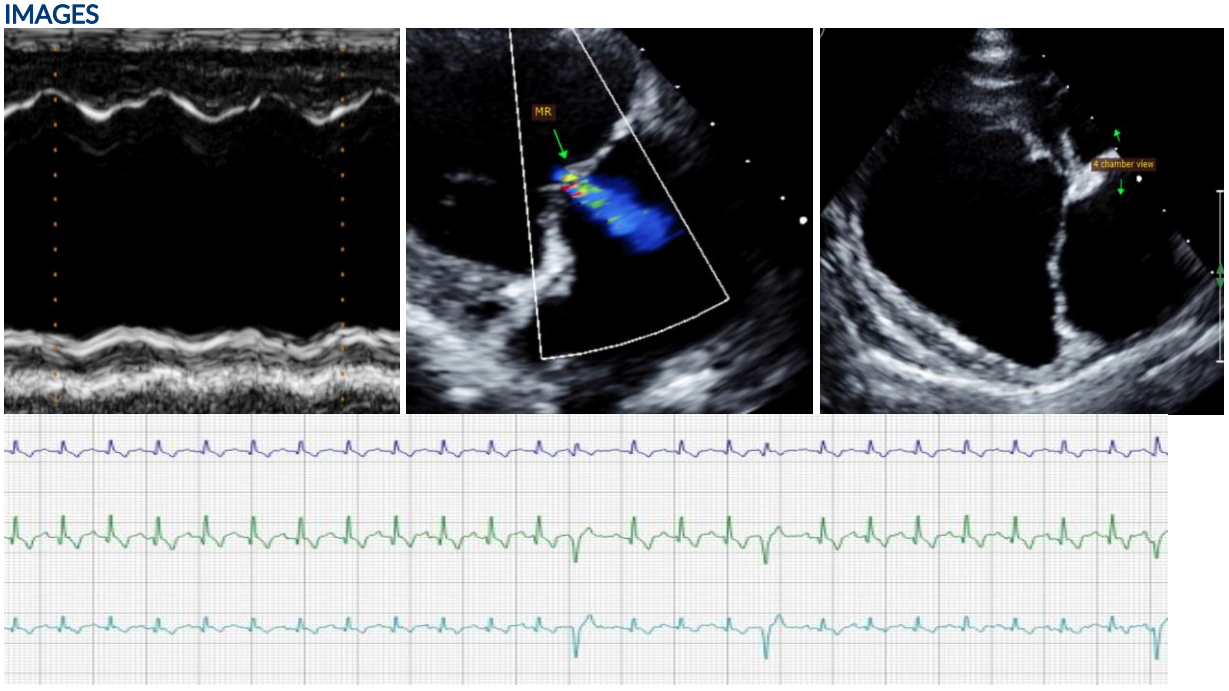
- Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes. Monitoring of sleeping breathing rates is recommended as the best way to screen for CHF going forward.
- Lifelong activity restriction is advised.

PLAN

- Monitor renal values and blood pressure every 3-4 months lifelong. If doing well at that time and BP is >130mmHg, institute ACE-I 0.5mg/kg PO q12h.
- Recommend conservative monitoring with a recheck echocardiogram and ECG in 6 months, sooner if any development of clinical signs.

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)