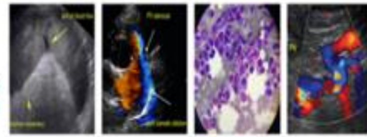
Mass Veterinary Services



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

PATIENT
Willy Ziegler

SPECIES
Canine

BREED
Pug

SEX
Male Neutered

AGE
13 years

WEIGHT
20lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Services

REFERRING VET
Dr. Masloski

INVOICE
24112

DATE
5/10/22

PRESENTING CLINICAL SIGNS

History: Willy has been having syncopal events since April. During his collapse episodes, he becomes cyanotic. Radiographs taken in April by rDVM revealed cardiomegaly. He was started on Lasix and Pimobendan. Heavy, labored breathing - 3 collapse episodes on Sunday 5/8. He is hyporexic. No bowel movement for 3 days. On exam today: NSR, grade IV/VI murmur with PMI left apical area radiating to right, PSS, lung fields clear to quiet. BP: 130 mmHg x 5. Current medications: 1) Pimobendan/vetmedin 2.5mg 1 tab twice a day 2) Lasix/furosemide 12.5mg 1 tab daily *No sedation for study

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: The LV diameter is normal/small with adequate myocardial function. LV wall thicknesses are normal.
Left atrium: The left atrium is normal in diameter.
Mitral valve: The mitral valve is normal with no prolapse into the left atrial lumen. No significant mitral regurgitation.
Aortic valve/Aorta: The aortic valve is normal in morphology and mobility. Normal aortic outflow velocity; laminar flow. No aortic insufficiency.
Right ventricle: Severe RV dilation with severe hypertrophy consistent with pressure overload. Septal flattening in end-systole.
Right atrium: Moderate to severe RA dilation.
Tricuspid valve: The tricuspid valve appears thickened with moderate tricuspid regurgitation; velocity consistent with severe pulmonary arterial hypertension.
Pulmonic valve/Pulmonary artery: The pulmonic valve is mildly thickened with normal mobility Mild pulmonic insufficiency. Normal RVOT velocity; laminar flow. Severe MPA and branch dilation.
Pericardium/other: No pericardial or pleural effusion noted. No obvious cardiac masses.
Heart rhythm: ECG reveals a sinus rhythm with an average HR of 120bpm.

2-Dimensional Measurements

Ao diam (cm)	1.7
LA diam (cm)	2.3
LA:Ao (Swe)	1.4
IVS thickness (cm)	0.85
LVID diastole (cm)	1.7
PW thickness (cm)	0.80
LVID systole (cm)	0.82
FS (%)	53

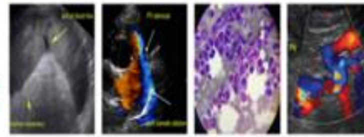
Doppler Measurements

PV Vmax (m/s)	0.63
AoV Vmax (m/s)	0.84
MR Vmax (m/s)	NA
TR Vmax (m/s)	5.0
TR PG (mmHg)	100

INTERPRETATION OF THE FINDINGS

There is severe pulmonary hypertension (PAH) present, with an estimated systolic pulmonary arterial pressure >100mmHg (normal being <25mmHg). This is causing severe hypertrophy and dilation of the right heart and MPA (indicating severe right-heart pressure overload), moderateTR and mild pulmonic insufficiency. The left heart appears essentially normal, with small to normal dimensions.

The underlying genesis of PAH is poorly understood in cases other than prior or active heartworm infestation, though it occurs with increased frequency in a variety of forms of chronic lung disease and in patients with idiopathic pulmonary fibrosis. Without a chronic



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respiratory history the cause remains open. Clinical signs of weakness, heavy breathing, cyanosis, and **exertional syncope** are attributed to severe PAH as is seen here. Patients with this degree of PAH can eventually develop right-sided congestive heart failure (ascites/pleural effusion), debilitating cyanosis and labored breathing/exertional syncope if poorly controlled.

Going forward, medical management of PAH is recommended utilizing Sildenafil and Pimobendan therapy. Lasix is contraindicated in the absence of CHF, as diuretics can actually decrease preload. Primary respiratory therapy is recommended if symptoms are present, as primary respiratory disease is a common underlying cause particularly given the breed.

Unfortunately this tends to be a progressive issue with a guarded to poor prognosis, particularly once syncope and CHF develop. Patient will always be at risk for right-sided CHF, worsening syncope/dyspnea and or sudden death going forward.

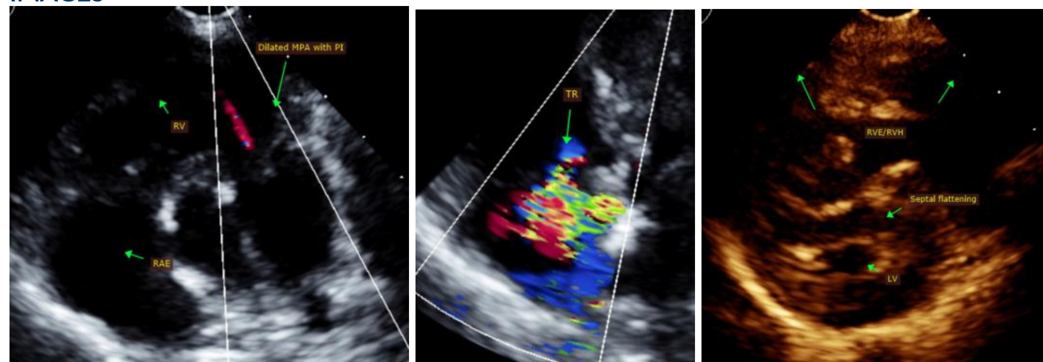
RECOMMENDATIONS

- Institute sildenafil 1-2mg/kg PO q8h.
- Institute Pimobendan 0.3mg/kg PO q12h.
- Discontinue Lasix.
- If indicated, institute Hydrocodone with homatropine for QOL; 0.2-0.4mg/kg up to q4-6h PRN.
- Pending response, consider ancillary options including theophylline, anti-inflammatory prednisone, inhaled fluticasone, home flow by O2, course of Baytril for cough flares, etc.
- Omega fatty acid supplementation and mild salt restriction may be of some long term benefit.
- Elective anesthesia is not advised.
- Lifelong activity/stress restriction is advised.
- Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

PLAN

- Recommend conservative monitoring with a recheck echocardiogram in 6 months, sooner if any development of clinical signs.

IMAGES



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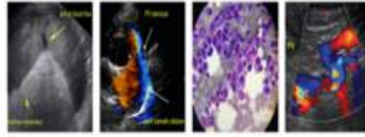

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)