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Pet Animal Ultrasound Service
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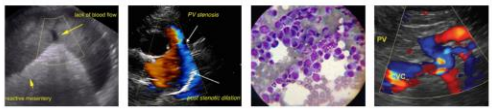

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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PATIENT
Oliver Dauwer

SPECIES
Canine

BREED
Chihuahua

SEX
Male Neutered

AGE
5 years

WEIGHT
5.9lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Norfolk County Veterinary Service

REFERRING VET
Dr. Richards

INVOICE
23158

DATE
3/17/22

PRESENTING CLINICAL SIGNS

History: Presented in January with a cough. Mild heart murmur auscultated but cough seemed tracheal, or URI based. Treated with Doxycycline and cough tabs without significant improvement. Re-presented this month - cough persists; however, no murmur heard. Patient placed on Clavamox. Radiographs - cardiomegaly. BP: 192, 192, 196mmHg. *Sedated with butorphanol/alfaxalone.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: The LV diameter is normal with adequate myocardial function. LV wall thicknesses are normal.
Left atrium: The left atrium is normal.
Mitral valve: The mitral valve is mildly thickened with **no** prolapse into the left atrial lumen. No mitral regurgitation.
Aortic valve/Aorta: The aortic valve is mildly thickened with normal mobility. Normal aortic outflow velocity; laminar flow. No aortic insufficiency.
Right ventricle: Normal right ventricular diameter and morphology.
Right atrium: Normal RA dimension.
Tricuspid valve: The tricuspid valve appears mildly thickened with mild tricuspid regurgitation; velocity consistent with mild pulmonary hypertension.
Pulmonary valve/Pulmonary artery: The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. Normal RVOT velocity; laminar flow.
Pericardium/other: No pericardial or pleural effusion noted. No obvious cardiac masses.
Heart rhythm: ECG reveals a sinus rhythm with an average HR of 150bpm.

2-Dimensional Measurements

Ao diam (cm)	1.1
LA diam (cm)	1.2
LA:Ao (Swe)	1.1
IVS thickness (cm)	0.42
LVID diastole (cm)	1.8
PW thickness (cm)	0.49
LVID systole (cm)	0.9
FS (%)	50

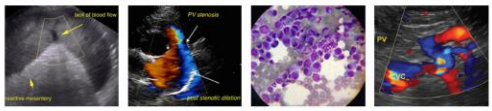
Doppler Measurements

PV Vmax (m/s)	0.76
AoV Vmax (m/s)	1.3
MR Vmax (m/s)	NA
TR Vmax (m/s)	3.2
TR PG (mmHg)	42

INTERPRETATION OF THE FINDINGS

The cause of the murmur is chronic degenerative valve disease causing mild tricuspid regurgitation. This likely reflects early valve disease; however, it is somewhat unusual to have no concurrent MR. Regardless, lack of significant right or left atrial enlargement indicates the current risk for complication is low. Mild pulmonary hypertension is noted, which is likely developing secondary to the chronic cough. No concurrent issues such as systolic dysfunction are noted in this study. Assessment of progression in the future will help predict long term prognosis, which is highly variable at this stage (B1).

Given these findings, the cough is certainly non-cardiogenic in origin. Respiratory disease is considered most likely, and screening chest radiographs may be helpful as a baseline. If the cough is poorly controlled/progresses long term, this can certainly lead to worsening of PAH. Clinical signs of significant PAH include exertional dyspnea/collapse. Continued



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monitoring is advised. Cough control is recommended lifelong (hydrocodone, intermittent AI prednisone, fluoroquinolone for acute flare up, etc.).

The reported blood pressure is elevated and should be reassessed for accuracy particularly given no reported clinical signs of severe hypertension (retinal changes, etc.) or evidence of LVH on echo. Ideally obtain serial measurements in a controlled, low stress environment and continue until 3 consecutive readings plateau within 5mmHg of variability. If persistently >180mmHg despite a relatively calm demeanor, recommend institution of amlodipine to effect. Additionally, if deemed accurate, screening for predisposing underlying causes of SHT is recommended (Cushings, PLN, adrenal tumor, etc.), as primary disease is relatively uncommon and a rule out diagnosis.

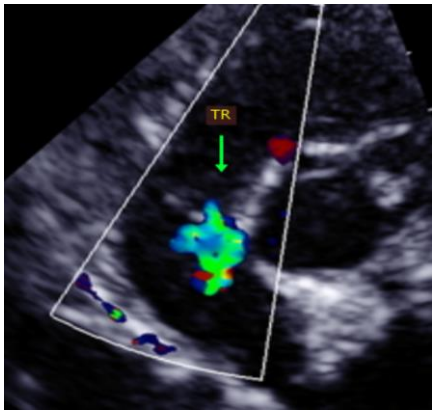
RECOMMENDATIONS

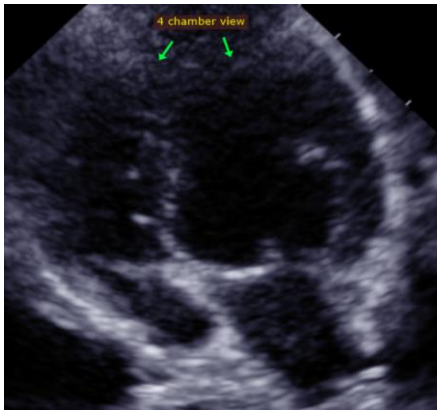
- In a dog without significant left atrial enlargement, no cardiac medications are clearly indicated.
- Continue hydrocodone as needed; consider more aggressive dose/frequency.
- Consider further respiratory work-up/treatment as discussed.
- Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit.
- 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.
- Monitor for development of a progressive cough, labored breathing, exercise intolerance or collapse episodes.

PLAN

- Recommend conservative monitoring with a recheck echocardiogram in 6-12 months, sooner if any development of clinical signs.

IMAGES





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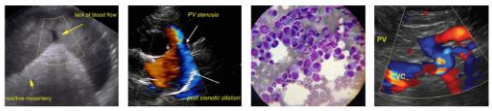

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)
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