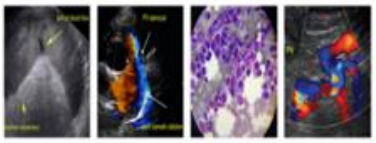
Mass Veterinary Services



SonoPath
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1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT
Porter Mauran

SPECIES
Feline

BREED
DSH

SEX
Male Neutered

AGE
8 years

WEIGHT
14.6lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Services

REFERRING VET
Dr. Masloski

INVOICE
26447

DATE
9/20/22

PRESENTING CLINICAL SIGNS

History: Porter was seen on an emergent basis in June, July and again in August for dyspnea. He had pleural effusion noted each time with 245, 100 and 300mls fluid removed from the chest cavity. A ProBNP done in June was abnormal. At that time, Porter was noted to have an arrhythmia but no heart murmur. He is presently doing well but does occasionally have some labored breathing after exercise. Porter has also been noted to occasionally lip lick. On exam today: arrhythmia, no murmurs noted, PSS, lung fields clear, compressible thorax. BP: 100 mmHg x 3. Medications: 1) Pimobendan/vetmedin 1.25mg 1 tab twice a day 2) Lasix/furosemide 12.5mg 1 tab twice a day *Thoracentesis performed; 300mls chylous effusion removed.

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, 20mm/mV. The average heart rate is 170bpm with an irregularly irregular rhythm. No identifiable P waves. Isolated VPCs throughout, singles only clearly identified.
ECG diagnosis: Suspect atrial fibrillation with isolated VPCs; cannot rule out a sinus rhythm with frequent APCs without a 6 lead tracing.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: The LV diameter is increased with depressed myocardial function. The LV wall thicknesses are irregular, with overall thinning. The free wall appears hypokinetic. There is a diffusely hyperechoic endocardium consistent with fibrosis. The papillary muscles are remodeled and hyperechoic. The endocardium appears highly remodeled.
Left atrium: The left atrium is markedly dilated with smoke seen within the left auricle.
Mitral valve: The mitral valve is normal in structure and mobility. No obvious systolic anterior motion is seen. Mild to moderate central MR due to annular stretch.
Aortic valve/Aorta: The aortic valve is normal in morphology and mobility. Decreased aortic outflow velocity, laminar flow. No aortic insufficiency.
Right ventricle: The right ventricular is normal.
Right atrium: The right atrium appears normal.
Tricuspid valve: The tricuspid valve appears normal with no significant tricuspid regurgitation.
Pulmonic valve/Pulmonary artery: The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. Decreased RVOT velocity; laminar flow.
Pericardium/other: Scant pericardial effusion. Large volume pleural effusion noted.

2-Dimensional Measurements

Ao diam (cm)	1.0
LA diam (cm)	2.0
LA:Ao (Swe)	2.0
IVS thickness (cm)	0.53
LVID diastole (cm)	2.2
PW thickness (cm)	0.42
LVID systole (cm)	1.6
FS (%)	27

Doppler Measurements

PV Vmax (m/s)	0.5
AoV Vmax (m/s)	0.65
MR Vmax (m/s)	NA
TR Vmax (m/s)	NA
TR PG (mmHg)	NA

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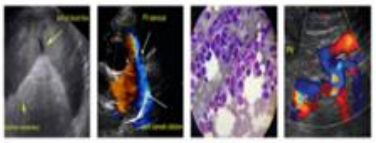

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INTERPRETATION OF THE FINDINGS

The finding of severe left atrial enlargement in the face of decreased LV wall thickness and systolic dysfunction is most consistent with Unclassified/Restrictive Cardiomyopathy (UCM/RCM), however burn-out or end-stage HCM or potentially a prior infectious/inflammatory insult to the myocardium can also have this appearance. The free wall appears thinned and hypokinetic, which may suggest a prior infarct. The degree of left atrial enlargement is marked, and there is smoke seen within the left auricle. MR is suspected to be secondary to annular stretch. Finally, scant pericardial and large volume pleural effusion is certainly consistent with CHF.

The ECG confirms development of an arrhythmia, which is most consistent with atrial fibrillation and concurrent VPC's. A sinus rhythm with frequent APCs cannot be ruled out (ie P waves are present yet cannot be seen consistently due to device insensitivity); however, this is considered less likely. Atrial fibrillation develops secondary to significant atrial dilation and remodeling and will persist life-long. Our goal with this arrythmia is to maximize cardiac output by controlling heart rate, although what is seen here does not clearly warrant rate control therapy at this time. Recommend reassess the HR/ECG once the situation is stabilized. If rate control is needed (ie if resting HR is >200bpm), low dose Diltiazem would be the recommended choice.

Hospitalization and lifelong medications are warranted as below. It is concerning that the patient is refractory despite nearly 4mg/kg/day of Lasix, and a dose adjustment should be considered as below. Euthanasia should be discussed in any cat with advanced CHF and arrhythmias, as the overall prognosis is poor to grave.

If able to be stabilized and medicated, the mean survival time for cats with CHF is <6 months; however, many are able to maintain a good quality of life on medications. It is notable that the presence of a thrombus confers an even more dire prognosis. There will always remain risk for recurrent episodes of CHF, malignant arrhythmias and/or development of additional blood clots in the future. Once stabilized, monitoring of sleeping breathing rates at home is recommended as the best way to screen for recurrent CHF.

RECOMMENDATIONS

- Consider overnight hospitalization for oxygen therapy, ECG monitoring, IV medications if needed.
- Consider a 6 lead ECG tracing if available.
- Increase Lasix to 12.5mg am, 6.25mg mid-day, 12.5mg pm.
- Continue pimobendan off label use 1.25mg PO q12h.
- Institute spironolactone 6.25mg PO q12h.
- Institute Plavix 18.75mg PO q24h (NOTE: Medication is bitter along the cut edge; coat in entirety).
- Do not utilize ACEI in this case.
- Recheck renal panel, BP, effusion status and ECG/HR 10-14 days post-stabilization. If HR is persistently elevated >200bpm, consider diltiazem 1-2mg/kg PO q12h and monitor response.
- Monitor for any clinical evidence of cardiac compromise, including respiratory changes and/or signs of a blood clot event (paralysis, neurologic changes, etc.).

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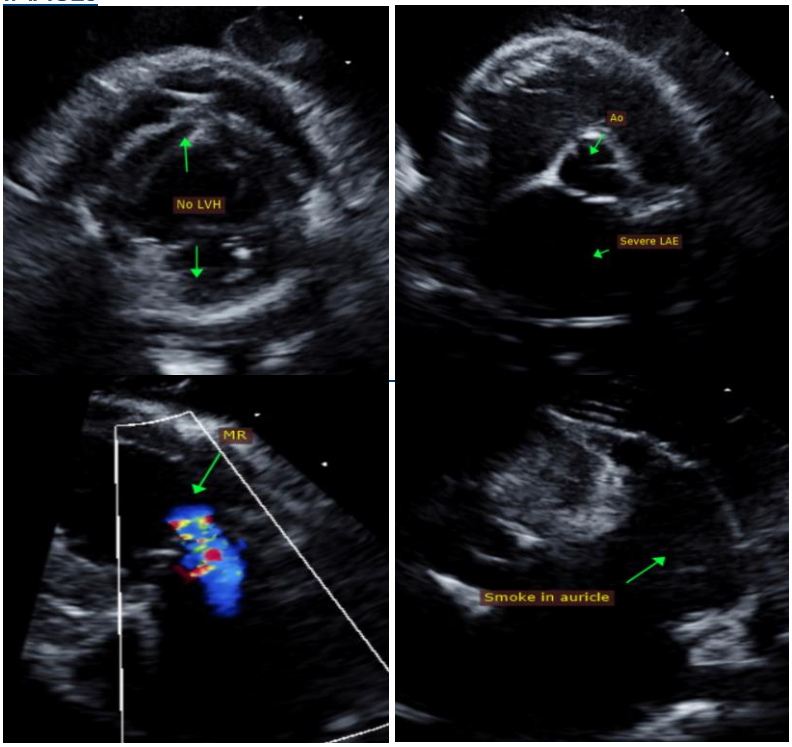
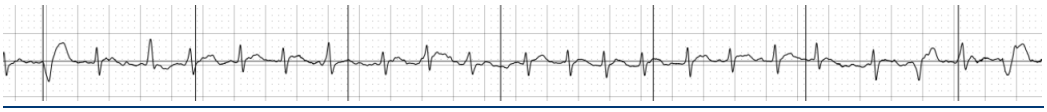
- Once stabilized, monitoring of sleeping breathing rates at home is recommended as the best way to screen for progression to CHF at home.
- Avoid elective anesthesia, fluid therapy or steroids lifelong.

PLAN

- Recommend recheck echocardiogram in 6 months to screen for progressive issues.

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)

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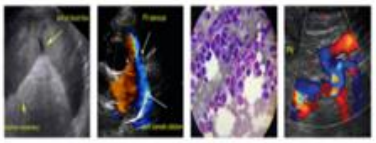

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