



PATIENT

Smokey Hoar

SPECIES

Feline

BREED

DLH

SEX

Male Neutered

AGE

5 years

WEIGHT

11.75lbs

INTERPRETED BY

Maggie Machen
Lamy, DVM
DACVIM (Cardiology)

IMAGING PERFORMED BY

Pamela Harrigan,
RDCS

HOSPITAL NAME

Mass Veterinary Services

REFERRING VET

Dr. Masloski

INVOICE

24157

DATE

5/11/22

PRESENTING CLINICAL SIGNS

History: Smokey was noted to have an arrhythmia in April. His sibling died of an aortic thromboembolism. Per owner, he is presently doing well with a normal appetite and activity level. He was started on atenolol and plavix approximately one week ago by rDVM based on radiographs and arrhythmia on auscultation. On exam today: pronounced arrhythmia, no obvious murmurs though tachycardic, PSS, lung fields quiet, compressible thorax. BP: 10 mmHg x 5. Current medications: 1) Atenolol 25mg 1/4 tab daily 2) Plavix/clopidogrel 75mg 1/4 tab daily

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 220bpm with an irregularly irregular rhythm. No identifiable P waves. Occasional VPCs suspected; difficult to confirm without a 6 lead tracing.

ECG diagnosis: Rapid atrial fibrillation with isolated VPCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.

Left ventricle: The LV diameter is increased with severely decreased myocardial function. The LV wall thicknesses are irregular, with overall thinning. 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 significant smoke. Large thrombus seen within the left auricle.

Mitral valve: The mitral valve is normal in structure and mobility. No obvious systolic anterior motion is seen. 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 dilated with remodeled architecture.

Right atrium: The right atrium is moderately affected.

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)	0.8
LA diam (cm)	3.5
LA:Ao (Swe)	>3
IVS thickness (cm)	0.26
LVID diastole (cm)	2.0
PW thickness (cm)	0.29
LVID systole (cm)	1.5
FS (%)	25

Doppler Measurements

PV Vmax (m/s)	0.7
AoV Vmax (m/s)	0.6
MR Vmax (m/s)	NA
TR Vmax (m/s)	NA
TR PG (mmHg)	NA

INTERPRETATION OF THE FINDINGS

The finding of marked biatrial enlargement in the face of decreased wall thickness and systolic dysfunction is most consistent with Unclassified/Restrictive Cardiomyopathy



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(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 degree of left atrial enlargement is marked, and there is a thrombus lodged within the auricle. MR is suspected to be secondary to annular stretch. The right heart is also affected, although to a lesser extent. Finally, scan pericardial and large volume pleural effusion is certainly consistent with CHF.

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The ECG confirms development of a rapid arrhythmia, which is most consistent with atrial fibrillation and concurrent VPC's. Atrial fibrillation has developed secondary to marked atrial dilation and remodeling and will persist life-long. Our goal with this arrhythmia is to maximize cardiac output by controlling heart rate, although atenolol should be avoided in active CHF. Recommend discontinue this medication while the situation is stabilized and reassess an ECG in 1-2 weeks. If rate control is needed, Diltiazem would be the recommended choice.

Hospitalization and lifelong medications are warranted as below. Euthanasia should be discussed in any cat with CHF, arrhythmias and a thrombus, as cats who survive the initial event (roughly 50%) will often succumb within weeks to a recurrent thrombus and/or refractory CHF. Lifelong cardiac support and anti-coagulation is recommended as below, including off-label use of Pimobendan due to systolic dysfunction. Hospitalization for "clot care" can be offered, including heparin therapy. Dislodgement of a portion of the clot may cause life-threatening complications such as acute paralysis, neurologic change, sudden death. Should this complication occur, prognosis is grave and humane euthanasia is recommended.

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DACVIM (Cardiology)

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.

IMAGING PERFORMED BY

Pamela Harrigan,
RDCS

RECOMMENDATIONS

- D/C Atenolol.
- Consider overnight hospitalization for oxygen therapy, ECG monitoring IV medications, heparin. A tap should be performed to improve acute hypoxia.
 - o Lasix PRN. If stable on room air, initiate oral medications.
 - o Heparin if elected/able.
- Oral medications as follows: Institute Lasix 1-2mg/kg PO q12h. Institute 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). Institute Baby Aspirin (81mg tabs); ¼ tab PO q3 days. Do not utilize ACEI in this case.
 - o Note: 4 medications can be overwhelming in cats. If difficult to medicate, Lasix and Plavix are most important.
- 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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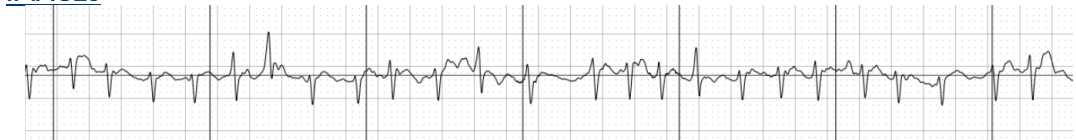
- Once stabilized, monitoring of sleeping breathing rates at home is recommended as the best way to screen for progression to CHF at home.
- Avoid elective anesthesia, fluid therapy or steroids lifelong.

SPECIES
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PLAN

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

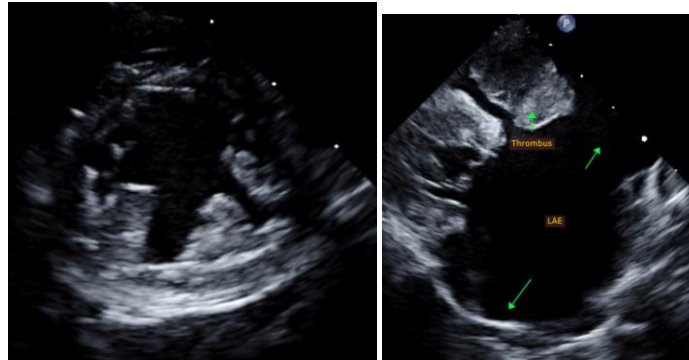
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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Echocardiogram performed by: Pamela Harrigan, RDCS
Pet Animal Ultrasound Service (4paus.com)

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