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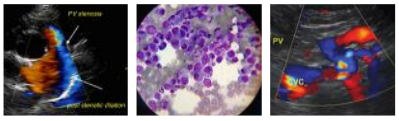

SonoPath
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PATIENT

Max Csida

SPECIES

Feline

BREED

DSH

SEX

Male Neutered

AGE

16 years

WEIGHT

16.3lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

HOSPITAL NAME

Chadwell Animal Hospital

REFERRING VET

Dr. Gold

INVOICE

21594

DATE

10/19/21

PRESENTING CLINICAL SIGNS

History: Hyperthyroid; feline bronchial asthma; constipation/obstipation.
-Pertinent abnormal PE/Chem/CBC/UA Results: BW WNL; increased T4.
-Radiographs: Calcification right cranial thorax, cranial mediastinum, decreased serosal detail in abdomen.
-Current medications: Methimazole 5mg BID, Prednisolone 5mg EOD, Lactulose 1 cc BID.
-Blood pressure: 145mmHg, 140mmHg, 142mmHg.
-Sedation used: Ketamine/Valium administered prior to scan per veterinarian.
-STAT: Not requested.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The left ventricular wall thickness is mildly increased. There is a diffusely hyperechoic endocardium consistent with fibrosis and ventricular remodeling. False tendon. The left ventricular chamber is normal in dimension. The papillary muscles appear remodeled. The left atrium is normal. The right atrium is moderately enlarged. The right ventricle appears remodeled; however, the systolic function is subjectively intact. Mild RV dilation with mild RVH. Mild tricuspid regurgitation. Mildly increased TR velocity (suspected to be an underestimation). The mitral valve is normal in structure and mobility. There is no mitral regurgitation present. Blood flow through the RVOT and LVOT is normal in velocity. Mild AI/PI. No obvious cardiac tumors or effusions. No heart base tumors are visualized adjacent to the aortic root.

CARDIAC CHART

FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm) (Moise, Pipers)	LVIDd (cm) (Moise, Pipers)	LVWd (cm) (Moise, Pipers)	FS (%)	EF (%)
NORMAL PARAMETER	------	150-240	0.35-0.55	<2 (mean 1.5)	3.5-0.55	35-67	80-100
PATIENT	7.4	250	0.63	1.1	0.67	54	90
FELINE CARDIAC PARAMETERS	**LA/AO** (Boon)	**LA/AO HEART BASE (Swe)** (Abbott)	**LA** 2D short axis Base view (cm) (Abbott)		**LVOT VEL** (m/s)	**RVOT VEL** (m/s)	**E max** (m/s)
NORMAL	<1.5	<1.3	<1.2		<1.6	<1.3	<0.9
PATIENT	NM	1.2	1.23		0.8	0.5	NM

**Note: All measurements based upon multi-modal images and methods. An average value is reported.*
Adapted from June Boon, Veterinary Echocardiography,1998
Abbott J & MacLean H JVIM 2006;20: 111-119, Moise et al. Am J Vet Res 47:1476, 1986. Pipers et al. Am J Vet Res 40:882, 1979.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Unusual case with multiple abnormalities visualized. The most significant clinical finding is mild tricuspid regurgitation with right heart enlargement. The right heart compensatory changes are most consistent with pulmonary hypertension. This has likely developed secondary to chronic airway disease, albeit a fairly uncommon development in cats. A PTE cannot be ruled out as an exacerbating issue. In addition, the left heart is abnormal with mild LV hypertrophy. This may be secondary to hyperthyroid disease or reflect primary HCM. Follow up is advised. Comparatively, this appears mild with no left atrial enlargement. The reported blood pressure is normal; however, this should be reassessed if taken while sedated in the future in light of a significant aortic leak. No additional issues are identified.

Given the findings, consider treatment with Sildenafil depending on current clinical signs. If patient is experiencing episodes of exertional dyspnea, I would not hesitate to institute this medication (20mg tablets are available commercially, and a 5mg dose can be trialed). The most important way to approach pulmonary hypertension is to ensure good control of the airway disease is obtained (Azithromycin, continued anti-inflammatory steroids, etc. depending on clinical picture). Highly recommend a Radiologist review of the films if not already performed to further evaluate pulmonary disease. No obvious indication for additional medications. Thyroid control should additionally be of the up most importance, particularly if this is contributing to LV hypertrophy.

Monitor the patient closely for any progressive decline in breathing rate/effort, exertional syncope, etc. Prognosis is guarded long term given the complexity of issues. There will always remain risk for progression to right-sided CHF (difficult to discern in cats with concurrent respiratory disease), development of blood clots and/or malignant arrhythmias/sudden death in the future.

Monitoring of sleeping breathing rates at home is recommended as the best way to screen for recurrent CHF at home.

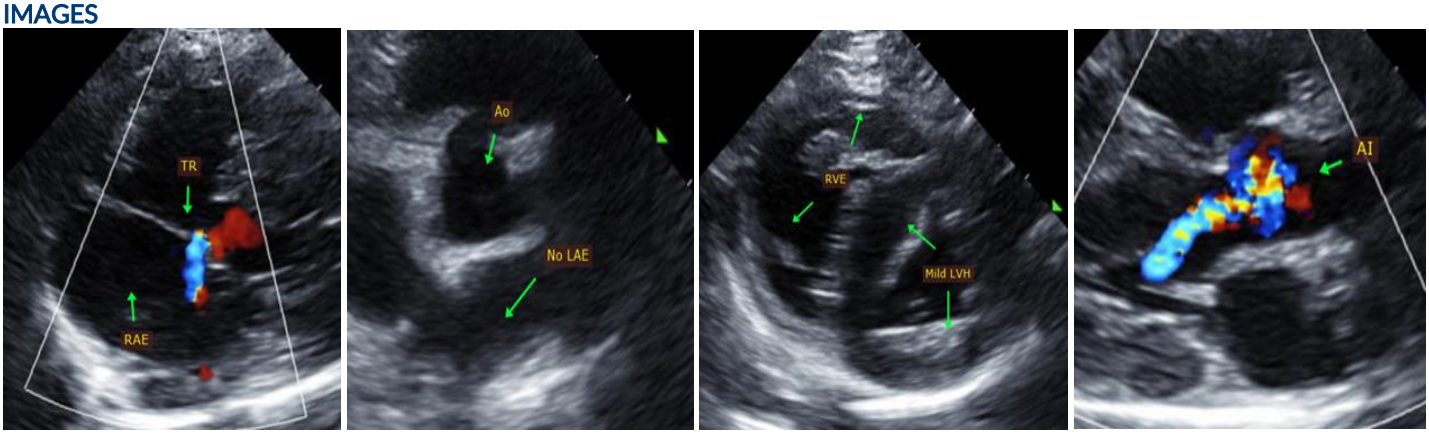
Elective anesthesia is not advised.

PLAN

Reassess BP if sedation was already administered. If indicated by clinical signs, institute sildenafil 1-2mg/kg PO q12h. Consider further respiratory work up/treatment as discussed, including Radiologist review, etc.

A recheck echocardiogram is recommended in 6 months to assess progression, sooner if issues arise in the interim.

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. 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
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