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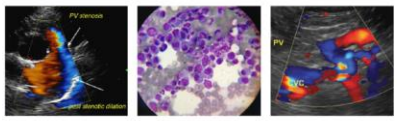

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT
Taylor Dugan

SPECIES
Canine

BREED
Blue Heeler

SEX
Male Neutered

AGE
8 years

WEIGHT
38lbs

INTERPRETED BY
Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY
Sarah Pender, CVT

HOSPITAL NAME
SVS Imaging QC

REFERRING VET
Dr. Josey

INVOICE
21637

DATE
10/20/21

Danger of the moment PRESENTING CLINICAL SIGNS

History: About 2-3 weeks ago, noted staggering while playing fetch, fell over/collapsed once. Otherwise, asymptomatic. Apoquel 16mg 1/2-tab SID
-Abnormal PE/Chem/CBC/UA Results: Lab WNL; 4dx was negative today. No abnormal coughing or respiratory distressed noted at home or on exam.
-BP: 118/77 MAP 89, 124/80 MAP 94, 125/76 MAP 81mmHg

RADIOGRAPHIC FINDINGS *NOTE: Images submitted for supplemental cardiac information only.

Mild primarily right-sided cardiomegaly with loss of the cranial cardiac waist and increased soft tissue opacity near the aortic root. No obvious evidence of CHF.

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, 60 seconds. The average heart rate is 120bpm (range 115-150bpm). The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. No ectopic beats, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with respiratory variation.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Massive soft tissue lesion is visualized (4.9 x 4.9cm) in best viewed cross-section; heterogenous with cavitated in regions. The mass appears to be associated with the heart base, seen adjacent to the aortic root and overlying left atrium. Normal aortic outflow velocities without significant AI. Mild to moderate mitral regurgitation with mild thickening of the mitral valve. LV dimension and function is adequate. Left atrium is difficult to assess due to mass location although no significant enlargement is suspected. RA/RV are both enlarged. Moderate to severe TR. Velocity consistent with moderate pulmonary hypertension, likely secondary to compression/infiltration. The pulmonic and aortic valves are normal in appearance. Normal LVOT velocity. Normal RVOT velocity. Mild PI identified. The mass can be seen compressing the branch pulmonary arteries near the bifurcation with infiltration suspected. No significant effusion is seen.

CARDIAC CHART

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT	5.1	3.9	NM	NM	33	66	0.5
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**LA** 2D short axis Base view (cm)	**LVIDd** Avg; 2D and m-mode short axis (cm)	**LVIDs** Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
PATIENT	105	1.3	0.7	17.2	NM	3.0	2.0
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
BODY WEIGHT DEPENDENT PARAMETERS **Note: All measurements based upon multi-modal images and methods. An average value is reported.*				5	1.40 (4.5)	2.74 (5.2)	1.60 (4.7)
				10	1.50 (3.8)	3.27 (3.5)	2.06 (3.1)
				15	1.83 (2.0)	3.71 (2.4)	2.43 (2.1)

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Adapted from June Boon, Veterinary Echocardiography, 1998 Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435 Hansson et al, Vet Rad and Ultrasound 2002 Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995	20	2.02 (1.9)	4.14 (2.2)	2.80 (2.0)
	25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
	30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
	35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
	40	2.62 (5.2)	5.48 (6.1)	3.96 (5.4)
	50	2.88 (7.1)	6.07 (8.3)	4.46 (7.4)

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Primary cardiac neoplasia is identified leading to compression/infiltration of the pulmonary artery. Once a mass is compressing the peripheral vasculature, the patient is at extremely high risk for congestive signs. No obvious fluid accumulation is seen; however, full medications are warranted. The ECG is unremarkable with a normal sinus rhythm.

Given the size of the mass, the likely diagnosis is a chemodectoma, however a less common tumor such as ectopic parathyroid, lymphoma, etc. cannot be entirely ruled out without a biopsy. The issue is more of a mechanical obstruction than true pulmonary hypertension, and sildenafil will be of little benefit. The best we can do is remove effusions should they occur and use medications for congestive heart failure to help slow development of fluid accumulation. The size of the mass should be relayed as a grave prognosis, as the patient is already experiencing clinical signs that are certainly related (syncope). Supportive care can be attempted for the short term; however, diuretics and cough suppressants are a band aid over a much bigger issue as the tumor continues to grow. Euthanasia should be considered if quality of life suffers.

Going forward there are some options for obtaining more information and palliating this type of cancer. Should the client elect to proceed, radiation and/or chemotherapy can be discussed with an Oncologist.

High risk will always remain for recurrent effusions (pericardial, pleural or abdominal) and development of arrhythmias/sudden death at home. Monitor at home for progressive abdominal distention, labored breathing and/or lethargy and collapse. Significant activity restriction is advised.

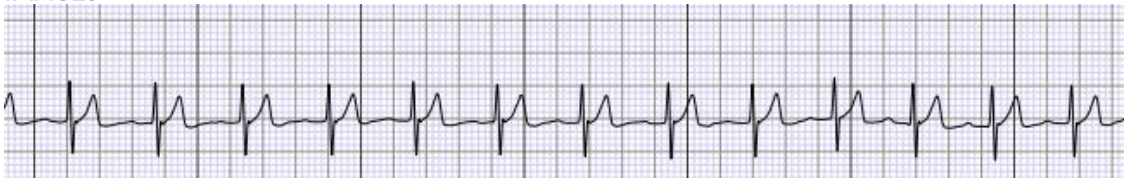
PLAN

Administer low dose Furosemide 1mg/kg PO q12h.). Administer spironolactone 1-2mg/kg PO q12h. Administer Pimobendan 0.3mg/kg PO q12h. Administer Hydrocodone if indicated.

A renal panel is recommended in 5-7 days, then every 2-3 months going forward. Consider referral for further diagnostics and/or Oncology consult. Euthanasia should be considered if quality of life suffers.

A recheck echocardiogram to reassess mass dimension and heart size is recommended in 2-3 months.

IMAGES



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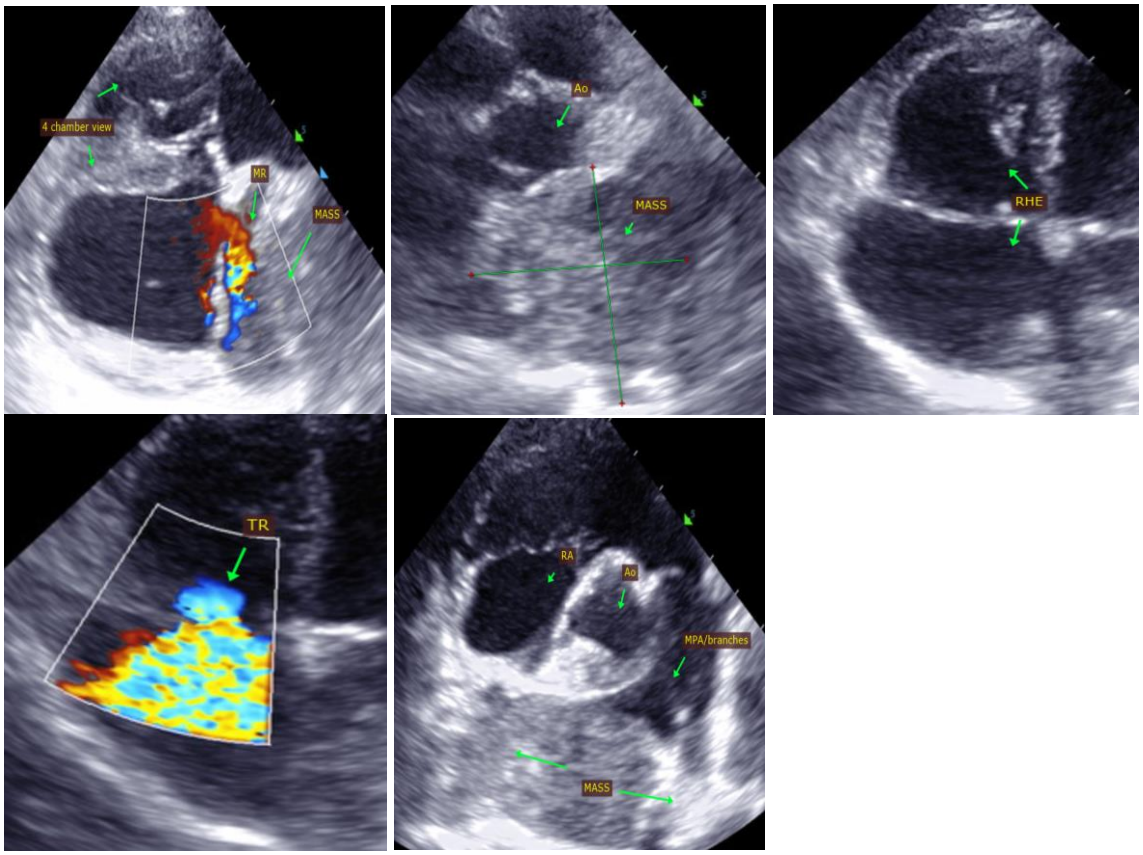

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. 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