IMAGING PERFORMED BY

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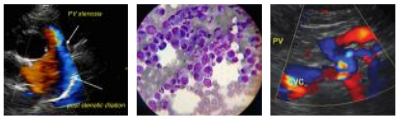

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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PATIENT
Chowder Bealey

SPECIES
Canine

BREED
Boston Terrier

SEX
Male Neutered

AGE
6.9.10

WEIGHT
20.8lbs

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

HOSPITAL NAME
Maryland Mobile Veterinary Clinic

REFERRING VET
Dr. Hahn

INVOICE
28101

DATE
1.4.23

PRESENTING CLINICAL SIGNS

History: Ascites. Poor appetite, lethargic, pale MM. Pitting edema on exam.
-Pertinent abnormal PE/Chem/CBC/UA Results: VHS 13, fluid filled abdomen. Increased Neutrophils/Monocytes.
-Current medications: Gabapentin 100mg BID for discomfort started 12/26, Cefpodoxime 100mg SID started 12/27.
-Sedation used: Not required to complete full diagnostic ultrasound.
-Pertinent previous ultrasound results: No previous.
-STAT: Declined.
-Imaging performed by: Stephanie Warga RDCS, RVT.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. A soft tissue lesion is visualized (2.2 x 2.4cm in best viewed cross-section). The mass is associated with the heart base, near the level of the pulmonary artery bifurcation. Compression and potentially early infiltration is suspected. Moderate mitral regurgitation, mild thickening of the mitral valve. LV function is adequate. Left atrium is mildly dilated (ratio falsely elevated due to mass). LV is normal in diameter. RA/RV are severely enlarged. Severe TR. Velocity consistent with mild pulmonary hypertension. The pulmonic and aortic valves are normal in appearance. Normal LVOT velocity. Normal RVOT velocity. No AI or PI identified. Scant pericardial effusion. Large volume ascites noted by the Sonographer.

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	5.6	3.4	NM	2.0	40	73	NM
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	130	1.6	1.2	9.4	2.8	2.5	1.5
*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				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)
				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)

Note: All measurements based upon multi-modal images and methods. An average value is reported.

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

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Primary cardiac neoplasia is identified leading to compression of at least the distal pulmonary artery. The size of the mass is distorting normal views making additional compressive issues certainly a possibility. Once a mass is compressing the cardiac chambers and peripheral vasculature, the patient is at extremely high risk for congestive signs as is seen here with accumulation of ascites, pericardial effusion and pitting edema. There is also moderate mitral regurgitation with mild LA enlargement, further putting the patient at risk for left-sided CHF as well. The TR is likely secondary to compression with only mildly elevated pulmonary pressures documented. This is suspected to be an underestimation. No obvious additional issues are identified.

Given the location of the mass and signalment, the likely diagnosis is a chemodectoma; however, a less common extra-cardiac tumor such as ectopic parathyroid, HSA, 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 effusion and use medications for congestive heart failure to help slow development of fluid accumulation. The compressive nature and/or possible early infiltration of the mass should be relayed as a grave prognosis, as the patient is already experiencing clinical signs that are certainly related (arrythmias, labored breathing, etc.). Referral would be the gold standard in this case, given the severity of the findings and concurrent malignant arrythmias. Advanced imaging including advanced echocardiography +/- thoracic CT scan would be helpful to fully understand the extent of disease. If declined, 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 in this case if quality of life is suffering.

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.

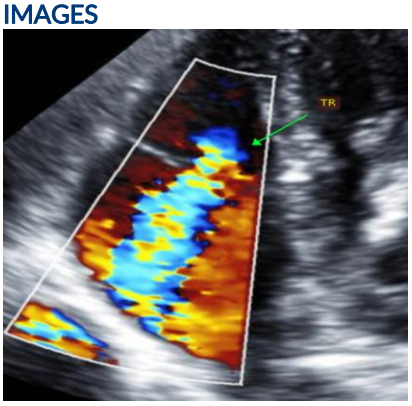
PLAN

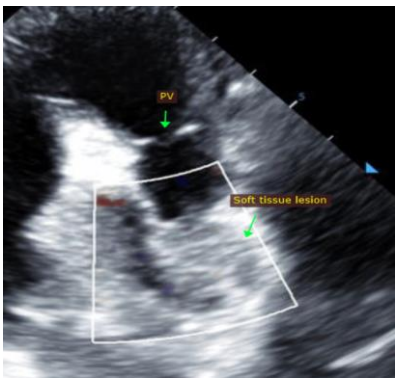
Highly recommend immediate referral to a multi-specialty center for advanced imaging, six-lead ECG evaluation, supportive care and further consultation. If declined, the following medications can be attempted: Administer Furosemide 1-2mg/kg PO q12h.). Administer spironolactone 1-2mg/kg PO q12h. Administer Pimobendan 0.3mg/kg PO q12h. Administer further supportive care including Hydrocodone. Abdominocentesis as needed for comfort. If quality of life does not dramatically improve, Euthanasia should be considered.

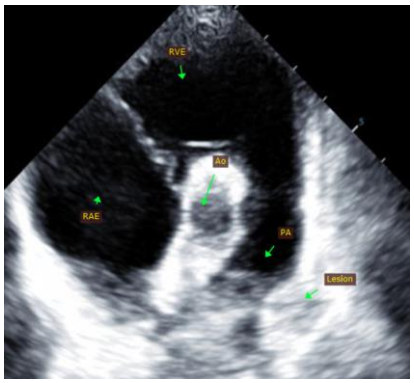
A renal panel is recommended in 5-7 days, then every 2-3 months going forward.

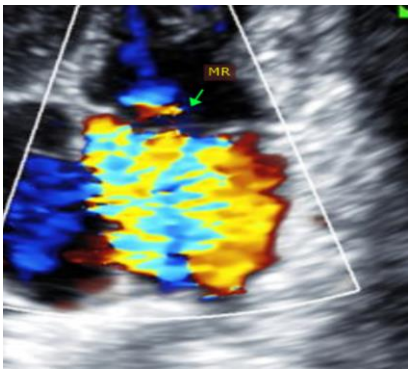
A recheck echocardiogram to reassess mass dimension and heart size is recommended in 2-3 months.

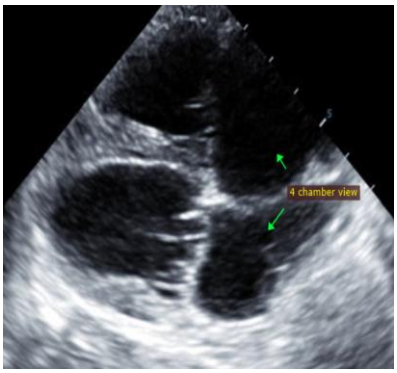
IMAGES











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