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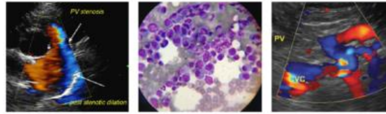


SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Chopper Baker

SPECIES

Canine

BREED

English Bulldog

SEX

Male Neutered

AGE

9 years

WEIGHT

48lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Sarah Pender, CVT

HOSPITAL NAME

SVS Imaging QC

REFERRING VET

Dr. Hein

INVOICE

28194

DATE

1/9/23

PRESENTING CLINICAL SIGNS

History: Patient presented for RR FHO and pre-surgical ECG performed. A ventricular arrhythmia was noted (ventricular ectopic beats).
-Abnormal PE/Chem/CBC/UA Results: CBC: WNL. Chemistry: ALT mild elevation. Abdominal ultrasound: Hepatomegaly with vascular congestion pattern.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. A soft tissue lesion is visualized (4.5 4.4cm in best viewed cross-section although thought to be a gross under-estimation). The mass is associated with the heart base, near the level of the pulmonary artery bifurcation and can be seen encircling the aortic root. Compression of the distal MPA/branches is suspected. Mild 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 mild to moderately enlarged. Mild 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. Hepatic congestion noted by 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	5.0	2.9	NM	1.3	40	72	0.54
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	165	1.5	0.85	21.8	3.4	3.8	2.3

*Normal chamber parameters expressed as a mean value (SD)

BODY WEIGHT DEPENDENT PARAMETERS

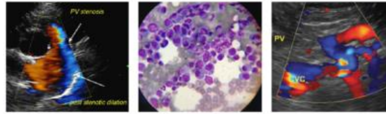
**Note: All measurements based upon multi-modal images and methods. An average value is reported.*

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

BODY WEIGHT (kg)	LA (cm)	LVIDd (cm)	LVIDs (cm)
3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
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)

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 vasculature, the patient is at extremely high risk for congestive signs as is seen here with accumulation of ascites, pericardial effusion and



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pitting edema. There is also mild mitral and tricuspid regurgitation with mild LA enlargement, which is hemodynamically insignificant at this time. 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. **The arrhythmia is apparent throughout the study; however, no comment can be made without an ECG. Highly recommend submit for evaluation as treatment may be warranted.**

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 effusions should they occur 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 ECG evaluation and/or referral to a multi-specialty center for advanced evaluation. If declined, the following medications can be attempted: Administer Furosemide 1mg/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 in the future.

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

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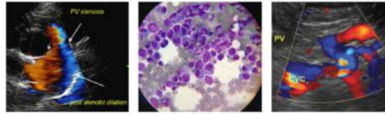

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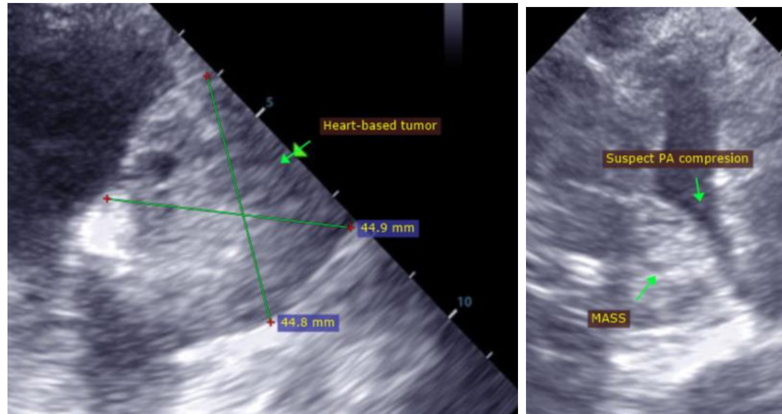

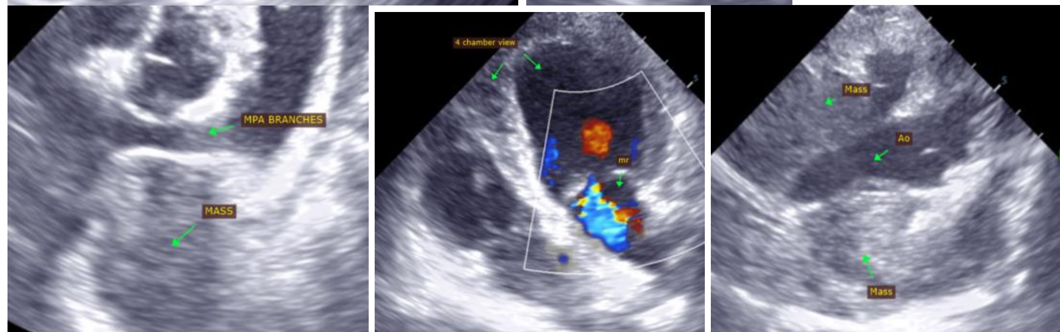

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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