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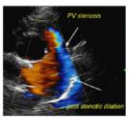
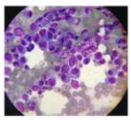
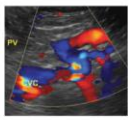
SVS IMAGING

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

PATIENT

Vinnie Moorman

SPECIES

Canine

BREED

English Bulldog

SEX

Male Neutered

AGE

7 years

WEIGHT

78lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

Dr. Fitz

INVOICE

23295

DATE

3/25/22

PRESENTING CLINICAL SIGNS

History: Vomiting, going on for 1-2 months, but now multiple times a day. Was seen at another vet. Deaf (chronic), tachycardic, painful in cranial abdomen.
-Abdominal x-rays show a mass mid-abdomen.
-Abnormal PE/Chem/CBC/UA Results: HCT: 33.8 Hgb-12.2 TP:9.6, Albumin-5.1 ALT 149 T. Bili-4.7 all other labs WNL.

ECHOCARDIOGRAM FINDINGS

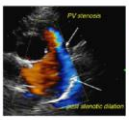
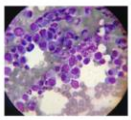
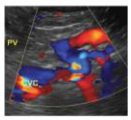
2D, m-mode, color flow and doppler imaging is available. Large soft tissue lesion is suspected infiltrating the pulmonary artery. The mass appears associated with the aortic root and measures 6.0 x 5.8cm in best viewed cross section. The lesion is overlying the left atrium, although infiltration is not entirely ruled out. Mild RA and RV dilation. The distal MPA is not extensively visualized. Mild MR is present with mild to moderate left atrial enlargement. Mild LV dilation with borderline myocardial function. The aortic outflow velocity is normal. No pericardial or pleural effusion noted. Tachycardia noted throughout.

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	NM	3.1	NM	1.9	31	59	0.7
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	NM	2.0	NA	35.4	4.4	4.6	3.1
*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)
**Note: All measurements based upon multi-modal images and methods. An average value is reported.*				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)
Adapted from June Boon, Veterinary Echocardiography, 1998				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Hansson et al, Vet Rad and Ultrasound 2002				35	2.48 (4.3)	5.17 (5.0)	3.69 (4.5)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995				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 suspected infiltrating the main pulmonary artery. The mass appears to be obstructing flow through the main pulmonary artery. This is causing mild right heart enlargement and a mildly elevated TR velocity. The mass appears to be overlaying the left atrium; however, infiltration is a possibility. Mild MR is also present with mild to moderate left atrial enlargement (albeit measurement is obscured by the mass). This is clinically irrelevant compared to the mass; however, follow up is advised. Finally, **a rapid arrythmia is noted throughout the study and an ECG is strongly recommended.**

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Given the location and signalment, the diagnosis is likely a chemodectoma; however, a less common tumor such as ectopic parathyroid, HSA, 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 monitor for associated clinical signs (cough or respiratory distress), tap the chest and/or abdomen when needed and use medications for congestive heart failure to help slow fluid accumulation in the future. Cardiac support is recommended as below including spironolactone for this reason. Renal values should be checked every 3-4 months life-long going forward.

Given the unusual nature of this case, highly recommend referral for advanced echocardiography and potentially a thoracic CT scan to fully understand the extent of the issue. This would be the gold standard approach with consultation for possible surgical and/or chemotherapeutic options for this patient. Further abdominal evaluation is advised to screen for additional lesions, in addition to CXR, etc.

I am cautiously hopeful that we can postpone fluid accumulation developing for the short-term; however, should the patient develop signs of congestion (fluid accumulation) an overall poor to grave prognosis should be relayed. Diuretics are a band aid over a much bigger issue as the tumor continues to grow. As a last effort, steroids can be attempted for their anti-neoplastic benefit, however I would attempt alternative diuretic therapy first in this instance.

Going forward there are some options for palliating this type of cancer, including radiation and chemotherapy. Consultation with an Oncologist is recommended following abdominal ultrasound results and potentially biopsy/cytology.

Unfortunately, once fluid accumulation is diagnosed this is an end-stage condition. 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

Immediate ECG/BP recommended. Full systemic evaluation should be considered including AUS, CXR, etc. Referral should be considered for advanced imaging in this case. If declined, cardiac support may be beneficial to postpone fluid accumulation: Administer spironolactone 1-2mg/kg PO q12h. Administer Enalapril 0.5mg/kg PO q12h. Institute Pimobendan 0.25-0.3mg/kg PO q12.

A renal panel is recommended in 1-2 weeks, then every 3-4 months going forward. If a cough develops, Hydrocodone may be indicated for quality of life. Monitor closely for a cough, labored breathing, and/or abdominal distention.

A recheck echocardiogram to reassess mass dimension and heart size is recommended in 3-4 months.

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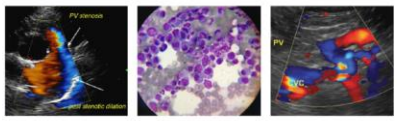

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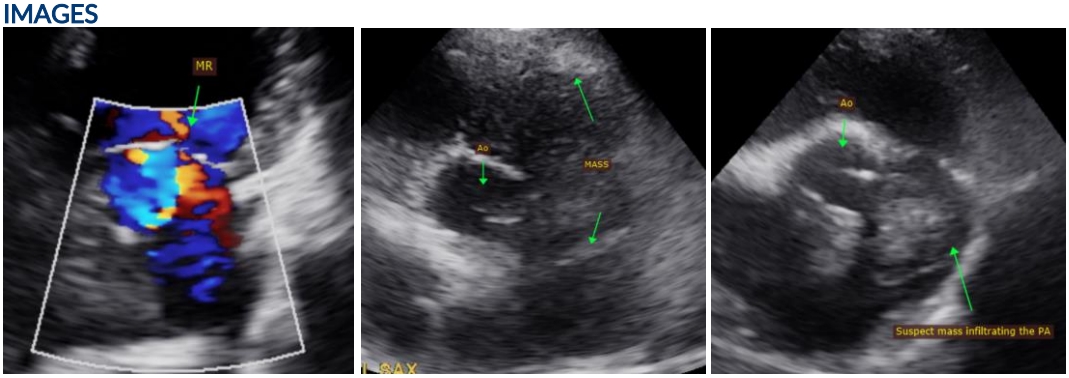

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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