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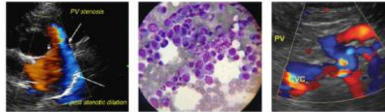


SonoPath

Clinical Sonography & Telecytology

EDUCATIONAL TELECONSULTATION SERVICES™

1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Twinkie Velasquez

SPECIES

Canine

BREED

English Bulldog

SEX

Female Spayed

AGE

11 years

WEIGHT

60lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Tom McNeill

HOSPITAL NAME

SVS Imaging CT

REFERRING VET

Dr. Sobon

INVOICE

26636

DATE

9/29/22

PRESENTING CLINICAL SIGNS

History: Diarrhea, anorexia, polydipsia and abdominal distension. Abdominal effusion found. Pericardial centesis performed, removing hemorrhagic effusion. Abdominal fluid was a transudate. Abnormal PE/Chem/CBC/UA Results: SPG-1.024 with rare cells ALP is mildly elevated NA and CL are low, Na/K 1:27 so electrolytes are abnormal TP-5.4 ALB-2.4.

ECHOCARDIOGRAM FINDINGS

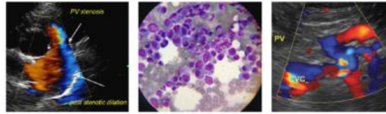
2D, m-mode, color flow and doppler imaging is available. Mild thickening of the anterior leaflet of the mitral valve with no obvious prolapse into the left atrial lumen. Trace mitral regurgitation with normal left atrial dimension. Normal LV diameter with adequate myocardial function. Normal LV wall thickness. Tricuspid valve appears mildly thickened with no TR. No obvious tumor in the RA or right auricle. Suspicious hypoechoic lesion associated with the right AV groove (see below; r/o tumor v benign tissue). The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic outflow velocities; laminar flow. Large volume pericardial effusion. No obvious pleural effusion 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	NM	NA	1.0	1.1	39	71	0.4
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	160	0.96	0.97	27.2	2.1	3.4	2.1
*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 **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				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

The 2 most common causes of hemorrhagic pericardial effusion in an older large breed dog without structural disease are idiopathic and neoplastic. Less commonly, pericarditis (an inflammatory condition) or a bleeding disorder should also be considered. Idiopathic by definition means that a cause cannot be found. If diagnosed (a rule out diagnosis), the long-term prognosis with idiopathic effusion has the potential to be good.



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Regarding neoplasia, the most common types of cardiac cancer-causing pericardial effusion include hemangiosarcoma (HSA), chemodectoma, or mesothelioma. The prognosis varies a great deal depending on the underlying type of cancer. In a senior bulldog , HSA should be considered above all other differentials, as this is the most common cause. Cardiac HSA carries a poor to grave prognosis, with a mean survival time of 3-6 months.

Based on the findings of today's echocardiogram, there is not definitive evidence of a clear tumor. The right atrium and ventricle are clear; however, there is a hypoechoic region associated with the right AV groove which is highly suspicious (rule out tumor versus normal soft tissue). Additionally, ultrasound is quite insensitive for small masses and it is important to note that there may be a definitive mass not identified here. Advanced imaging and/or reevaluation is recommended in the next 1-2 months, as often small masses will become apparent in that period of time. Even without definitive identification, I am highly suspicious for neoplasia in this case given the signalment. Prognosis is guarded, and any dog with effusion carries risk for development of malignant arrhythmias and sudden death at home.

Further evaluation may also help shed light on a definitive diagnosis. Submission of the effusion for cytology can yield a diagnosis in rare cases, and often the result is inconclusive. If the abdominal ultrasound shows any splenic lesions, HSA is highly likely to be the cardiac diagnosis. Advanced imaging with an attending Cardiologist can be considered, as well as discussion of a thoracic CT/MR to screen the external surface of the heart.

Regardless of underlying cause, it is impossible to predict if and when pericardial effusion will recur/increase and potentially cause clinical signs. Some patients with idiopathic effusion need to be tapped between 1 and 3 times then never again. Other patients may experience frequent recurrence with either HSA or idiopathic disease. If the effusion reoccurs frequently and no malignancy remains identified, a surgical procedure called a pericardectomy can be discussed. Finally, dogs with effusion are at risk for malignant ventricular arrhythmias, and a baseline ECG is recommended. Sudden death is always a possibility in these cases unfortunately.

No cardiac medications are clearly indicated at this time. Over the counter herbal supplement Yunnan Baiyao (aka Yunnan Paiyao) may help decrease risk of bleeding, however true benefit is speculative (1 capsule PO BID). Please monitor at home for signs of worsening pericardial effusion including pale gums, difficulty breathing, lethargy/collapse, exercise intolerance, abdominal distention, vomiting, and/or inappetance. If you notice any of these symptoms, patient should be evaluated immediately by a veterinarian.

PLAN

Consider referral for advanced imaging, such as thoracic CT scan. Full systemic evaluation is recommended.

Recommend a recheck echocardiogram in 2 months to reassess the surface of the heart and screen for recurrent effusion, sooner if any recurrence of clinical signs. If acute PCE occurs again, reassessment at that time is advised.

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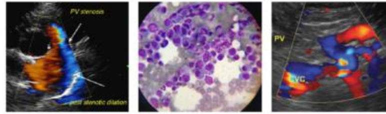

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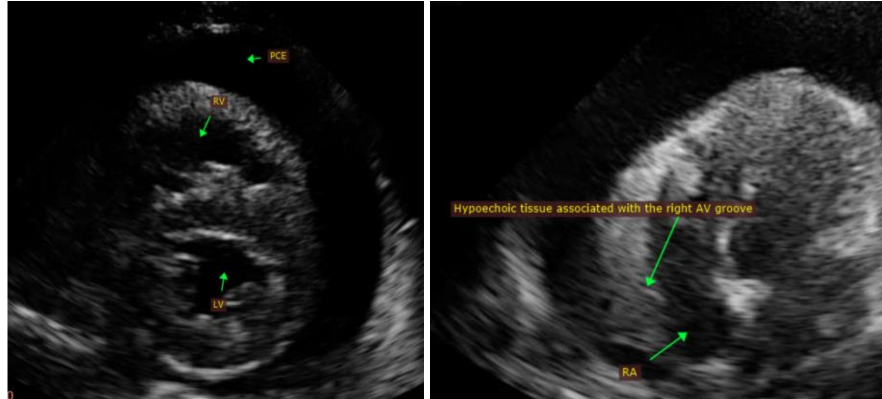

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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