

## PATIENT

Dante Reyes

## SPECIES

Canine

## BREED

German Sheperd

## SEX

Male Intact

## AGE

9 years

## WEIGHT

106lbs

## PRESENTING CLINICAL SIGNS

History: Presented for limping, hind end weakness, vomiting, drinking lots of water inappetence, diarrhea and heavy breathing. rDVM noted abdominal effusion and globoid heart on radiographs.

Other history of pruritis and ear infections and perianal fistula

-Abnormal PE/Chem/CBC/UA Results: CHEM ALT 136, BUN 28, PHOS 7.5, TP 5.3 Na+ 137 - CBC WBC 17.9 k/uL NEU 15.27 k/uL. PE: Light pink MM slightly prolonged CRT, tachypneic, abdominal distension and fluid wave. Tricavitary effusion noted. Pericardiocentesis: 42mL hemorrhagic fluid removed. Abdominocentesis: 4100 mL serosanguineous fluid removed. Thoracocentesis: 400mL serosanguinous fluid. Sinus tachycardia on presentation. Splenic mass and hepatic congestion noted on AFAST after abdominocentesis.

## 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. No mitral regurgitation with normal left atrial dimension. Normal LV diameter with adequate myocardial function. Normal LV wall thickness. Tricuspid valve appears normal in form and function. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension. Irregular hypoechoic AV groove; not definitive. The pulmonic and aortic valves are normal in morphology and mobility. Normal aortic and pulmonic outflow velocities; laminar flow. No pulmonic or aortic insufficiency. Scant pericardial effusion. No pleural effusion noted.

## CARDIAC CHART

### INTERPRETED BY

Maggie Machen Lamy,  
DVM, DACVIM  
(Cardiology)

### IMAGING PERFORMED BY

Emily Kalenius, DVM

### HOSPITAL NAME

Willamette Veterinary  
Hospital

### REFERRING VET

Dr. Kalenius

### INVOICE

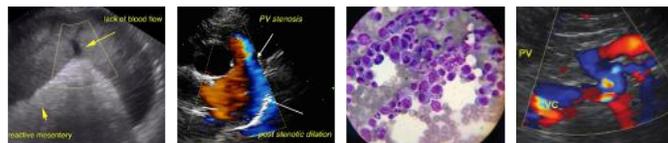
20431

### DATE

8/9/21

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
<b>NORMAL PARAMETER</b>	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
<b>PATIENT</b>	NA	NA	1.8		44	91	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)
<b>NORMAL PARAMETER</b>	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
<b>PATIENT</b>	90	1.0	0.86	48.1		4.5	2.5
*Normal chamber parameters expressed as a mean value (SD)				3	1.27 (5.3)	2.46 (2.46)	1.36 (5.5)
<b>BODY WEIGHT DEPENDENT PARAMETERS</b>				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)
				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)

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



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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The 2 most common causes of hemorrhagic pericardial effusion in a large breed dog without structural disease (none seen here) are idiopathic and neoplastic. Less commonly, pericarditis (an inflammatory condition), a left atrial tear, 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.

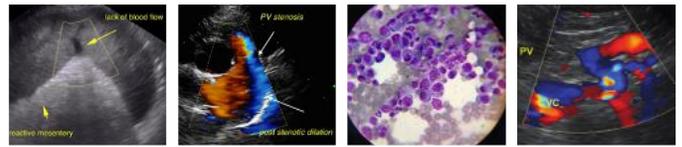
Regarding neoplasia, the most common types of cardiac cancer-causing pericardial effusion include hemangiosarcoma (HSA), chemodectoma, or mesothelioma. The prognosis varies a great deal depending on the underlying type of cancer. In a Golden Retriever, HSA should be considered above all other differentials, 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 within the right AV groove which is suspicious (rule out tumor versus normal soft tissue. It is worth noting that ultrasound is quite insensitive for small masses (particularly in the absence of significant effusion), and it is important to note that there may be a definitive mass not identified here. A 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, history and finding of splenic abnormalities on ultrasound.** 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 some cases, however often the result is inconclusive. This should be attempted if the effusion increases in the future. 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 pericardiectomy can be discussed.

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.



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Recommend a recheck echocardiogram in 1 month to reassess the surface of the heart and screen for recurrent effusion, sooner if any recurrence of clinical signs. If acute PCE occurs again, if possible, recommend imaging prior to removal for increased sensitivity.

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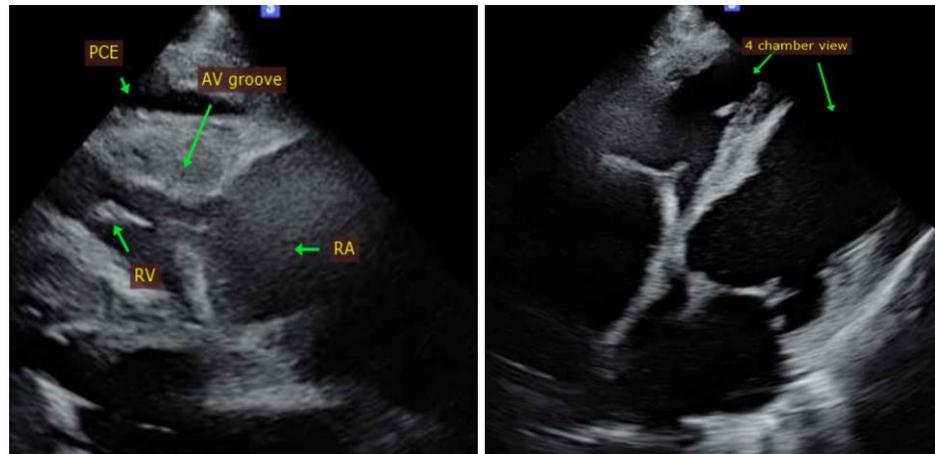
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**IMAGES**



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.

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