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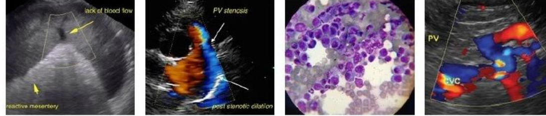


IMAGING PERFORMED BY
pawsonography@gmail.com 530-786-8340

PATIENT
Mochi Yamauchi

SPECIES
Canine

BREED
Golden Retriever

SEX
FS

AGE
9 years

WEIGHT
77lbs

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

IMAGING PERFORMED BY
Loetitia St-Jacques, LVT/RVT

HOSPITAL NAME
Donner Truckee VH

REFERRING VET
Dr. Vannini

INVOICE
22837

DATE
2/28/22

PRESENTING CLINICAL SIGNS

History: Collapsed acutely on walk 48 hours ago. Pericardial effusion on TFAST. Pericardial tap: 11cc sanguinous fluid.
Abnormal PE/Chem/CBC/UA Results: CBC/CHEM in house unremarkable. CXR at that time reported normal cardiac silhouette.
Preliminary AUS results: liver and splenic masses

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. The mitral valve appears normal with no obvious mitral regurgitation. LV dimension and function is adequate. Left atrium is normal in diameter. The pulmonic and aortic valves are normal in appearance. Normal outflow velocities; laminar flow. No obvious mass is seen, either intra or extra-cardiac. Right AV groove appears normal. Normal right heart. No significant pericardial effusion. No obvious pleural effusion. No obvious cardiac tumors.

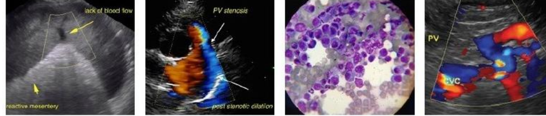
CARDIAC CHART

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	NA	NA	NM	1.3	37	70	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	NM	1.03	1.0	35	3.0	3.8	2.4
*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)
Adapted from June Boon, Veterinary Echocardiography, 1998				20	2.02 (1.9)	4.14 (2.2)	2.80 (2.0)
Rishniw M and Hollis NE, J Vet Intern Med 2000; 14:429-435				25	2.18 (2.4)	4.48 (2.9)	3.10 (2.5)
Hansson et al, Vet Rad and Ultrasound 2002				30	2.33 (3.3)	4.83 (3.9)	3.39 (3.4)
Bonagura et al. Echocardiography: principles of interpretation, Vet Clin North Am 15:1177, 1995				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 cardiac structure and function are largely normal in this patient, with no residual/recurrent effusion seen. No definitive tumors are seen in this study; however, it is important to note that ultrasound is largely insensitive for small extra-cardiac masses (particularly in the absence of active effusion) and suspicion persists.

The 2 most common causes of hemorrhagic pericardial effusion in an older large breed dog 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.



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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. Cardiac HSA carries a poor to grave prognosis, with a mean survival time of 3-6 months.

In light of the signalment and preliminary AUS findings of splenic/liver abnormalities, the likely diagnosis is neoplasia (HSA most likely) until proven otherwise even without visualization of a mass. That being said, the amount of effusion reportedly removed is quite small which is unusual, and the CXR at the time did not show cardiomegaly making cardiac tamponade a questionable diagnosis in hindsight. Other possible causes of collapse should be considered in this case as the history is atypical, particularly should recurrent collapse be noted. An echocardiogram by an attending Cardiologist and/or thoracic CT may also be reasonable to further screen the external surface of the heart if elected.

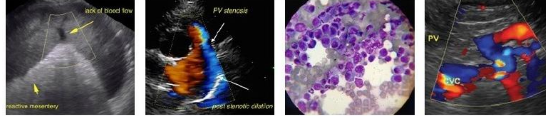
If diagnosed, the prognosis with cardiac hemangiosarcoma is poor, with an MST of 3-6 months. The emergent limiting factor is often recurrent hemorrhage, and a pericardial window or subtotal pericardectomy may relieve clinical signs yet is rarely recommended. Patients with cardiac neoplasia are at high risk for recurrent hemorrhage and development of tamponade, malignant arrhythmias/sudden death in the future.

Regardless of cause, it is impossible to predict if and when pericardial effusion will reoccur. Patients with idiopathic effusion need to be tapped between 1 to 3 times then never again. Other patients may experience frequent recurrence with either HSA or idiopathic disease. If the effusion reoccurs frequently, a surgical procedure called a pericardectomy can be discussed although is rarely recommended with suspect HSA. Finally, consultation with an Oncologist can be considered, as chemotherapy and/or radiation are also options to prolong life span.

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 recurrent 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 advanced imaging/screening as discussed. A recheck echocardiogram is recommended in 1-2 months to assess for tumors that may be too small to visualize at this time.



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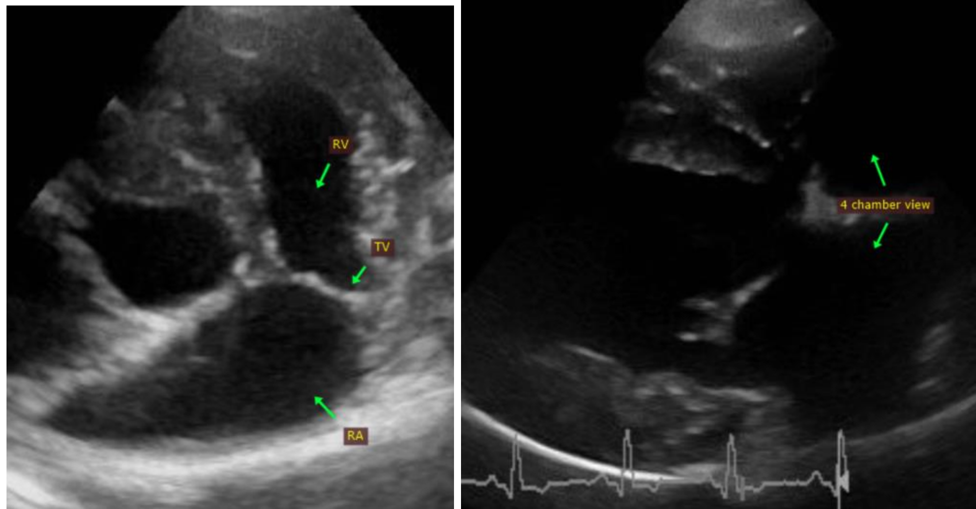
IMAGES



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. 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