SonoPath
FOSTERING THE ART OF VETERINARY MEDICINE™

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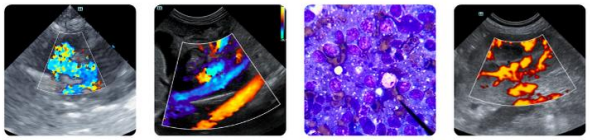

Clinical Sonography & Telecytology
Educational Teleconsultation Services™

PATIENT
Nova Richardson

SPECIES
Canine

BREED
Golden Retriever

SEX
Female Spayed

AGE
9.2 years

WEIGHT
61.2lbs

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

IMAGING PERFORMED BY
Jesse Evoniuk, DVM

HOSPITAL NAME
State Avenue Vet Clinic

REFERRING VET
Dr. Evoniuk

INVOICE
46643

DATE
2/2/26

PRESENTING CLINICAL SIGNS

History: History of abdominal distension and suspected heart disease. On Furosemide, which has improved breathing and mild reduction in abdominal distension. Decreased appetite, weight loss; not eating regular dog food, will eat eggs, chicken, turkey. On medication to assist urination; client reports waking at night for elimination. History of ear issues; ears not recently cleaned to avoid excitement. Previous abdominal fluid removal performed. BP: 104, 175, 166mmHg.

ELECTROCARDIOGRAPHIC FINDINGS *Note: Single lead ECGs are evaluated as a rhythm strip. Morphology/MEA cannot be definitively commented on.

A single lead ECG is available; 25mm/s, 5mm/mV. The average heart rate is 140bpm. The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P and QRS morphologies are positive. APCs noted. No VPCs, pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with isolated APCs.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Moderate volume pericardial effusion with diastolic collapse of the right atrial wall consistent with cardiac tamponade. Hypoechoic mass associated with the heart base adjacent to the aortic root. Mild thickening of the mitral valve with no prolapse. Moderate mitral regurgitation. Normal velocity. LV is normal in diameter. LV function is adequate. Left atrium is mildly enlarged, although the chamber is obstructed by the mass. Mild right heart enlargement. The pulmonic and aortic valves are normal in appearance. Normal pulmonic and aortic outflow velocities. No pleural effusion noted.

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	NA	NM	1.5	38	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	1.8	1.0	27.8	NM	4.7	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)
				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

Cardiac neoplasia is identified associated with the heart base. The most likely tumor type given this location is a chemodectoma; however, given the breed a hemangiosarcoma must also be considered. Other possibilities are less likely. The patient is in cardiac tamponade, which is suspected to be secondary to hemorrhage from the tumor. This is relatively uncommon with this type of tumor and compression is also a possibility. Regardless, Pericardiocentesis is indicated to confirm hemorrhage is present. Cytology of the pericardial fluid is recommended in search of a definitive diagnosis. The cardiac structure and function is largely normal with mild MR.
The ECG is largely normal with isolated APCs. These are not surprising in a dog in crisis.

The prognosis with cardiac chemodectomas is typically fair, with an MST of 1-2 years. The limiting factor is often recurrent hemorrhage, and a pericardial window or subtotal pericardectomy may relieve clinical signs. Other sequelae include impingement of cardiac blood flow secondary to tumor growth, or metastasis to the thorax or abdomen. Full systemic evaluation is advised in light of a reported liver mass. FNA may be useful. Finally, consultation with an Oncologist or Internist may be indicated to explore Chemotherapy and/or radiation treatment options.

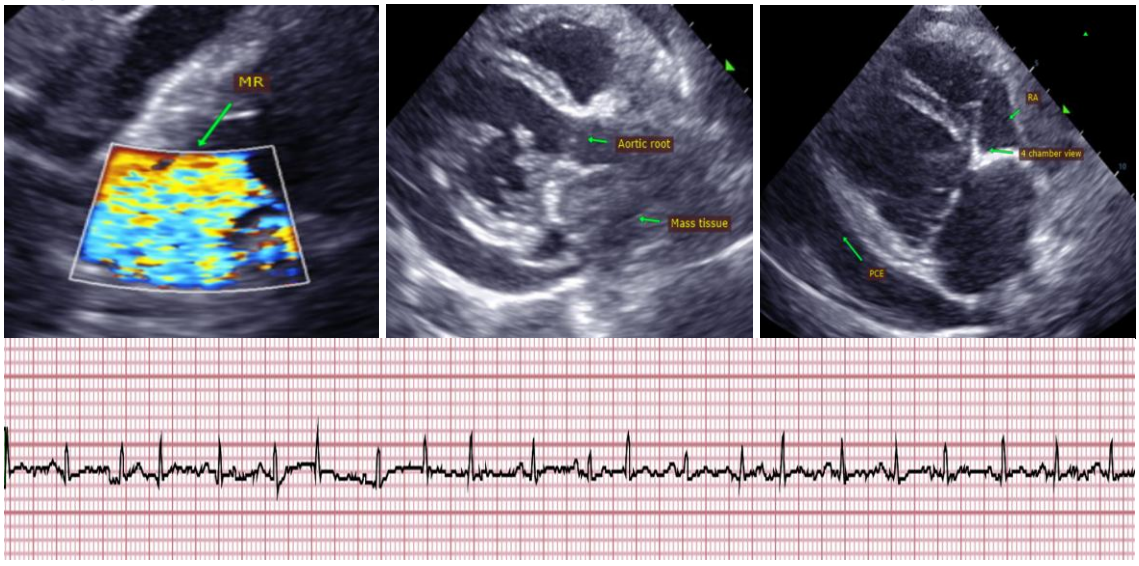
No cardiac medications are clearly indicated at this time. IV fluids maybe help to stabilize the patient depending on chronicity of symptoms and clinical evidence of volume depletion. Prognosis is guarded to poor long term, with risk for recurrent pericardial bleeds, development of arrhythmias and/or sudden death going forward.

PLAN

Full systemic screening as discussed. Pericardiocentesis should be performed with submission of fluid for cytology.

Recheck echocardiogram is recommended in 2-3 months to reassess tumor dimension, sooner if recurrent clinical issues.

IMAGES



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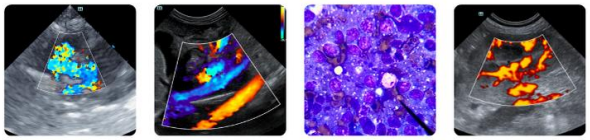

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. 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.

Maggie Machen Lamy, DVM
Diplomate of the American College of Veterinary Internal Medicine (Cardiology)
info@sonopath.com