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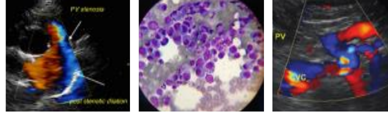

SonoPath

Clinical Sonography & Telecytology

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PATIENT

Olive Cearfoss

SPECIES

Canine

BREED

Puggle

SEX

Female Spayed

AGE

2008

WEIGHT

34.9lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

HOSPITAL NAME

Bayside Animal Medical Center

REFERRING VET

Dr. Buchanan

INVOICE

20629

DATE

8/19/21

PRESENTING CLINICAL SIGNS

History: History of ongoing cough x 1 month. Worse when laying down and when active. Radiographs show significant cardiomegaly.
-Current medications: Cough Tabs, Hydrocodone 5mg Tabs (Tussigon).
-Sedation used: Not needed.
-STAT: Requested.

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. Trivial mitral regurgitation. Small left atrial dimension. Small LV diameter with adequate myocardial function. Evidence of pseudohypertrophy. Tricuspid valve appears normal. No obvious tamponade; however, the right atrial wall motion is concerning for early decompensation. No obvious tumor in the RA, AV groove or right auricle. Normal aortic and pulmonic outflow velocities; laminar flow. Moderate to 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	NA	2.0	NM	1.0	60	90	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	140	1.3	1.1	15.8	1.5	2.7	1.1
*Normal chamber parameters expressed as a mean value				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 cause of the patient's cough is large volume pericardial effusion. The cardiac structure and function are largely normal albeit there is evidence of volume depletion. The patient is borderline for tamponade with no obvious pleural or peritoneal effusion; however, the collapse of the right atrial wall is certainly concerning. This may indicate a more chronic effusion accumulation rather than acute. Regardless, removal of the fluid is recommended for both diagnostic and therapeutic purposes.

Hemorrhagic effusion is most likely, with non-hemorrhagic (transudate, purulent, etc.) much less likely. The two most common causes of hemorrhagic pericardial effusion in older dogs 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 fair. This is an atypical breed for this presentation making speculation on a diagnosis difficult.

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. A hemangiosarcoma is considered most likely, however no discrete tumors were seen today. That being said extra-cardiac lesions are easily missed without advanced diagnostics and may still be present. A thoracic CT is reasonable test to further screen the external surface of the heart. Additionally, systemic evaluation (AUS) is recommended to screen for additional lesions (i.e., splenic mass).

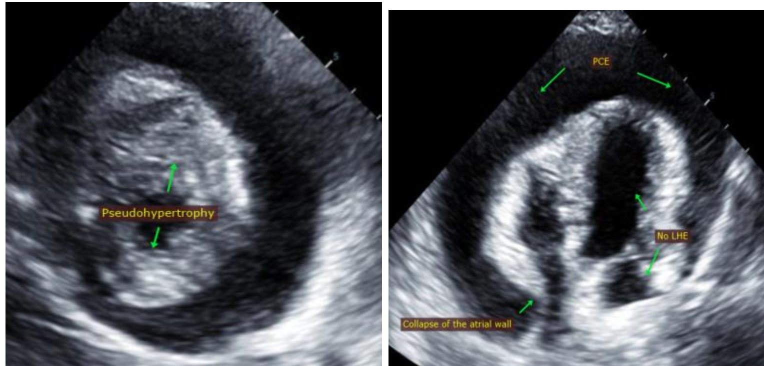
A pericardiocentesis is recommended for both diagnostic and therapeutic purposes in this case. If this cannot be done safely at your facility, referral to a multi-specialty center is highly recommended for the procedure and follow up care. Once a sample is obtained, follow up diagnostics to screen for underlying causes is recommended to determine treatment/follow up plan (fluid cytology, AUS, etc.). Overnight monitoring and fluid therapy is also ideal.

Regardless of underlying cause, it is impossible to predict if and when pericardial effusion will recur. 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, a surgical procedure called a pericardiectomy can be discussed.

This patient will always be at risk for signs of recurrent pericardial effusion including pale gums, difficulty breathing, lethargy/collapse, cough, exercise intolerance, abdominal distention, vomiting, inappetence and/or sudden death. If you notice any of these symptoms, urgent evaluation should be sought.

A recheck echocardiogram is recommended based upon results of discussed pericardiocentesis and work up.

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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