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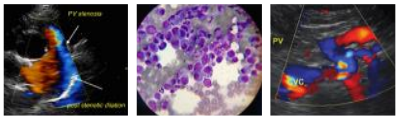

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PATIENT

Winston Shah

SPECIES

Canine

BREED

English Bulldog

SEX

MN

AGE

2012

WEIGHT

78.3lbs

INTERPRETED BY

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

HOSPITAL NAME

Hickory Veterinary Hospital

REFERRING VET

Dr. McNesby

INVOICE

21313

DATE

10/1/21

PRESENTING CLINICAL SIGNS

History: Patient presented for looking "bloated" for the past week. Soft stool. Good appetite. Good energy level. No v/d. Is PU/PD. Physical exam - obvious abdominal distention.
-Radiographs: Lateral abdomen, decreased abdominal detail with fibrinous appearance in cranial abdomen. Abdominal tap, serosanguinous fluid. Submitted for fluid analysis and cytology. No neoplasia identified.
-Pertinent abnormal PE/Chem/CBC/UA Results: Mild increase ALKP ONLY. Remainder WNL.
-Current medications: Probiotic.
-Sedation used: Not needed.
-STAT: Approved/Requested.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Normal LV diameter with adequate myocardial function. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension. Diastolic collapse of the RA consistent with early tamponade. No obvious tumor in the AV groove or associated with the right auricle/RA or heart base. Trace tricuspid regurgitation identified. Mild mitral regurgitation is seen. No left atrial enlargement. Blood flow through the RVOT and aortic valve are normal in velocity. Large volume pericardial effusion. Scant pleural effusion.

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	1.2	41	72	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	160	1.1	1.1	35.5	2.4	4.4	2.6
*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

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the symptoms is most likely due to pericardial effusion leading to cardiac tamponade and secondary peritoneal/pleural effusion. It is worth mentioning that the accumulation of abdominal fluid over a week is a somewhat unusual presentation for cardiac tamponade, and other possibilities should be considered pending results of further evaluation. No definitive tumors are seen in this study; however, it is important to note that small masses on the external surface of the heart are extremely easy to miss. Advanced imaging should be considered in this case. The cardiac structure and function are overtly normal with small leaks in the mitral and tricuspid valves. This likely reflects early valve disease which is relatively insignificant at this time.

Given evidence of early tamponade, a pericardiocentesis is recommended ASAP for both diagnostic and therapeutic purposes in this case. If this is not ideal at your facility, referral to a multi-specialty center is highly recommended for the procedure. Once a sample is obtained, follow up diagnostics to screen for underlying causes is recommended to determine treatment/follow up plan (fluid cytology, advanced imaging, etc.).

Assuming the effusion is hemorrhagic (most common), the two most common causes of pericardial effusion in older large breeds 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.

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. If the patient does well, 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, one should always be suspicious for neoplasia given the signalment.

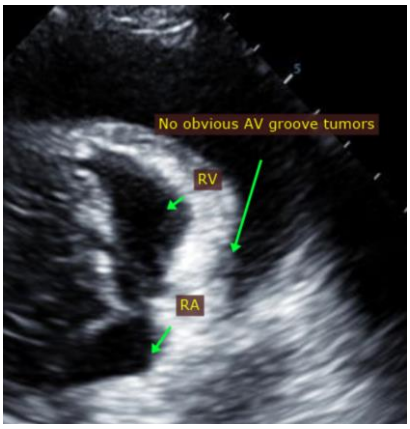
Regardless of underlying cause, it is impossible to predict if and when pericardial effusion will reoccur. Some patients with idiopathic effusion need to be tapped between 1 to 3 times then never again. Other patients may experience frequent recurrence with either HSA or idiopathic disease. If the effusion reoccurs frequently, a surgical procedure called a pericardiectomy can be discussed.

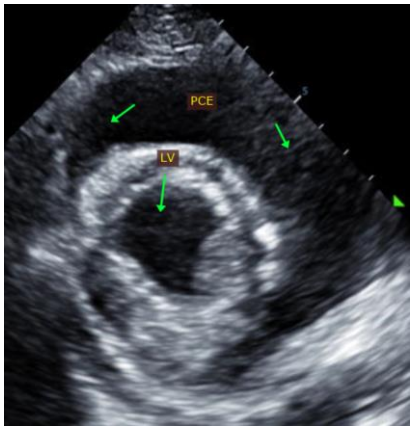
No cardiac medications are clearly indicated at this time and Lasix can be discontinued. Over the counter herbal supplement Yunnan Baiyao (aka Yunnan Paiyao) may help decrease risk of bleeding, however true benefit is speculative (1 capsule PO BID). Please monitor at home for signs of recurrent pericardial 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.

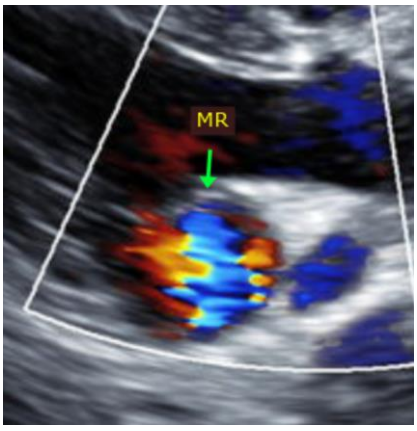
PLAN: Immediate diagnostic and therapeutic pericardiocentesis is recommended; referral may be advised. Pending results of the tap, consider possible differentials as discussed. Fluid cytology should be considered, advanced imaging, etc.

If patient does well, consider reevaluate via ultrasound in 1-2 months.

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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