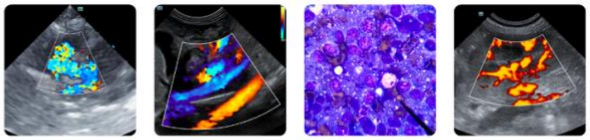


PATIENT

Theseus Christensen

SPECIES

Canine

BREED

Lab

SEX

Neutered Male

AGE

8 Years 9 Months

WEIGHT

43.4 kg

INTERPRETED BY

Sara Brethel DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Dr. Brian Barnes

HOSPITAL NAME

Westview Veterinary Hospital

REFERRING VET

Dr. Brian Barnes

INVOICE

15805

DATE

05/05/26

PRESENTING CLINICAL SIGNS

Has small draining mass on the abdomen that needs to be removed Increased BNP on the pre Sx bloods
Patient exhibits significant anxiety in the clinic setting. Owner has significant concerns regarding general anesthesia due to a past negative experience and the recent anesthetic-related death of the patient's littermate at another facility.

Abnormal PE/Chem/CBC/UA Results: CBC WNL CHEM WNL Cardiopet proBNP (Canine 2,022 (N 0-900) Urine Protein: Creatinine Ratio 0.12 Normal, USG 1021

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

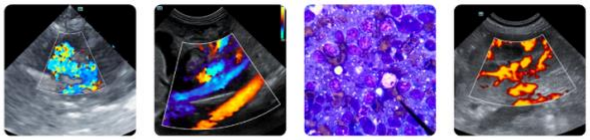
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (M-Mode)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
PATIENT	5.0	--	1.31	1.3	12.63	--	NM
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**LAD** LA MAX 4 Chamber	**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				
PATIENT	NM	0.91	0.38	43.4	--	5.38	4.7

Cardiac Presentation

The mitral valve leaflets are normal with mild mitral regurgitation centrally directed. There is no prolapse of mitral valve leaflets. The left atrial size is normal. LV internal dimensions during diastole are increased and systolic function is decreased in the face of mitral regurgitation. The left ventricle is hypodynamic with thinning of the left ventricular walls. There is normal right atrial size without evidence of tricuspid regurgitation. The tricuspid valve leaflets are normal. There is no evidence of pulmonary hypertension on this evaluation. The right ventricle appears to have preserved systolic function subjectively. The aortic and pulmonic valves had normal morphology and the corresponding outflow velocities were within normal limits. There was no evidence of aortic insufficiency. There is trace pulmonic insufficiency. The aorta appears normal. The pulmonary artery and associated branches appear normal. There is no evidence of pleural effusion, pericardial effusion, or intracardiac masses.

ULTRASONOGRAPHIC FINDINGS

- Dilated cardiomyopathy phenotype.
- Normal left atrial size.
- Trace pulmonic insufficiency.



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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There is evidence of a dilated cardiomyopathy phenotype. Differentials include primary dilated cardiomyopathy (idiopathic), dietary related, infectious, or inflammatory. Sometimes, nontraditional grain free diets can cause decreased pumping function of the heart. There are other diseases such as infectious causes (tick borne), inflammatory conditions, or diseases that affect the body that can also cause this type of appearance to the heart. Other diagnostics to consider include screening for infectious diseases, ensuring blood work is within normal limits, and considering an abdominal ultrasound if the breed is not a classic breed for DCM (i.e.: classic breeds: Doberman, Great Dane, Irish Wolfhounds).

Cardiac medications such as Pimobendan (0.27-0.32mg/kg PO q12) is recommended along with an ACE inhibitor (enalapril or benazepril 0.5mg/kg POq12-24). 2-3 weeks after starting ACE inhibition, repeat kidney values are recommended.

Due to the potential for arrhythmias with DCM, a Holter monitor is recommended. If a Holter is unavailable, recommend evaluating the rate and rhythm with an electrocardiogram. Unfortunately, due to the nature of this disease, the patient is at risk of passing away suddenly.

Unfortunately, patients in congestive heart failure with DCM have a poor to guarded prognosis. The median survival times are roughly 6-9 months (with some patients doing better and other patients not doing as well).

It recommended to consider switching to a grain-based commercial dog food diet made by Purina, Science Diet, or Royal Canin (if there is no history of a food allergy) since there is currently an association between cardiac changes (poor pumping function and dilation of the heart) and multiple grain free and limited ingredient diets. Current investigation is still underway, and the definitive causative factor has not been identified. A grain source including corn or barley should be seen on the dog food label. Substitutes for common grain sources such as peas, lentils and even rice have been implicated in cardiac dysfunction. Any diet change should be gradual by adding small amounts to the current diet first and then increasing the ratio of the new food gradually over two weeks to avoid gastrointestinal upset.

Cardiac supplementation can be considered for this patient. If the patient is eating well, recommend starting taurine (30mg/kg PO q12) and L-carnitine (50mg/kg q8) supplementation (brands: Now, Solgar, PetAg, Twinlabs). Fish oil supplementation can also be administered (EPA 40mg/kg + DHA 25mg/kg PO q24). Can consider staging these medications (ie: starting one and then a week later starting another) due to the potential for stomach upset.

I would recommend the patient be on Pimobendan therapy prior to anesthetic procedures. I would hold on ACE inhibitors until after anesthesia. The patient is at a low risk for congestive heart failure due to the normal left atrial size.

Standard perioperative fluid rates should be well-tolerated. Medications like dexmedetomidine and other alpha 2 agonists are best avoided. Ketamine is also best avoided. Anticholinergics can be used in the case of a clinically significant bradyarrhythmia (i.e., bradycardia with concurrent hypotension). If the patient is on an ACEi, recommend not giving this therapy the day of anesthesia.

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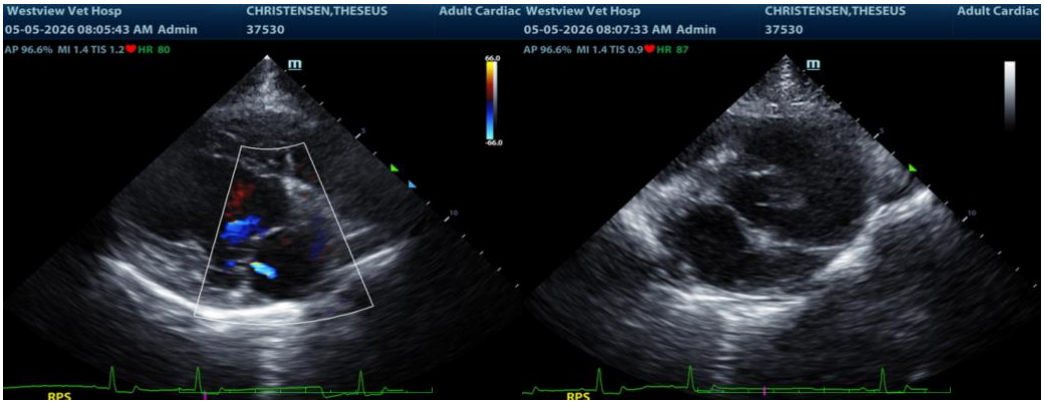
I would also encourage avoiding ACE promazine in this patient. Other sedatives such as trazodone, gabapentin or other opioids should be well tolerated. I also recommend getting a baseline blood pressure on the patient.

The prognosis is difficult to determine, but since the patient has a normal left atrial size and is at a low risk for congestive heart failure. Medical management should help the patient moving forward.

A recheck echo is recommended in six months, sooner if other cardiovascular clinical signs are developing.



The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. 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.

Sara Brethel DVM, DACVIM (Cardiology)

info@SonoPath.com