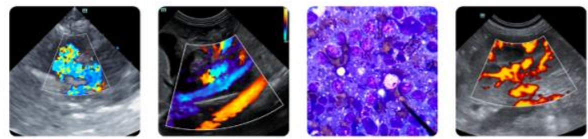


PATIENT

Diesel Smith

SPECIES

Canine

BREED

Boxer

SEX

Neutered Male

AGE

8 Years 2 Months

WEIGHT

64 pounds

INTERPRETED BY

Sara Brethel DVM, DACVIM (Cardiology)

IMAGING PERFORMED BY

Kathleen Byrnes

HOSPITAL NAME

Animal Clinic Madison Mayodan

REFERRING VET

Dr. McKinlay

INVOICE

13682

DATE

02/10/26

PRESENTING CLINICAL SIGNS

- **Neutered Male**
- P presented for echo due to coughing and murmur. P started on Doxycycline due to concern for possible endocarditis

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	NM	3.59	NM	2.22	34.16		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	117	UE	1.62	29.1	6.1	5.62	3.7

Cardiac Presentation

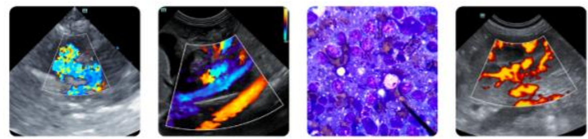
The mitral valve leaflets appear mildly thickened and there is at least mild mitral regurgitation eccentrically directed. There is no prolapse of mitral valve leaflets. The left atrial size appears significantly increased. There is significant left ventricular eccentric hypertrophy with dilation and left ventricular systolic function is reduced in the face of mitral regurgitation. Mitral inflows do not suggest increased left atrial pressures. The right atrium appears normal in size with mild tricuspid regurgitation. There is no prolapse of the tricuspid valve leaflets and there is mild evidence of pulmonary hypertension. Subjectively, the right ventricle appears normal in structure and function. The pulmonic valve has normal morphology with normal corresponding outflow velocities. The aortic valve appears tri-leaflet. There is significant aortic insufficiency and aortic outflow velocities are increased. A post-stenotic dilation of the aorta is not identified on the images provided. There is no evidence of pleural effusion. There is concern for scant pericardial effusion. An intracardiac mass is not identified.

ECG

Sinus rhythm with tall R waves.

Chest Radiographs

There is mild left ventricular cardiomegaly. The left atrium appears enlarged. There is no evidence of cardiogenic pulmonary edema. The aorta appears prominent.



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ULTRASONOGRAPHIC FINDINGS

- Mild mitral valve thickening.
- Significant left atrial enlargement.
- Left ventricular eccentric hypertrophy with left ventricular systolic dysfunction.
- Tricuspid regurgitation with at least mild pulmonary hypertension.
- Significant aortic insufficiency.
- Elevated aortic outflow velocities.
- Scant pericardial effusion.
- Prominent aorta on chest radiographs.
- Tall R waves on the ECG provided (likely secondary to the eccentric hypertrophy of the left ventricle).

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The patient has significant changes to the left side of the heart, and given the breed and appearance of the heart, there is a dilated cardiomyopathy phenotype. Aortic velocities are increased. It is unclear if the patient has aortic versus sub-aortic stenosis. If there has been a murmur since the patient was young, then likely this is the case.

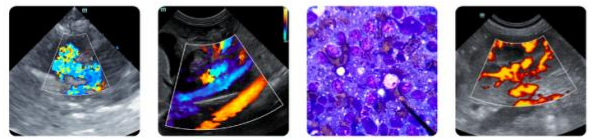
There is significant aortic insufficiency which can be contributing to the left ventricular dilation identified, however, other differentials such as primary dilated cardiomyopathy versus arrhythmogenic cardiomyopathy versus an infectious versus inflammatory versus infiltrative disease cannot be ruled out.

The chest radiographs don't show signs of cardiogenic pulmonary edema, however, with the scant pericardial effusion, there's concern that the heart may be starting to decompensate. I would initiate Pimobendan therapy at a dose of 0.27 to 0.32 mg/kg twice daily.

No arrhythmias are seen on the electrocardiogram provided, however, a Holter monitor is recommended for this patient due to the systolic dysfunction and the eccentric hypertrophy. Given the severity of the heart disease, I would recommend referral to a veterinary cardiologist for continued management and further investigation into a primary diagnosis. If referral cannot be pursued and a Holter monitor cannot be pursued, I would start with the Pimobendan therapy. If the patient is clinically doing well, I would then add an ACE inhibitor 0.5 mg/kg once to twice daily pending enalapril versus benazepril initiation and then two to three weeks after starting an ACE inhibitor, rechecking blood work.

I would have the patient on broad spectrum antibiotic therapy with medications such as Clavamox and Baytril. I can't see a definitive vegetative lesion, however, if there is an increased concern for endocarditis, I would recommend broad spectrum therapy for 12 weeks. If there is a high concern for endocarditis, hospitalization is strongly recommended. Aortic valve endocarditis offers a grave prognosis, potentially weeks.

Close monitoring of the patient should be performed to ensure he's not decompensating. Even the absence of a definitive vegetative lesion on echo endocarditis cannot be entirely ruled out and gold standard is obtaining blood cultures for official diagnosis and also obtaining a urine culture. If not referring and the patient is doing well, I would recheck an echo in two to three months, focusing on



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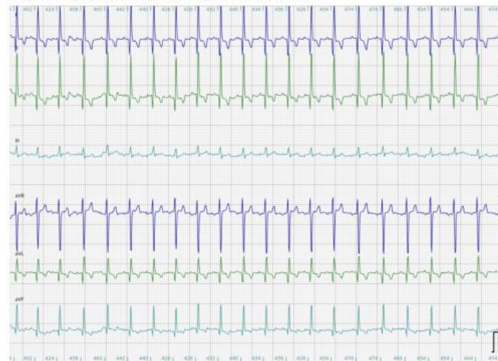
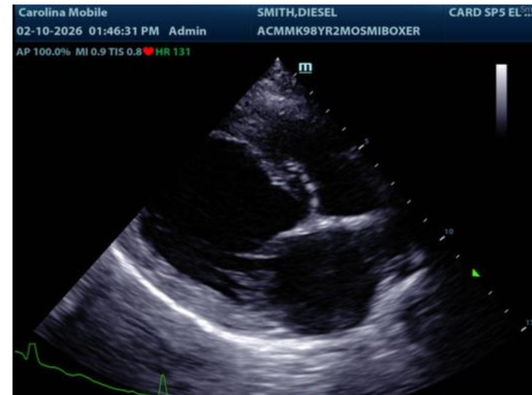
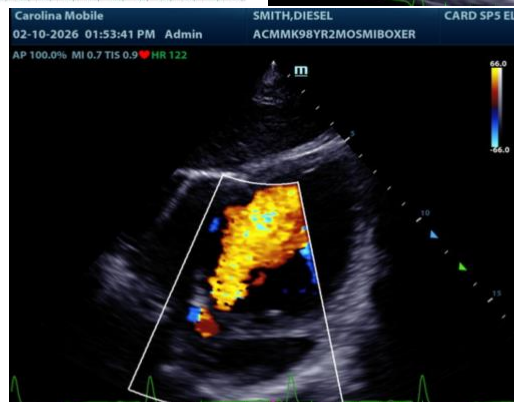
not only globoid function but also left ventricular outflow tract images, the aortic valve, the mitral valve to gain further information about the underlying disease process.
Ideally, the patient would be on a low sodium diet and a traditional grain-based diet as well if there's no history of a grain-free allergy. Unfortunately in the face of arrhythmias, the patient is at risk of passing away suddenly.







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