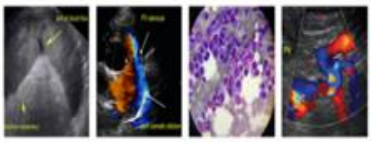
Mass Veterinary Services



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT
Bear DelGreco

SPECIES
Canine

BREED
Great Dane

SEX
Male Neutered

AGE
9 years

WEIGHT
140.7lbs

INTERPRETED BY
Maggie Machen Lamy, DVM DACVIM (Cardiology)

IMAGING PERFORMED BY
Pamela Harrigan, RDCS

HOSPITAL NAME
Mass Veterinary Services

REFERRING VET
Dr. Masloski

INVOICE
23595

DATE
4/12/22

PRESENTING CLINICAL SIGNS

History: Bear was noted to have an arrhythmia earlier this month when he was seen on an emergent basis for hind limb weakness. He did have a reported tachycardia in February 2021 when he had a brief syncopal episode. Currently, he has a good appetite and normal activity level. On auscultation: arrhythmia noted, no murmurs heard, femoral pulses fair to good, lung fields clear. BP: 230 mmHg x 5. Plan: 1) echocardiogram 2) EKG 3) blood for TT4 4) disp taurine 1000mg 2 capsules twice a day 5) disp pimobendan/vetmedin 10mg 1 tab twice a day 6) disp amlodipine 5mg 3 tabs daily 7) disp snip tips 8) recheck blood pressure in 1-2 weeks. On Blue Wilderness for many years, now home-cooked meat, egg and rice.

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, 20mm/mV. The average heart rate is 150bpm (range 100-214bpm). No identifiable P waves with an irregularly irregular rhythm, consistent with atrial fibrillation.

ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and Doppler imaging is available.
Left ventricle: The LV diameter is increased with moderate LV dysfunction. LV wall thicknesses are normal. Mildly increased sphericity.
Left atrium: The left atrium is moderately dilated.
Mitral valve: The mitral valve is normal with no prolapse into the left atrial lumen. Mild eccentric mitral regurgitation.
Aortic valve/Aorta: The aortic valve is normal in morphology and mobility. Normal aortic outflow velocity; laminar flow. No aortic insufficiency.
Right ventricle: Right ventricular is mildly dilated.
Right atrium: RA mildly dilated.
Tricuspid valve: The tricuspid valve appears normal with no tricuspid regurgitation.
Pulmonary valve/Pulmonary artery: The pulmonic valve is normal in morphology and mobility. No pulmonic insufficiency. Normal RVOT velocity; laminar flow.
Pericardium/other: No pericardial or pleural effusion noted. No obvious cardiac masses.

2-Dimensional Measurements

Ao diam (cm)	3.2
LA diam (cm)	5.3
LA:Ao (Swe)	1.6
IVS thickness (cm)	1.1
LVID diastole (cm)	5.5
PW thickness (cm)	1.1
LVID systole (cm)	4.7
FS (%)	14

Doppler Measurements

PV Vmax (m/s)	0.67
AoV Vmax (m/s)	1.4
MR Vmax (m/s)	NM
TR Vmax (m/s)	NA
TR PG (mmHg)	NA

INTERPRETATION OF THE FINDINGS

Four chamber dilation is identified with moderate LA enlargement. The LV dimension is increased with moderate systolic dysfunction. Mild mitral regurgitation is secondary rather than reflecting primary valve disease. No additional issues are identified.

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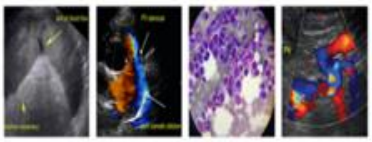

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The ECG confirms the arrhythmia is atrial fibrillation (AF). AF is characterized by disorganized contractions of the atria leading to an irregular heart rhythm. It most commonly develops secondary to atrial dilation, which is only moderate in this case. An alternative explanation is lone or primary AF, which develops simply due to having large cardiac mass (such as in horse or giant breeds). The irregular heart rhythm rarely causes clinical signs in dogs; however, if rapid heart rates accompany the rhythm (200+bpm) then congestive signs typically develop within days.

The most likely explanation in this giant breed dog is that lone/primary AF is/was present, which is either causing or is exacerbating systolic dysfunction. It is hard to sort out which came first in this case, as the LA is significantly increased. What is unusual is the heart rate is not significantly increased with rates noted as low as 100bpm. My assumption is that the syncopal episode was due to poor cardiac output, secondary to a combination of the arrythmia and chamber dilation rather than due to strictly the arrythmia itself. This is difficult to prove without further information (i.e., response to medications).

Going forward, cardiac support is recommended as below with Pimobendan and Taurine. Vasodilator therapy may be beneficial if the reported blood pressure is considered a real finding. Use of rate control versus monitoring is not entirely clear at this time given the lack of sustained rapid heart rates. Recommend institute cardiac support first and reassess the ECG/heart rate in 1-2 weeks. If rates are still jumping as high as >200bpm, a low dose of Diltiazem is reasonable at that time simply to block the periods of decreased cardiac output. If syncope recurs despite these changes, a holter monitor is highly recommended.

Given today's findings and the recent evidence of grain free diet-related cardiomyopathy this may be related in this patient; however, a primary cardiomyopathy is certainly possible in this breed. Regardless, an immediate diet change and taurine supplement is recommended in this case as below. Other contributing factors such as hypothyroidism should be considered as well. Additionally, atrial fibrillation is identified which is likely further worsening the dysfunction. Monitoring for progression is advised.

Prognosis is guarded to poor long-term given the degree of structural disease and concurrent arrythmia with an average survival time of <6 months once medications are initiated. Patient will always be at risk for CHF, collapse and/or sudden death going forward.

RECOMMENDATIONS

- Institute Pimobendan 0.25-0.3mg/kg PO q12h.
- Institute Taurine supplement, 1000mg PO q12h.
- Institute Amlodpine to effect. Consider screening for underlying causes of pathologic SHT.
- Immediate diet changed as discussed.
- Consider thyroid screening, etc. as discussed.
- Omega fatty acid supplementation may be of some long-term benefit.
- Elective anesthesia is not advised.
- Monitor for development of a cough, labored breathing, exercise intolerance or collapse episodes.

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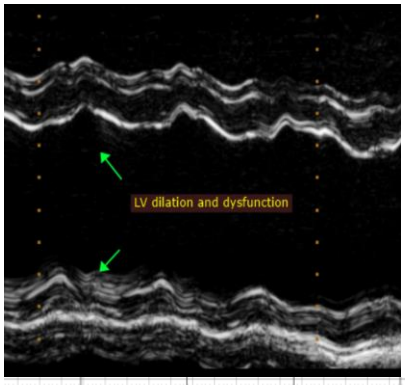
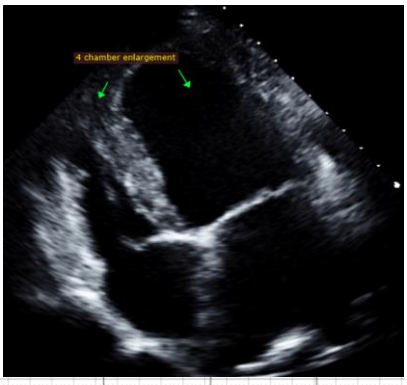
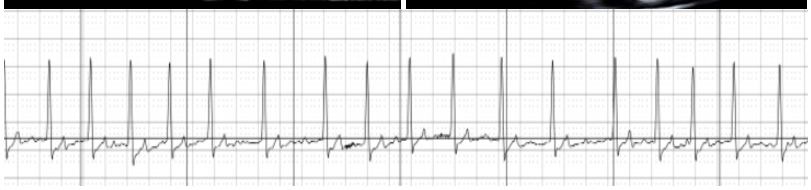
PLAN

- Recheck heart rate, ECG, BP and renal panel in 1-2 weeks, with a target average HR <160bpm. If persistently elevated heart rates are noted, institute low dose Diltiazem 1mg/kg PO q8h with a reassessment in 1-2 weeks.
- If BP is persistently >150mmHg, institute ACE-I 0.5mg/kg PO q12h.
- Recommend conservative monitoring with a recheck echocardiogram/ECG in 6 months, sooner if any development of clinical signs.

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.

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

Echocardiogram performed by: Pamela Harrigan, RDCS
Pet Animal Ultrasound Service (4paus.com)