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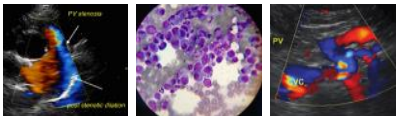

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**PATIENT**
Bear Grinnell

**SPECIES**
Canine

**BREED**
Labrador

**SEX**
Male Neutered

**AGE**
3.26.13

**WEIGHT**
70lbs

**INTERPRETED BY**
Maggie Machen Lamy, DVM, DACVIM (Cardiology)

**HOSPITAL NAME**
PetVet of Clarksville

**REFERRING VET**
Dr. Martof

**INVOICE**
29781

**DATE**
3.22.23

## PRESENTING CLINICAL SIGNS

History: On and off fever with mild anemia and thrombocytopenia for past 2 months. with on and off joint stiffness. improved with clavamox for 3 weeks but then fever and low platelets returned. tick pcr comprehensive panel negative. Bartonella IFA negative. lyme c6 was low- below 10.
on doxycycline and enrofloxacin currently. was on clavamox but stopped that 4 days ago with bartonella ifa being negative. eating but not dog food- chicken and rice. chest rads- lungs nsf- mild heart enlargement BAR BCS 5/9. Heart murmur, grade 3/6. HR 100 101.9 temp today.
-Current medications: None listed.
-Sedation used: Not required to complete full diagnostic ultrasound.
-Pertinent previous ultrasound results: No previous.
-STAT: Not requested
-Imaging performed by: Stephanie Warga RDCS, RVT.

## ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Focal soft tissue lesion associated with the aortic valve. Lesion can be seen prolapsing obstructing valve movement, with severe AI and mild forward flow impediment. The MV appears mildly thickened with mild anterior-directed MR. Mild to moderate LA dilation. The LV is mildly dilated with adequate function. The tricuspid valve appears mildly thickened with mild regurgitation. No overt evidence of pulmonary arterial hypertension. The pulmonic valve is normal in morphology and mobility. Main pulmonary artery appears normal in diameter Normal pulmonic outflow velocities. No pulmonic insufficiency. No pericardial or pleural effusion noted. No cardiac tumors visualized.

## 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 | NM | 2.9 | NM | 1.5 | 27 | 53 | 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 | 180 | 2.5 | 0.93 | 31.8 | 3.2 | 5.1 | 3.7 |
| *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

A lesion associated with the aortic valve is identified, causing severe aortic insufficiency and a mild forward obstruction/stenosis. Additionally there is mild to moderate LA and LV dilation noted. The findings are highly concerning for valvular endocarditis, with secondary left heart overload. Mild MR and TR are also appreciated, which may suggest early valve disease as well. Monitoring is recommended.

Endocarditis (infection of the heart valve) is exceedingly rare, however is more common in younger large breed dogs. A definitive diagnosis carries a poor prognosis, with only 50% surviving hospitalization and a long term MST of 2 months. Aortic valve infections carry an even worse outcome, with a MST of weeks. The most common organisms is Bartonella for the AoV (streptococci or staphylococcus for the MV). Based upon these statistics and the current unstable nature of the patient, recommended immediate hospitalization for broad spectrum IV antibiotic therapy (Unasyn and Baytril or Clavamox and Baytril if hospitalization is declined) and azithromycin for Bartonella. While blood cultures are certainly indicated, they may be negative since antimicrobial therapy is already on board. Additionally, thromboprophylaxis using Plavix is recommended (half the cases will have thromboembolic disease). Finally, with any degree of volume overload there is risk for decompensation going forward. Consider Pimobendan as below to help stabilize the situation. No clear indication for sildenafil therapy or diuretic therapy at this time. Antibiotic therapy should be administered IV for as long as possible (while hospitalized) and then PO for at least 6-8 weeks thereafter.

Unfortunately in addition to a poor prognosis with suspect endocarditis, if the patient survives there is a chance the damage to the valve/cardiac dilation is permanent and may lead to CHF in the future. Additionally, endocarditis is typically secondary to some inciting infectious origin (UTI, skin lesion, etc.) and a thorough history and systemic work up is recommended. Given the highly complex nature of this case, referral to a multi-specialty center is advised.

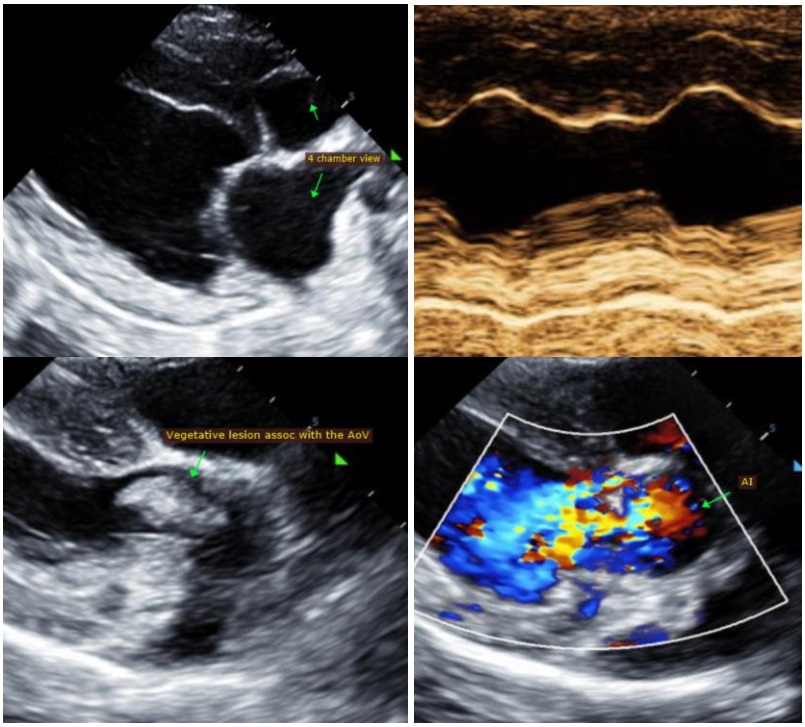
Omega fatty acid supplementation and mild salt restriction may be of some long-term benefit. Monitor for development of progressive labored breathing, exercise intolerance or collapse episodes in the future.

## PLAN

Highly recommend referral to a multi-specialty center for supportive care and further evaluation. If declined, consider hospitalization for IV antibiotic therapy and supportive care. Initiate pump support Pimobendan 0.2-0.3mg/kg PO BID. Consider blood cultures, systemic evaluation as discussed above. Highly recommend repeat CXR and bloodwork to assess changes compared to presentation, reassess hydration status, etc.

Recheck echocardiogram in 2-3 months to reassess lesion, cardiac function and LA/LV dilation.

## 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**
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