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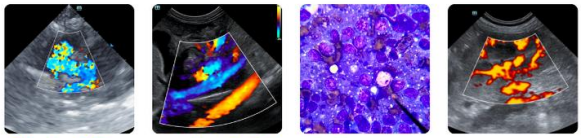

Clinical Sonography & Telecytology
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**PATIENT**

Kona Best

**SPECIES**

Canine

**BREED**

Lab Mix

**SEX**

Female Spayed

**AGE**

7.11 years

**WEIGHT**

46lbs

**INTERPRETED BY**

Maggie Machen Lamy, DVM, DACVIM (Cardiology)

**IMAGING PERFORMED BY**

Loetitia Saint-Jacques, LVT

**HOSPITAL NAME**

DOCs Veterinary Hospital

**REFERRING VET**

Dr. Haebler

**INVOICE**

47603

**DATE**

4/16/26

## PRESENTING CLINICAL SIGNS

History: Arrhythmia on pre-surgery ECG.
-ECG report (Idexx): HR: 163bpm. Supraventricular ectopic beats. LAD noted. APCs noted.

## ELECTROCARDIOGRAPHIC FINDINGS

A six lead ECG is available at 25mm/s; 10mm/mV. The average heart rate is 100bpm. The rhythm is sinus in origin, with a p for every QRS complex and vice versa. The P wave morphology is positive with a normal dimension. Normal PR. The QRS morphology is positive with normal dimension. MEA is normal. A single APC and a single VPC are seen. No pauses or other dysrhythmias observed.
ECG diagnosis: Normal sinus rhythm with respiratory variation. Rare, isolated APCs and VPCs.

## ECHOCARDIOGRAM FINDINGS

2D, m-mode, color flow and doppler imaging is available. Mild diffuse thickening of mitral valve leaflets with no prolapse into the left atrial lumen. Moderate eccentric mitral regurgitation with no left atrial dilation. Normal MR velocity. Normal LV diameter with adequate myocardial function. The tricuspid valve appears normal with no tricuspid regurgitation. Normal right atrial and ventricular diameter and morphology indicating no overt evidence of pulmonary arterial hypertension. The pulmonic and aortic valves are normal in morphology and mobility. Normal pulmonic and aortic outflow velocities with laminar flow. No obvious aortic or pulmonic insufficiency. No pericardial or pleural effusion noted. No obvious cardiac masses.

## 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** | 4.9 | NA | NM | 1.3 | 35 | 60 | 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** | NM | 1.8 | 0.9 | 20.9 | 2.4 | 4.0 | 2.6 |
| *Normal chamber parameters expressed as a mean value (SD) | | | | 3 | 1.27 (5.3) | 2.46 (2.46) | 1.36 (5.5) |
| | | | | 5 | 1.40 (4.5) | 2.74 (5.2) | 1.60 (4.7) |
| | | | | 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) |

**BODY WEIGHT DEPENDENT PARAMETERS**

***Note:** All measurements based upon multi-modal images and methods. An average value is reported.*

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

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## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The ECG and echocardiogram do support a mild arrythmia is present, with isolated VPCs and APCs noted. A single APC and single VPC ae seen on the extended ECG tracing; however, these pesist throughout the study. Premature beats are generated from abnormal conductive or fibrotic tissue in the heart muscle, and even frequent single premature beats will often cause no clinical signs in dogs. When sustained however, supra or ventricular tachycardia can lead to symptoms such as lethargy, collapse and sudden death. Premature beats are a very non-specific finding. They can be due to significant cardiac disease (mild in this study) or be extra-cardiac in origin, i.e., due to pain, stress, inflammation, cancer, GI disease, DIC/sepsis, etc. **In a large breed dog, all differentials should be ruled out.** An abdominal ultrasound to monitor for any underlying abnormalities, in addition to tick titers and cardiac troponin level can be considered. Unfortunately, there is always an elevated risk for collapse and sudden death in any arrhythmic patient, and even on medications this risk unfortunately still persists.

Based strictly upon the amount of arrhythmia present on the available ECG, anti-arrhythmic therapy is not clearly indicated. Pending results of systemic work up, can consider a holter monitor especially if any significant lethargy or collapse is noted.

Fish oil supplementation is recommended for dogs with arrhythmias (500-1000mg of omega 3 and 6 once to twice daily).

Monitor at home for collapse, exercise intolerance, and/or lethargy. If a holter monitor is elected, this will dictate whether therapy is needed and follow up protocol.

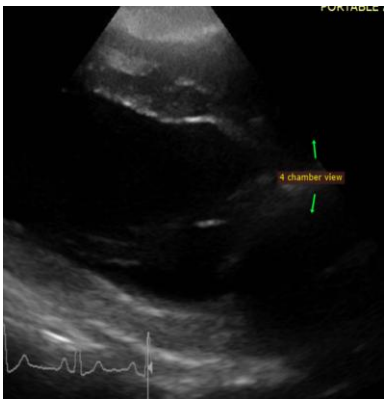
Anesthetic risk is considered moderately elevated. Avoid ketamine, telazol, Dexdomitor (or other alpha-2 agonists) and acepromazine. Recommend having lidocaine CRI available for use in the event of worsening ventricular arrhythmias under anesthesia (CRI 50—75mcg/kg/min).

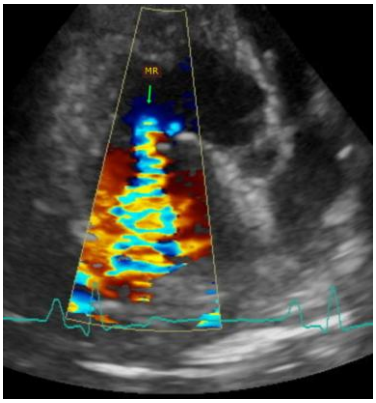
## PLAN

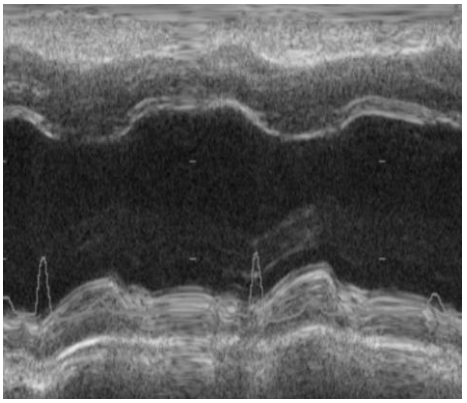
Consider further work up through labs, holter monitor and/or abdominal ultrasound, etc.

A recheck echocardiogram/ECG is recommended in 6 months, sooner if symptoms of cardiac disease arise (cough, labored breathing, etc.).

## IMAGES







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**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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