



PATIENT

Nola Saslow

SPECIES

Canine

BREED

Boxer Mix

SEX

FS

AGE

10 years

WEIGHT

82.2 lbs.

INTERPRETED BY

R. McKenzie Daniel,
DVM, DABVP
(Canine and Feline)

IMAGING PERFORMED BY

Jessica Miller

HOSPITAL NAME

AH of Roxbury

REFERRING VET

Dr. Hickenbottom

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DATE

5/18/22

PRESENTING CLINICAL SIGNS

Elevated liver enzymes, protein in urine, labored breathing, distended abd. Current meds: Gabapentin for anxiety

Abnormal PE/Chem/CBC/UA Results: Alk Phos 552, triglyceride 406, PSL 245, Eos 12 UA: pH 7.5 SG: 1.039

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

| CANINE | MR | TR | LA/AO | LA/AO | FS | EF | EPSS |
|---------------------------|----------------------|----------------------|---------------------|-------------------|------------------------------------|---------------------------------------|---------------------------------------|
| CARDIAC PARAMETERS | VMAX (m/s) | VMAX (m/s) | (Boon method) | (Heart Base; Swe) | (%) | (%) | (cm) |
| NORMAL PARAMETER | 4.5-5.5 | <2.7 | 1.3 | <1.3 | 28-40 | 40-100 | <0.6 |
| PATIENT | 5.8 | 1.3 | 1.2 | 1.2 | 33.1 | 62.1 | 0.22 |
| CANINE | HR | AV | PV | BODY WEIGHT | LA | LVIDd | LVIDs |
| CARDIAC PARAMETERS | (BPM) | VMAX (m/s) | MAX (m/s) | (kg) | 2D short axis Base view (cm) | Avg; 2D and m-mode short axis (cm) | Avg; 2D and m-mode short axis (cm) |
| NORMAL PARAMETER | 50-100 | 0.7-1.7 | 0.7-1.6 | | | | |
| PATIENT | 92 | 2.4 | 1.5 | | 4.4 | 4.1 | |

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate methods of LA evaluation. The cranial and caudal **mitral** valve leaflets presented subtle thickening with normal extension in systole, and union in diastole and normal kinesis. Moderate MR was present on doppler. The **left ventricle** presented thicknesses with linear contour and was not dilated nor restricted. The **myocardium** presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. **Contractility** of the ventricular walls was adequate and in normal range for this patient evidenced by the fractional shortening measurement and subjective evaluation of the different regions of the myocardium. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. Mild elevated LVOT was present. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis. Minor TR was present on doppler. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonary outflow** tract assessment revealed normal valve structure, laminar flow, and diameter (approx. 1:1 pa/ao ratio). Trace pulmonic insufficiency was present on doppler. No visible **pericardial** or free pleura fluid was noted. The cranial **mediastinum and pericardial and extra-cardiac regions** were free of masses in the visible window. No overt arrhythmia was present.



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Urinary System

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The urinary bladder, trigone, and cystourethral junction exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes was noted.

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The area of the aortic trifurcation was free of pathology.

BREED

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Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and mild loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pyelectasia was present. The left kidney measured 7.7 cm in length. The right kidney measured 7.1 cm in length.

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Adrenal Glands

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The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 4.0 cm length x 0.81 cm width at the caudal pole. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 3.3 cm length x 0.61 cm width at the caudal pole.

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Spleen

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The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Mild generalized parenchyma heterogeneity was present. Areas of hyperechoic parenchyma, consistent with probable small myelolipomas, were present adjacent to the hilus. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. The parenchymal heterogeneity is likely consistent with benign changes such as extramedullary hematopoiesis or age-related remodeling with minor potential for inflammatory or neoplastic disease.

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Jessica Miller

Liver/ Gallbladder

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The liver was subjectively normal in size, structure, and contour. The liver parenchyma was mildly nonuniform and hypoechoic to the spleen with a moderate coarse echotexture and subjective mild to benign parenchymal remodeling. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.

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Gastrointestinal

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The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach was empty with no signs of ileus, obstruction, or foreign material.

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The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction, or foreign material.

Normal visible colon wall layers were present with apparent formed feces in lumen.



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Pancreas

The parenchyma of the left limb, body, and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease were evident.

Free Abdomen

No omental masses, lymphadenopathy, peritoneal effusion, or evidence of neoplastic criteria were present.

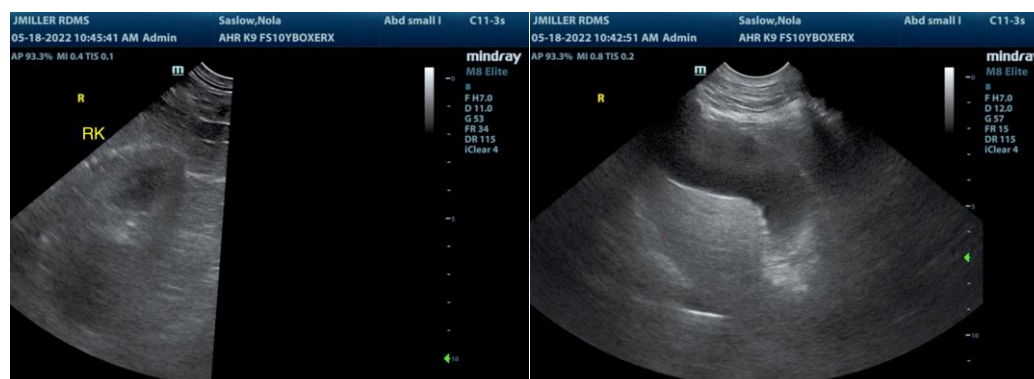
ULTRASONOGRAPHIC FINDINGS

- Overtly normal cardiac structure and function
- Mitral valve Insufficiency
- Minor tricuspid and pulmonic valve insufficiency
- Mild elevated LVOT velocity
- Nonspecific mild chronic renal changes
- Benign hepatopathy
- Age-related spleen

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No evidence of significant structural or functional cardiomyopathy, i.e., no evidence of DCM criteria, LV systolic dysfunction, left or right heart chamber enlargement, or clinical pulmonary hypertension. An obvious cardiogenic component to the labored breathing was not evident. Given this presentation, the MR may indicate early chronic or degenerative valvular changes, yet the hemodynamic effects of the MR appear to be mild without LA enlargement. ECG assessment, given the breed, could be considered. No indication for cardiac medications was evident. Assessment of systemic BP is suggested. Recheck echocardiogram is suggested in 6 months, sooner if clinical signs consistent with heart disease, i.e., exercise intolerance, syncope, progressive murmur, etc., are noted.

The overall liver was not specific yet suggestive of benign, likely vacuolar, hepatopathy, given the elevated ALP and sonographic appearance. Hepatosupportive medications including Denamarin +/- Ursodiol may prove beneficial. UPC level is recommended for further assessment of the proteinuria.





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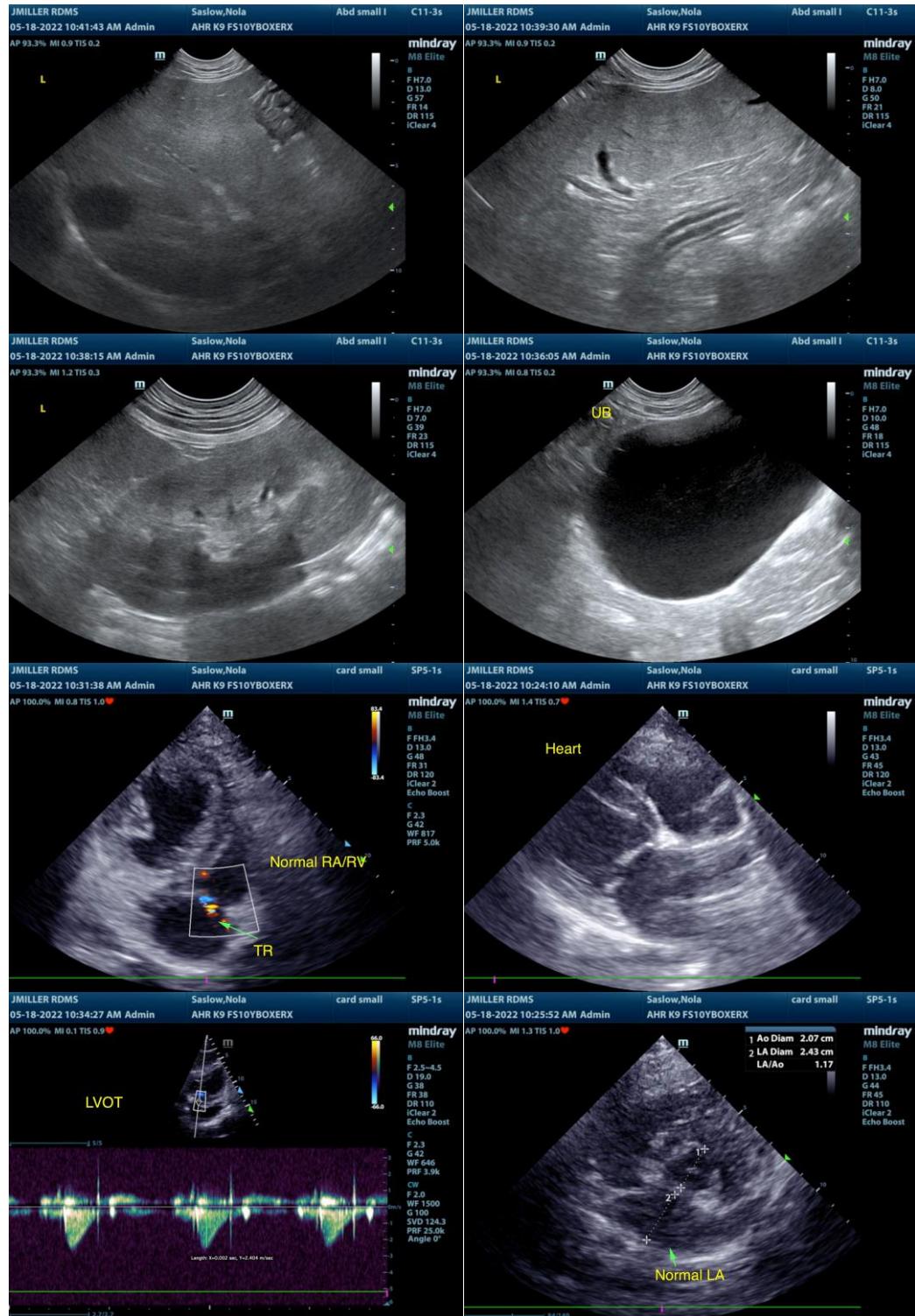
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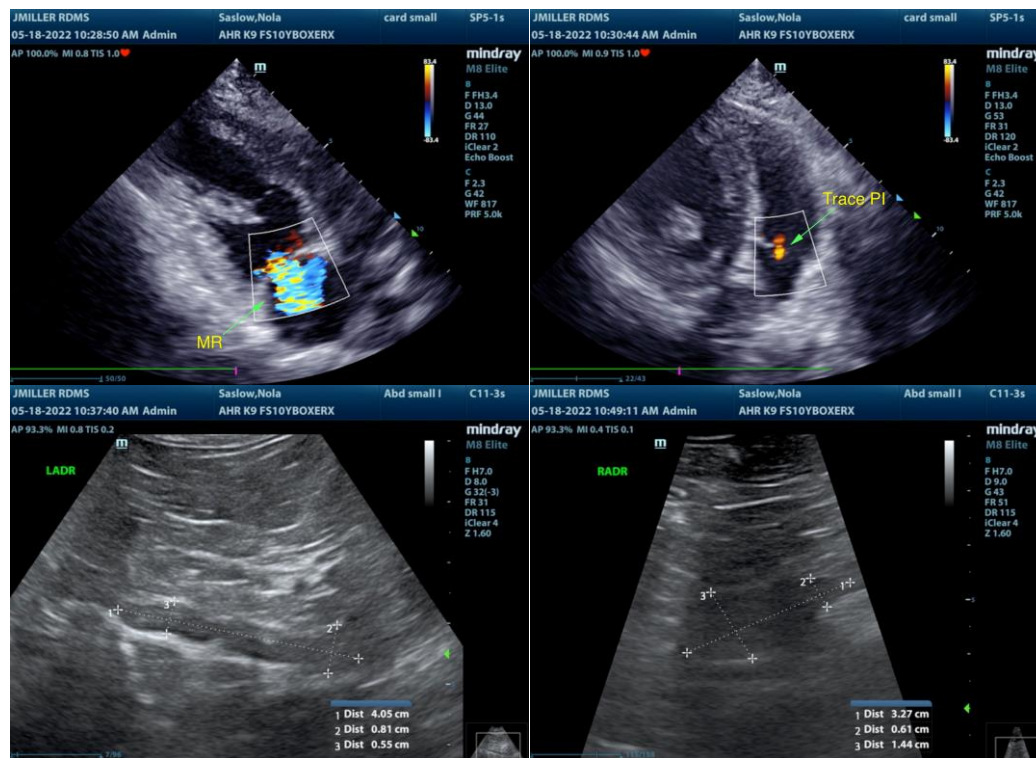
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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