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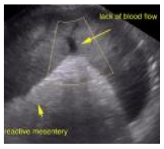
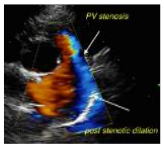
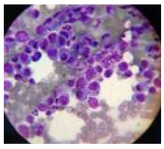
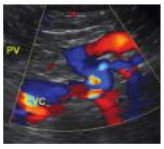





SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Bella Gmyrek

SPECIES

Canine

BREED

Chihuahua Mix

SEX

FS

AGE

10 years

WEIGHT

21 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

INVOICE

15246

DATE

5/18/22

PRESENTING CLINICAL SIGNS

New 2/6 heart murmur, hx of cystitis, urgency to urinate. Current meds: Carprofen, clavamox
Abnormal PE/Chem/CBC/UA Results: Alk Phos 692, PSL 195, Neut 10995 UA: Pro +3, occult blood 2+, WBC 21-50/hpf, RBC 4-10/hpf, Rods>100/hpf Culture pending SG: 1.010

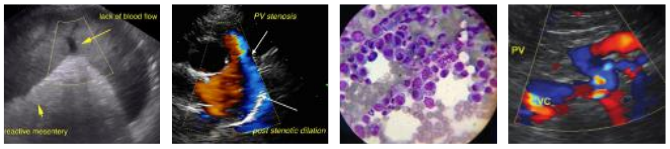
ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

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	<1.3	28-40	40-100	<0.6
PATIENT	6.1	2.5	1.6	1.67	56.4	87.5	0.2
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				
PATIENT	131	2.1	1.3	--	3.6	3.6	--

Cardiac Presentation

The echocardiogram for this patient presented mild excessive **left atrial size** expressed both in the LA/AO and LA max measurements. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. Doppler indicated moderate eccentric mitral valve insufficiency. 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. Trace aortic insufficiency was present on doppler.
The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted or chamber overload. **Tricuspid** valve demonstrated mild subjective vegetative thickening with mild TR on doppler. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). No visible **pericardial** or free pleura fluid was noted. No echographically detectable evidence of infiltrative disease was visible. The cranial **mediastinum and pericardial regions** were free of masses in the visible window.

Urinary System



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The urinary bladder was normal in size and tone. The urinary bladder walls were overtly normal without evidence of significant inflammatory criteria. Mild nonspecific prominent ureteral papilla. The urethra was normal to a depth of 2.0 cm. Anechoic urine was present. No sediment or calculi noted.

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 5.0 cm in length. The right kidney measured 5.7 cm in length.

Adrenal Glands

Bilateral symmetrical adrenal gland enlargement with uniformly hypoechoic parenchyma was present. The left adrenal gland measured 2.3 cm in length x 0.76 cm width at the caudal pole. The right adrenal gland measured 2.1 cm in length x 0.65 width at the caudal.

Spleen

The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Mild generalized parenchyma heterogeneity was present without evidence of nodular changes. 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.

Liver/ Gallbladder

The liver was mildly enlarged in size. Mild parenchymal remodeling noted. The capsule of the liver was symmetrically rounded to mildly swollen in margination. The hepatic and portal vasculature were normal in appearance without signs of congestion. Intermittent, very subtle to isoechoic intraparenchymal nodules were present.

The gallbladder was non distended in size with mild gallbladder debris. The cystic duct and common bile ducts were normal without evidence of dilation.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach contained mild to moderate non-shadowing ingesta/chyme. The stomach was otherwise normal.

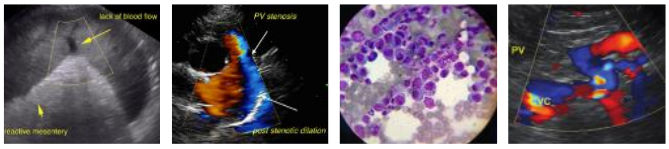
The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction, or foreign material.

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

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



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No overt lymphadenopathy or peritoneal effusion was present.

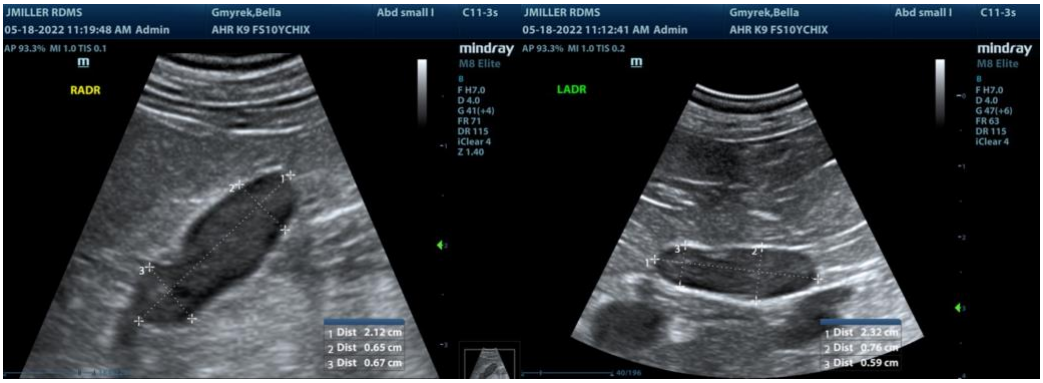
ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM mild B-2)
- Mild TR- estimated pulmonary pressure gradient approximately 26 mmHg, not consistent with clinical pulmonary hypertension.
- Trace aortic insufficiency
- Overtly normal urinary bladder with mild nonspecific prominent ureteral papilla
- Bilateral chronic renal changes
- Hepatopathy with minor parenchymal remodeling and subtle intraparenchymal nodules- subjectively benign, consistent with probable vacuolar hepatopathy with mild parenchymal remodeling, subtle areas of nodular hyperplasia or hematopoiesis. No evidence of neoplastic criteria.
- Mild gallbladder debris (non-mucocele)
- Bilateral prominent adrenal glands- nonspecific

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur was secondary to chronic degenerative valvular changes with secondary eccentric mitral valve and minor tricuspid valve insufficiency. The mild left atrial enlargement indicates that the risk of current and future complication is relatively mild yet prognosis at this stage is highly variable and serial sonographic monitoring is required for further prognosis. Pimobendan at 0.3 mg/kg PO BID is warranted, as this medication may help prolong cardiac changes associated with mitral valve insufficiency. No other clinical issues, such as LV systolic dysfunction were present. Assessment of systemic BP to assess for evidence of hypertension given the mildly elevated MR velocity is recommended. Recheck echocardiogram suggested in 6 months or sooner if clinical signs consistent with heart disease arise.

Full adrenal work up could be considered in this patient if clinical signs consistent with adrenal hyperfunction, i.e., PU/PD, polyphagia, etc. are present. Further renal staging to include urine C/S and protein: creatinine ratio on sterile urine sample may be considered. Hepatosupportive medications, including Denamarin and ursodiol with continued monitoring of ALP levels would be reasonable.



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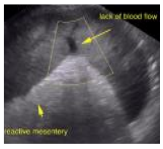
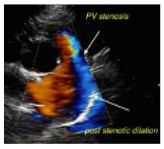
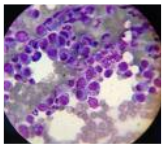
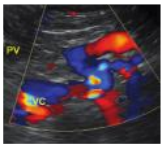

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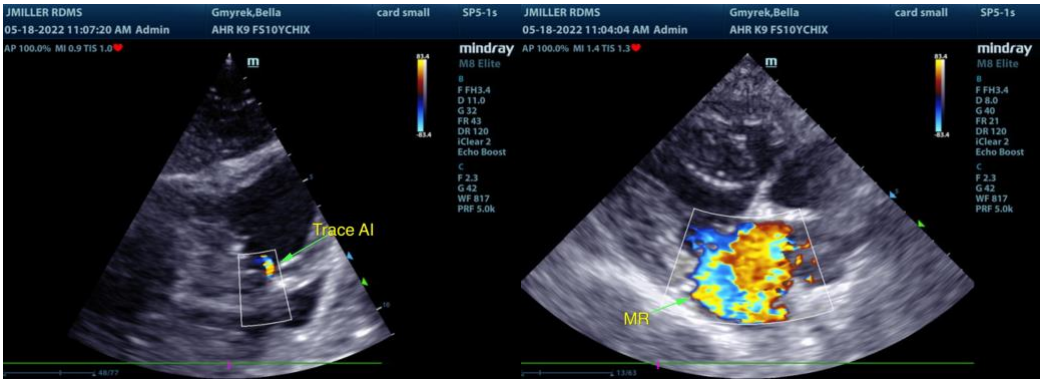

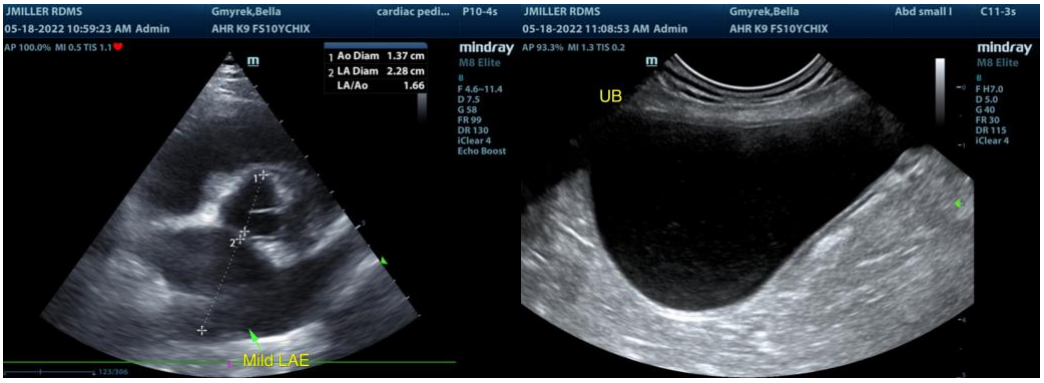

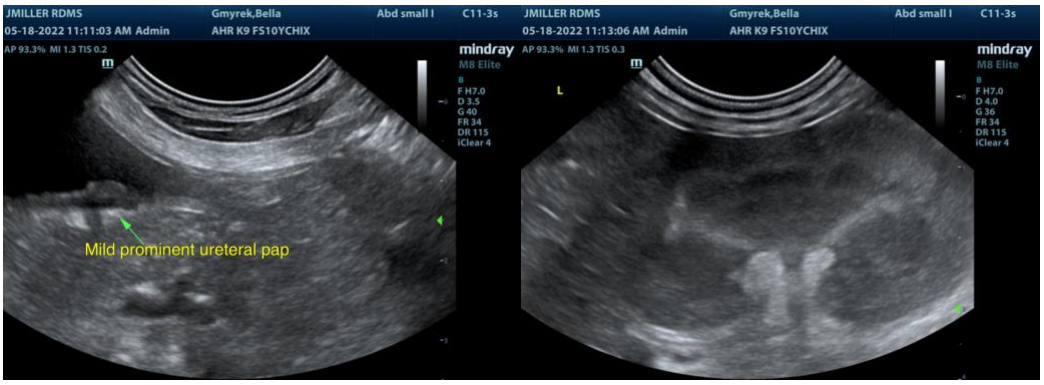

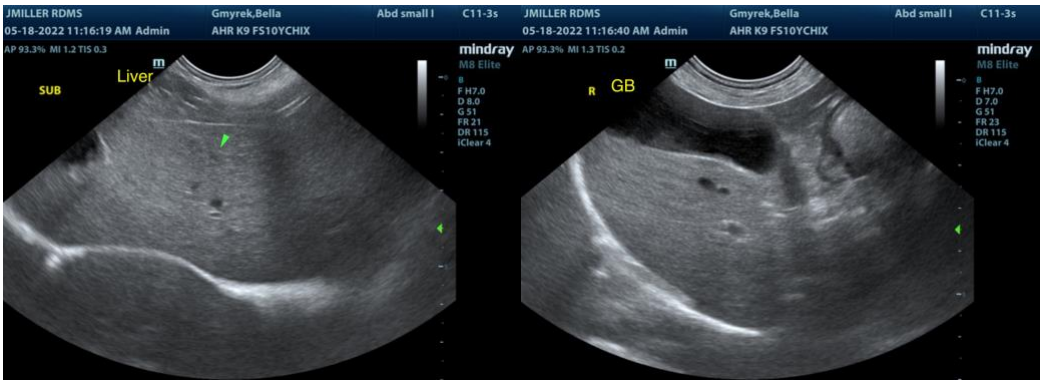

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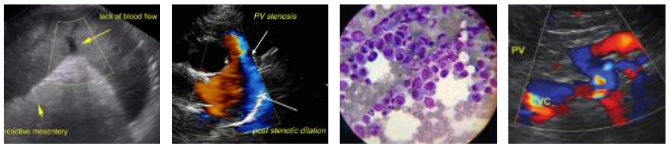

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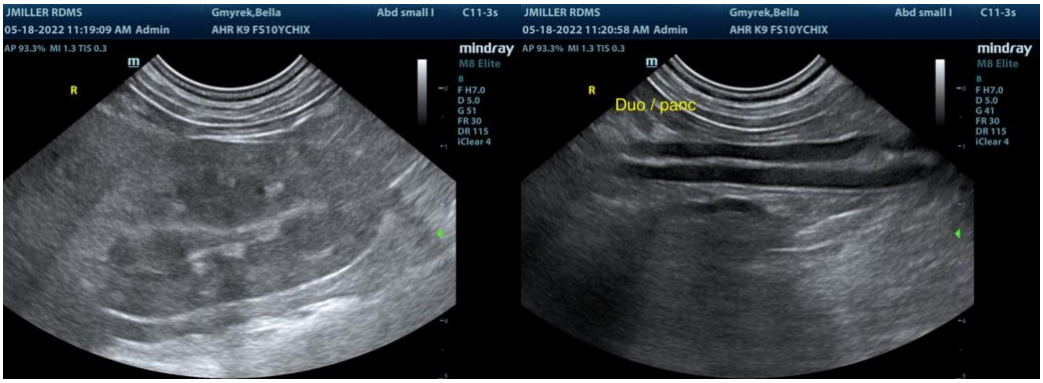

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
info@SonoPath.com