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Clinical Sonography & Telecytology
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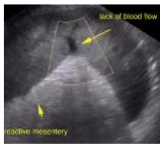
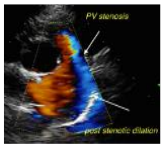
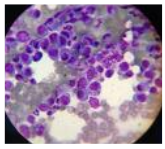
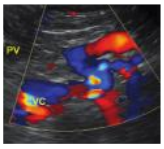

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1-800-838-4268 info@sonopath.com

PATIENT

Dora McBride

SPECIES

Canine

BREED

Shih Tzu

SEX

Intact Female

AGE

10 Years

WEIGHT

13.3 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Kelly Vazquez

HOSPITAL NAME

Westwood Regional VH

REFERRING VET

Dr. Taylor McConnell

INVOICE

16716

DATE

7/22/22

PRESENTING CLINICAL SIGNS

History: Patient presents for pyrexia 105.6 degrees, intact female, vomiting, diarrhea, pale MM. No current meds.

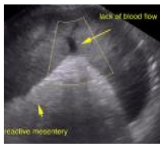
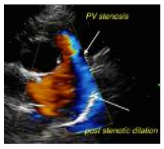
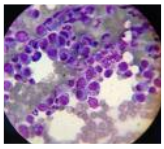
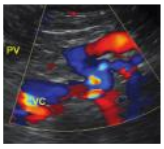
Abnormal PE/Chem/CBC/UA Results: RBC 4.67, HCT 26.7%, HGB 10.7, WBC 22.71, neuts. 20.98, potassium 3.4, ALT (unreadable), ALP 296, GGT 13.

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	5.1	1.0	1.1	1.2	40.2	74.2	0.13
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	99	1.5	0.72		2.3	2.34	

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 different LA measurement methods. Chamber volumes and echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. No overt evidence of valvular prolapse, chordae tendineae rupture or endocarditis. Doppler indicated moderate eccentric 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 systolic laminar flow with normal LVOT velocity and overall subjective normal structural integrity. Mild Aortic insufficiency, measuring 2.7 m/s was present on color doppler. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted or chamber overload. **Tricuspid** valvular assessment concurrent mild thickening with mild TR present 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.

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Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 cm 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 were 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 or retroperitoneal inflammation was present. The left kidney measured 4.0 cm in length. The right kidney measured 4.2 cm in length.

Adrenal Glands

The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 1.5 cm in length x 0.45 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 1.9 cm in length x 0.47 cm width at the caudal pole.

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.

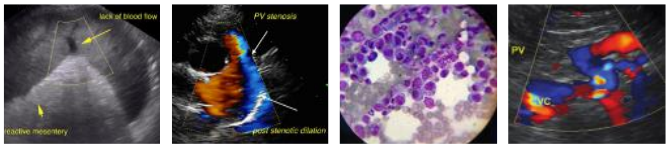
Liver

The liver presented normal in size. The hepatic parenchyma revealed mild reduced echogenicity compared to the spleen and renal cortical parenchyma with a mild to moderate coarse echotexture. Minor increased portal vein prominence was evident. The capsule of the liver was normal in margination. Distinct masses or nodules were not evident. The hepatic and portal vasculature were normal in appearance.

The gallbladder was non-distended in size containing anechoic content. The gallbladder wall was thickened in appearance consisting of an echogenic double rim corresponding to the inner and outer portions of the wall. This is consistent with gallbladder wall edema. Possible causes may include acute inflammation, edema and anaphylaxis. The gallbladder wall measured 0.26 cm in width. The area of the cystic biliary duct and common bile duct were sonographically normal without evidence of post hepatic obstructive criteria.

Gastrointestinal

The stomach presented intact yet mildly prominent wall layering. The lumen of the stomach was empty with no evidence of gastric distention with retained ingesta, fluid or foreign material. The gastric body wall measured 0.43 cm.



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The intestinal walls demonstrated intact wall layering and maintained 1:3 muscularis / mucosa ratio. The mucosa exhibited mild decreased echogenicity with occasional mucosal speckling. A segmental to diffuse ileus pattern consisting of mild fluid accumulation in the intestinal lumen was present without obstruction or foreign material. The duodenum wall measured 0.33 cm. The jejunum wall measured 0.32 cm.

Normal visible colon wall layers were present with subjective semi-formed fecal matter and luminal gas.

Pancreas

The left limb, right limb, and base of the pancreas presented hypoechoic to heterogeneous echogenicity compared to adjacent omental fat. Mild asymmetrical capsule margination was present with mild variable parenchymal swelling and mild peripancreatic reactivity / inflammation. No overt evidence of neoplasia.

Free Abdomen

No evidence of omental masses. Minor isoechoic to mildly hypoechoic uniform intermittent pancreaticoduodenal lymph nodes. No evidence of significant intraabdominal lymphadenopathy. No evidence of peritoneal free fluid.

Other

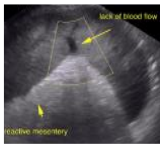
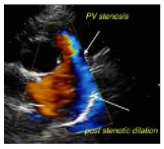
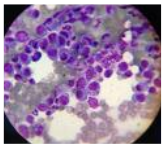
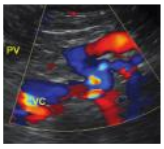
The visualized uterus exhibited subjective mild prominent size in the area of the uterine body, dorsal to the urinary bladder, measuring 0.98 cm in width. The uterus with empty without evidence of luminal fluid or sonographic evidence of pyometra. The left ovary was normal, measuring 1.0 cm in diameter. No overt pathology in the area of the right ovary.

ULTRASONOGRAPHIC FINDINGS

- Compensated chronic mitral valve disease (ACVIM B-1)
- TV insufficiency- estimated pulmonary pressure gradient (<20 ml HgH) not consistent with overt clinical pulmonary hypertension.
- Aortic insufficiency
- Hepatopathy- subjectively acute
- Mild gallbladder wall edema
- Gastroenteritis pattern
- Possible concurrent low-grade pancreatitis
- Mildly prominent yet overtly normal uterus- no evidence of pyometra or uterine neoplastic criteria

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The lack of left atrium enlargement indicates that the hemodynamic effect of the mitral valve insufficiency is relatively low at this stage. No indication for cardiac medications given the lack of left or right chamber enlargement and normal LV systolic function. No overt evidence of additional clinical issues, such as pulmonary hypertension. Prognosis at this stage is highly variable and serial sonographic monitoring is required for further assessment. Recheck echocardiogram is suggested in 6

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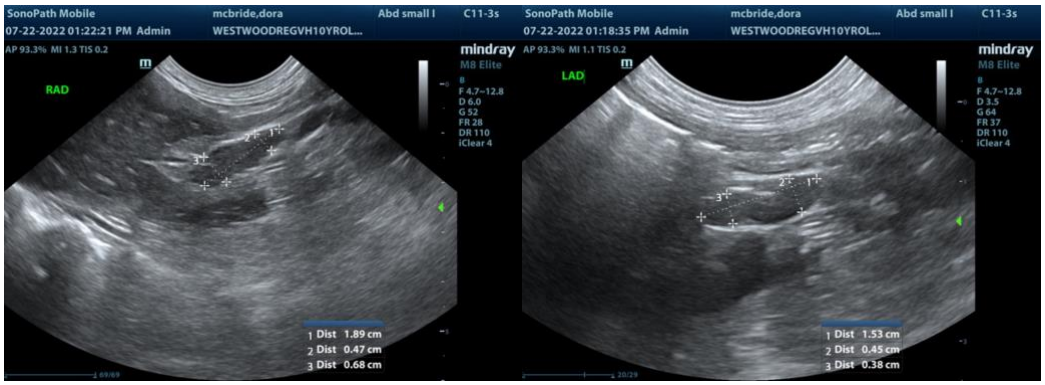
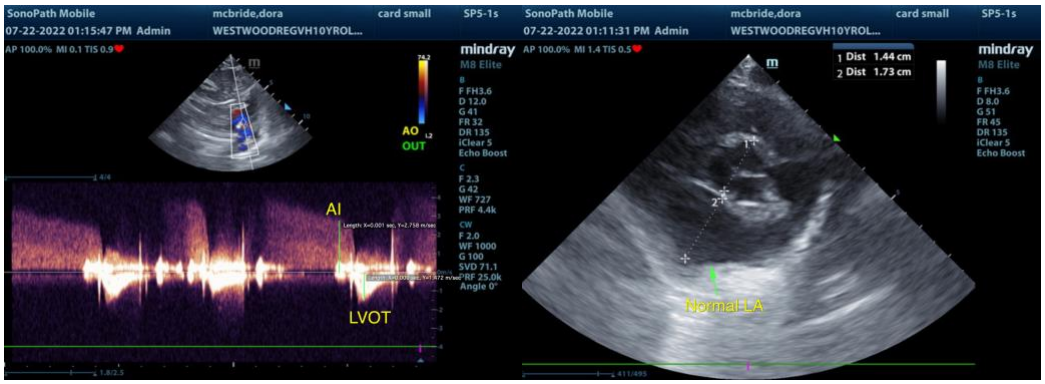
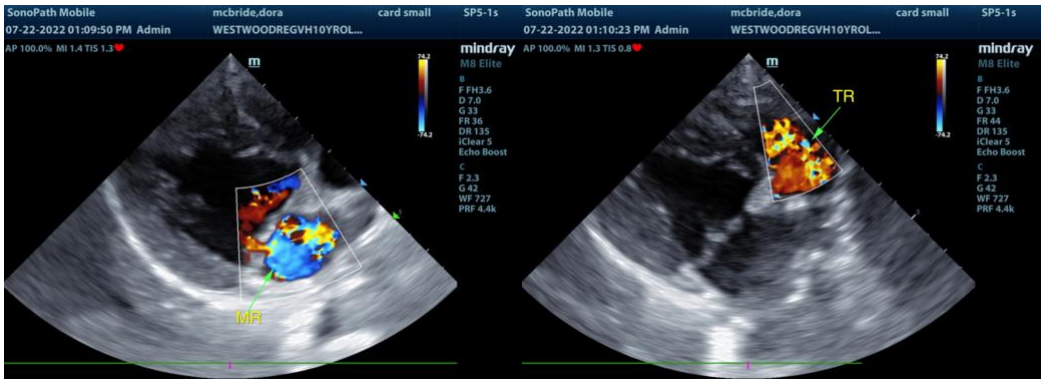
months or sooner if clinical signs arise. Assessment of systemic BP is suggested given the aortic insufficiency.

Although nonspecific, the suspected etiology for the hepatopathy and gallbladder wall edema is acute hepatitis (viral, bacterial, leptospirosis, toxin) with potential for vacuolar hepatic changes or nonobstructive cholestasis possible. Occult hepatic neoplasia is less likely. Further assessment may include FNA cytology of the liver, assuming normal clotting status, as well as leptospirosis titers/PCR.

An obvious cause of anemia was not definitively evident. Pending additional diagnostics, hospitalization with aggressive therapy for acute nonspecific hepatitis with as needed gastrointestinal support would be reasonable.







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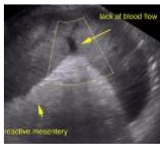
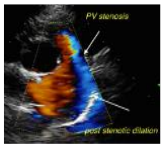
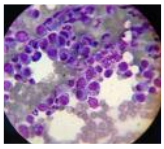
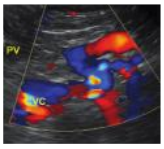

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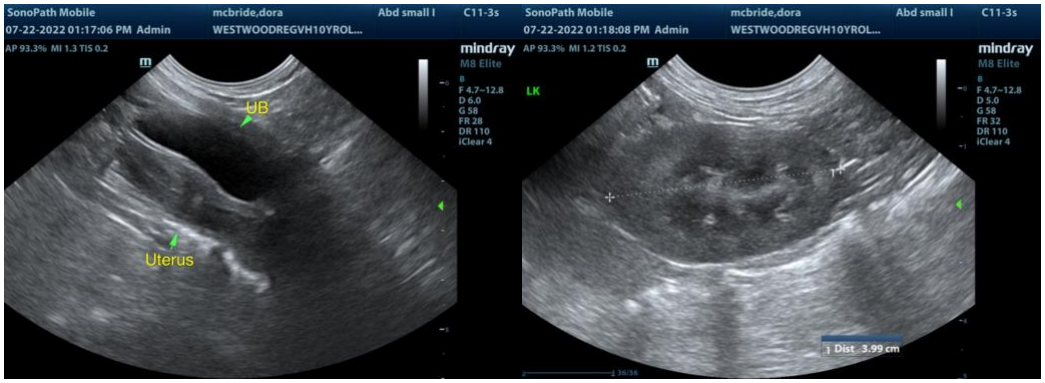

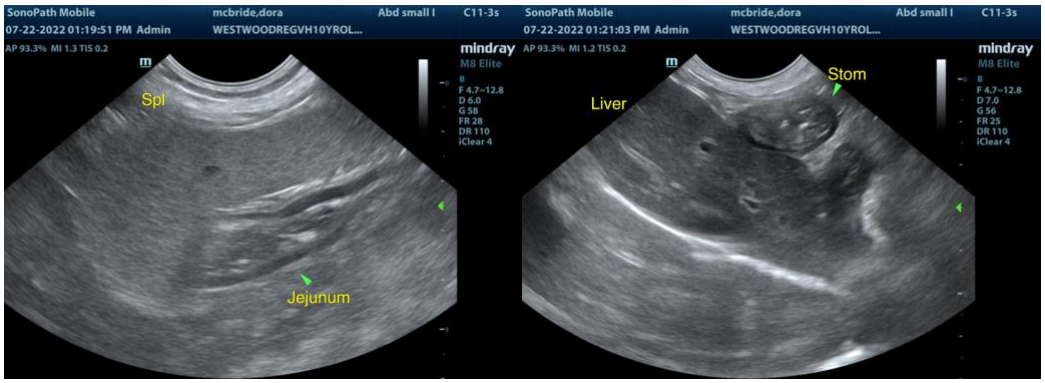

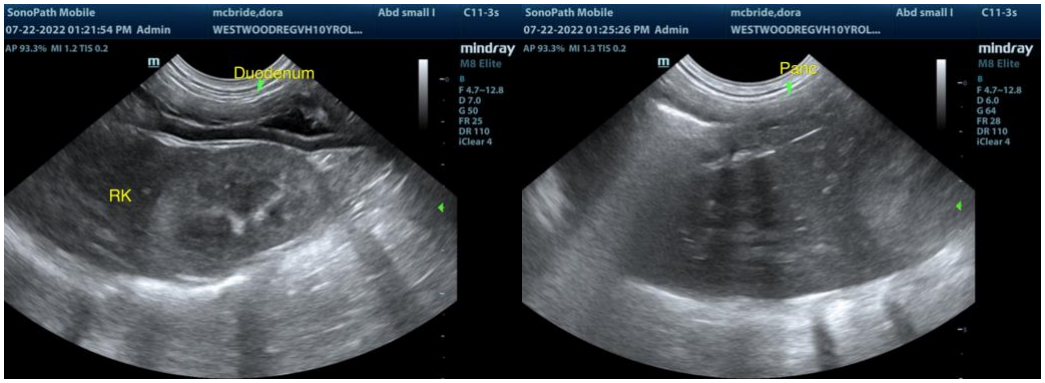

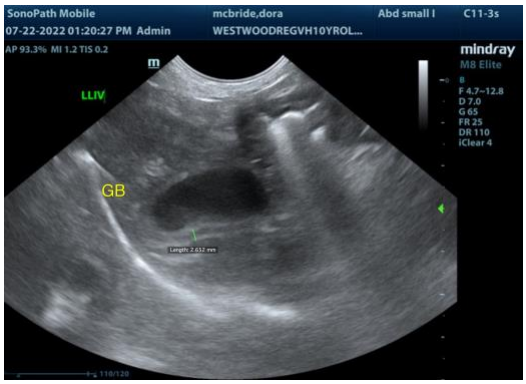

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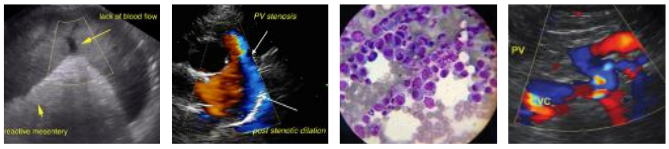

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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