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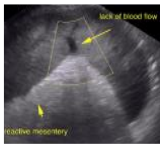
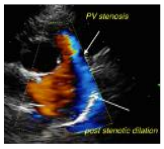
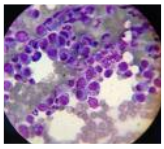
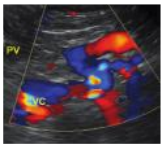

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1-800-838-4268 info@sonopath.com

PATIENT
Emma Hull

SPECIES
Canine

BREED
Lab Mix

SEX
Spayed Female

AGE
10 Years

WEIGHT
36.4 Pounds

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

IMAGING PERFORMED BY
Shari Reffi, CVT

HOSPITAL NAME
AH of Sussex County

REFERRING VET
Dr. Catania

INVOICE
15840

DATE
6/2/22

PRESENTING CLINICAL SIGNS

History: Presented 6/1 for multi-week hx of metronidazole resistant diarrhea. Free fluid noted on in-house u/s. Grade III/VI L sided murmur. Hx of heart dz dx by another hospital. Current meds: Pimobendan, Sulfasalazine
Abnormal PE/Chem/CBC/UA Results: ALT 129

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

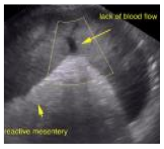
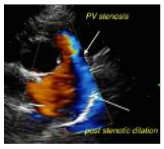
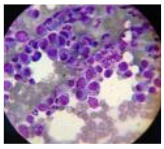
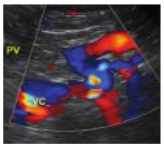
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.3	28-40	40-100	<0.6
PATIENT	5.2	--	NM	1.46	46.4	79.4	0.3
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (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	NM	1.35	0.9	--	3.8	3.4	--

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 measurable moderate eccentric insufficiency. The **left ventricle** presented thicknesses with linear contour and was not dilated nor restricted. Mild aortic insufficiency was present on doppler, measuring 2.5 m/s max.
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. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted or chamber overload. **Tricuspid** valvular assessment demonstrated adequate linear morphology. 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. Intermittent, unspecified arrythmia noted.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 3.0 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

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of inflammatory or neoplastic changes were noted. No overt evidence of medial iliac or sublumbar lymphadenopathy adjacent to the iliac trifurcation.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and normal corticomedullary definition were maintained. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex with no evidence of pelvic dilation. The left kidney measured 5.4 cm in length. The right kidney measured 5.9 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 2.3 cm in length x 0.41 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 2.7 cm in length x 0.45 cm width at the caudal pole.

Spleen

The spleen exhibited generalized enlargement. Mild areas of capsule asymmetry. Heterogeneous parenchyma noted, exhibiting multiple, variably sized, mildly expansive, mildly hypoechoic nodules. An example of splenic nodule size measured 1.3 cm in diameter. Splenic vascularity is normal.

Liver

The liver exhibited moderate generalized enlargement. The parenchyma of the liver was subjectively increased in echogenicity compared to the spleen and renal cortices. The echotexture of the liver parenchyma was uniform with a mild coarse echotexture. The capsule of the liver was symmetrical in margination. The hepatic and portal vasculature were normal in appearance without signs of congestion.

The gallbladder was non-distended in size with primarily anechoic luminal content. The cystic and common bile ducts were normal.

Gastrointestinal

The stomach presented wall thickening secondary to echogenic mucosa hypertrophy. Intact yet prominent gastric walls, owing to prominent gastric mucosa and subjective mild decreased gastric mural echogenicity and mild retained anechoic fluid was present in the stomach. The ventral gastric body wall measured 0.65 cm.

The intestinal walls demonstrated intact yet variably prominent wall layering and maintained 1:3 muscularis / mucosa ratio. The mucosa exhibited mild decreased echogenicity with occasional mucosal speckling. A segmental nonobstructive duodenojejunal ileus pattern consisting of mild fluid accumulation in the intestinal lumen was present without obstruction or foreign material. The small intestinal wall measured 0.48 cm.

The colon exhibited intact and overtly normal wall layering with generalized colonic distention with non-formed feces, consistent with diarrhea.

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 was evident.

Free Abdomen

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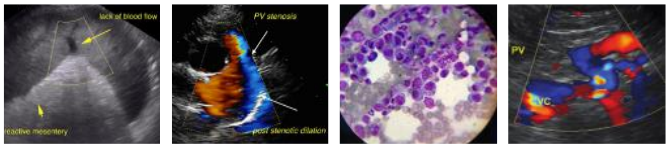

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Intermittent to multiple enlarged, hypoechoic mesenteric lymph nodes were present. The lymph nodes exhibited symmetrical to rounded margination with abnormal width: length ratio (>0.5). The enlarged lymph nodes were bordered by generalized mildly nonuniform hyperechoic mesentery. An example of mesenteric lymph node size measured 3.5 cm x 2.3 cm and 5.6 cm x 3.2 cm.

Mild to moderate volume peritoneal free fluid was present.

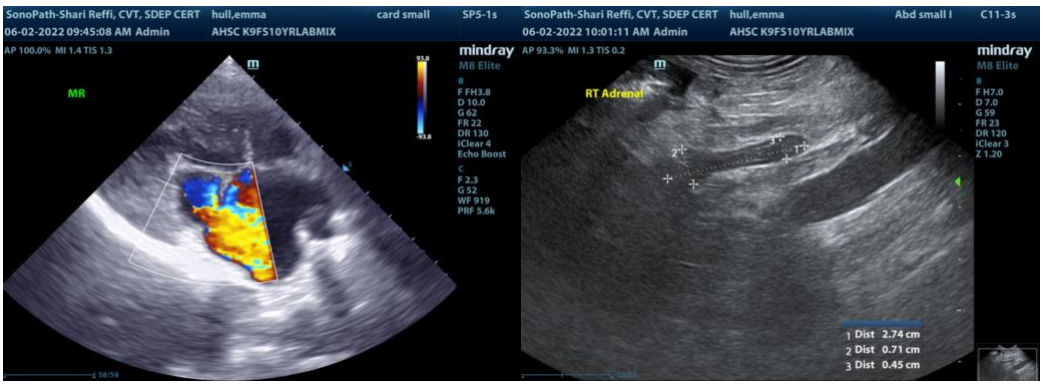
ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM Mild B-2)
- Mild aortic insufficiency
- Nonhomogeneous to nodular spleen
- Hepatomegaly, exhibiting mild uniform parenchyma hyperechogenicity
- Generalized gastroenterocolonopathy, exhibiting intact yet prominent gastrointestinal walls, mild gastric and segmental intestinal hypomotility and colonic distention, containing non-formed feces.
- Intermittent to multiple hypoechoic to swollen mesenteric lymph nodes
- Generalized nonuniform hyperechoic mesentery and mild volume peritoneal free fluid

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is consistent with chronic degenerative valvular changes with secondary eccentric mitral valve insufficiency. No other clinical issues, such as LV systolic dysfunction, significant left or right heart chamber enlargement or evidence of clinical pulmonary hypertension were noted. The lack of significant left atrium enlargement indicates that the cardiac presentation at this stage is stable. In a nonclinical patient without evidence of significant chamber enlargement, cardiac medications are not specifically indicated, yet Pimobendan may help prolong cardiac changes associated with mitral valve insufficiency. ECG assessment is suggested for further clarification of the intermittent arrythmia. Recheck echocardiogram suggested in 6 months if clinically indicated.

Although sampling is required for further assessment, primary concern for multicentric round cell hepatosplenic, lymphatic and gastrointestinal neoplasia warranted. Nonneoplastic etiologies, such as generalized inflammation or other possible yet thought less likely. Assuming normal clotting status, hepatosplenic and lymphatic FNA, as well as effusion analysis, cytology +/- culture and sensitivity and potential for oncology consult recommended. Very guarded to potentially unfavorable prognosis, pending additional diagnostics.



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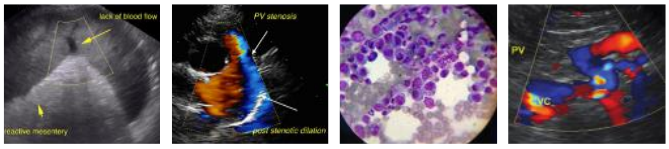

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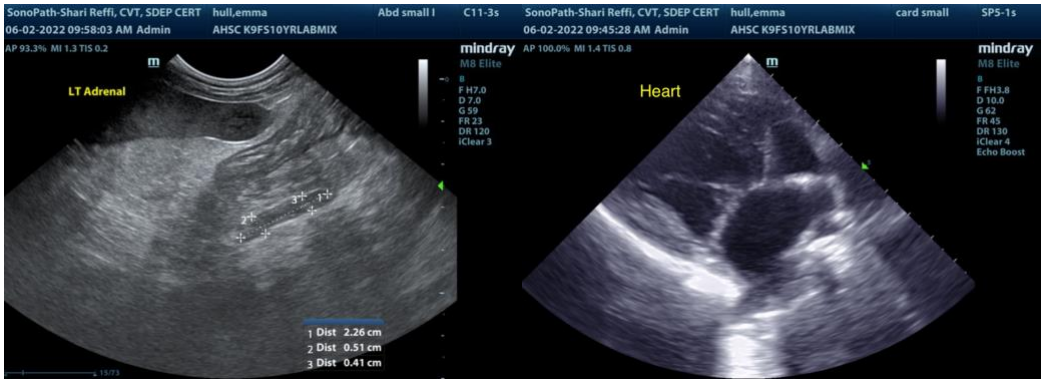

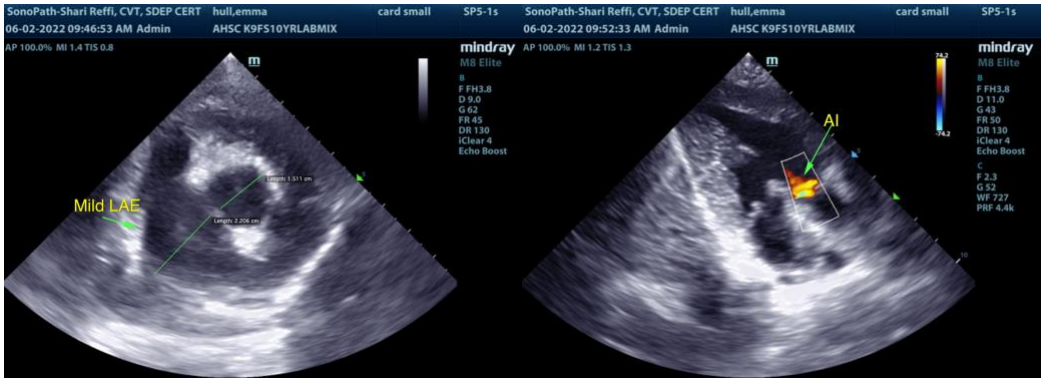

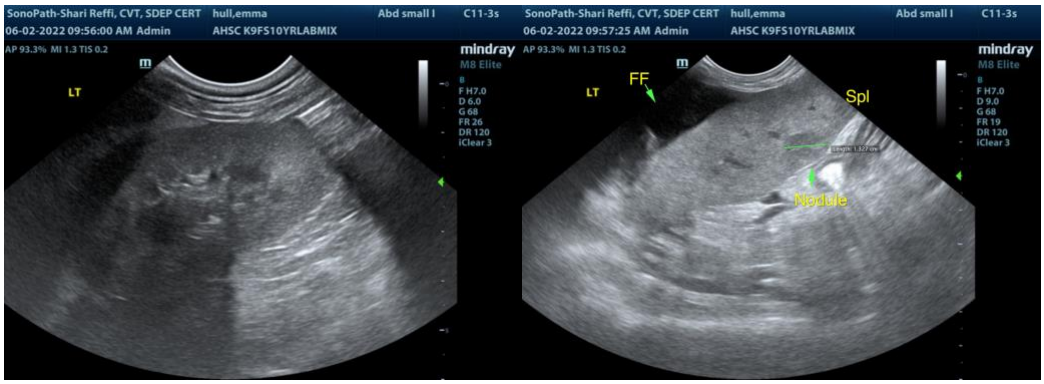

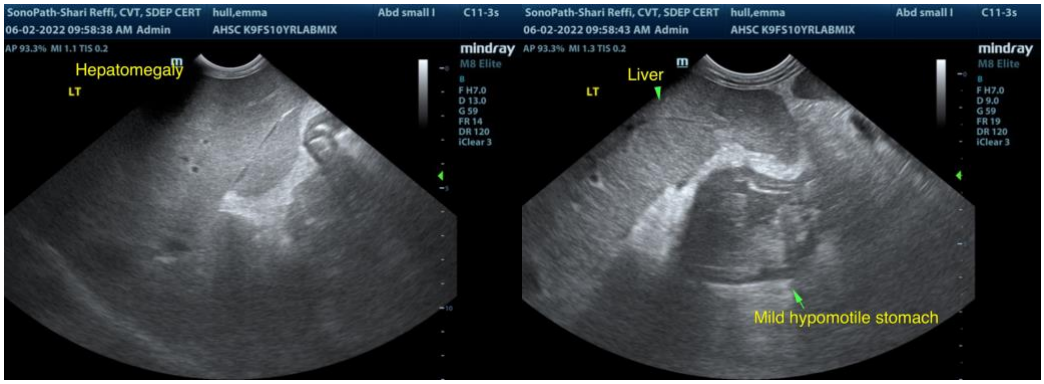

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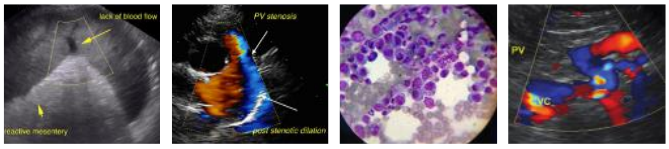

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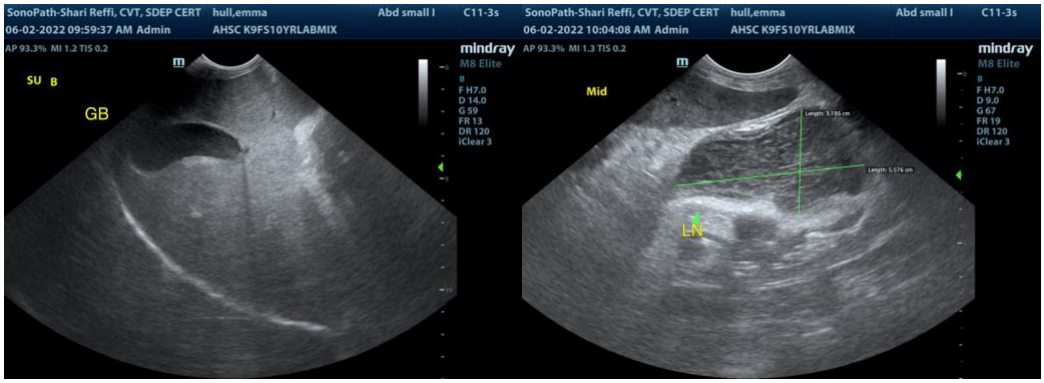

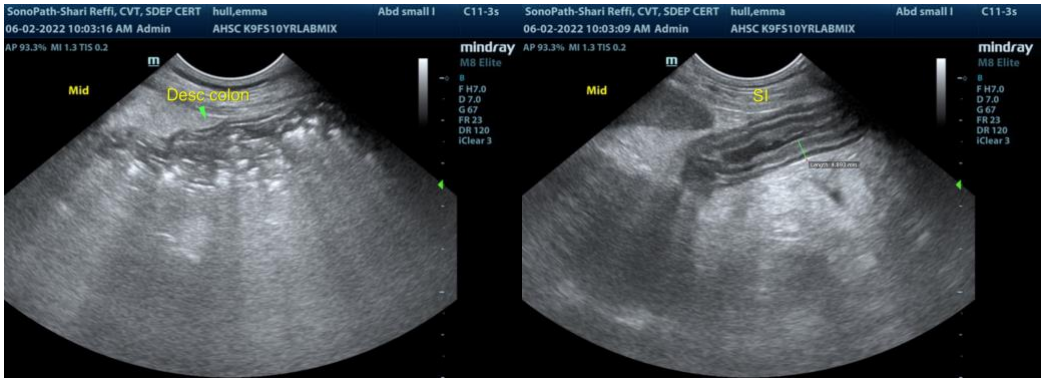

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
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