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Clinical Sonography & Telecytology
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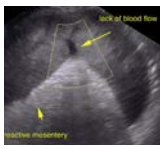
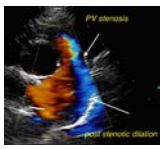
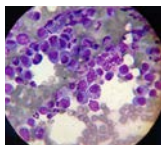
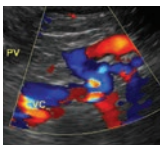

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1-800-838-4268 info@sonopath.com

PATIENT
Samantha Burton

SPECIES
Feline

BREED
DSH

SEX
Spayed Female

AGE
10 Years

WEIGHT
4.8 Pounds

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

IMAGING PERFORMED BY
Kelly Vazquez

HOSPITAL NAME
Animal General on the Hudson

REFERRING VET
Dr. Stefanie Lang

INVOICE
46944

DATE
4/26/23

PRESENTING CLINICAL SIGNS

Patient presents for new heart murmur grade 2/6, history of chronic diarrhea, recent weight loss, vomiting, and now hyperthyroidism. Current med: methimazole.

Abnormal PE/Chem/CBC/UA Results: ALT 104, PSL 27, T4 5.5.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

FELINE CARDIAC PARAMETERS	**BODY WEIGHT** (kg)	**HR** (BPM)	**IVSd** (cm)	**LVIDd** (cm)	**LVWd** (cm)	**FS** (%)	**EF** (%)
NORMAL PARAMETER	------	150-240	0.3-0.6	1.0-2.1	0.25-0.6	35-67	80-100
PATIENT		151	0.43	1.4	0.43	36	69
FELINE CARDIAC PARAMETERS	**LA/AO** (Boon)	**LA/AO HEART BASE** (Sisson)	**LA** 2D 4-chamber long axis AS to FW (Sisson) (cm)		**LVOT VEL.** (m/s)	**RVOT VEL.** (m/s)	**IVRT** (m/)
NORMAL PARAMETER	<1.5	0.88-1.79	0.7-1.7		<1.6	<1.3	40-60
PATIENT	--	1.22	1.2		--	1.0	NM
Adapted from June Boon,Veterinary Echocardiography,1998 Sisson D et al. JVIM 1991; 5: 232, Jacobs et al. Am J Vet Res 1985; 46:1705							

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate LA measurements. The cranial and caudal **mitral** valve leaflets presented normal linear structure and kinetics. No overt MR on doppler. The **left ventricle** presented normal 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 and angles 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 and kinetics. 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 or extra cardiac pathology in the visible planes. The cranial **mediastinum and pericardial regions** were free of masses in the visible window.

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.

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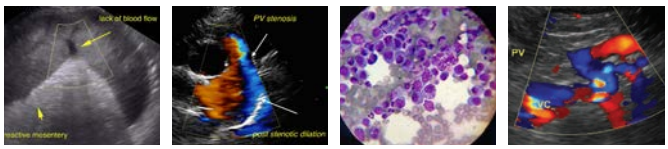

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The area of the aortic trifurcation was free of pathology.

The kidneys were normal in size with asymmetrical renal margination. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. Areas of non-obstructive medullary mineral noted bilaterally with left kidney thinly walled cortical cyst containing anechoic fluid. The left kidney measured 3.7 cm. The right kidney measured 3.4 cm.

Adrenal Glands

The adrenal glands were overtly normal in size, position, and shape. The left adrenal gland measured 0.46 cm. The right adrenal gland measured 0.60 cm.

Spleen

The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. The spleen measured 0.80 cm in width in the mid spleen. 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. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.

Liver

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 proximal to mid common bile duct was dilated and tortuous without overt post hepatic obstruction. Common bile duct measured 0.36 cm diameter. No evidence of ductal calculi or overt mucus. This finding may suggest age related changes or secondary to underlying cholangitis / cholangiohepatitis especially if previous or current liver enzymes elevations have been noted.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. Mild luminal gas present. Gastric body wall measured 0.26 cm.

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. Jejunum wall measured 0.22 cm. Ileocolic wall measured 0.30 cm.

Normal visible colon wall layers were present. The colon contained potential semiformed to soft fecal matter.

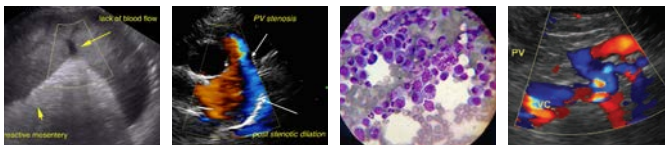
Pancreas

The pancreas exhibited mild to variable enlargement with asymmetrical contour, non-homogeneous, hypoechoic parenchyma. Left limb pancreatic duct dilation noted.

Free Abdomen

No omental masses, lymphadenopathy, or overt peritoneal effusion.

ULTRASONOGRAPHIC FINDINGS



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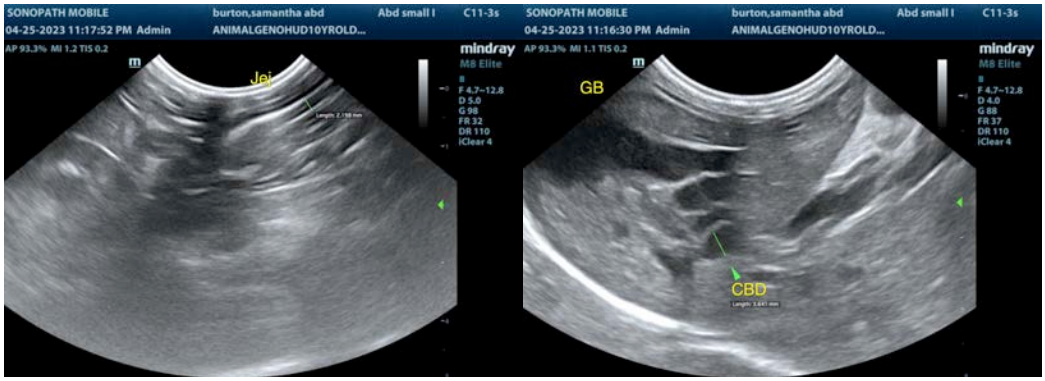
- Moderate chronic renal changes with non-obstructive medullary mineral – likely cortical infarcts and left kidney cysts.
- Chronic to chronic active pancreatitis pattern.
- Hepatic parenchymal remodeling.
- Non-obstructive common bile duct dilation – suspect cholangitis versus age related common bile duct changes.
- Structurally unremarkable gastrointestinal tract.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No evidence of structural or functional cardiomyopathy without a definitive cause of the murmur identified. Assuming no evidence of anemia or dehydration, a benign physiologic or flow murmur is probable, although a small, non-visualized flow abnormality cannot be excluded. Regardless, the lack of left or right chamber enlargement indicate that the hemodynamic effects of the murmur are low. No indication for cardiac medication. Recheck echocardiogram recommended in 6 months, sooner if murmur intensity increases or if clinical signs consistent with heart disease arise. No evidence of HCM criteria.

Even without sonographic evidence of gastrointestinal mural changes, mild to possible chronic inflammatory enteropathy, chronic to chronic active pancreatitis, and potential Triaditis may be primary considerations in this patient. A GI panel to include PLI/TLI/Cobalamin/Folate is recommended. Reassessment of ALT level following therapy for hyperthyroidism is suggested.

Empirically, therapy for chronic to chronic active pancreatitis with as needed gastrointestinal support, which may include canned hydrolyzed diet trial, high colony count probiotic such as Proviable +/- triad disease protocol pending additional diagnostics and assessment of clinical response with monitoring of weight loss going forward would be reasonable.



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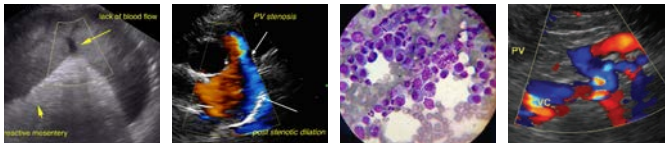

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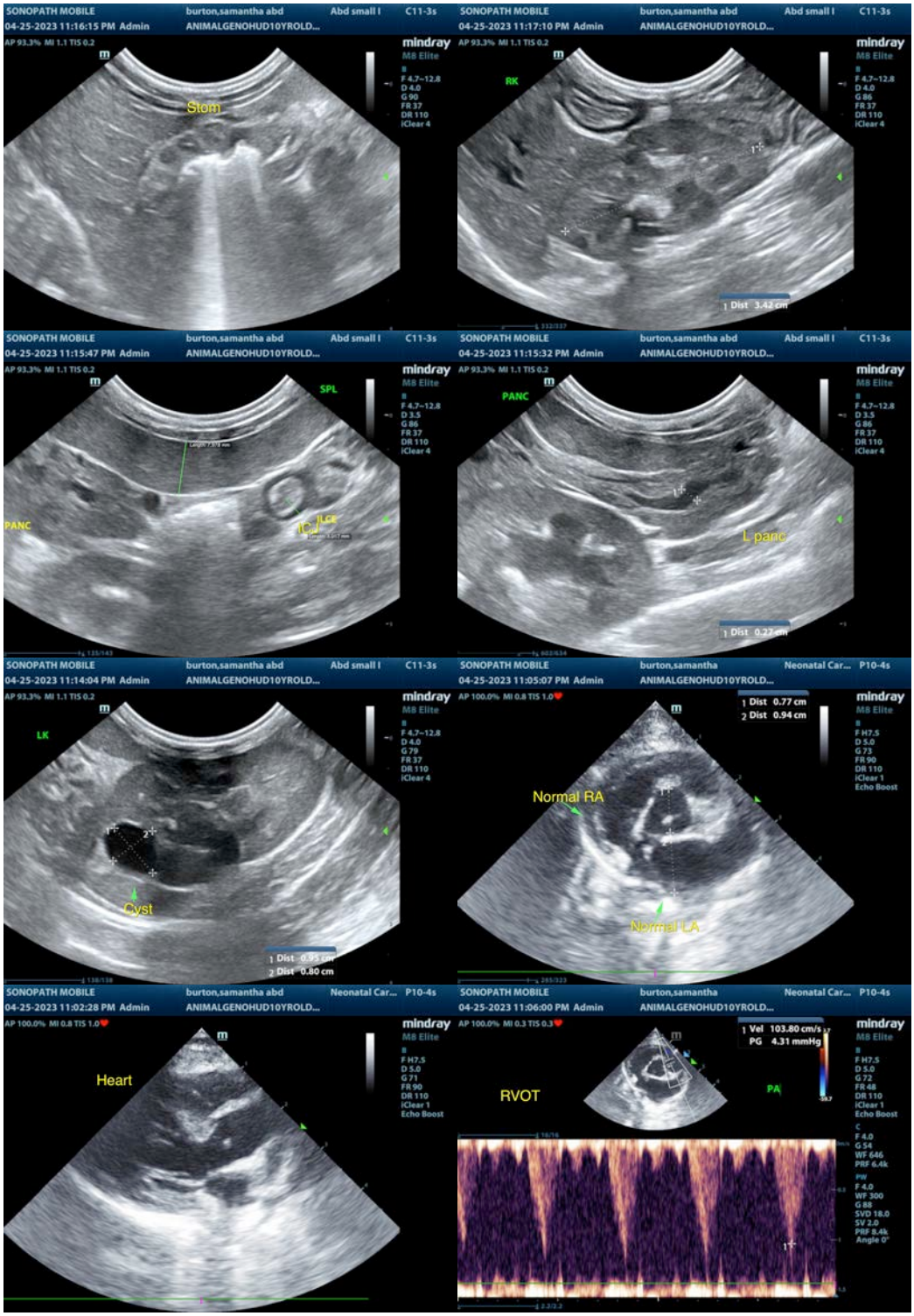

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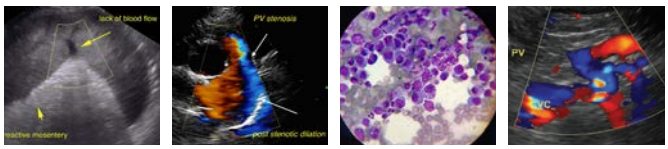

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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