SonoPath
Clinical Sonography & Telecytology
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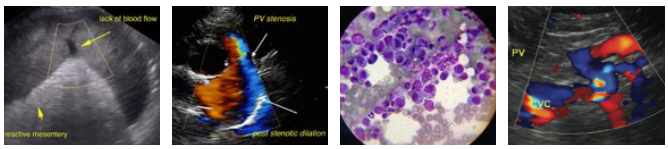


SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Oliver Strowman

SPECIES
Feline

BREED
Maine Coon Mix

SEX
Neutered male

AGE
16 years

WEIGHT
14.8 lbs

INTERPRETED BY
Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY
Dr. Mandeville

HOSPITAL NAME
Bettervet

REFERRING VET
Dr. Mandeville

INVOICE
42545

DATE
2/2/23

PRESENTING CLINICAL SIGNS

History: Presented for behavior change: seems restless, lies in sternal or sitting position. Pain perceived in left paw. Appetite increased but pickier with food. Last 2 months has had a couple of episodes of collapse-seemed spaced out and collapsed but no paddling defecation or urination-last seconds. Has lost weight. Symptoms appeared over months.
Abnormal PE/Chem/CBC/UA Results: Irregular cardiac rhythm, skipped beats with intermittent periods of tachycardia. Lame left fore- dislike manipulation, especially around left elbow. Normal CBC. Biochem: ALT 789 U/l (27-158), AST 146 U/L (16-67) ALP 236 UL (12-59) T4: 10.3 (0.8-4.7)

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes was noted. Ureteral papillae were normal.

The **kidneys** revealed largely normal size and structure, corticomedullary definition and ratio (cortex 1/3 of medulla) were essentially maintained with some age-related loss of curvilinear patterns regarding the capsule and C/M junction. The cortices presented largely uniform texture with some increased echogenicity expected for his age patient. Medullary structure differed distinctly from that of the cortex. The left kidney measured 4.3 cm with slight pyelectasia. The right kidney measured 4.0 cm.

Adrenal Glands

Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The left adrenal gland measured 0.4 cm.

Spleen

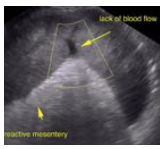
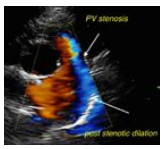
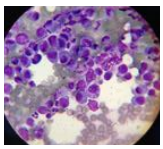
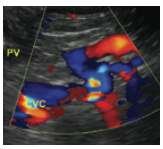
The **spleen** was moderately enlarged and measured 1.5 cm in maximum width. A hyperechoic, lipogranulomatous change was noted and measured up to 0.5 cm.

Liver

The **liver** was structurally unremarkable with slightly increased portal markings. This is consistent with inflammatory hepatopathy and minor, uniform swelling. The gallbladder presented acceptably thin walls with primarily anechoic content. The cystic and common bile ducts were normal.

Gastrointestinal

Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine

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demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

Pancreas

The **pancreas** was hypoechoic to the surrounding fat and was mildly swollen.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The echocardiogram in this patient demonstrated normal **left atrial** size and structure with no evidence of "smoke" or thrombi. The cranial and caudal **mitral** valve leaflets appeared mildly thickened with some insufficiency noted on Doppler. The **left ventricle** presented excessive free wall and septal thicknesses with hypertrophic thicknesses compared to normal for this species. The **myocardium** presented essentially normal echogenicity without immediate signs of fibrotic or ischemic disease. **Contractility** of the ventricular walls was considered excessive for this patient evidenced by the elevated fractional shortening measurement. The **left ventricular outflow** tract demonstrated turbulent laminar flow. Subjective assessment of the **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated linear morphology. The **right ventricle** was of normal size with normal chordae structure, myocardial echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter. No visible **pericardial** or free pleura fluid was noted. No echographically detectable evidence of infiltrative disease was visible. The **mediastinum** was free of masses in the visible window. Arrhythmogenic activity was noted.

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		NM	0.79	1.52	0.75	50	

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	1.4	1.3	1.3	NM	1.2	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

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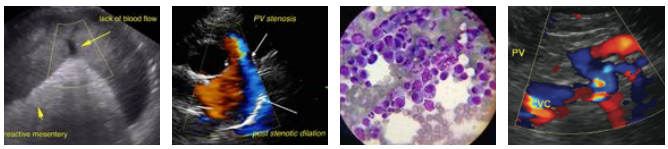

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ULTRASONOGRAPHIC FINDINGS

Splenic enlargement.

Non-specific, mild inflammatory hepatopathy.

Prominent pancreas.

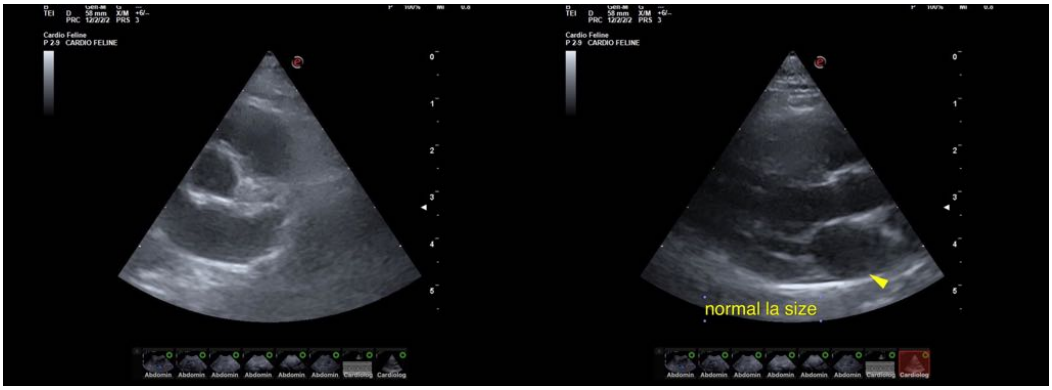
Mild left ventricular hypertrophy with arrhythmogenic activity.

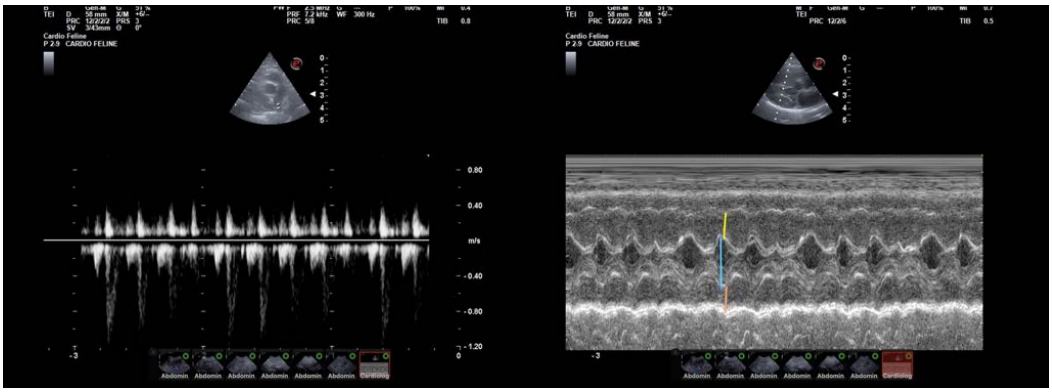
Trivial mitral insufficiency.

Hypertrophic cardiomyopathy phenotype.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

FNA of the spleen and liver is warranted for further definition. There is a mild potential for neoplasia. EKG is indicated. Anti-arrhythmics are likely necessary. Multiple causes of left ventricular hypertrophy such as volume contraction, hypertension and hyperthyroidism is all possible. Anti-arrhythmic therapy is recommended, yet no other cardiac therapy is warranted at this time. Given the weight loss FNA of the spleen and liver is strongly encouraged. There is a mild potential for underlying neoplasia such as emerging lymphoma. Infectious agents in your region should be considered that may be affecting the spleen and myocardium +/- liver.





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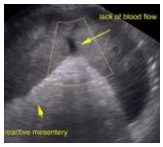

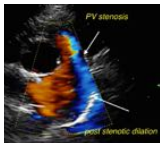

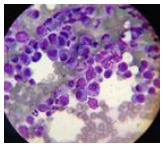
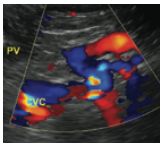

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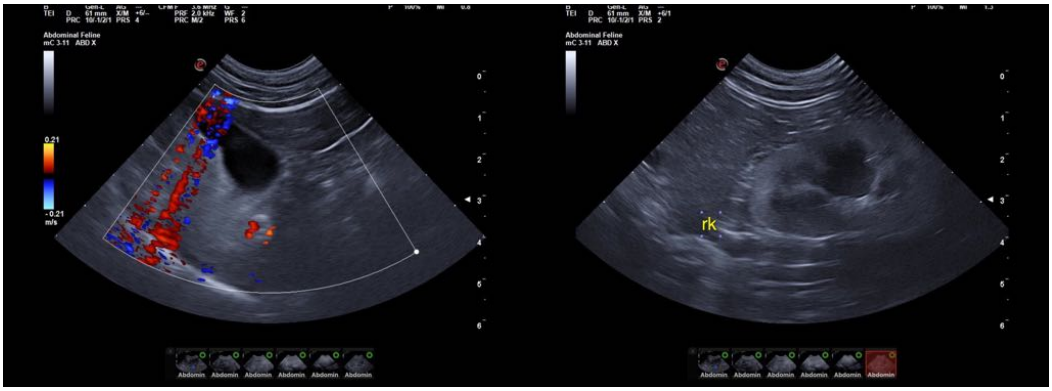

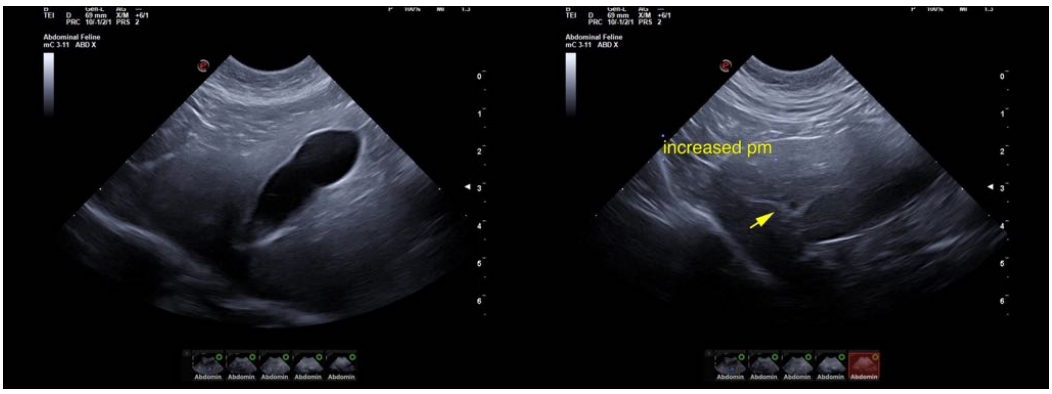

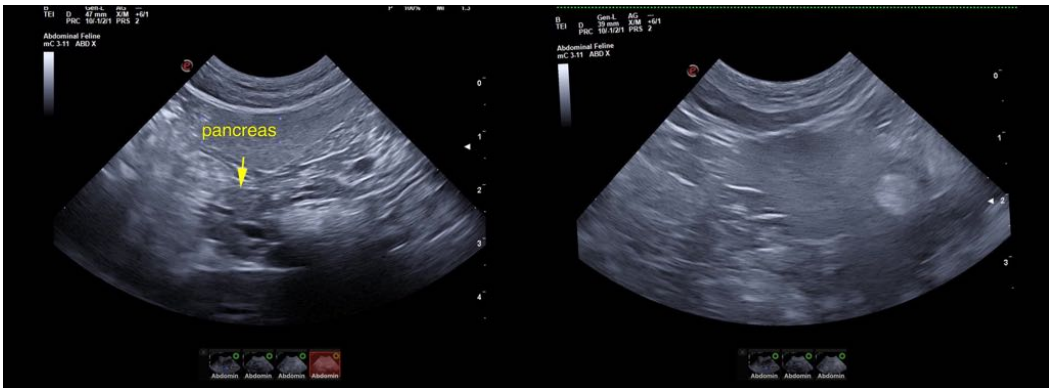

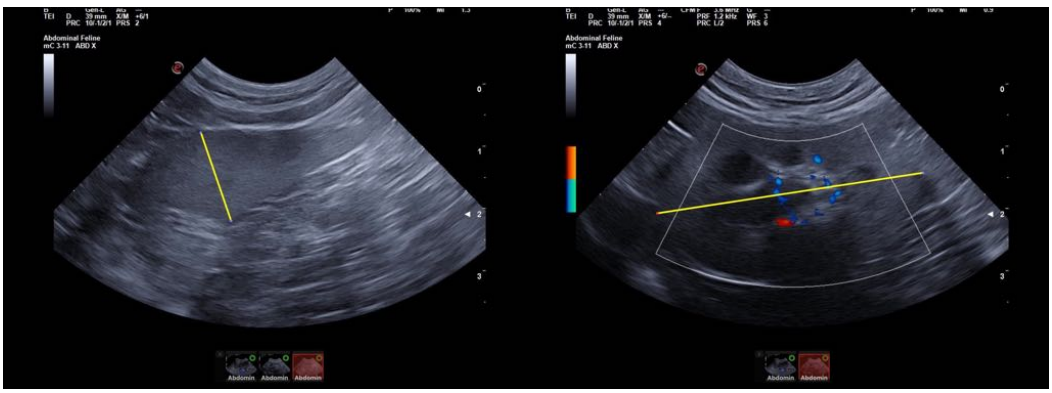

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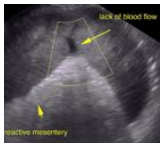
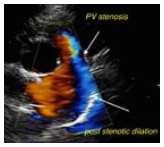
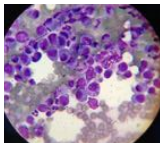
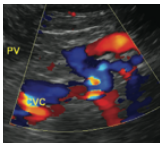

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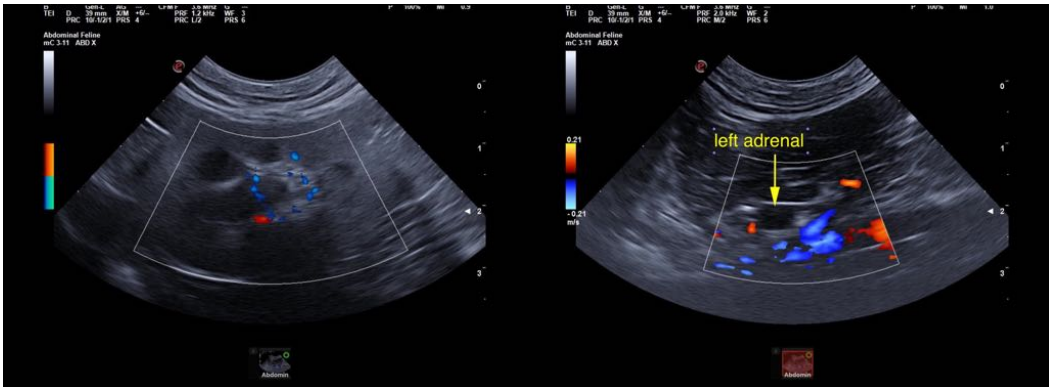

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Eric Lindquist, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com
info@SonoPath.com