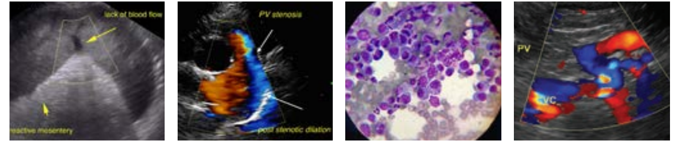
SonoPath
Clinical Sonography & Telecytology

EDUCATIONAL TELECONSULTATION SERVICES™



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

PATIENT

Lucy Gulyas

SPECIES

Feline

BREED

DSH

SEX

Spayed Female

AGE

11 Years

WEIGHT

4.6 kg

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Dr. Callihan

HOSPITAL NAME

Animal Emergency Care

REFERRING VET

Dr. Johnson

INVOICE

25351

DATE

9/12/21

PRESENTING CLINICAL SIGNS

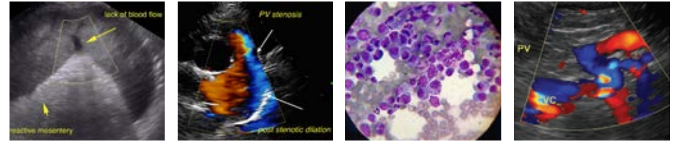
S: Been stressed for days, defecated in tub, straining to urinate small amounts, yowling, urinated on bed, just blood came out. Has had urinary problems in the past, maybe earlier this year (O doesn't remember) and is on (unknown) rx canned diet for urinary issues. Also has hx of chronic vomiting, maybe 2-5x/week. Went to RDVM for this (O doesn't remember when, maybe 1 year ago?) and they did blood work, which O says was normal. A: ddx: Hematuria, stranguria, pollakiuria: r/o UTI, urinary tumor, bladder stones, sterile cystitis. Heart murmur: r/o hyperthyroidism, HCM. Weight loss, chronic vomiting: r/o intestinal neoplasia, IBD, chronic pancreatitis...
Abnormal PE/Chem/CBC/UA Results: Pt stressed, a little grouchy and intermittently panting when she first arrived,; normal vitals; murmur 4/6 pmi right base; BCS 5/9, ambulatory Urine collected via cystocentesis submitted for UA and C&S

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		200	0.8	1.07	0.7	50	80
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	1.07	1.22	1.33		2.32	0.55	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 **left ventricle** presented mild concentric hypertrophy with mild fixed LVOT obstruction and elevated left ventricular outflow velocity. Fixed septal impingement upon the left ventricular outflow tract present, appears compensated at this time. Turbulence noted at the left ventricular outflow tract. Mild systolic anterior motion also noted of the **mitral** valve, however fairly mild at this time. Mild thickening of the mitral valve present. 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 **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.



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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 were noted. Ureteral papillae were normal. The pelvic urethra was imaged 3.0 cm beyond the cystourethral junction.

The **kidneys** presented a relatively uniform cortical hyperechogenicity when compared to the renal medulla, spleen and liver. No overt masses were noted. Corticomedullary definition was nebulous and the ratio favored the cortex slightly. The ureters were not visible and assumed to be normal. These changes are most consistent with chronic interstitial nephritis yet infiltrative disease could not be entirely ruled out without biopsy though neoplasia is not suspected. The left kidney measured 4.18 cm. The right kidney measured 4.23 cm.

Adrenal Glands

The regions of the **adrenal glands** were unremarkable.

Spleen

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes were noted. The spleen was folded upon itself cranially.

Liver

The **liver** revealed mild coarse architecture and increased portal markings. No obvious evidence of neoplasia. The gallbladder and common bile duct were unremarkable.

Gastrointestinal

The **gastric** wall was mildly thickened with some loss of mucosal detail. Lumen was empty. Serosa and submucosa as well as muscularis layers appeared intact. Some stasis was noted in the cecum.

Pancreas

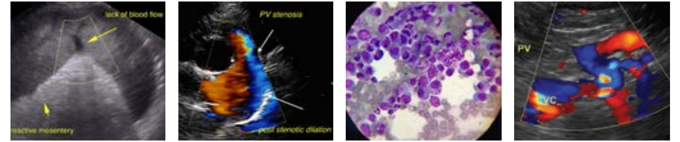
The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Some parenchymal remodeling, however, with mild deviation from curvilinear normalcy was observed. Pancreatic duct and capsular irregularities were present consistent with age related changes. If pain upon imaging (+ Murphy sign) was present or if the patient is focally painful in subxyphoid palpation then low-grade smoldering chronic pancreatitis should be suspected.

ULTRASONOGRAPHIC FINDINGS

- Hypertrophic cardiomyopathy with fixed and dynamic LVOT obstruction – currently compensated.
- Geriatric abdomen findings with mild chronic renal changes, minor intestinal thickening, minor hepatic remodeling. No evidence of neoplasia.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

If any exercise intolerance is an issue, or resting heartrate >200, then Atenolol therapy should be considered. Thyroid levels and blood pressure should be monitored periodically to rule out hyperthyroidism or hypertension induced left ventricular hypertrophy issues. No specific treatment at this time. Recheck echo in 6 months, earlier if clinical signs are present.



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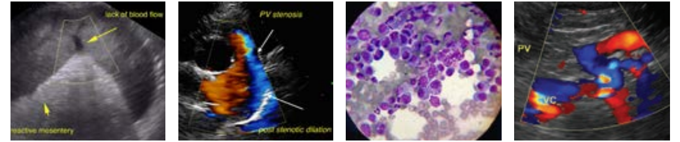
Pain related disease such as spinal or orthopedic pain or environmental factors may be playing a role in the patient history. Mild gastritis likely. No obvious evidence of neoplasia. However, an emerging gastric neoplastic event cannot be completely ruled out and should be monitored. If clinical signs continue, recheck sonogram in two weeks.



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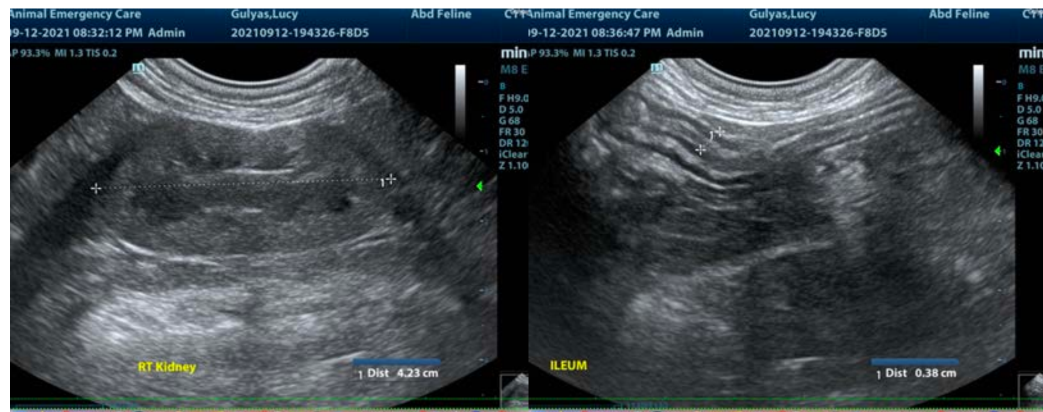

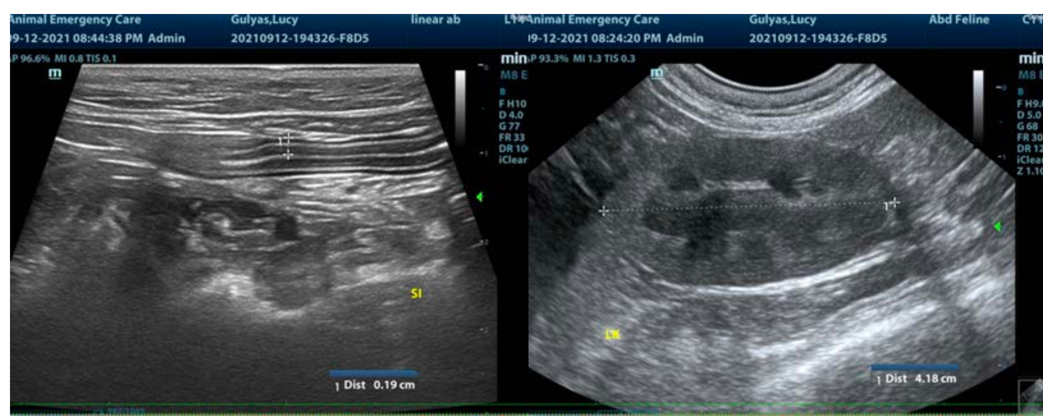

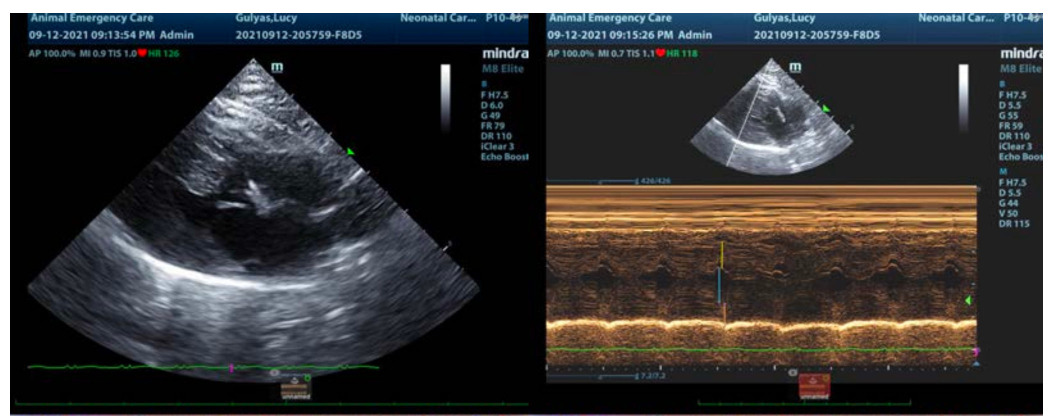

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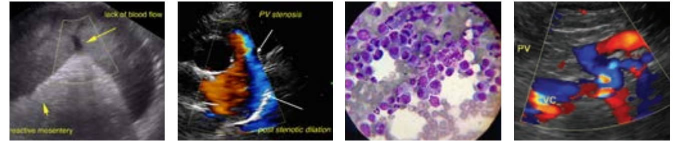

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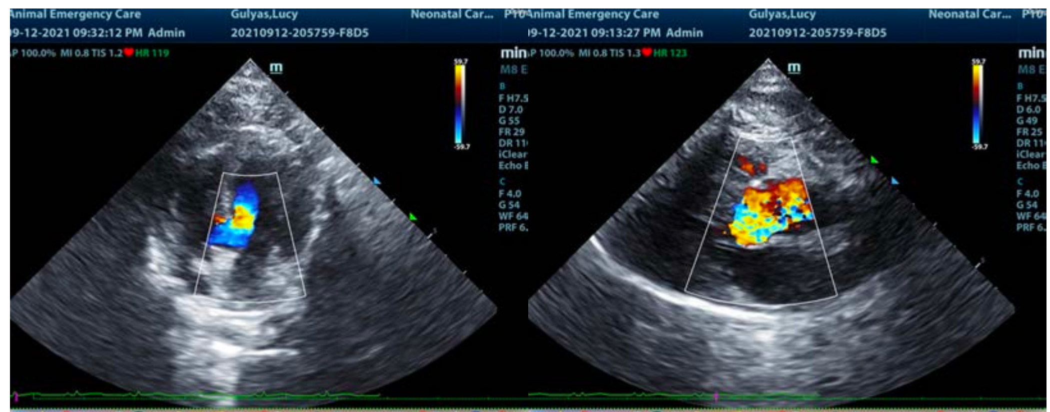

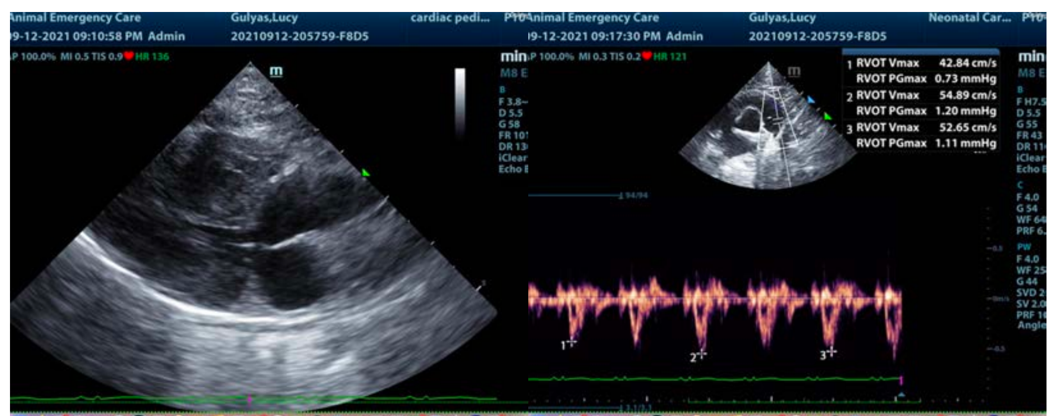

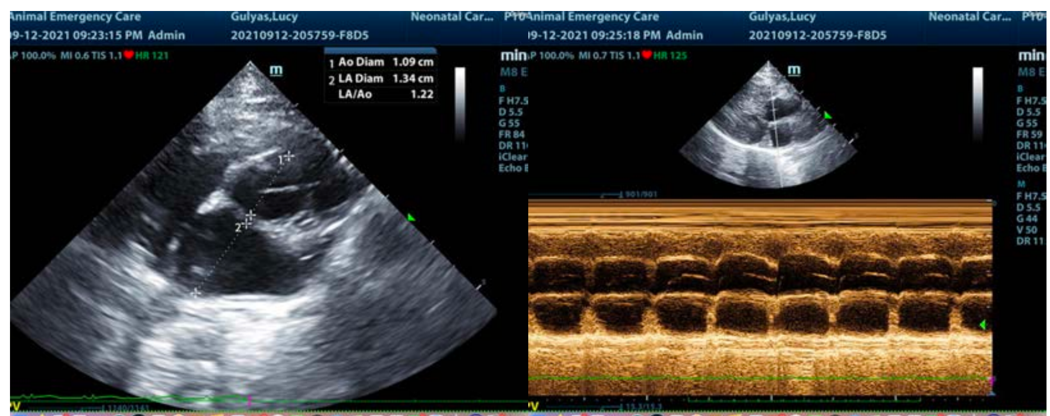

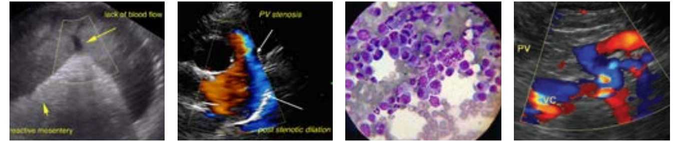

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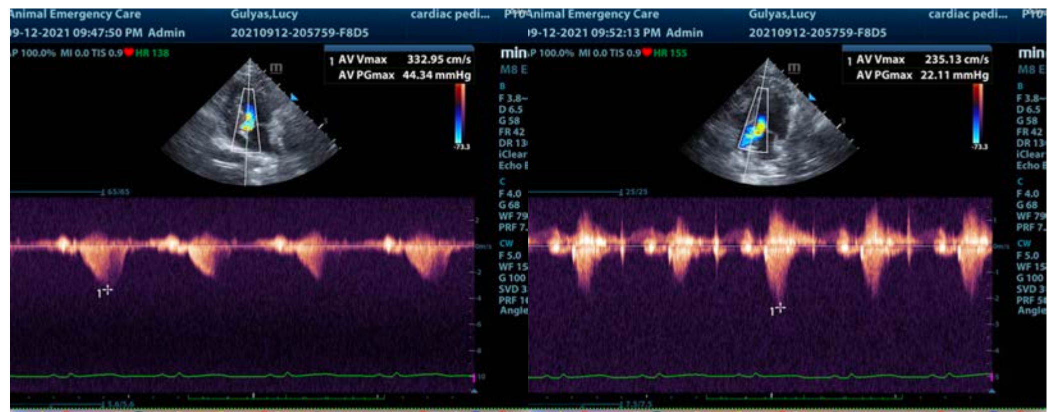

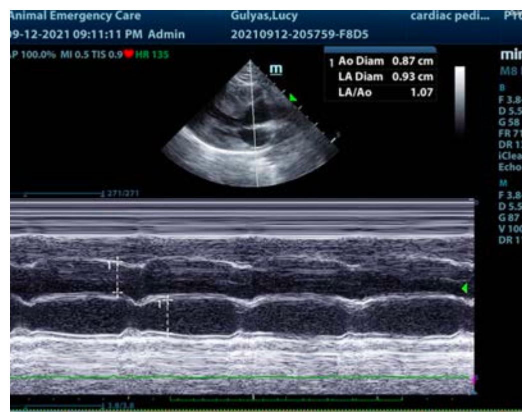

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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