SonoPath
Clinical Sonography & Telecytology
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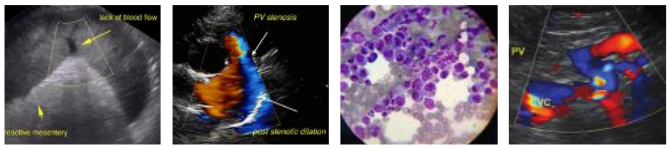


SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Zoe Muniz

SPECIES

Canine

BREED

Jack Russell Terrier

SEX

Spayed Female

AGE

15 Years

WEIGHT

12.7

INTERPRETED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Eric Lindquist, DMV DABVP, Cert. IVUSS

HOSPITAL NAME

Greenwood Lake AH

REFERRING VET

Dr. Streng

INVOICE

22286

DATE

5/2/23

PRESENTING CLINICAL SIGNS

History: Has 2-3/6 Mumur

Current Meds: Phenobarb 15 mg BID

Abnormal CBC/Chem Findings: ALT 194, GGT 220, ALT 2.5

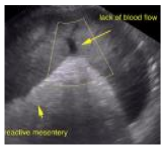
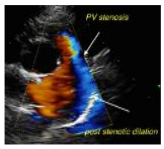
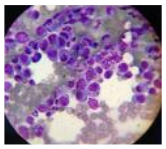
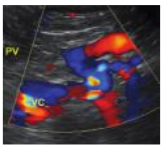
ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

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	5.37	2.0	1.2	1.4	30	60	NM
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	127	1.25	1.0	--	3.4	2.27	--

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. Doppler indicated measurable 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 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.

Urinary System

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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 **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 and no evidence of pelvic dilation was present. The right kidney measured 4.21 cm. The left kidney measured 3.81 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 right adrenal gland measured 1.84 cm x 0.84 cm at the cranial pole and 0.77 cm at the caudal pole. The left adrenal gland measured 1.5 cm x 0.68 cm at the cranial pole and 0.73 cm at the caudal pole.

Spleen

The **spleen** revealed multifocal hyperechoic nodules, measuring up to 1.0 cm with ill-defined hypoechoic nodular changes without disruption of architecture. No capsular expansion was noted. This change is most consistent with hyperplasia. Emerging round cell neoplasia cannot be ruled out.

Liver

The **liver** images from right and left intercostal as well as subcostal views revealed subjectively normal liver size, contour, and structure. Some moderate age-related parenchymal remodeling was noted but likely not clinically significant at this time. Vascular and biliary tracts were of normal volume and no evidence of congestion was noted. The gallbladder presented some dependent debris with essentially normal contour. The cystic and common bile ducts were normal. The caudate process revealed an expansive echogenic hepatoma type mass, measuring 5.0 cm, poorly vascular. This does not appear to be aggressive. This is most consistent with hepatoma. Low grade carcinoma is possible. The hepatoma type mass is possibly resectable.

Gastrointestinal

The **gastrointestinal** tract revealed a moderate IBD pattern. Gastric wall thickening measured up to 8.0 mm. Echogenic mucosal remodeling was noted. Variable portions of intestinal thickening was noted, measuring up to 5.0 mm yet no overt loss of detail. Peristalsis was noted throughout the GI tract. The colonic wall was also thickened.

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.

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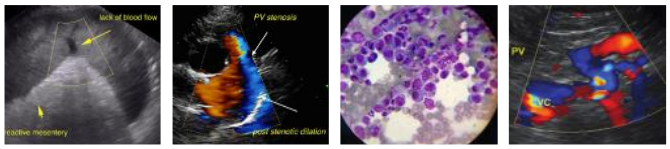

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Free Abdomen

An irregular heterogenous **lymph node** was noted at the mesenteric root, as well as other hypoechoic nodes. The largest node measured 1.86 cm.

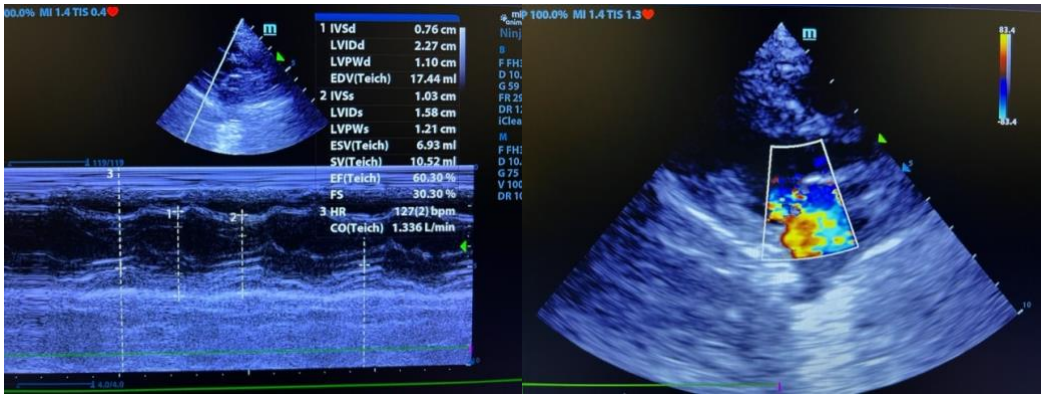
ULTRASONOGRAPHIC FINDINGS

- Stage B-1 valvular disease
- Chronic inflammatory bowel presentation- possibility of emerging round cell neoplasia. No overt neoplastic criteria is noted at the time of the sonogram.
- Multifocal hyperechoic splenic nodules
- Irregular heterogenous lymph node at the mesenteric root. Chronic lymphadenitis is likely.
- Age-related renal, hepatic and pancreatic changes

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Full thickness intestinal and lymph node biopsies would be ideal in this patient given the weight loss. FNA of the spleen and liver (general liver and the liver mass) could also be considered. Empirical treatment for inflammatory bowel is warranted. Enterotoxins and parasites are possible. Hydrolyzed geriatric diet is recommended from an empirical standpoint. Maldigestion panel, three view chest radiographs and full CNS examination is recommended to examine for occult disease that could be responsible for the weight loss. Evaluation for competitive eating environments should also be considered.

The heart is stable without clinical disease. No overt contraindication for anesthesia of brief to moderate duration. I suggest Torbutrol premed, Propofol induction, Isoflo maintenance or similar protocol if anesthesia is desired. Blood pressure recommended if not already performed and target white coat negative systolic pressure of < 160 mmHg. If higher than this ACE-inhibitor is suggested to reach this level. Recheck echocardiogram is recommended in 6 months, earlier if murmur grade increases or clinical signs initiate.



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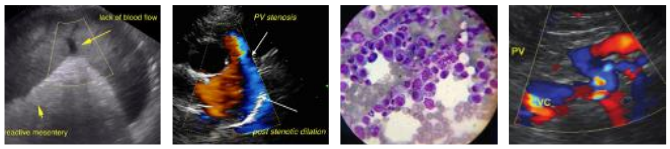

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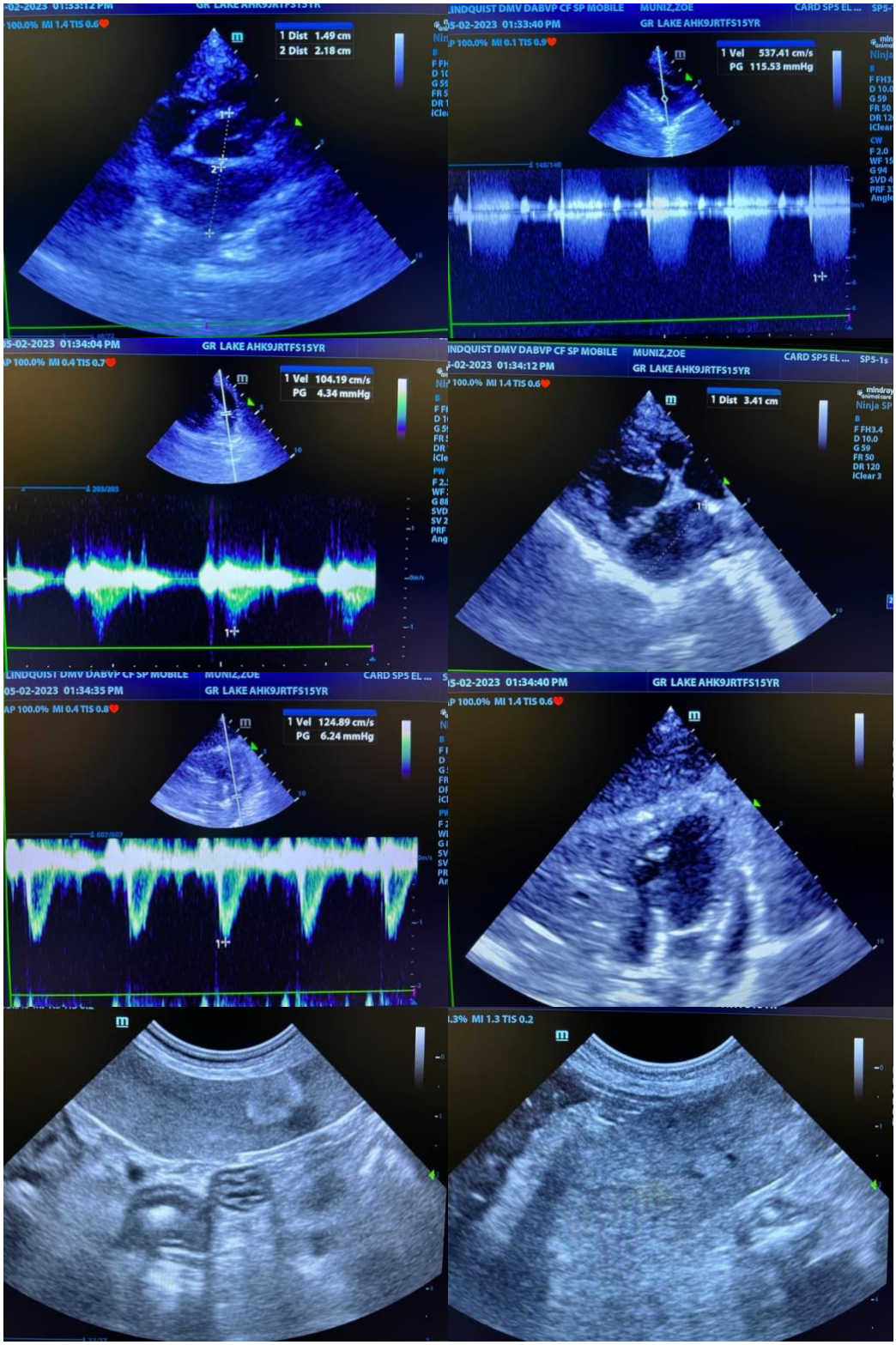

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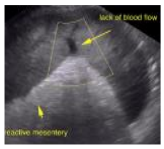
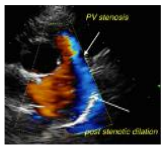
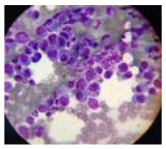
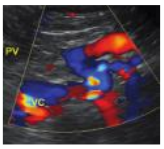

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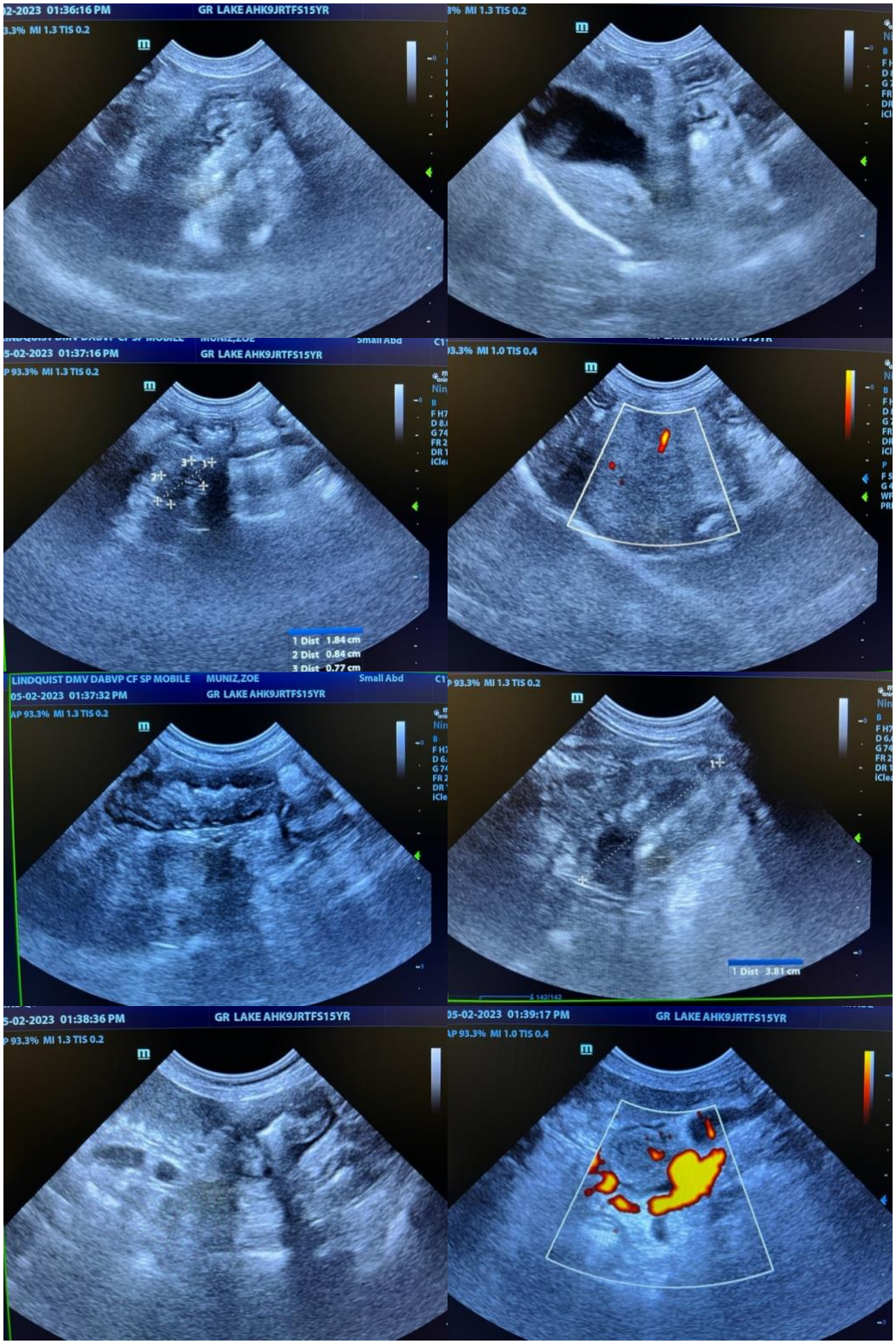

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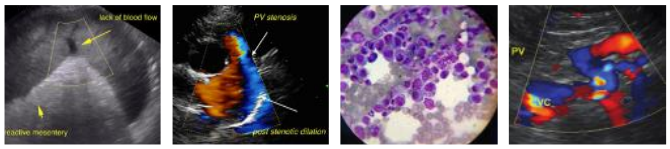

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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