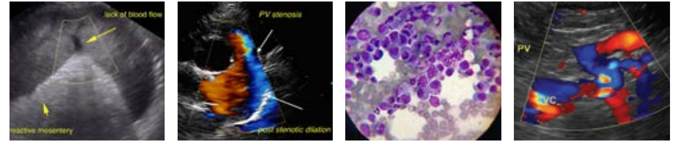

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Zoe Cerf

SPECIES

Canine

BREED

Yorkshire Terrier

SEX

Spayed Female

AGE

15 Years

WEIGHT

4 Pounds

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Kelly Vazquez

HOSPITAL NAME

Midland Park VH

REFERRING VET

Dr. Cerf

INVOICE

26880

DATE

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PRESENTING CLINICAL SIGNS

Patient presents for abdominal ascites, G.I. issues (not eating, being tube fed), no vomiting. Current meds: Metronidazole, dexamethasone, amoxicillin, famotadine, spirinolactone, Lasix. History of broken rib seen on radiographs.
Abnormal PE/Chem/CBC/UA Results: CBC/Chem: NSF 3 weeks ago. U/A: pending.

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	<1.6	28-40	40-100	<0.6
PATIENT			1.15	1.05	24	52	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		1.73	0.56		1.46	1.41	

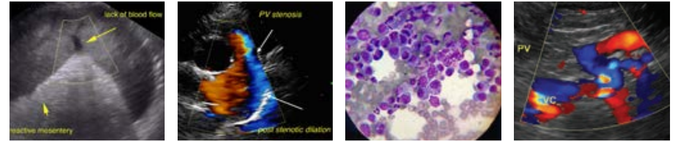
Cardiac Presentation

The right heart in this patient presented a 1:1 ratio right atrium to left atrium. Vegetative mitral and tricuspid changes noted. Vena cava was dilated at 0.81 cm at the level of the diaphragm. Aortic insufficiency also noted at 4.0 m/sec. Mitral insufficiency noted at 5.0 m/sec. Comet tail lung pattern noted in the peripheral lung fields. The septal tricuspid leaflet was dysplastic and vegetative. Significant tricuspid insufficiency noted. The TR velocity was difficult to ascertain. However, given the right-sided cardiac enlargement along with vena cava and hepatic vein dilation and ascites, right-sided failure appeared to be present.

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 **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. Mineralization noted in both kidneys. The left kidney measured 3.01 cm. The right kidney measured 2.89 cm.



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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 0.98 cm x 0.45 cm at the caudal pole and 0.53 cm at the cranial pole. The left adrenal gland measured 1.05 cm x 0.35 cm at the caudal pole and 0.28 cm at the cranial pole.

Spleen

The **spleen** was volume contracted and uniform, mildly heterogeneous.

Liver

The **liver** revealed isoechoic expansive nodular changes up to 1.34 cm. Areas of mineralization noted. A focal mineralized nodule was noted in the left medial liver measuring approximately 1.5 cm. This may represent underlying carcinoma. Significant nodular changes noted throughout the liver with disrupted architecture, particularly in the caudate process. Irregular contour noted to the liver, consistent with cirrhosis. The gallbladder and common bile duct were unremarkable.

Gastrointestinal

The **stomach** revealed mild pyloric hypertrophy. The upper duodenum was also thickened with mucosal remodeling and fogging. Loss of mural detail noted in the duodenum. The upper duodenum had a stricturing pattern to it.

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.

Free Abdomen

Ascites noted.

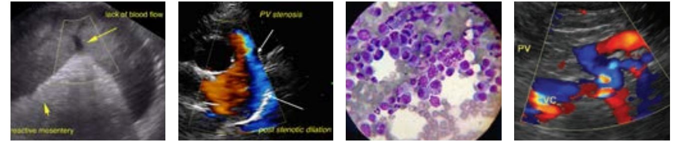
ULTRASONOGRAPHIC FINDINGS

- Mineralized hepatic nodule with diffuse nodular changes throughout the liver
- Significant upper gastrointestinal disease - chronic duodenitis/gastritis with probable ulcerative disease likely
- History of pancreatitis likely

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given the aortic insufficiency, blood pressure measurements recommended to assess for systemic hypertension. The ascites could be justified by right-sided heart failure as well as diffuse liver disease and portal hypertension. The mineralized focus in the liver as well the nodular changes may represent a neoplastic event or hepatic cirrhosis.

FNA of the general parenchyma and the mineralized focus recommended. Recommend bile acid profile in this patient. Regardless of whether the liver presents a neoplastic event, significant disease processes are present in multiple organ systems as well as early right-sided heart failure. Duodenal carcinoma is a potential in this patient versus chronic duodenitis/gastritis.



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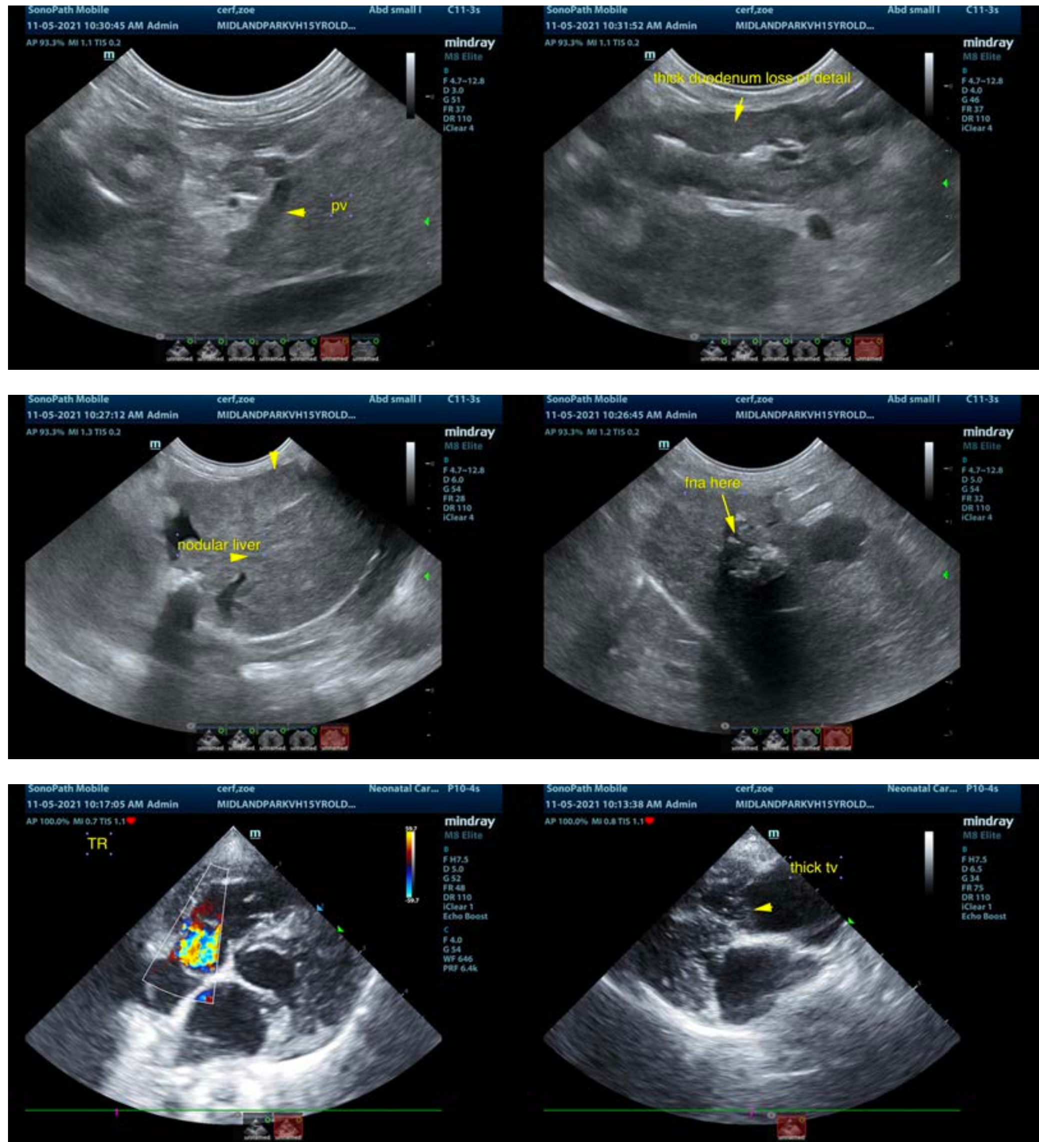
Endoscopy with duodenal biopsies would be ideal as well as liver aspirate or possible biopsy. However, biopsies do carry some level of risk given the ascites present. Given the multiple issues, quality of life should be considered in this patient. Continuation of the Spironolactone, Lasix and possibly ACE inhibitor would be indicted. The Dexamethasone therapy may be suppressing a more significant presentation. Sildenafil trial could also be considered to address the right-sided heart failure at 1 mg/kg BID. However, I'm most concerned about the duodenal and hepatic presentations.



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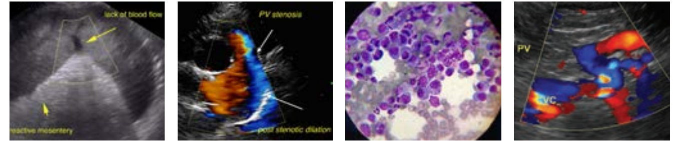

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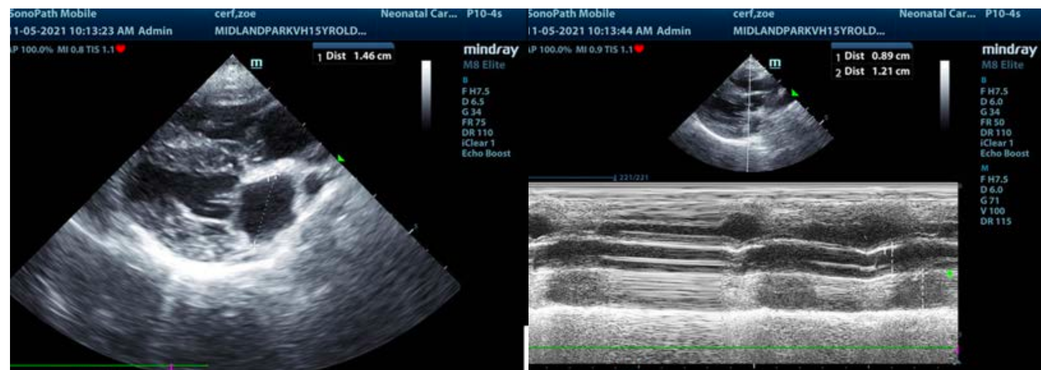

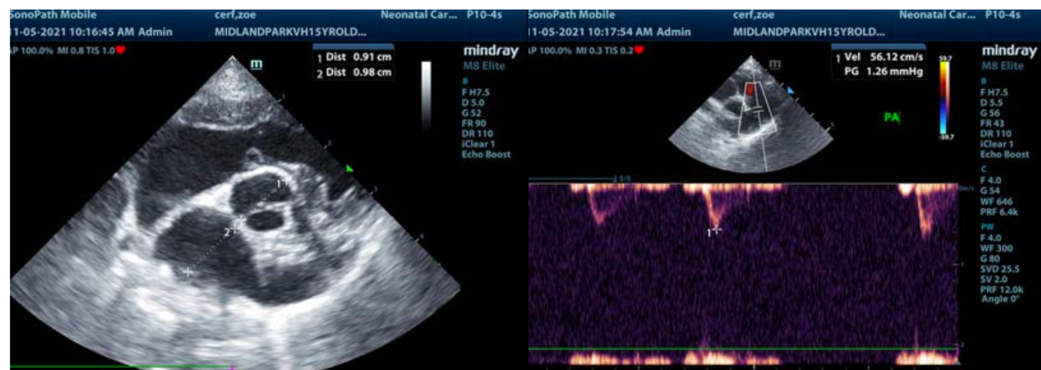

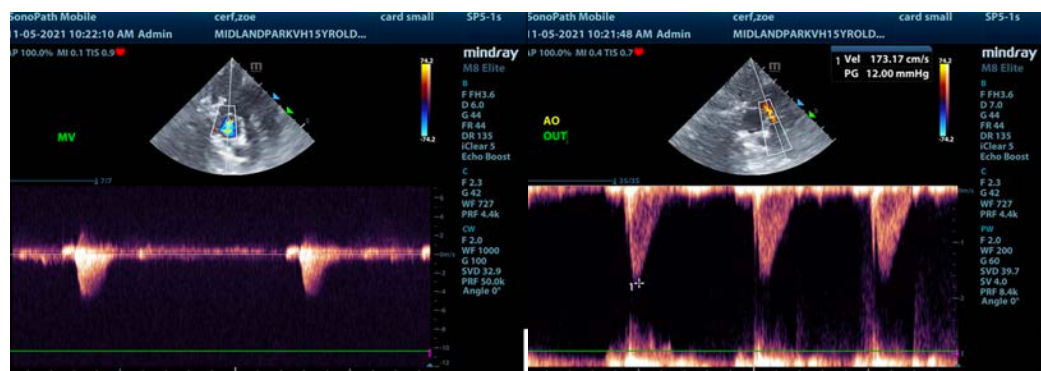

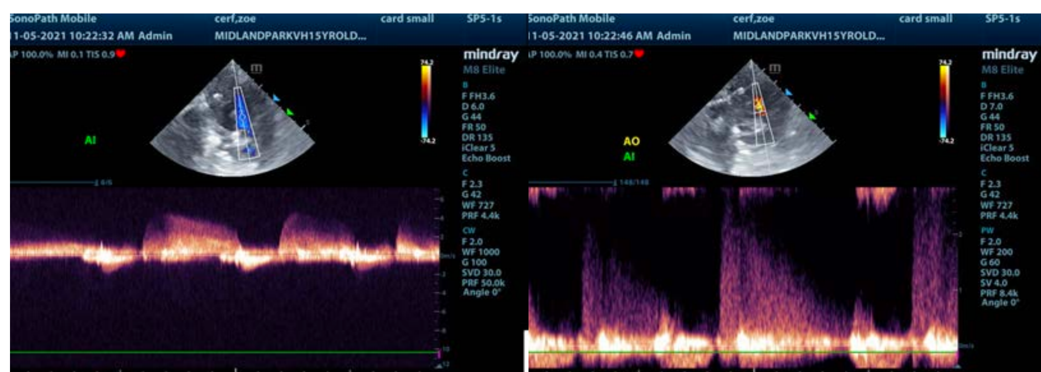

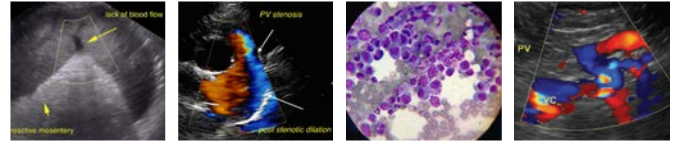

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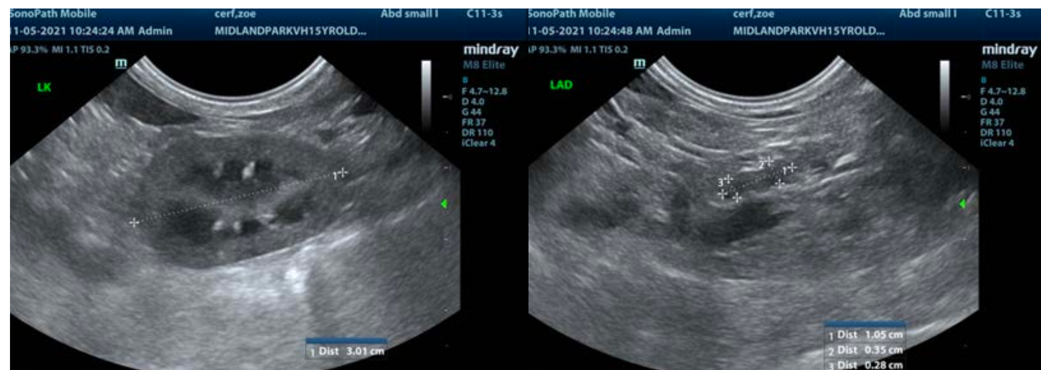

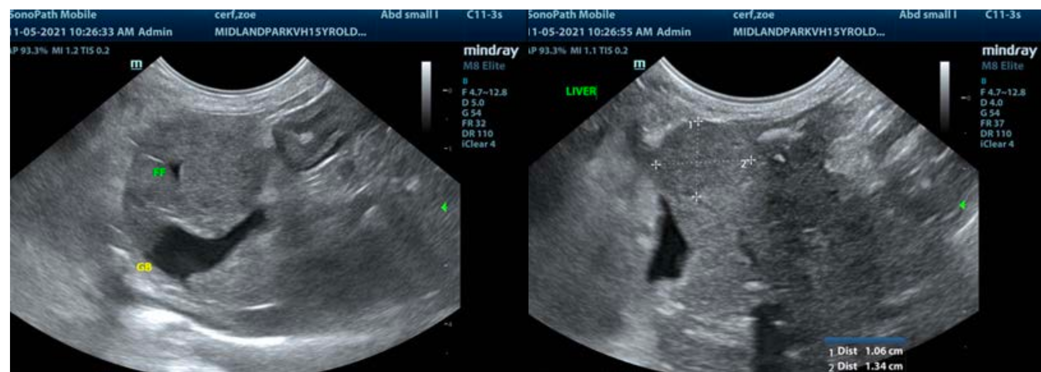

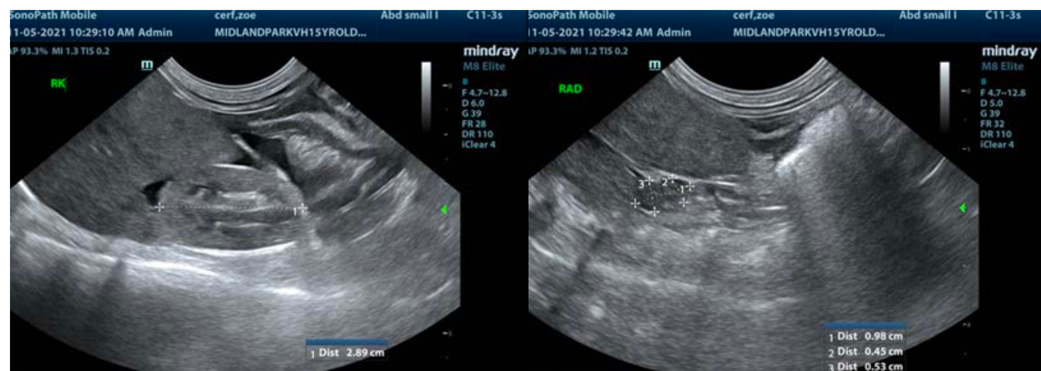

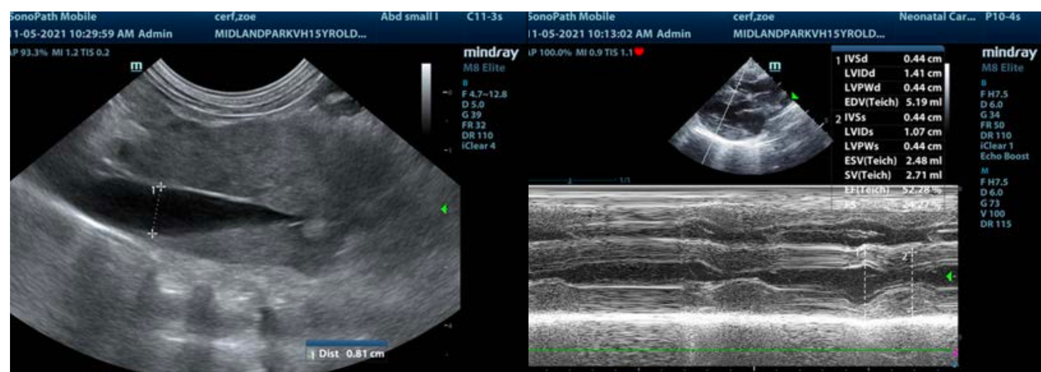

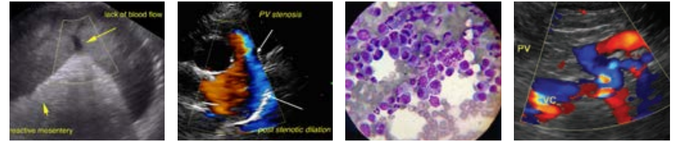

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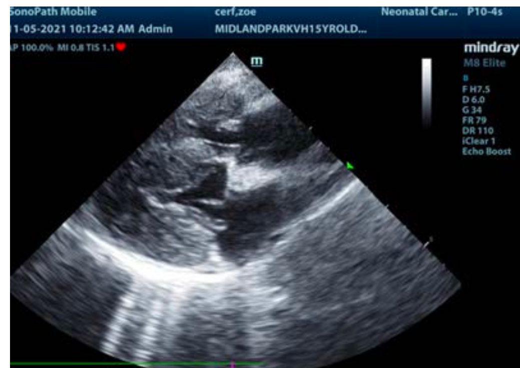

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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