SonoPath
Clinical Sonography & Telecytology
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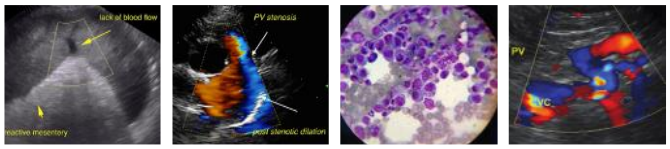


SonoPath.com
1-800-838-4268 info@sonopath.com

**PATIENT**

Gisele Battufarano

**SPECIES**

Canine

**BREED**

Chihuahua

**SEX**

FS

**AGE**

13yr

**WEIGHT**

9lb

**INTERPRETED BY**

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

**IMAGING PERFORMED BY**

Diane McFadden

**HOSPITAL NAME**

Newton VH

**REFERRING VET**

NA

**INVOICE**

12229ag

**DATE**

11/23/2022

## PRESENTING CLINICAL SIGNS

vomiting , anorexia , lethargy, abdominal distension, reduced abdominal serosal detail and possible ST opacity rt cranial lung lobe on rads.

Abnormal PE/Chem/CBC/UA Results: pending

## ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN AND HEART

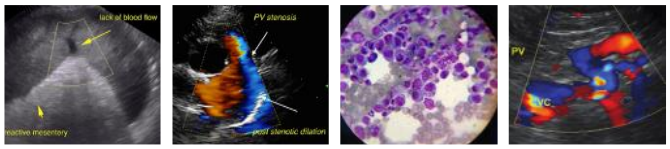
| CANINE CARDIAC PARAMETERS | MR VMAX (m/s) | TR VMAX (m/s) | LA/AO (Boon method) | LA/AO (Heart Base; Swe) | FS (%) | EF (%) | EPSS (cm) |
|---|---|---|---|---|---|---|---|
| NORMAL PARAMETER | 4.5-5.5 | <2.7 | 1.3 | <1.3 | 28-40 | 40-100 | <0.6 |
| PATIENT | | 3.5 | 1.0 | 1.0 | 45.5 | 80 | 0.27 |
| **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 | 149 | 1.1 | 0.6 | | 2.1 | 2.2 | |

### *Cardiac Presentation*

The echocardiogram in this patient demonstrated normal left atrial size based on 3 separate methods of LA evaluation. The cranial and caudal mitral valve leaflets presented normal linear structure, extension in systole, and union in diastole with normal kinesis. No overt MR on Doppler. 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. Normal measured LVOT velocity. The right atrium and auricle revealed mild increased size compared to the LA with normal overall structure and anechoic content with no evidence of masses noted. Tricuspid valvular assessment demonstrated subjective mild thickening with normal kinesis. Mild to moderate TR present on Doppler. The right ventricle exhibited mild prominent size compared to the LV with normal echogenicity and free wall thickness. Pulmonary outflow tract assessment revealed normal valve structure, laminar flow, and diameter compared to the aorta (approx.1:1 pa/ao ratio) with mildly decreased measured RVOT velocity. No visible pericardial or free pleura fluid was noted. The cranial mediastinum and pericardial and extra-cardiac regions were free of masses in the visible window. No evidence of arrythmia was noted.

### *Urinary System*

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra 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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Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and mild loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. Focal areas of non-obstructive medullary mineral were present. The left kidney measured 4.0 cm in length. The right kidney measured 4.7 cm in length

The area of the aortic trifurcation was free of pathology.

### *Adrenal Glands*

Bilateral symmetrical adrenal gland enlargement with mild asymmetrical contour and mildly non-homogenous hypoechoic parenchyma was present. The left adrenal gland measured 0.79 cm width at the caudal pole and 1.9 cm length. The right adrenal gland measured 0.78 cm width at the caudal pole and 1.9 cm length.

### *Spleen*

The spleen exhibited primarily finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Intermittent well-defined, symmetrical, hyperechoic nodules were present throughout the cranial to caudal parenchyma. 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 or neoplastic changes were not noted. The echogenic nodules tend to trend benign and are most consistent with benign hyperplasia or myelolipomas.

### *Liver*

The liver presented subjective mild enlargement. The hepatic parenchyma revealed diffuse reduced echogenicity compared to the spleen and renal cortical parenchyma with a mild coarse echotexture. Increased portal vein prominence was evident. The capsule of the liver was normal in margination. Distinct masses or nodules were not evident. The hepatic and portal vasculature were normal in appearance. No evidence of vascular congestion. The cranial abdominal caudal vena cava at the level of the liver and diaphragm appeared to exhibit normal volume without evidence of congestion.

The gallbladder was mildly distended in size with prominent to hyperechoic walls and moderate non-dependent mildly congealed non-organized echogenic debris primarily along the inner luminal surface with potential for adherence. No evidence peripheral gallbladder inflammation was present. The cystic and common bile ducts were normal.

### *Gastrointestinal*

The stomach presented mild wall thickening secondary to echogenic mucosa hypertrophy. Intact wall layering was maintained and distinct. Mild gastric distension with mild retained primarily anechoic fluid was present.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. Mild upper to mid non-obstructive duodenal ileus was present. The lumen of the small intestine was empty with no signs of ileus, obstruction or foreign material.

Normal visible colon wall layers were present with apparent formed feces in lumen.

### *Pancreas*

The pancreas presented hypoechoic to heterogeneous echogenicity compared to adjacent omental fat. Mild asymmetrical capsule margination was present with mild variable parenchymal swelling and mild peripancreatic reactivity / inflammation. No overt evidence of neoplasia.

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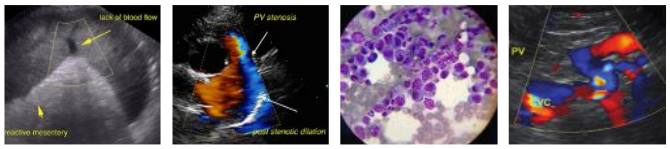


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### *Free Abdomen*

No overt lymphadenopathy was present.

Scant to mild volume peritoneal free fluid.

Mild regional hyperechoic mesentery was present.

## ULTRASONOGRAPHIC FINDINGS

- Normal LA/LV
- Mildly prominent RA/RV-suggestive of mild cor pulmonale
- Mild to moderate TR-estimated pulmonary pressure gradient ~40 mmHg, consistent with mild clinical pulmonary hypertension
- Mild hepatomegaly exhibiting mild parenchyma hypoechogenicity-possible acute hepatopathy
- Cholecystitis pattern with moderate mildly congealed gallbladder debris-possible early gallbladder mucocele
- Gastroduodenitis pattern
- Prominent to hypoechoic pancreas-suggestive of mild pancreatitis
- Bilateral prominent adrenal glands-nonspecific, nor consistent with neoplastic criteria
- Scant to mild peritoneal free fluid

### Secondary findings

- Benign splenic myelolipomas
- Bilateral chronic renal changes with non-obstructive medullary mineral

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Without evidence of hepatic congestive criteria the mild pulmonary hypertension and cor pulmonale does not appear to be the primary cause of the peritoneal free fluid.

Pancreatitis may be considered if evidence of cranial abdominal or subxiphoid discomfort on palpation. Correlation with a spec cPL or a GI panel to include PLI/TLI/Cobalamin/Folate is recommended.

Pending lab work or if hepatic enzyme elevations are present, assuming normal clotting status and using a 25g needle, a hepatic FNA for screening cytology is warranted for further assessment. A leptospirosis titer/PCR may be considered if clinically indicated or if potential exposure/endemic to the area.

A recheck echocardiogram is recommended if clinical signs consistent with pulmonary hypertension or RHF arise, Sonographic monitoring of the liver and gallbladder is recommended pending lab work or if progressive evidence of hepatic enzyme elevation/cholestasis are present.

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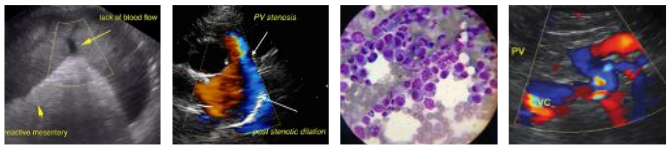


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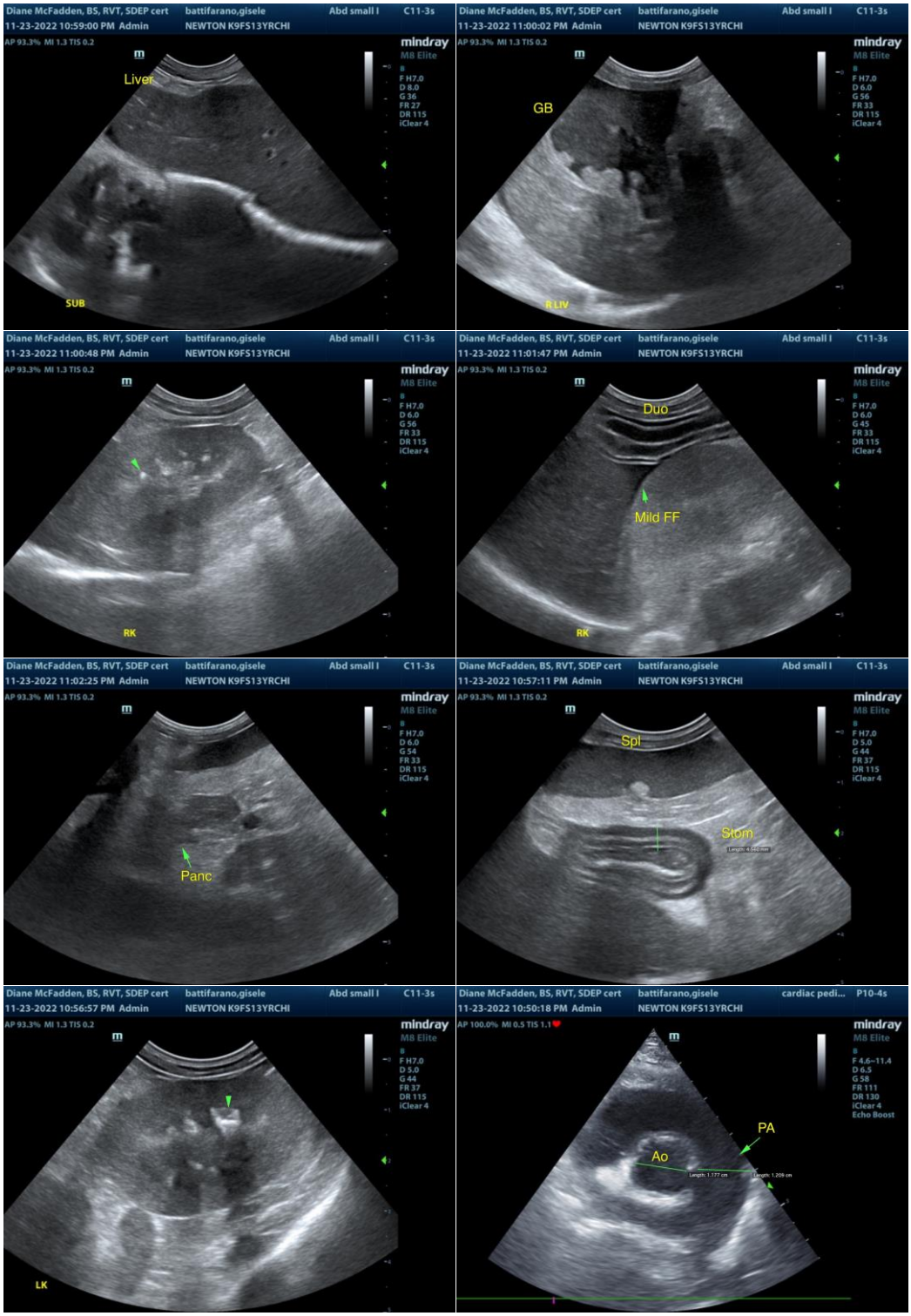

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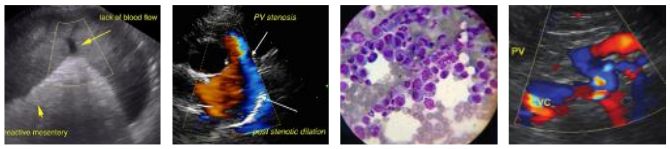

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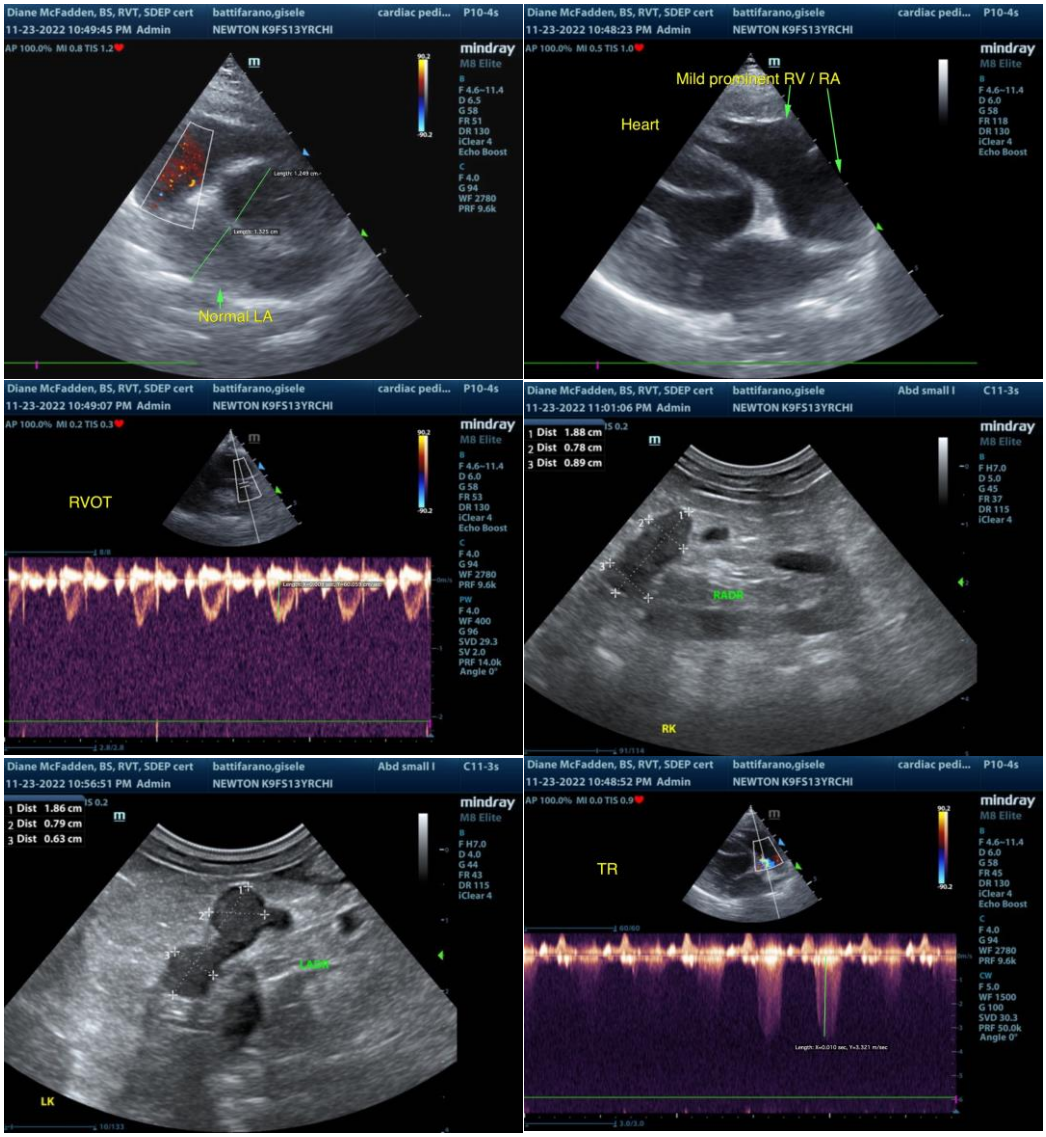


**The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.**

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)**
mac.daniel@sonopath.com