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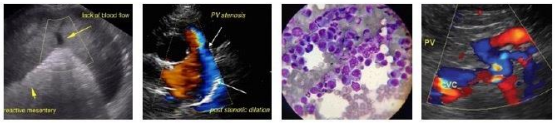


THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

PATIENT
Chloe Gardiner

SPECIES
Canine

BREED
Great Dane

SEX
FS

AGE
9 years

WEIGHT
47.3 kg

INTERPRETED BY
R. McKenzie Daniel, DVM, DABVP

IMAGING PERFORMED BY
Crystal Hill

HOSPITAL NAME
Mohawk AC

REFERRING VET
Dr. Lo

INVOICE
10368ag

DATE
4/13/22

PRESENTING CLINICAL SIGNS

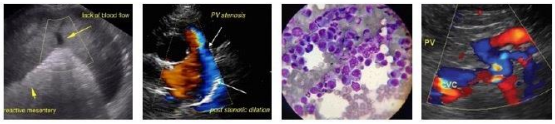
-Seen for chronic cough 3 weeks ago, at the time GPE normal so treated with Doxycycline, and Chloe did not tolerate the Doxycycline well, vomiting diarrhea on it. - Breathing/ coughing condition worsened, with more cough and less energy, breathing heavy whenever trying to do something even just getting up. - Recheck today cardiac auscultation noise not as crisp, HR ~ 108bpm, RR ~ 32bpm when calm. - Painful in abdomen, and spleen suspected to be enlarged. - Oral MM seemed a bit on the pale pink side. Heart murmur approx grade 1/6. No meds.
Abnormal PE/Chem/CBC/UA Results: Please see attached bloodwork and radiographs. - Thoracic radiograph showed overall enlargement of cardiac silhouette and elevated trachea, posterior pulmonary veins appeared distended. - Abdominal radiograph suspect free fluid and cannot locate spleen, intestinal wall appeared mildly thickened. - Bloodwork mostly normal and cPL snap negative

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	NM	3.1	NM	2.9	23.4	46	1.0
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	138	1.5	1.3		9.0	6.6	NM

Cardiac Presentation

The echocardiogram for this patient presented severely excessive left atrial size expressed both in the LA/AO heart base and LA max measurements in the table. Left atrial content was anechoic. No evidence of “smoke” or thrombotic activity was noted. The atrial septum was deviated owing to volume overload and elevated left atrial pressure. The cranial and caudal mitral valve leaflets presented mild vegetative thickening with centralized to mildly eccentric insufficiency noted. The left ventricle demonstrated excessive volume (LVIDd measurement below). Ventricular function was subnormal expressed by the fractional shortening measurement listed above. Myocardium appeared subjectively thin typical of DCM. The left ventricular outflow tract demonstrated normal laminar flow and subjective structural integrity. The right atrium was enlarged without evident overload. No neoplastic evidence was visualized here. The tricuspid valve was found to exhibit mild concurrent thickening with proper extension and closure yet insufficiency was also noted and is clinically significant owing to annulus stretch from volume overload and increased pulmonary resistance. The right ventricle demonstrated mild enlargement. The pulmonic outflow tract presented dilation and



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prominent pulmonic volume. Minor volume pericardial and suspect pleural free fluid were present. No evidence of cardia, pericardial or cranial mediastinal masses 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 was noted.

Normal size and margination was 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 loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 7.7 cm in length. The right kidney measured 8.0 cm in length.

Adrenal Glands

The left and right adrenal glands were not definitively visualized owing to patient size and presence of peritoneal free fluid.

Spleen

The spleen was nor definitively visualized potentially owing to volume contraction or potential displacement owing to peritoneal fluid.

Liver/ Gallbladder

The liver presented enlarged in size with symmetrical yet swollen contour. The parenchyma exhibited conserved uniform parenchyma with normal echogenicity isoechoic to the spleen and falciform fat. The hepatic vasculature was dilated in appearance, most notable at the level of the hepatic vein / caudal vena cava junction, without evidence of thrombosis. The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach was empty with no signs of ileus, obstruction, or foreign material.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. 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 parenchyma of the left limb, body, and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease were evident.

Free Abdomen

Moderate volume ascites was present with generalized reactive mesentery, no overt evidence of omental lymphadenopathy or omental masses was observed.

ULTRASONOGRAPHIC FINDINGS

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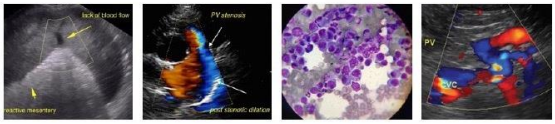

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Cardiac

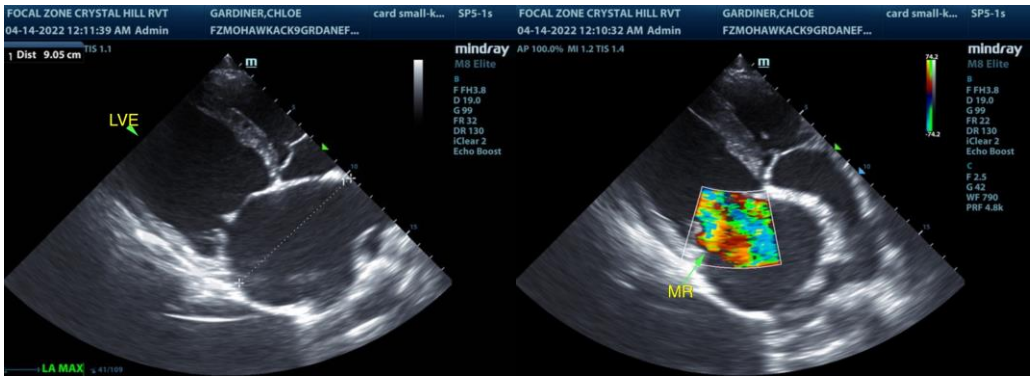
- DCM like cardiomyopathy exhibiting severe LA enlargement, left heart volume overload and LV systolic dysfunction.
- Mild TR-estimated pulmonary pressure gradient consistent with mild elevated pulmonary pressures.
- Mild volume pericardial and suspect pleural free fluid.

Abdomen

- Congestive hepatopathy pattern.
- Moderate volume ascites and generalized reactive mesentery.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Unfortunately, this patient has severe cardiomyopathy and systolic dysfunction. This is likely resulting in dilation and volume overload primarily of the left heart. Concurrent MR/TR was noted with mild elevated pulmonary pressures. The left heart volume overload is suspected to be a contributing factor to increased pulmonary pressure and pulmonary hypertension. The presentation may indicate primary cardiac disease (DCM) or possibly secondary to taurine deficiency if clinically applicable, hypothyroidism, myocarditis or possible infiltrative disease such as lymphoma. In a geriatric large breed, primary DCM is a reasonable diagnosis. The cause of ascites as well as pericardial and pleural free fluid is consistent with CHF. Correlation with abdominal effusion analysis and cytology is suggested. The prognosis going forward is extremely guarded to poor with high potential for continued episodes of CHF, development arrythmias or sudden death. Pimobendan 0.3 mg/kg PO BID, Lasix/spironolactone combination 1-2 mg/kg PO BID +/- taurine supplementation if clinically indicated is suggested. Monitoring of renal parameters, ECG and BP is advised. Prophylactic abdominocentesis may be indicated. Recheck echocardiogram suggested in 4-6 weeks, sooner if progressive cardiac signs or ascites are noted.



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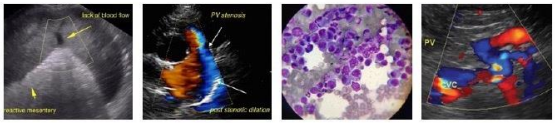

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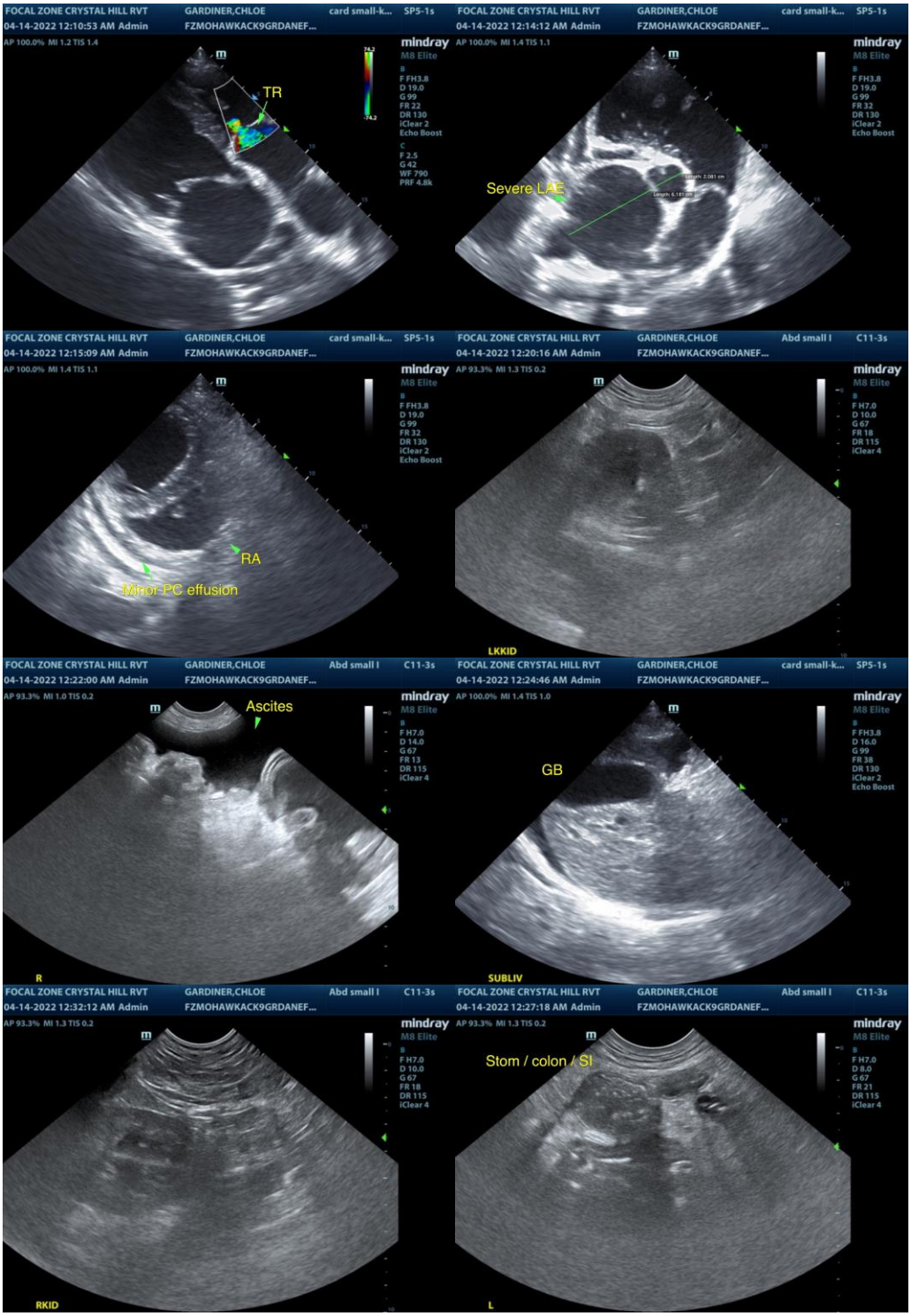

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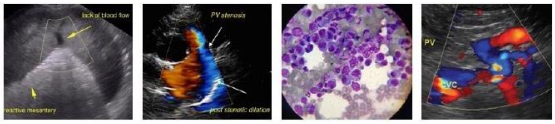

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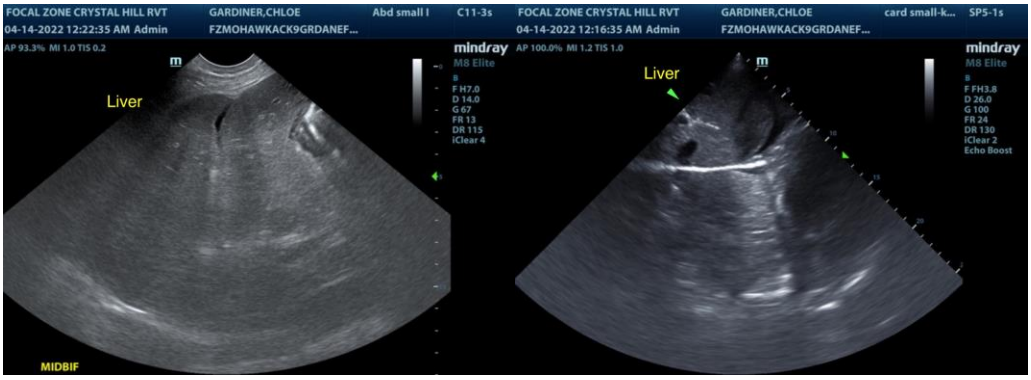

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)
info@SonoPath.com