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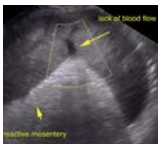
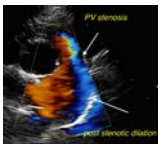
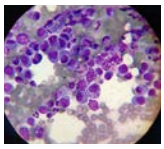
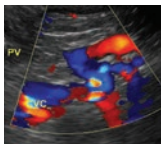
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™

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

PATIENT
Lola WW

SPECIES
Canine

BREED
Yorkshire Terrier

SEX
Intact Female

AGE
7 Years

WEIGHT
10 Pounds

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

IMAGING PERFORMED BY
Kelly Vazquez

HOSPITAL NAME
Animal Paradise

REFERRING VET
Dr. Elshafie

INVOICE
25146

DATE
9/2/21

PRESENTING CLINICAL SIGNS

Pleural effusion, possible thoracic mass.
Abnormal PE/Chem/CBC/UA Results: WBCs 28.94, neut. 25.12, Chem: albumin 1.4, Ca 6.2, TP 2.7, glob. 1.3.

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		<1.0	NM	1.25	45	79.8	0.2
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	97	NM	0.7		2.0	2.0	

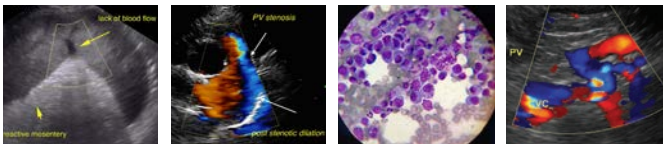
Cardiac Presentation

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. 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. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonary outflow** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). Moderate free pleural fluid was noted. No overt evidence of concurrent pericardial free fluid, although cannot be definitively excluded. Potential for focal non-homogeneous nodular lesion adjacent to the heart, potentially within the adjacent thoracic cavity, measuring approximately 2.0 cm x 2.0 cm.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 cm 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.

No overt pathology in the area of the uterus or bilateral ovaries, although both were indistinctly visualized owing to peritoneal free fluid and regional omental artifact.



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Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and normal corticomedullary definition were maintained. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex with no evidence of pelvic dilation. The left kidney measured 3.6 cm. The right kidney measured 4.3 cm.

Adrenal Glands

No obvious pathology noted in the area of the adrenal glands.

Spleen

The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical 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, neoplastic, or benign parenchyma changes were not noted.

Liver

The liver was subjectively normal in size, structure, and contour. The liver parenchyma was uniform and hypoechoic to the spleen with a mild coarse echotexture. The hepatic and portal vasculature were normal in appearance without signs of congestion. 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 contained echogenic, nonshadowing ingesta most consistent with post prandial presentation without signs of ileus, obstruction or foreign material.

The small intestine presented intact yet subjective prominent wall layering owing to generalized propensity for prominent mucosal layer. Subjective mild increased mucosa echogenicity noted secondary to mild subjective mucosal fogging. The lumen of the small intestine was empty with no signs of ileus, obstruction or foreign material. Duodenum wall measured 0.38 cm. Jejunum wall measured 0.37 cm.

The colon was sonographically normal, yet exhibited mild subjective distention, containing non-formed feces.

Pancreas

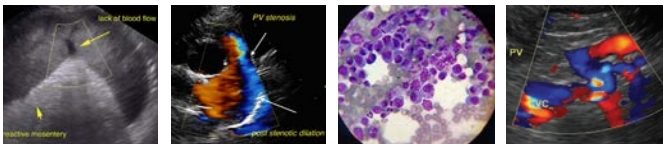
The parenchyma of the left limb, body and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease was evident.

Free Abdomen

Mild concurrent peritoneal free fluid was present with generalized reactive mesentery. No overt lymphadenopathy.

ULTRASONOGRAPHIC FINDINGS

- Overtly normal cardiac structure and function
- Possible pericardial/thoracic nodular mass lesion
- Bicavitary effusion
- Suspect enteropathy – potential for protein losing enteropathy given the panhypoproteinemia and in light of breed.



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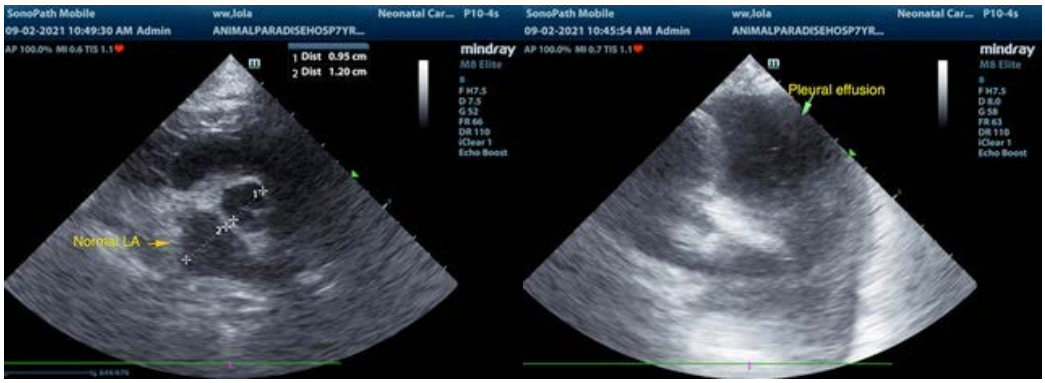
- Sonographically unremarkable liver – no overt hepatic congestion.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The bicavitary effusion in this patient may be multifactorial in origin, yet given the panhypoproteinemia, bicavitary effusion secondary to decreased oncotic pressure is considered a primary rule out. No overt evidence of cardiogenic bicavitary effusion given the lack of significant right heart enlargement or evidence of clinical pulmonary hypertension. Protein losing enteropathy may be considered a primary differential diagnosis in this case given that panhypoproteinemia, presence of non-formed feces within the colon and in light of breed. The possibility of neoplastic derived effusion given the potential for focal pericardial to thoracic nodular lesion may also be possible. Correlation with effusion analysis, cytospin cytology +/- culture and sensitivity if clinically indicated. No overt indication for cardiac medications at this time. Pending effusion diagnostics, empirical therapy for protein losing enteropathy including plasma expanders given the panhypoproteinemia would be appropriate. The nodular mass lesion noted in the thorax may potentially be a reactive lymph node. Further monitoring pending PLE therapy indicated.

PLE Therapy
Part or all of this protocol may be considered based on your clinical impression of the patient:

OBJECTIVE: keep albumin levels > 2 g/dl, avoid thromboembolism and cavitary effusions, monitor concurrent PLN (Wheaton Terrier PLE/PLN) and liver disease:
Plasma 10 mL / kilogram IV over 4 hours
Or **Human albumin** 2 ml/kg/h over 10 hours. Total daily volume 20.l/kg/day
And Colloids/Hetastarch
10 to 20 mL per kilogram per day and dogs
10 to 15 mL per kilogram per day cats
(Can bolus first 1/3 of dose over 15 minutes)
& maintain on LRS maintenance otherwise.
Metronidazole (10-20 mg/kg po bid)
Famotidine 1 mg/kg Iv Im po dc Sid /bid
Sucralfate 0.5-1 g po tid dogs, 0.5 g bid cats in slurry **Or Misoprostol** 1-5 ug/kg po tid
Diet: Highly digestible high quality protein, low fiber, low fat diet (< 15% of dry matter). Hydrolyzed protein or novel protein. Purina HA or Royal Canine HP or similar.
Prednisone or prednisolone 2 mg/kg bid x 3-5 days then 2 mg/kg sid. **Chlorambucil** in refractive severe IBD/alimentary lymphoma cases (monitor cbc for rare bone marrow suppression) 4 mg/m^2 Q 24-48 hours.
Cobalamine (B12) 250-1500 ug/dog weekly x 6 weeks.
Calcium supplementation if necessary.
Aspirin 0.5-1 mg/kg/day **or Clopidrel** (Plavix) 1-5 mg/kg/day.



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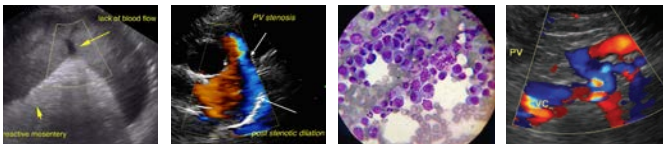

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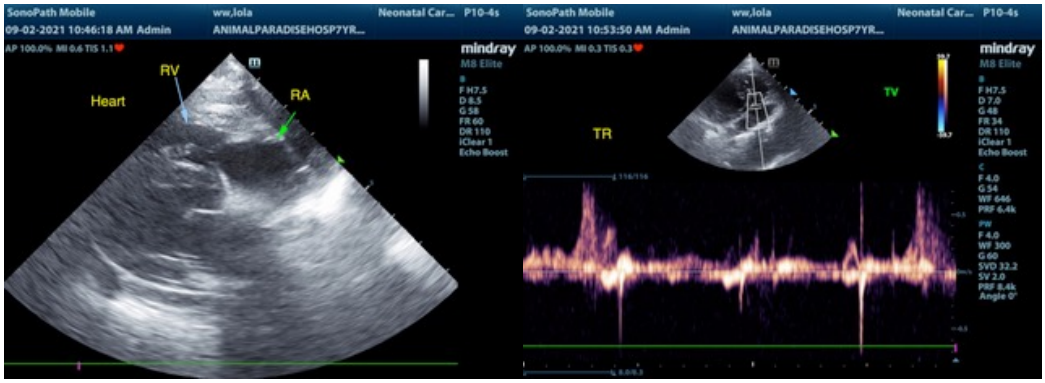

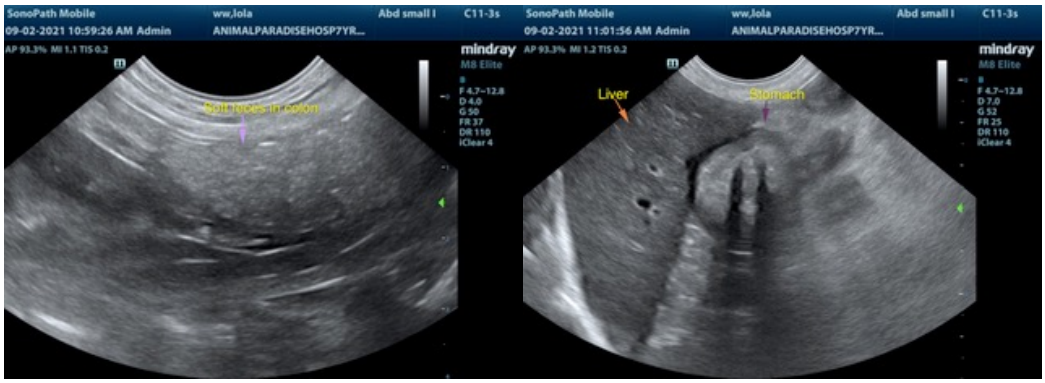

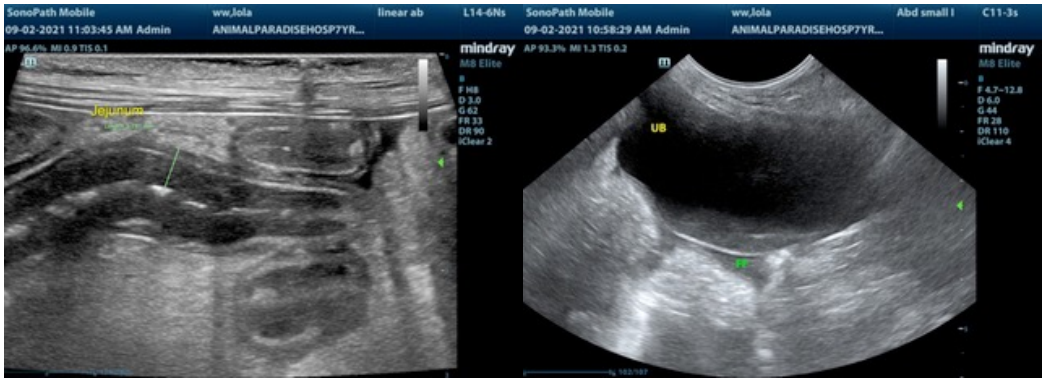

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
info@SonoPath.com